

City of Simpsonville

Multi-Hazard Mitigation Plan Update

May, 2015

City of Simpsonville
Multi-Hazard Mitigation Plan

TABLE OF CONTENTS

Section 1	
Executive Summary.....	K-1.1
Planning Process.....	K-1.1
Mitigation Initiatives.....	K-1.2
Goals and Objectives.....	K-1.2
Summary.....	K-1.3
Section 2	
Introduction.....	K-2.1
Purpose.....	K-2.1
Section 3	
Introduction.....	K-3.1
Participating Organizations.....	K-3.1
The Disaster Mitigation Committee Organizational Structure.....	K-3.1
Disaster Mitigation Committee Contact Information.....	K-3.4
Section 4	
Introduction.....	K-4.1
The Disaster Mitigation Committee’s Operating Procedures.....	K-4.1
Benefits of the Planning Process.....	K-4.5
Section 5	
Introduction.....	K-5.1
Status of Plan Promulgation and Approval.....	K-5.1
Public Information and Participation.....	K-5.1
The Priority for Initiative Implementation.....	K-5.2
Effectiveness of Mitigation Initiatives.....	K-5.3
Summary.....	K-5.3
Section 6	
Introduction.....	K-6.1
Risk Estimation.....	K-6.1
The Vulnerability Assessment Process.....	K-6.5
Repetitive Loss Properties.....	K-6.6
Land Use Trends and Potential Vulnerability.....	K-6.6
Critical Facilities.....	K-6.6
Summary.....	K-6.7

Section 7

Introduction.....	K-7.1
Goals and Objectives for the Mitigation Plan.....	K-7.1
Using a “Goal-based” Planning Process.....	K-7.3
Addressing Known Risks and Vulnerabilities.....	K-7.5
Modification to Other Policies, Plans and Programs.....	K-7.5
Plan Implementation and Plan Maintenance Procedures.....	K-7.5
Plan Implementation Responsibility and Schedules.....	K-7.5
Plan Maintenance and Monitoring of Plan Implementation.....	K-7.6
Current Planning Cycle Outline.....	K-7.8
Implementation through Existing Plans and Programs.....	K-7.9
Continued Public Involvement.....	K-7.9
The Next Planning Cycles.....	K-7.9

Section 8

Introduction.....	K-8.1
Initiatives Incorporated into the Mitigation Plan.....	K-8.1
Priority Status for Plan Inclusion and Implementation.....	K-8.3
Priority Ranking for Proposed Mitigation Initiatives.....	K-8.4
Benefit-cost Ratio.....	K-8.7
Initiatives by Hazard.....	K-8.8
Potential Funding Sources.....	K-8.10

Appendices

Local Mitigation Plan Review Tool.....	Appendix K-A
Minutes from all meetings of the Disaster Mitigation Committee, communities, and other Civic organizations.....	Appendix K-B
Maps.....	Appendix K-C
Plan Adoption.....	Appendix K-D

City of Simpsonville
Multi-Hazard Mitigation Plan

Section One

EXECUTIVE SUMMARY

The City of Simpsonville is threatened by a number of natural hazards. These hazards endanger the health and safety of the population of the community, jeopardize its economic vitality, and imperil the quality of its environment. Because of the importance of avoiding or minimizing the vulnerabilities to these hazards, the public and private sector interests of the City of Simpsonville have joined together to create the City of Simpsonville Disaster Mitigation Committee (DMC) to undertake a comprehensive planning process that has culminated in the publication of this document: “The City of Simpsonville Multi-Hazard Mitigation Plan Update.” This City of Simpsonville Multi-Hazard Mitigation Plan update builds upon previous research, planning and analysis performed for The Greenville County Multi-jurisdictional Hazard Mitigation Plan (Revised 2009) and the City of Simpsonville Multi-Hazard Mitigation Plan approved by FEMA on October 12, 2010.

The revisions of this plan were placed under the direction of the Public Works Division of the City of Simpsonville, in particular Jay Crawford, Assistant Director of Public Works. All meetings were facilitated by Mr. Crawford. Key participants, organizations, and agencies involved in the development of this plan are the city agencies of Public Works, City Council, and Public Safety. A complete list of participants can be found in Section Three. The City of Simpsonville DMC has also actively engaged the community at large in the mitigation planning process, undertaking several efforts to solicit the community’s opinions and recommendations regarding mitigation needs and the topics covered in the plan.

Planning Process

The agreement between the City and the DNR detailed the planning approach as follows:

- Meet the criteria described in the Disaster Mitigation Act of 2000 and for receiving credit under the Community Rating System program
 - Address winter storms, drought/heat wave, wildfires, flooding, tornado/high winds, thunderstorms and earthquakes. Follow the ten (10) step Federal Emergency Management Agency (FEMA) planning process as outlined below.
1. **Organize:** Create the DMC and develop a schedule for project completion.
 2. **Public Involvement:** Insure that the general public has an opportunity to provide input into the planning process.
 3. **Coordination:** Coordinate with appropriate individuals and organizations to insure adequate representation at various meetings.
 4. **Hazard Assessment:** Address the five hazards listed above including; review

of existing plans, review of past events and claims data, and obtain input from committee members and the public.

5. **Problem Assessment:** Review available information regarding the impact of hazards on public health and safety, infrastructure and property damage. Where possible, the impacts on property should be measured in dollar losses. Optional efforts included; utilizing HAZUS earthquake and flood/wind to determine expected extent of damages and performing a facilities inventory. (Due to limited resources, and at the discretion of the DMC, these options were not performed in this planning cycle.)
6. **Goal Setting:** Establish goals and objectives for the plan.
7. **Mitigation Activities:** Determine mitigation activities relative to the five hazards being considered and the unique characteristics of the City of Simpsonville. The following six basic mitigation strategies were to be considered; 1) Preventive measures, 2) Property protection, 3) Natural Resource Protection, 4) Emergency Services, 5) Structural projects, and 6) Public Information.
8. **Draft Plan:** Prepare a draft plan containing a description of the planning process, the hazard assessment and problem analysis, the goals, and a summary of possible and appropriate measures. The draft plan is to reviewed and open to comment during a public meeting.
9. **Final Plan:** The final plan will be prepared considering comments from the internal review and the public.
10. **Implementation:** The plan should be adopted by City Council and the DMC should be available for reviewing and revising the plan from time to time.

To date, Tasks 1 – 7 have been completed and the draft plan is being prepared for review and approval. *A copy of the council resolution adopting this plan will be attached to indicate that Tasks 8 and 9 have completed.* Task 10 is an on-going activity.

Mitigation Initiatives

In general, decisions regarding potential impacts of hazards and potential mitigation initiatives came from the DMC. Input was also solicited from a variety of other groups representing homeowners, business owners, emergency response organizations and industrial leaders. Ranking of initiatives was based on a point system and each initiative was scored by the DMC. The results can be found in Section 8 of this document.

A mechanism has also been established by the DMC to regularly update the plan. This process includes soliciting additional mitigation initiatives, evaluating response to recent disasters, and tracking the progress of those initiatives already reviewed and approved.

Goals and Objectives

The DMC has established eight (8) goals in the Mitigation Plan. These goals revolved mainly around providing education to the public and government officials, improving communications and response activities and protecting structures. Specific objectives were established for each

goal and as initiatives were approved, it was noted which objective would be met by that initiative.

Summary

Disaster Mitigation Planning is not a one-time project, but rather an on-going process. The City of Simpsonville started the process in 2009 and will continue to update the plan as scheduled to keep their plan updated and relevant. This plan update will serve to reaffirm the City's efforts to reduce damages and loss of life from future natural disasters.

City of Simpsonville

Multi-Hazard Mitigation Plan

Section Two

INTRODUCTION AND PURPOSE

Introduction

The City of Simpsonville Disaster Mitigation Committee (DMC) has been established to make the population, neighborhoods, businesses and institutions of the community more resistant to the impacts of future disasters. The DMC has been undertaking a comprehensive, evaluation of the vulnerabilities of the community to future natural hazards in order to identify ways to make the communities of the planning area more resistant to their impacts. This document reports the results of that planning process.

Purpose

The City of Simpsonville Multi-Hazard Mitigation Plan and its underlying planning process are intended by the DMC to serve many purposes. These include the following:

Provide a Methodical, Substantive Approach to Mitigation Planning.

The approach utilized by the City of Simpsonville DMC relies on a methodical process to identify vulnerabilities to future disasters and to propose the mitigation initiatives necessary to avoid or minimize those vulnerabilities. These include interviews, research, data collection, draft(s) and review(s) of plan, community involvement, work sessions, and implementation. Each step in the process builds upon the previous step, so that there is a high level of assurance that the mitigation initiatives proposed by the participants have a valid basis for both their justification and priority for implementation. One key purpose of this plan is to document that process and to present its results to the community.

Enhance Public Awareness and Understanding

The DMC is interested in finding ways to make the community as a whole more aware of the natural hazards that threaten the public health and safety, the economic vitality of businesses, and the operational capability of important facilities and institutions. The plan identifies the hazards threatening the City of Simpsonville and provides an assessment of the relative level of risk they pose. The plan also includes a number of proposals of ways to avoid or minimize those vulnerabilities. This information will be very helpful to individuals that wish to understand how the community could become safer from the impacts of future disasters.

The DMC and its member organizations, has and will continue to conduct a number of community outreach and public information programs. The purpose of these is to engage the community as a whole in the local mitigation planning process, in order to shape the goals, priorities, and content of the plan, as well as to provide information and education to the public regarding ways to be more protected from the impacts of future disasters. The DMC has been, and will continue to be, active in communicating with the public and engaging interested members of the community in the planning process.

Create a Decision Tool for Management

The City of Simpsonville Multi-Hazard Mitigation Plan provides information needed by the managers and leaders of local government, business and industry, community associations, and other key institutions and organizations to take actions to address vulnerabilities to future disasters. It also provides proposals for specific projects and programs that are needed to eliminate or minimize the risks to specific hazards. The plan is based on the best available data, which although limited in many regards, provides a solid foundation for hazard planning and mitigation and future improvements.

These proposals, called “mitigation initiatives” in the plan, have been justified on the basis of their economic benefits using a uniform technical analysis. These initiatives have also been prioritized. This approach is intended to provide a decision tool for the management of participating organizations and agencies regarding why the proposed mitigation initiatives should be implemented, which should be implemented first, and the economic and public welfare benefits of doing so.

Promote Compliance with State and Federal Program Requirements

There are a number of state and federal grant programs, policies, and regulations that encourage or even mandate local government to develop and maintain a comprehensive hazard mitigation plan. This plan is specifically intended to assist the participating local governments to comply with these requirements, and to enable them to more fully and quickly respond to state and federal funding opportunities for mitigation-related projects. Because the plan defines, justifies, and prioritizes mitigation initiatives that have been formulated through a technically valid hazard analysis and vulnerability assessment process, the participating organizations are better prepared to more quickly and easily develop the necessary grant application materials for seeking state and federal funding.

Enhance Local Policies for Hazard Mitigation Capability

A component of the hazard mitigation planning process conducted by the City of Simpsonville DMC is the analysis of the existing policy, program, and regulatory basis for control of growth and development, as well as the functioning of key facilities and systems. This process involves cataloging the current mitigation related policies of local government so that they can be compared against the hazards that threaten the jurisdiction and the relative risks these hazards pose to the community. When the risks posed to the community by a specific hazard are not adequately addressed in the community's policy or regulatory framework, the potential impacts of future disasters can be even more severe. Therefore, the planning process utilized by the DMC supports evaluation of the adequacy of the community's policies and programs in light of the level of risk posed by specific hazards. This evaluation supports and justifies efforts to propose enhancements in the policy basis for could or should be promulgated by the City to create a more disaster-resistant future for the community.

The following sections of the City of Simpsonville Multi-Hazard Mitigation Plan present the detailed information to support these purposes. The remainder of the plan describes the planning organization developed by the DMC, as well as its approach to managing the planning process. The plan provides a description of the mitigation-related characteristics of City of Simpsonville, such as its land uses and population growth trends, the mitigation-related policies already in-place, identified critical facilities present in the community, and if there are properties that have been repetitively damaged by past disasters. The plan then summarizes the results of the hazard identification and vulnerability assessment process, and addresses the adequacy of the current policy basis for hazard management by City of Simpsonville and participating organizations. The plan also documents the structural and non-structural mitigation initiatives to address the identified vulnerabilities. The plan further addresses the mitigation goals and objectives established by the DMC and the actions to be taken to maintain, expand and refine the City of Simpsonville Mitigation Plan and the planning process. Finally, the past and planned efforts of the DMC to engage the entire community in the mitigation planning process are documented.

City of Simpsonville
Multi-Hazard Mitigation Plan

Section Three

DISASTER MITIGATION COMMITTEE ORGANIZATION

Introduction

The City of Simpsonville's Disaster Mitigation Committee (DMC) is made up of a number of city agencies, community organizations, and institutions. This section discusses the organizational structure used to complete the planning process. Also provided is a summary of the current status of planning activities by the participants documenting the level of participation by the City's DMC.

On a regular basis, the DMC will meet to discuss this plan and refine as necessary its contents and direction. In these meetings, the committee will review mitigation activities that are ongoing or planned. This meeting will allow the members of the committee to continually reflect upon the mitigation plan and its appropriateness to each organization and agency's individual needs and expectations.

Any desired changes to the mitigation plan will be considered by the group and agreed upon. These changes will then be presented to the City Council for review. The Council can reject, accept, or ask for revisions to the proposed changes. In addition, the DMC will schedule meetings with the public as necessary if changes to the mitigation plan occur. It is also a function of the mitigation committee to coordinate and exchange information with their respective agency or department.

Participating Organizations

A total of 13 public/private organizations are supporting the planning process. (It is intended that the number of participating organizations and groups will continue to grow in future planning cycles.) The agencies and organizations currently participating in the hazard mitigation planning process are listed on page 3.4.

The Disaster Mitigation Committee Organizational Structure

The DMC encourages participation by all interested agencies, organizations, and individuals. The organization is intended to represent a partnership between the public and private sector of the community, working together to create a disaster resistant community. The proposed mitigation initiatives developed by the DMC and listed in this plan, when implemented, are intended to make the entire community safer from the impacts of future disasters, for the benefit of every individual, neighborhood, business and institution.

The responsibilities and duties of the DMC are detailed in the operating procedures, which are provided in the next section. This section summarizes the roles of the different components of the DMC and describes the participation that has actually occurred during the planning period covered by this document.

The Committee represents key city organizations participating in the planning process, and is the group that makes the official decisions regarding the planning process. The Committee serves as the official liaison to their respective agency and the community. Most importantly for this document, however, is the DMC's role to approve proposed mitigation initiatives for incorporation into the plan, for determining the priorities for implementation of those initiatives, and for removing or terminating initiatives that are no longer desirable for implementation.

The DMC also coordinates the actual technical analyses and planning activities that are fundamental to development of this plan. These activities may include conducting the hazard identification and vulnerability assessment processes, as well as receiving and coordinating the mitigation initiatives proposed for incorporation into this plan. The coordinating process undertaken constitutes a "peer review" of the proposed mitigation initiatives submitted for incorporation into the plan. Through the peer review, each proposed initiative is to be reviewed for its consistency with the goals and objectives established for the planning process and its relationship to identified hazards and defined vulnerabilities to those hazards. The peer review incorporated into the City's planning process also strives to assure the following: Assumptions used by the organization to develop the proposal are reasonable; Proposal's would not conflict with or duplicate other proposed initiatives; Initiatives specifically addresses risk to a hazard(s); Proposals are feasible and consistent with known requirements; and that proposals, if implemented, would not cause harm or disruption to adjacent jurisdictions.

City agencies and local organizations are the key to accomplishing the planning process. The effort begins with developing a community profile of the City to document the basic characteristics of the community that are relevant to controlling the impacts of disasters. Then vulnerability assessments are conducted of key facilities, systems and neighborhoods to define how these may be vulnerable to the impacts of all types of disasters. Finally, the City uses the vulnerability assessments to formulate and characterize mitigation initiatives that they could implement if the resources to do so became available. Once these proposed initiatives are reviewed and coordinated, the DMC can then decide to formally approve them by vote in order to incorporate them into the Multi-Hazard Mitigation Plan. As soon as a proposed mitigation initiative is approved, it is sent to the City Council for their approval. Once accepted by the Council, it is considered to be officially a part of the Multi-Hazard Mitigation Plan, and expected to be implemented as soon as the resources and/or opportunity to do so becomes available.

The DMC is also responsible for coordinating the efforts to involve the community at large in

the mitigation planning process, and to promote mitigation-related educational program in the community. More detailed information regarding the public information and community outreach activities involved in the development and implementation of this plan are provided in Section 5.

As of the publishing of this plan, the DMC has conducted three (2) meetings to gather information and solicit public input. A summary of these meetings is as follows:

- Plan Update Meeting October 1, 2013
 - Committee members introduced
 - Committee was reminded of the purpose and use of a Hazard Mitigation Plan.
 - Accomplishments to date were discussed
 - Ongoing initiatives were discussed
 - New initiatives were introduced
 - Discussion of the Ranking Criteria/Prioritization List
 - Prioritization of Initiatives

- Follow-Up meeting
 - A community-wide meeting was called to solicit ideas
 - Meeting was ended due to no attendance.

- Draft Review Public Meeting
 - Public Meeting held to review draft mitigation plan prior to adoption
 - Items to be discussed included any possible revisions to draft; submittal to FEMA; City Council Approval
 - Announcements were made via internet, television and local newspaper, but yielded no attendance

The DMC has benefited from the assistance and support of its members. A listing the members and their committee affiliation is provided below. It is important to note that participation in the Committee is not limited in any manner, and all members of the community, whether representing the public or private sector, are welcome to participate. As described in Section 7, which discusses the maintenance and updating of the plan, the group intends to continue its efforts to engage more members of the community in the planning process.

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Gary Smith	S.C. House of Representatives	Smith@schouse.org
Pat Thomas*	Home Depot	Moxie3@frontier.com
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Russ Poole	Dickens & Company, Realtors	Russ@Dickenscompany.com
Mike Craven*	City of Simpsonville Building Dept.	
Adam Lezan*	City of Simpsonville Fire Dept.	fireMarshal@simpsonvillefd.com

Notes: * Member present during Ranking process

City of Simpsonville
Multi-Hazard Mitigation Plan
Section Four
OPERATING PROCEDURES

Introduction

This section of the City of Simpsonville Multi-Hazard Mitigation Plan describes the characteristics of the Disaster Mitigation Committee (DMC) and basic procedures for conducting the planning process.

The Disaster Mitigation Committee's Operating Procedures

These procedures involve both a technical approach to the planning and an organizational methodology for incorporating mitigation initiatives into the City of Simpsonville Multi-Hazard Mitigation Plan. The same planning process and technical approach was followed for the development of the Greenville County Multi-jurisdictional Hazard Mitigation Plan.

The planning process was started with the development of the DMC as an organization and obtaining participation from key organizations and institutions. The planning work conducted to update this document relies heavily on the expertise and authorities of the participating agencies and organizations, rather than on detailed scientific or engineering studies. The DMC is confident that because of their role in the community the best judgment of the participating individuals, and the use of readily available information, can achieve a level of detail in the analysis that is adequate for purposes of local mitigation planning. As the planning process described herein continues, more detailed and costly scientific studies of the mitigation needs of the community can be defined as initiatives for incorporation into the plan and implemented as resources become available to do so.

Establishing the planning schedule

The DMC initially established a planning schedule for development of this document in cooperation with the South Carolina Department of Natural Resources. At the outset of the planning period, the DMC defined the goals that the planning process is attempting to achieve, as well as the specific objectives within each goal that will help to focus the planning efforts. (The goals and objectives established by the City of Simpsonville DMC for this planning period, as well as the anticipated plan maintenance schedule, are described in Section 7 of this plan.)

Conducting the needed analyses and then formulating proposed mitigation initiatives to

avoid or minimize known vulnerabilities of the community to future disasters is an enormous effort, and one that must take place over a long period of time. Therefore, for any one planning period, the goals and objectives set by the DMC are intended to help focus the effort of the participants, for example, by directing attention to certain types of facilities or planning areas, or by emphasizing implementation of selected types of proposed mitigation initiatives.

The approach used by the DMC is intended to use these priorities to continue, during each planning cycle, to assess more planning areas and facilities, to develop more proposed mitigation initiatives to address the results of those assessments, to strive to implement previously proposed mitigation initiatives, and to further engage the public and the community in the planning process.

Hazard Identification and Risk Estimation

The DMC identified hazards that threaten all or portions of the community. The DMC also used general information to estimate the relative risk of the various hazards as an additional method to focus their analysis and planning efforts.

The DMC compared the likelihood or probability that a hazard will impact an area, as well as the consequences of that impact to public health and safety, property, the economy, and the environment. This comparison of the consequences of an event with its probability of occurrence is a measure of the risk posed by that hazard to the community. The DMC compares the estimated relative risks of the different hazards it has identified to highlight which hazards should be of greatest concern during the upcoming mitigation planning process.

Information resources regarding hazard identification and risk estimation, although limited, are available. The planners have attempted to incorporate consideration of hazard specific maps, including floodplain delineation maps, whenever applicable, and have attempted to avail themselves of GIS-based analyses of hazard areas and the locations of critical facilities, infrastructure components, and other properties located within the defined hazard areas.

Section 6 in the plan gives the specific results and conclusions reached from this effort for the planning area as a whole including notation of the available reference materials utilized in the analysis.

Estimating the relative risk of different hazards is followed by an assessment of the types of physical or operational impacts potentially resulting from a hazard event. Two methods are available to the DMC to assess the communities' vulnerabilities to future disasters.

Vulnerability Assessment

The first avenue is a methodical, qualitative examination of the vulnerabilities of important facilities, systems and planning areas to the impacts of future disasters. For the participating organizations, this is done by the individuals most familiar with the facility, system or planning area through a guided, objective assessment process. The process ranks both the hazards to which the facility, system or planning area is most vulnerable, as well as the consequences to the community should it be disrupted or damaged by a disaster. This process typically results in identification of specific vulnerabilities that can be addressed by specific mitigation initiatives that could be proposed and incorporated into this plan. As an associated process, the DMC also reviews past experiences with disasters to see if those events highlighted the need for specific mitigation initiatives based on the type or location of damage they caused. Again, these experiences can result in the formulation and characterization of specific mitigation initiatives for incorporation into the plan.

The second avenue for assessment of community vulnerabilities involves comparison of the existing policy, program and regulatory framework to control growth, development and facility operations in a manner that minimizes vulnerability to future disasters. The DMC members can assess the existing codes, plans, and programs to compare City provisions and requirements against the hazards posing the greatest risk to the community. If indicated, the City of Simpsonville can then propose development of additional codes, plans or policies as mitigation initiatives for incorporation into the City of Simpsonville Multi-Hazard Mitigation Plan for future implementation when it is appropriate to do so.

Due to limited resources during this planning period, the DMC chose not to proceed with Method 1 - a critical facilities assessment. This type of detailed technical assessment is listed as a potential mitigation initiative and will be conducted as funds and resources come available.

Developing Hazard Mitigation Initiatives

This process enables the DMC participants to highlight the most significant vulnerabilities, again to assist in prioritizing specific hazard mitigation initiatives to eliminate or minimize those vulnerabilities. Once the highest priorities are defined, the DMC can identify specific mitigation initiatives for the plan that would eliminate or minimize those vulnerabilities.

The procedure used in this plan update involved describing the initiative, relating it to one of the goals and objectives established by the DMC, and justifying its implementation on the basis of its economic benefits and/or protection of public health and safety, as well as valuable or irreplaceable environmental or cultural resources. A simple “benefit to cost” ratio was established for each initiative to demonstrate that it would indeed be worthwhile to pursue when or if the resources to do so become available. A more detailed benefit to cost ratio will need to be prepared as funds become available to ensure that a proper ratio is met. Each proposed mitigation initiative was also “prioritized” for implementation in a consistent manner.

In characterizing a mitigation initiative for incorporation into the DMC’s plan, it is important to recognize that the level of analysis has been intentionally designed to be appropriate for this stage in the planning process. That is, it is the interest of the DMC to have a satisfactory level of confidence that a proposed mitigation initiative, when it is implemented, will be cost effective, feasible to implement, acceptable to the community, and technically effective in its purpose. To do this, the technical analyses conducted, including the development of a simple benefit to cost ratio for each proposal, have been based on a straightforward, streamlined approach, relying largely on the informed judgment of experienced local officials. The analyses, including the benefit to cost ratio, have not been specifically designed to meet the known or anticipated requirements of any specific state or federal funding agency, due largely to the fact that such requirements can vary with the agency and type of proposal. Therefore, at the point when the organization proposing the initiative is applying for funding from any state or federal agency, or from any other public or private funding source, that organization will then address the specific informational or analytical requirements of the funding agency.

Each mitigation initiative proposed for incorporation into the plan update is formulated by the DMC for consideration by the City for future implementation.

Developing the Local Mitigation Plan

Once a proposed mitigation initiative has been developed, the information used to characterize the initiative is submitted to the DMC for review. At this point, an initiative is considered to be a “pending initiative” that is being processed for incorporation into the plan, when it then becomes an “approved initiative.” On receipt of a pending initiative the DMC evaluates the merits of the proposal and the validity of the judgments and assumptions that went into its characterization, as well as considers its potential for conflict with other programs or interests. The DMC also assures that the proposal is consistent with the goals and objectives established for the planning period and confirms that it would not duplicate or harm a previously submitted proposal.

If there is such a difficulty with a proposed initiative, it is returned to the submitting organization for revision or reconsideration.

Once an initiative has been reviewed, coordinated, and is satisfied regarding its merit, it is brought before the Committee, which votes to incorporate the proposed initiative into the strategy. Upon approval, the proposed initiative is then considered to be officially part of the mitigation plan.

The City of Simpsonville mitigation planning process first objectively prioritizes proposed mitigation initiatives using an objective, fixed set of criteria, but has the flexibility to adjust the implementation schedule of the initiatives to respond to unique or unanticipated conditions.

Approval of the Current Edition of the Plan

On a periodic basis, the City of Simpsonville Multi-Hazard Mitigation Plan is to be submitted to the City Council for review, modification if needed, and approval or adoption. To facilitate this action, Section 6 of this plan provides City information, hazard and vulnerability assessment, and proposed initiatives. Following adoption or approval of the plan, the respective agencies and organizations will continue to implement the plan, to expand its scope, continue its analyses, and take other such continuing action to maintain the planning process. This includes action by the Committee to routinely incorporate proposed mitigation initiatives into the plan, without the necessity to also continuously solicit the formal approval of the plan by the City Council. It is intended that the City of Simpsonville Multi-Hazard Mitigation Plan will be submitted to the City council approximately every five years for review and formal adoption or approval. Evidence of approval of this edition of the mitigation plan is provided in Section 5 of this plan. It is important to emphasize that this document represents a “snapshot” of the planning process and is prepared as a current document for use by the planning group, the community, and state and federal authorities.

Implementation of Approved Mitigation Initiatives

Once incorporated into the City of Simpsonville Multi-Hazard Mitigation Plan, the agency or organization proposing the initiative becomes responsible for its implementation. This may mean developing a budget for the effort, or making application to state and federal agencies for financial support for implementation. This approach holds each department accountable for proper and timely implementation of the mitigation initiatives. The DMC is responsible for overall coordination of these efforts. The current status of implementation of mitigation initiatives incorporated into the plan is discussed in the next section.

In this plan implementation process, the DMC continues to monitor the implementation status of initiatives, to assign priorities for implementation and to take other such actions to support and coordinate implementation of initiatives by the involved organizations. In reality, it is the implementation of proposed initiatives, along with other actions by the organizations participating in the planning to maintain, refine and expand the technical analyses used in the planning, that constitutes the process to implement the mitigation plan.

Benefits of the Planning Process

It is important to emphasize that the procedure used by the DMC is based on the following important concepts:

- A multi-organizational planning group establishes specific goals and objectives to address the community's vulnerabilities to all types of hazards.
- The planning procedure utilizes a logical process of hazard identification, risk evaluation and vulnerability assessment, as well as review of past disaster events, that is consistently applied by all participants through the use of common evaluation criteria.
- Mitigation initiatives are proposed for incorporation into the plan.
- The process encourages participants to propose specific mitigation initiatives that are feasible to implement and clearly directed at reducing specific vulnerabilities to future disasters.
- Proposed mitigation initiatives are characterized in a substantive manner, suitable for this level of planning, to assure their cost effectiveness and technical merit.
- All mitigation initiatives to be incorporated into the plan are prioritized in accord with ten objective, comprehensive criteria that are used by all participating departments.
- The plan is periodically reviewed and adopted to ensure that the mitigation actions taken by their organizations are consistent with each community's larger vision and goals, as well as their overall unique needs and circumstances.

City of Simpsonville
Multi-Hazard Mitigation Plan

Section Five

PROGRESS IN PLAN IMPLEMENTATION

Introduction

This section discusses the current status of implementation of the City of Simpsonville Multi-Hazard Mitigation Plan. There are several aspects of plan implementation that need to be addressed:

- The status of promulgation or formal adoption of the plan by the City Council,
- The activities of the Disaster Mitigation Committee (DMC) to engage the public and the community at large in the mitigation planning process
- The DMC's priorities for implementation of approved mitigation initiatives now incorporated into the plan, and
- A discussion of how recent disaster experience has illustrated the need for and success of the City of Simpsonville Multi-Hazard Mitigation Plan.

Status of Plan Promulgation and Approval

Promulgation and approval of the plan is a very important step in assuring its implementation. As was discussed in the previous section, the updated plan will be presented to the City of Simpsonville Council for approval and official acceptance as the Multi-Hazard Mitigation Plan.

As the City of Simpsonville DMC continues its planning efforts in the future, it is intended that additional updates of the mitigation plan will be published to provide both the participating organizations and the public current information regarding the mitigation planning process. As stated in the original plan, approximately once every five years, the DMC will again seek the approval of the plan by the City Council. This interval has been selected to provide a sufficient period for the DMC to have made significant progress in further data collection of events occurring in that time frame, technical analysis, implementation of currently proposed initiatives, and development of new proposals and to coincide with the review of the City's Community Rating System application. In this way, the plan can be kept up-to-date on a continuing basis by the DMC participants.

Public Information and Participation

The Simpsonville DMC, as well as individual participating agencies and organizations, has been active in attempting to engage the general public in the planning process. As detailed below,

several public information activities have been undertaken to explain the mitigation planning process to the community and to solicit their input and involvement in the planning process, as well as to provide mitigation awareness and educational information. The DMC welcomes public input to the planning process, and fosters public participation through the issuance of media releases, holding public meetings and hearings, etc. Detailed below are past highlights of the process used to engage the general public in the mitigation planning process.

- Three meetings (see bulleted items below) with community organizations were held to discuss hazards mitigation planning. These meetings were selected to provide different perspectives on potential hazards and response activities. In addition, mitigation initiatives were solicited.
 1. A meeting was held in the City of Simpsonville Public Works building. During the meeting, committee members reviewed status of objectives in current plan noting completed initiatives, updating status toward ongoing initiatives, and recommending new initiatives. The committee members then ranked the initiatives.
 2. A joint community meeting with Greenville County, the City of Greenville, Mauldin, and Fountain Inn was organized to solicit ideas from residents of Greenville County.
 3. A final meeting was called to review the draft plan, and to solicit any changes presented by the Community. Jay Crawford took it upon himself to properly advertise for this meeting.

The DMC will continue to solicit input from the community. The public will be involved in the 2015 HMP update planning process with two (2) public meetings. One public meeting will be held prior to plan approval and adoption. The second meeting will be held at the time of plan adoption. Appendix B contains documentation for the required public meetings. The public is notified through the City website that the HMP is available for review in the Public Works Office throughout the year. Any feedback received from Council or the public is transmitted to the DMC during the annual fall meeting. The DMC will consider all public feedback for inclusion in the plan update and planning process.

The Priority for Initiative Implementation

As a part of its future planning process, the City of Simpsonville DMC also will continue to periodically review the proposed mitigation initiatives approved for incorporation into the plan to determine their priority for implementation during the next planning period. This assessment will encourage the Committee to focus on those initiatives designated as priority. However,

because each participating organization has independent authority and responsibility for implementation of their proposed mitigation initiatives, the organizations retain the prerogative to act in their own interests, using their own priorities for mitigation initiative implementation.

In many ways, the priority for implementation assigned to proposed mitigation initiatives could be considered a suggestion or recommendation to the proposal sponsors to seek the resources for implementation. These resources may range from the normal budgeting process for the organization to seeking state or federal financial or technical support for implementation of the initiative.

Effectiveness of Mitigation Initiatives

Of course, the true measure of progress in the implementation of mitigation initiatives is their success in saving lives, avoiding property damage and protecting valuable or irreplaceable resources in the community. As the mitigation initiatives that have been incorporated into the City of Simpsonville Multi-Hazard Mitigation Plan are implemented, there will be more opportunities to measure the “success” of the DMC’s mitigation efforts.

The best opportunity for measuring this success is to evaluate the community’s experience with actual disasters and to attempt to estimate the number of lives that were saved by the implemented initiatives or the value of the property protected from disaster related damage.

In addition, however, recent disaster events can be very helpful in highlighting the mitigation needs of the community based on the type, location or magnitude of the impacts experienced. In turn, this can be a major factor in the future progress of implementation of the plan, as the DMC considers and acts on actual disaster experience by the community. Such recommendations can be referred to a “lead” agency with the intention that that organization will use the information to propose additional mitigation initiatives for incorporation into the plan.

Compiling data on the “success” of existing and/or completed mitigation initiatives should be an activity undertaken by the DMC members on an ongoing basis and is an integral component of the process used to implement and maintain the City of Simpsonville Multi-Hazard Mitigation Plan, which is more fully discussed in Section 7.

Summary

The DMC recognizes that it will take a long period of time and implementation of many if not all of the proposed initiatives approved for this plan, to make City of Simpsonville a truly disaster-resistant community. However, the continuing dedication to the safety and welfare of the community shown by the participants in this planning process will make this ambitious goal possible.

City of Simpsonville
Multi-Hazard Mitigation Plan

Section Six

SUMMARY OF HAZARDS AND VULNERABILITIES

Summary

This section of the City of Simpsonville Multi-Hazard Mitigation Plan summarizes the results of the hazard identification and vulnerability assessment processes undertaken by the Disaster Mitigation Committee (DMC). The hazards identified by the Greenville County DMC are directly related to the County and its municipalities, including the City of Simpsonville, therefore, this information can be found in the Greenville County Multi-jurisdictional Hazard Mitigation Plan Section 6. The intent of that section is to provide a compilation of the information gathered and the judgments made about the hazards threatening not only Greenville County but the City of Simpsonville, and the potential vulnerability to those hazards. This information is then used for formulating mitigation actions and priorities.

It must be emphasized that the fundamental reason for undertaking the hazard identification and vulnerability assessment process is to highlight vulnerabilities that need to be addressed by the development of proposed mitigation initiatives for incorporation into the City of Simpsonville hazard mitigation plan. In addition, this process has made it obvious to the DMC that more information is needed in order to provide thorough assessments. The committee has therefore created mitigation initiatives to address any current data shortcomings. This component of the mitigation planning process can be expected to be continued in future updates of the plan until all mitigation needs are addressed.

Risk Estimation

As noted in Section 4, the technical planning process begins with hazard identification. In this process, representatives of the City of Simpsonville consider all of the natural hazards that are likely to threaten the community. When the hazard types are identified as relevant to, or of concern for, the City of Simpsonville, the participants can make an estimate of the risk each poses.

The estimate of risk is based on the judgment of the planners regarding the likely frequency of occurrence of the hazard event compared to its probable consequences. For purposes of this analysis, “risk” is defined as a relative measure of the probability that a hazard event will occur in comparison to the consequences or impacts of that event. That is, if a hazard event occurs frequently, and has very high consequences, then that hazard is considered to pose a very high risk to the affected communities. In comparison, if a hazard event is not expected to occur frequently, and even if it did, the consequences would be minimal, then that hazard is considered to pose a very low risk.

Some hazards can be defined as “low risk,” for they do not occur often enough and/or do not result in significant impacts even when they do. In comparison, other hazards may occur often enough and/or have sufficiently severe consequences when they do, that they must be considered “high risk.” Each of the hazards considered to be a threat to the City of Simpsonville can be assessed for its probability of occurrence and its likely consequences.

By considering the relative risk of the different hazards that threaten the City of Simpsonville, greater priority can be given to the “higher” risk hazards in order to most effectively utilize the time and resources available for the mitigation planning process. In this way, the planning approach used for the City of Simpsonville supports what can be termed “risk-based planning” because it facilitates the participants’ capabilities to focus on the highest risk hazards. To do this, the DMC derives a “relative risk score” using a qualitative process in which planners’ record, on a numeric scale, the likely frequency of occurrence, the extent of the community that would be impacted, and the likely consequences in terms of public safety, property damage, economic impacts and harm to valuable environmental resources. The numeric total of the assessments of each of these is considered in this plan to constitute the “relative risk score.”

The same numeric criteria are used to classify the risk that a defined hazard poses to the City of Simpsonville. Use of common evaluation criteria enables the planning group as a whole to make comparisons of the relative risk of one hazard type in relation to another. As noted above, such comparisons can also be used to guide and prioritize the planning process by enabling planners to focus on the hazards with the highest assessed risk.

These common risk estimation numeric factors used by all participants in the planning are as follows:

<i>RISK FACTOR</i>	<i>EVALUATION CRITERION</i>	<i>ASSIGNED VALUE</i>
Area Impacted	No developed area impacted	0
	Less than 25% of developed area impacted	1
	Less than 50% of developed area impacted	2
	Less than 75% of developed area impacted	3
	Over 75% of developed area impacted	4
Probability of Occurrence	Unknown but rare occurrence	1
	Unknown but anticipate an occurrence	2
	100 years or less occurrence	3
	25 years or less occurrence	4
Health and Safety Consequences	Once a year or more occurrence	5
	No health or safety impact	0
	Few injuries/illnesses	1
Consequences to Property	Few fatalities or many injuries/illnesses	2
	Numerous fatalities	3
	No property damage	0
	Few properties destroyed or damaged	1
Consequences to Environmental Resources	Few destroyed – many damaged	2
	Few damaged – many destroyed	2
	Many properties damaged and destroyed	3
	Little or no environmental damage	0
Economic Consequences	Resources damaged with short term recovery practical	1
	Resources damaged with long term recovery feasible	2
	Resources destroyed beyond recovery	3
Economic Consequences	No economic impact	0
	Low direct and / or low indirect costs	1
	Low direct and high indirect costs	2
	High direct and low indirect costs	2
	High direct and high indirect costs	3

A single, numeric value is selected from each of the five risk factors. The five values are then used to derive a total relative risk value for a particular hazard that is “weighted” for the probability of its occurrence.

The resulting numeric value for relative risk can vary from zero, meaning the identified hazard poses no estimated risk at all to the jurisdiction, up to a maximum of 80, which means that hazard poses a very substantial risk to the jurisdiction. The actual values selected for the City of Simpsonville are found below in section “Identified Hazards. “

The “weighting” of the relative risk value by the “Probability of Occurrence” factor provides local mitigation planners with a more realistic basis to prioritize their subsequent planning work. While a postulated hazard event could result in catastrophic damages to the City, perhaps it only has an extremely rare probability of occurrence. With this “weighted” approach, the actual risk from this hazard would have a low relative risk rating. In comparison, a hazard that occurs on a very frequent basis, say once every few years, but has lesser consequences, would result in a higher relative risk value due to its higher probability or frequency of occurrence. Therefore, local mitigation planners from the City of Simpsonville have prioritized their efforts to focus on these higher risk hazards as they complete their vulnerability assessments and propose mitigation initiatives to address those vulnerabilities.

Pursuant to the requirements of the Disaster Mitigation Act of 2000, the City of Simpsonville is required to evaluate a prescribed list of natural hazards. These hazards are: Earthquakes; Tsunamis; Coastal and Riverine Erosion; Landslides/Sinkholes; Hurricanes and Coastal Storms; Tornadoes/high winds; Floods; Wildfires; Dam/Levee Failure; Volcanic Activity; Drought/Heat Wave; and Winter Storms/Freezes. While many of these hazards are relevant to the City of Simpsonville, some are not due to the geographic location and characteristics of the planning area. In the planning process, each of these hazards has been assessed by the City of Simpsonville. If, under that planning process, a specific hazard is assessed, and the relative risk estimate for that hazard is determined to be zero (meaning the hazard actually poses no identifiable risk to the jurisdiction), then that hazard is not considered further in the planning process, in the subsequent assessments of vulnerability of the community to that hazard, or evaluation of the adequacy of city policies to manage the risks posed by that hazard. In deriving these estimates of risk for each hazard, the City of Simpsonville has utilized any available information regarding the geographic areas that may be impacted by each identified hazard, as well as population, infrastructure, and facilities within those impacted areas. This has included inventories of valuable environmental resources, as well as factors that are influential to the economic well-being of the community. Examples of such existing information resources that have been accessed in this manner are listed in the following table. For much of the City, this information has been available in a geographic information system (GIS) database, or has been accessed from internet websites and existing GIS databases available from state and federal agencies.

Risk Evaluation: For the City of Simpsonville mitigation planning area, the complete results of hazard identification and risk estimation process are shown below. The table shows the relative risk posed by various hazard to the City of Simpsonville. The numeric criteria used for this analysis are defined above and at the bottom of each report, as well as in the text given above. In addition, the following paragraphs also provide some additional information regarding the natural hazards affecting the City of Simpsonville.

Hazard	Area of Impact	Probability of Occurrence	Consequences of Occurrence				Risk Rating
			Health & Safety	Property	Environment	Economic	
Winter Storms	4	5	1	1	0	2	40
Flooding	1	3	1	1	1	2	18
High Winds/ Tornado	1	4	1	1	0	1	16
Thunder Storms	2	5	0	0	0	1	15
Earth Quakes	4	2	1	1	0	1	14
Wildfires	1	3	1	2	2	1	21
Drought/ Heat Wave	3	4	1	0	1	1	33

The highest risk hazards throughout the planning area, in descending order based on the relative risk ratings, are: Winter Storms, Drought/Heat Wave, Wildfires, Floods, Tornadoes/High Winds, Thunderstorms, and Earthquakes. Tsunamis, Coastal and Riverine Erosion, Landslides/Sinkholes, Coastal Storms, Dam/Levee Failure, and Volcanic Activity are not shown in the above table for they have been designated as posing little risk to the City of Simpsonville by those representatives making the planning decisions. This is most closely related to the very low probability of occurrence for these hazards.

For the most part, the available data does not allow for a more technical evaluation of the hazards. Information gathered from discussions with City officials and residents provided much of basis for the evaluation of risk and vulnerability found in this plan. Efforts to improve these considerations will be discussed in sections describing mitigation activities.

The Vulnerability Assessment Process

The vulnerability assessment process for the DMC begins with profiling the basic, mitigation-related characteristics of the City. Very basic demographic, land use and infrastructure information was gathered for the City. The resulting information is presented below.

The Vulnerability Assessment Process, as described above, is still valid and on-going during the Update period.

The following table indicates the building valuation of properties that may be affected by all hazards identified in the plan.

Class	No. of Properties	Building Valuation (\$)
Residential	6,299	\$688,694,832
Commercial	345	\$243,945,724
Industrial	0	0
Critical Facilities	16	\$10,962,478

Repetitive Loss Properties: Another indication of the hazards threatening the City of Simpsonville, and the risk posed by those hazards, is to identify whether properties have been previously or repeatedly damaged by past disaster events. The properties, which may be buildings, roads, utilities, or similar construction, can be termed “repetitive loss properties.” Properties can fall into this classification based on repeated damages from any type of hazard. A specific category of repetitive loss properties is those that are insured under the National Flood Insurance Program, and have had repeated claims for flood loss damages. To date, the City does not contain any repetitive loss properties.

Land Use Trends and Potential Vulnerability: The DMC recognizes that the way in which land is utilized, especially land within known hazard-prone areas, is a key measure of community vulnerability, because some land uses, such as for residential or industrial development, can be more susceptible to disaster-related damages than others. Therefore, analysis of land use trends will be performed by the City of Simpsonville’s Planning Commission. The DMC recognizes that its efforts, particularly to identify the areas at risk from various hazards, is a key factor in guiding the careful use of land to minimize future vulnerabilities to disaster. When needed and desired, modifications to the plans, ordinances, codes and similar policies will be proposed as mitigation initiatives for incorporation into this plan.

At this point, the City continues to take measures to control development from an economic and vulnerability standpoint. Two of the better examples would be the adoption of the International Building Codes as amended by the State of South Carolina, and the Hillcrest High School new emergency evacuation route initiative.

To address new buildings and infrastructure, the City will continue to enforce the International Building Code Standards as well as require a downstream impact analysis for new development.

Critical Facilities: Many facilities and systems in the City are very important to the health, safety and welfare of the community, especially during disasters caused by natural hazards. Therefore, high priority is given to assessing their vulnerabilities to future disasters and proposing mitigation initiatives to address identified vulnerabilities. The DMC has created a detailed list of facilities. However, technical evaluations of each of these facilities has not been prepared due to the expensive and time consuming and was beyond the scope of this original report. Maps of the various critical facilities are provided in Appendix C.

Summary

It must be emphasized that the fundamental reason for undertaking the hazard identification and vulnerability assessment process is to highlight vulnerabilities that need to be addressed by the development of proposed mitigation initiatives for incorporation into the City of Simpsonville hazard mitigation plan. In addition, this process has made it obvious to the DMC that more information is needed in order to provide thorough assessments. The committee has therefore created mitigation initiatives to address any current data shortcomings. This component of the mitigation planning process can be expected to be continued in future updates of the plan until all mitigation needs are addressed.

City of Simpsonville
Multi-Hazard Mitigation Plan

Section Seven

MITIGATION GOALS AND PLAN IMPLEMENTATION

Introduction

This section of the City of Simpsonville Multi-Hazard Mitigation Plan describes the goals and objectives established by the Disaster Mitigation Committee (DMC), and the completed and anticipated actions for implementation and maintenance of this plan in an ongoing effort to achieve these goals.

Goals and Objectives for the Mitigation Plan

The City of Simpsonville DMC established a number of goals and objectives to guide its work. The goals and objectives helped to focus the efforts of the group in the mitigation planning effort to achieve an end result that matches the unique needs, capabilities and desires of the **City of Simpsonville**.

- 1) City government will have the capability to develop, maintain, and utilize hazard information**
 - a) Data and information needed for defining hazards, risk areas and vulnerabilities in the community will be obtained
 - b) The capability to effectively utilize available data and information related to mitigation planning and program development will be available
 - c) The effectiveness of mitigation initiatives implemented in the community will be measured and documented
 - d) There will be a program to derive mitigation “lessons learned” from each significant disaster event occurring in or near the community

- 2) The City will have the capability to initiate and sustain emergency response operations during and after a disaster**
 - a) Communications systems supporting emergency services operations will be retrofitted or relocated to provide for effective communication during times of disaster
 - b) Emergency services organizations will have the capability to detect emergency situations and promptly initiate emergency response operations
 - c) Local emergency services facilities will be assessed and City-owned service facilities will be retrofitted or relocated to withstand the structural impacts of disasters

3) The continuity of City government operations will not be significantly disrupted by disasters

- a) Measures will be implemented to alert City personnel of impending disasters and corresponding action plans
- b) Train key City employees in disaster response and operations

4) The policies and regulations of City government will support effective hazard mitigation programming throughout the City

- a) City government will establish and enforce building and land development codes that are effective in addressing the hazards threatening the community
- b) City government will protect high hazard natural areas from new or continuing development
- c) Land use policies, plans and regulations will discourage or prohibit inappropriate location of structures or infrastructure components in areas of higher risk
- d) Reconstruction and rehabilitation of structures and utilities in the City will incorporate appropriate hazard mitigation techniques
- e) The City will participate fully in the National Flood Insurance Program

5) Residents of the City will have homes, institutions, and places of employment that are less vulnerable to disasters

- a) The vulnerability to disasters of schools, libraries, museums, and other institutions important to the daily lives of the community will be minimized

6) The economic vitality of the City will not be significantly threatened by a disaster

- a) City government emergency response and disaster recovery plans will appropriately consider the needs of key employers in the community
- b) City government will encourage community businesses and industries to make their facilities and operations disaster resistant
- c) City government will implement programs to address public perceptions of community condition and functioning in the aftermath of a disaster

7) The availability and functioning of the City's infrastructure will not be significantly disrupted by a disaster

- a) City government will encourage hazard mitigation programming by private sector organizations owning or operating key community utilities
- b) Routine maintenance of the community's infrastructure will be done to minimize the potential for system failure because of or during a disaster
- c) Transportation facilities and systems serving the City will be constructed and/or retrofitted to minimize the potential for disruption during a disaster

8) All members of the City will understand the hazards threatening local areas and the techniques to minimize vulnerability to those hazards

- a) All interested individuals will be encouraged to participate in hazard mitigation planning and training activities.
- b) Education programs in risk communication and hazard mitigation will be established and implemented
- c) Managers of public facilities will be knowledgeable in hazard mitigation techniques and the components of the City's mitigation plan
- d) Technical training in mitigation planning and programming will be given to appropriate local government employees
- e) The owners and operators of businesses and industries in the City will be provided information on appropriate hazard mitigation techniques
- f) The public living or working in defined hazard areas will be aware of that fact, understand their vulnerability and know appropriate mitigation techniques
- g) The public will have facilitated access to information needed to understand their vulnerability to disasters and effective mitigation techniques

These goals selected by the DMC are related to the broad mitigation needs and capabilities of the communities involved, although some of the initiatives are focused on a specific hazard type or category. In general the City of Simpsonville mitigation goals and objectives are "multi-hazard" in scope and can be described as statements of the desired "mitigation-related capabilities" that will be present in the future as the goals are achieved.

Guidance to meet the goals of this mitigation plan will be provided by the State of South Carolina Emergency Management Division, pursuant to the State Mitigation Plan. The state does not provide a specific set of goals, however, guidance and coordination of hazard preparations and mitigation is available.

Using a "Goal-based" Planning Process

The goals established by the City of Simpsonville DMC are considered to be broad, general guidance that defines the long-term direction of the planning. As indicated in the list of goals and objectives above, each goal statement has one or more objectives that provide a more specific framework for actions to be taken by the DMC and its participants. The objectives define actions or results that can be placed into measurable terms by the DMC, and translated into specific assignments for implementation by the participants in the DMC and associated agencies and organizations.

The objectives selected by the DMC are intended to create a specific framework for guiding the development of proposed mitigation initiatives for incorporation into the plan. Whenever feasible, the planning participants have attempted to associate each proposed mitigation

initiative with the objective statement the initiative is intended to achieve. By associating a mitigation initiative with a specific objective, the proposed initiative is also, of course, intended to help achieve the broader goal statement to which the objective corresponds. Proposing mitigation initiatives that are consistent with the selected objectives is a principal mechanism for the DMC participants to achieve the stated goals of the mitigation planning program.

To illustrate this point, the table below shows a list of the mitigation initiatives included in the 2014 plan Update and the objective statement which they are intended to help achieve. This enabled the City of Simpsonville DMC to identify which of the established objectives is to be addressed by the proposed initiative, if any. This allows the DMC to consider achievement of a specific objective under an established goal as it reviews a proposed initiative for incorporation into the plan, or as it assigns the initiative a priority or schedule for implementation. This approach creates a framework for “goal-based” planning by the DMC, focusing the group’s efforts on proposing and implementing mitigation initiatives intended to achieve the established mitigation goals.

As the City of Simpsonville Hazard Mitigation Plan is reviewed and updated by the DMC, the goals and supporting objective statements are also reviewed to ensure they are still applicable to meeting the unique needs, interests and desires of the community.

2014 Initiative Description	Planning Goal(s) Targeted	Planning Objective Satisfied
A. Prevention		
Perform bridge/culvert inspections	1, 7	1a, 7b, 7c
Install monitoring stations for flood events	1	1a
B. Public Education & Awareness		
Enhance hazards education	3, 8	3b, 8a-g
C. Natural Resources Protection		
Address stream bank erosion control (Durbin Creek)	7	7b
D. Emergency Services		
Construct two-way radio tower	2, 3	2a, 3a
Provide two-way radios for Public Works Vehicles	2, 3	2a,3a
E. Property Protection		
Address Storm water run-off from street paving	4	4d
F. Structural Projects		
Address sanitary sewer creek crossings	4, 6	4d, 6a

Addressing Known Risks and Vulnerabilities

The process of selecting initiatives to mitigate known threats to hazards began with a simple brainstorming exercise by the members of the DMC. Committee members also consulted personnel from within their respective agency or organization. The resulting list is part wish-list and part a reflection of the threats to the City of Simpsonville. It is difficult to remove from memory recent events and the damage that resulted. Therefore, this list is an indication of the problems that the City of Simpsonville needs to address, based on complaints, cost of repairs, and perceived future needs.

Modification to Other Policies, Plans and Programs

It is the intention of the DMC to continue to improve the existing policy framework for the City of Simpsonville so that they will be able to more effectively manage the community's vulnerabilities to future disasters. An analysis of the current policy framework is included in Section 6 of this plan. Any shortfalls in the number of policies addressing identified higher risk hazards can be addressed by implementing non-structural initiatives intended to modify or enhance current plans, policies and programs. The proposed modifications to the listed policies and programs are additional documentation of the DMC's efforts to achieve its established goals and objectives.

Plan Implementation and Plan Maintenance Procedures

This portion of Section 7 discusses the manner in which the City of Simpsonville Mitigation Plan will continue to be implemented and maintained over time. "Plan implementation" is considered as the implementation of the proposed mitigation initiatives now included in the plan. "Plan maintenance" is considered to be the process by which the City of Simpsonville DMC will continue to update, improve and expand the mitigation planning process. It also includes the technical analyses needed for the process to propose more mitigation initiatives for incorporation into the plan. "Plan maintenance" further includes the group's activities to monitor implementation of the plan, to evaluate the effectiveness of implemented mitigation initiatives, and to continually strive to engage the community in the planning process. The basic elements of the DMC's actions to implement and maintain the plan are also described in the DMC's operating procedures, given in Section 4 of the plan.

Plan Implementation Responsibility and Schedules

As noted above, implementation of the City of Simpsonville Mitigation Plan is basically through implementation of the approved mitigation initiatives incorporated into the plan. As these initiatives are implement over the years, the facilities, systems and neighborhoods of the

participating jurisdictions will become less vulnerable to the impacts of future disasters, and the communities of the City of Simpsonville will become increasingly more disaster resistant.

Pursuant to the planning process, the individual agencies and organizations that have been assigned responsibility for the mitigation initiatives incorporated into the plan are responsible for their implementation when the resources or opportunity to do so become available. As a practical matter, in most cases, this means that the responsible agencies identify the most feasible funding source (e.g., a state or federal grant program, the agency's budgetary process, etc.), make application to the funding source or otherwise allocate funds, and, upon receipt of funding, take the necessary steps to actually implement the project, whatever that may entail (e.g., design, permitting and construction, etc.). In other cases, this may mean that, should a unique opportunity for implementation of an initiative arise, e.g., upon receipt of unexpected funds, immediately after a disaster event, etc., the agency can proceed with implementation of the initiative.

The DMC encourages representatives of the agencies and organizations responsible for a proposed initiative to associate it with one or more potential funding sources. The purpose of this is to facilitate implementation of a proposed initiative by the sponsoring agency by indicating the starting point for seeking funding for implementation. While the actual responsibility for implementation of a mitigation initiative lies with the responsible agency or department, the DMC as a cooperative organization has a substantial involvement in plan implementation and can assist with the coordinating and scheduling of the implementation of approved mitigation initiatives. As a part of the planning process, on a periodic basis of every five years and immediate following any major disaster, approved mitigation initiatives included in the plan are reevaluated as to their continuing value and the need for their implementation. The purpose of this re-evaluation is to assure that a proposed mitigation initiative remains a valuable component of the plan, and whether any unique or unanticipated conditions warrant extra efforts to implement the initiative.

Plan Maintenance and Monitoring of Plan Implementation

Mitigation planning is a dynamic process that must be continually adjusted to account for changes in the community and to further refine the information, judgments and proposals documented in the local mitigation plan. The process used by the City of Simpsonville DMC to maintain the plan consists primarily of four functions.

The first is to continue to expand and improve the mitigation plan by accomplishing additional technical analyses, such as vulnerability assessments and post-event analysis of disasters, etc. The second is to continue to expand participation in the planning process by implementing public information programs and by inviting expanded participation by the private sector. The third is to routinely monitor implementation of the initiatives in the plan until each is

completed and in-place, and to assess their actual effectiveness following the next relevant disaster event. The fourth is to issue an updated plan document for use by the participating organizations, to inform the community, and when appropriate for submittal to state and federal agencies for approval pursuant to the Disaster Mitigation Act of 2000. This portion of Section 7 of the plan describes these four activities by the DMC to maintain the City of Simpsonville Mitigation Plan.

The technical analyses conducted by the City will be an ongoing effort to continually assess the hazards threatening the community, the vulnerabilities to those hazards, and program framework to control those vulnerabilities. When indicated, the technical analysis also includes formulating proposed mitigation initiatives to eliminate or minimize the identified vulnerabilities. The City has completed the vulnerability assessment based on the best available information. As this process continues and additional data is gathered the DMC will be better equipped to provide more detailed analyses. In the next planning cycles, the DMC will continue to assess the vulnerabilities of facilities and planning areas, emphasizing. Vulnerability assessments are fundamental to identifying needed mitigation initiatives to propose for incorporation into the plan, and as this process is continued, additional mitigation initiatives will be proposed for incorporation into the plan.

Another technical analysis important to maintenance of the plan is the expanded and refined evaluation of the policy and program framework of the City and the adequacy of this framework to control the vulnerabilities of the community.

The second type of activity to continue to maintain the City of Simpsonville Mitigation Plan will be to continue to expand participation in the DMC and the mitigation planning process. The current participants in the planning and the level of their participation are addressed in Section 3 of the plan. Gaining additional participation in the planning is also part of the public information and community outreach component of the plan. The planned public information activities are discussed in Section 5 and a report is given there entitled "Public Information Activity Report."

The third category of plan maintenance activities that will be undertaken by the City of Simpsonville DMC will be to monitor the implementation of mitigation initiatives. The DMC documents the efforts to fund the initiative, to conduct required studies, and to obtain any needed permits, as well as to estimate the time remaining to complete design, needed studies and purchasing or construction. When an initiative is completed, this fact is noted in the program as well. The current status of initiative implementation has been discussed in Section 5 of this plan, and the DMC will again update this section for the next publication of the plan.

As a part of monitoring the implementation of mitigation initiatives, following a disaster and as a part of the post-event analysis that the DMC will conduct, the effectiveness of completed mitigation initiatives, or any pre-existing mitigation initiatives, in reducing the human and

economic impacts of the event can be estimated. As time passes and disaster events occur, this will enable the DMC to accumulate a database of “mitigation success stories” with regard to the value of the property losses avoided and the number of fatalities, injuries or illnesses prevented.

Monitoring of the effectiveness of plan implementation and maintenance also involves assessing the effectiveness of the mitigation goals and objectives established for the planning process. As noted above, the DMC established general goals and a number of specific objectives to guide the participants in the mitigation planning process, and these are given above. The DMC’s attempts to address the established objectives, with the intent of achieving the associated mitigation goals for the community, is a key measure of the effectiveness of the continuing plan maintenance and plan implementation. The table in section 8, which was discussed above, documents the DMC’s efforts to achieve the established goals and objectives through the implementation of associated proposed mitigation initiatives. As these initiatives are implemented, and monitored for their effectiveness in future disasters, the DMC will be able to determine the overall success of their mitigation planning effort. In future planning cycles, these goals will be reviewed and re-evaluated to ensure they are still relevant to the unique needs of the community and continue to address current and expected conditions.

The fourth category of plan maintenance activities is to actually incorporate the results of all technical analyses, including the development of new mitigation initiatives and to publish another updated edition of the City of Simpsonville Hazard Mitigation Plan. The DMC will continue to engage the public in the planning process, to expand direct participation in the planning, and to increase representation on the City of Simpsonville DMC itself. In order to complete this category of plan maintenance activity, the participants will use a planning cycle which is given in the next section.

Current Planning Cycle Outline

Below lists the major aspects of the Planning Cycle beginning in 2014 and ending in 2019:

- The DMC will meet as necessary and after each major event
- Mitigation initiatives will be collected as they appear from various City organization, neighborhood groups, and businesses
- Adoption and implementation of new initiatives will be reviewed, ranked, and approved during the next planning cycle.

The planned date for release of the next edition of the City of Simpsonville Mitigation Plan Update is intended to be 2019. At that time, the entire planning process, along the new data that will have been collected, will be reviewed and altered as necessary. The process of approval by City Council will also be performed. It is the intention of the City to continue to incorporate the next update into Greenville County’s Multijurisdiction Multi-hazard Mitigation Plan.

Implementation through Existing Plans and Programs

One of the methods to most effectively implement the City of Simpsonville Hazard Mitigation Plan is to propose and implement initiatives that will modify other community plans, policies, and programs. By including personnel from a variety of departments in the hazard mitigation planning process, concepts derived from the planning process will be spread throughout City departments such as; public works, storm water management, GIS, and planning. Mitigation activities initiated by this plan will be incorporated into Simpsonville's Comprehensive plan, and vice versa.

Continued Public Involvement

The DMC will continue efforts to develop and implement a year-round program to engage the community in the mitigation planning process and to provide them with mitigation-related information and education. These efforts will be to continually invite public comments and recommendations regarding the mitigation goals for the community, the priorities for the planning, and the unique needs of each community for mitigation-related public information. Public information activities that have been completed or are planned by the organizations making up the City of Simpsonville DMC are listed in Section 5 of this plan. Each of these activities continues to engage the community in the planning process through the presentation of a specific topic or program related to or relevant for, hazard mitigation.

The Next Planning Cycles

As given in this section, the City of Simpsonville DMC has established a schedule and procedure for both plan implementation and plan maintenance that is expected to be helpful in improving and expanding the mitigation planning process.

In addition to these activities for plan maintenance, the DMC will establish a recommended schedule for implementation of the proposed priority initiatives included in this edition of the plan. It is expected that the agencies and organizations that sponsored these initiatives for the plan will, during the next planning cycles, take advantage of timely opportunities and available resources to implement them on the desired schedule, if it is possible to do so.

The City of Simpsonville Hazard Mitigation Plan Update is a dynamic document, reflecting a continuing, and expanding planning process. The efforts of the DMC will continue into the future, striving to make all of the jurisdictions of the City of Simpsonville truly disaster resistant communities.

City of Simpsonville
Multi-Hazard Mitigation Plan

Section Eight

REVIEW OF CURRENT AND PROPOSED MITIGATION INITIATIVES

Introduction

This section of the City of Simpsonville Multi-Hazard Mitigation Plan contains the compilation of the proposed mitigation initiatives that have been formulated as the result of the planning efforts by the Disaster Mitigation Committee (DMC). These mitigation initiatives form the fundamental mechanism for the implementation of the local mitigation plan. That is, when the resources and opportunity to do so become available, the sponsoring organization implements an initiative to address the vulnerabilities of the facilities, systems and planning areas that have been identified through the mitigation planning process. After each successful implementation of an initiative, the benefited community will become that much more resistant to the impacts of future disasters.

Initiatives Incorporated into the Mitigation Plan

The compilation is based on a prioritization that was conducted by the DMC overseeing the development of the Hazard Mitigation Plan. The proposed initiatives discussed in this section are specific mitigation actions and projects being considered to reduce the effects of each hazard” pursuant to §201.6(c)(3)(ii) of the federal regulations.

As specified in the procedures given in Section 4 of the plan, each proposed mitigation initiative is subjected to a review and analysis by the DMC. The purpose of this review and analysis is to ensure that an initiative proposed by a participating organization or community group is based on an adequate level of technical analysis, that all needed information about the proposal is presented, that any assumptions utilized are reasonable and logical, that the proposal is consistent with the goals and objectives of the DMC, and that it is addressing identified vulnerabilities of the community or shortfalls in the communities’ mitigation policy framework. More specifically, the DMC’s review and analysis process is focused on ensuring the technical validity of the proposal, making a judgment whether the initiative would be technically effective and cost beneficial, if it is duplicative or in conflict with other proposed initiatives, or if its implementation would have an adverse effect in another jurisdiction. If necessary, the proposal is returned to the sponsoring organization for revision.

When the DMC reaches a favorable judgment regarding the proposal, a recommendation is made that it be adopted for incorporation into the City of Simpsonville Hazard Mitigation Plan.

The DMC can then review the proposal for any other concerns, such as its consistency with other community-based plans, programs, and political policies, and if appropriate, formally approve the proposal and its incorporation into the plan. In this way, each mitigation initiative is only incorporated into the plan after satisfactorily undergoing a “peer review” process considering both technical validity and policy compliance.

The following is a brief description of the initiatives that have been considered by the DMC for inclusion in the City of Simpsonville updated Hazard Mitigation Plan:

A. Prevention

Perform Bridge/Culvert Analysis: During major rain events, several roads throughout the City tend to overtop. This mitigation activity will require a detailed analysis of each bridge/culvert on those roads to prioritize possible upgrades.

Install Monitoring Stations for Flood Events: In an attempt to collect more localized hazard data, the City proposes to install monitoring stations at designated locations to analyze the streams response to rainfall. This data will be used to collect data on weather events and to educate the public on hazard related issues.

B. Public Education and Awareness

Enhance hazards education: In an attempt to educate residents on hazard damages and their role in hazard mitigation, the City proposes that information be distributed via literature, web-site, and cable television, to further promote hazard awareness.

Provide links to flood hazard information on City web-sites: The Greenville County Office of Emergency Management has created a new web page containing a wealth of information including an excellent section on potential hazards to County Citizens. Numerous links are provided, including a link to the County Emergency Operations plan, a comprehensive emergency planning document. Links will be placed on the Public Works and City web-sites to take our citizens to the County web page.

C. Natural Resources Protection

Address Stream Bank Erosion Control (Durbin Creek): The City is proposing to address stream bank erosion in the Durbin Creek watershed to assist with natural resources protection.

D. Emergency Services

Purchase and install two-way radios in all public works vehicles: Having two-way radios in each Public Works vehicle will enable police and fire as well as dispatcher to communicate directly with public works crews to coordinate during emergency situations.

Erect two-way radio tower in central down-town area: The existing two-way tower is mounted to a water tower on the southern end of the city. Communication is sparse in the northern areas of the city. Erecting a new, more powerful, tower in the central area of the city will allow adequate signal strength throughout the city.

E. Property Protection

Lessen property flooding from storm water run-off from newly paved roads: Co-Trans-Co, who manages the annual road paving program for the City. As a means to lessen storm water run-off onto properties that border newly paved roads, the City proposes to work with Co-Trans-Co to develop a method of incorporating storm water management into the re-paving process.

F. Structural Projects

Replace sanitary sewer aerial creek crossings with flood resistant crossings: Sanitary Sewer aerial creek crossings are susceptible to being washed out during flood events. Such washouts would harm the environment as well as disrupt sewer service to residents, emergency facilities, hospitals, and businesses within the City. The City proposes to replace these crossing with a more durable design that would better be able to withstand flood events.

Priority Status for Plan Inclusion and Implementation

One format for describing mitigation initiatives included in the plan lists the mitigation initiatives and their current status as “approved”, “pending”, or “completed”. An approved mitigation initiative is one that has been fully processed and approved for incorporation into the plan by the DMC, and as noted above. A pending initiative is one that has been proposed by a participant in the planning process, but as of the time of the preparation of this document, it had not been fully processed by the DMC. Of course, a complete mitigation initiative is one that has been implemented by the responsible agency or organization.

As shown in the section, “Initiatives by Hazard” below, all initiatives have been approved.

Priority Ranking for Proposed Mitigation Initiatives

This next section report, lists all of the mitigation initiatives currently in the City of Simpsonville’s Multi-Hazard Mitigation Plan, in the order of their priority scores. The priority scores are based on 9 separate prioritization criteria used by all of the planning participants to allow the DMC to compare various mitigation initiatives. The specific priority scores are based on a numeric classification system explained in the following table:

Priority Criterion	Numeric Score
Strategy Effectiveness	
No affect on Risk or Hazard	0
Affects several structures within the City	1
Affects many structures within the City	2
Affects most structures within the City	3
Percentage of Population Benefited	
Less than 10% benefited	0
10% to 50% benefited	1
51% to 75% benefited	2
Greater than 75% benefited	3
Time to Implement	
Cannot be implemented	0
Longer than one year	1
Within one year	2
Immediate	3
Time to Impact	
Cannot be implemented	0
Longer than one year	1
Within one year	2
Immediate	3
Cost to City	
Completely Unaffordable	0
Expensive, but manageable	1
Cost is easily managed	2
Little to no cost	3
Cost to Others	
Completely Unaffordable	0
Expensive, but manageable	1
Cost is easily managed	2
Little to no cost	3
Funding Source	
No known funding source available	0
Requires outside funding	1

Requires budget consideration	2
Within existing City budget	3
Community Support	
Opposed by the entire community	0
Acceptable only to those affected by the project	1
Some community opposition	2
Acceptable community wide	3
Project Feasibility	
Not possible	0
Accomplished with extensive design and planning	1
Accomplished with some design and planning	2
Easily accomplished	3

It is possible to see from this table that the minimum priority rank for a proposed initiative would be zero (0), while the maximum would be twenty-seven (27). The priority ranking given through application of the nine criteria in the above table will remain constant through time because of the inherent characteristics of the proposed initiative, unless those characteristics are also modified. All of the initiatives are listed by the priority score assigned to each as a result of the common process to characterize and prioritize mitigation initiatives that is used by all participants in the planning process. This priority score is a long-term characterization value directly associated with each specific initiative based on its own merits at the time it was first proposed by the individual participant. The priority score is intended to serve as a guideline for the DMC regarding the relative desirability of implementation of a specific mitigation initiative in relation to the other proposed initiatives incorporated into the plan.

All initiatives are prioritized and evaluated in accordance with the consideration with the National Flood Insurance Program.

Project Description	Strategy Effectiveness	Percent of Population Benefited	Time to Implement	Time to Impact	Cost to City	Cost to Others	Funding Source	Community Support	Project Feasibility	Point Total	Project Priority
A. Prevention											
Perform bridge/culvert inspections	1.5	3	2	0.5	0.5	3	3	3	2	18.5	5
Install monitoring stations for flood events	1.5	1	1	1	1	1	1	1	2	10.5	7
B. Public Education & Awareness											
Enhance Hazards education	3	3	2	3	2	2	2	3	2	22	2
C. Natural Resources Protection											
Address stream bank erosion control (Durbin Creek)	2	1	1	1.5	0.5	0.5	1.5	1	1	10	8
D. Emergency Services											
Purchase and install two-way radios in public works vehicles	3	3	2	3	2	2	2	3	3	23	1
Erect two-way radio tower in central down-town area	3	3	1	3	1	1	2	3	2	19	4
E. Property Protection											
Lessen property flooding from storm water run-off from newly paved roads	2	1	1	3	3	3	1	3	3	20	3
F. Structural Projects											
Upgrade sanitary sewer creek crossings	2	1	1	3	1	1	1	3	1	14	6

Benefit-to-Cost Ratio

A key analytical measure commonly used in vulnerability assessments is the benefit to cost ratio, which expresses the estimated benefits, in dollars, in comparison to the estimated costs to implement and maintain the proposed mitigation initiative. For an initiative to be considered "cost effective," the dollar value of the benefits derived needs to exceed the costs to implement and maintain the initiative, or, in other words, the benefit to cost ratio should be greater than 1.0. The process for calculating a benefit to cost ratio begins with estimating the direct and indirect costs of the 'worst case' disaster scenario that the mitigation initiative is intended to address. If the initiative were to be implemented, these are the future costs that would be avoided, or, in other words, the "benefits" derived from implementing the initiative. Both direct costs of the disaster scenario are considered, such as structural damages, as well as indirect costs, such as lost wages. The total of the direct and indirect costs are then divided by the predicted life of the initiative, in years. This then gives the dollar benefits of the project on an annual basis.

The cost side of the benefit to cost ratio is estimated by determining the estimated cost to initially implement the proposal, such as initial construction cost for a “bricks and mortar” project, or the development costs for a training program. To this amount is then added any annual costs that implementation of the project would incur, such as annual operations and maintenance costs or annual implementation costs. Next, the approach then considers any “cost impact” of the proposal, or the costs that would be incurred by others in the City due to implementation of the initiative, such as the economic effect on new construction of adopting a more stringent building code. The cost impact figure is also annualized by the life of the project, and then any annual cost impact values, such as an annual user fee or tax, is added to give a total annual cost impact. Finally, by dividing the annual costs of the “benefits” of the proposal by the annual cost and cost impact necessary to implement the proposal, a benefit to cost ratio is estimated. A more sophisticated methodology for calculating a benefit to cost ratio is likely to be necessary at the time of actual implementation, applying to state or federal agencies for funding, or for the design and construction stage of development.

During the evaluation of all mitigation activities, a cost-benefit review was conducted to determine the suitability of all initiatives.

Initiatives by Hazard

This section of the plan describes the proposed initiatives included in the plan to address the hazards that have been identified as threatening the City of Simpsonville. The table below presents the mitigation initiatives that have been proposed to address the identified hazards posing the most risk to Simpsonville, as determined by the DMC. As described in Section 6 of this plan, the hazards are ranked based on risk from high to low as winter storms, wildfires, floods, thunderstorms, high winds, and earthquakes. This section is also another example of how the planning approach used by the City of Simpsonville has effectively used the hazard identification and risk estimation process to guide formulation of proposed initiatives.

Initiative Description by Hazard	Secondary Hazard(s) Mitigated
A. Winter Storms	
Purchase and install 2-way radios in all Public Works Trucks	C,D,E,F,G
Erect 2-way radio tower in central down-town area	C,D,E,F,G
B. Drought/Heat Wave	
Enhance Hazards Education	All other natural hazards
C. Wildfires	
D. Floods	
Perform bridge/culvert inspections	A
Install monitoring stations for flood events	A
Provide links to flood hazard information on City web-site	A
Address stream bank erosion control (Durbin Creek)	N/A
E. Tornado/High Winds	
F. Thunderstorms	
G. Earthquakes	

Initiative Description	Responsible Party
A. Prevention	
Perform bridge/culvert inspections	USACE, City of Simpsonville, Grants
Install monitoring stations for flood events	NWS, City of Simpsonville
B. Public Education and Awareness	
Enhance Hazards Education	City of Simpsonville
Provide links to flood hazard information on City web-sites	City of Simpsonville
C. Natural Resources Protection	
Address stream bank erosion control (Durbin Creek)	NRCS, City of Simpsonville, Grants
D. Emergency Services	
Purchase and install 2-way radios in all public works vehicles	City Police Department, Grants
Erect 2-way radio tower in central down-town area	City Police Department, Grants
E. Property Protection	
Lessen property damage from storm water run-off from newly paved roads	City of Simpsonville, Co-Trans-Co
F. Structural Projects	
Replace aerial sanitary sewer creek crossings with flood resistant crossing	FEMA, City of Simpsonville, Grants

Potential Funding Sources

Each initiative incorporated in the City of Simpsonville Mitigation Plan has been ranked based on the ability to fund it, either within City budget or from outside funding sources. The DMC has consulted this list and developed a subset of the potential sources for the approved initiatives, shown in Appendix A. Then using this list, funding sources are assigned to initiatives by their respective “Primary Area”, as necessary, regarding the likely funding source. These designations are shown in the table below.

As of the current date on this plan, Simpsonville has not verified the true availability of all sources on this list. Some may no longer be available, while others may have come into existence since this list was developed. It is the expectation of the DMC that the agencies and organizations that sponsored a specific initiative would utilize the information given in this report to pursue funding opportunities to implement the initiative. Additional information regarding each of the potential funding sources listed in , such as contact information, eligibility, etc., is available within the City’s database.

Initiative Description	Funding Source Primary Area
A. Prevention	
Perform bridge/culvert inspections	Storm Water, Flood Control Structures, Measures/Support Service Grants
Install monitoring stations for flood events	Storm Water, Flood Control Structures, Measures/Support Service Grants
B. Public Education & Awareness	
Enhance Hazards Education	Public Education Grants, City of Simpsonville
C. Natural Resources Protection	
Address stream bank erosion control (Durbin Creek)	NCRS Matching/Flood Control Structures Grants
D. Emergency Services	
Purchase and install two-way radios in all Public Works vehicles	Public Safety grants, City of Simpsonville
Erect two-way radio tower in central down-town area	Public Safety grants, City of Simpsonville
E. Property Protection	
Lesson property flooding from storm water run-off from newly paved roads	City of Simpsonville, Co Trans Co
F. Structural Projects	
Replace sanitary sewer aerial creek crossings with flood resistant crossings	FEMA, City of Simpsonville