Chapter 5 – Mitigation Strategy

5.1 Floodplain Management Goals

5.1.1. Purpose and Basis for Goals

The Vision

The goals that guide this Mitigation Strategy for floodplain management have been developed to help achieve the City's long-range vision for flood disaster resistance and community resiliency. Ultimately, the City aims to achieve active resistance to the threats of flooding and related natural hazards to human life and property through publicly-supported mitigation actions with proven results. The City embraces a long-term commitment to reduce the exposure and risks to flooding and related hazards within its jurisdiction. The City plans to activate all of its available resources through cooperative governmental and private sector initiatives, augmenting public knowledge and awareness, and enhancing local mitigation capabilities to maximize community resiliency.

Consistency with Adopted County Plan

The goals of this plan are fully consistent with the goals set forth in the 2016 Shelby County Multi-Jurisdictional Multi-Hazard Mitigation Plan, which has been adopted by the City of Alabaster.

5.1.2. Goals for Floodplain Management

To attain its vision, the City of Alabaster hereby establishes the following goals to guide its floodplain management activities:

1. **Preventive Goal.** Manage the development of land and buildings to minimize risks of loss due to flooding and related natural hazards. Protect structures and their occupants and contents from the damaging effects of such hazards.

2. **Property Protection Goal.** Protect structures and their occupants and contents from the damaging effects of flooding and related natural hazards.

3. **Public Education and Awareness Goal.** Educate and inform the public about the risks of flooding and related natural hazards and the techniques available to reduce threats to life and property.

4. **Natural Resources Protection Goal.** Preserve and restore the beneficial functions of floodplains and the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.

5. **Structural Projects Goal.** Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of flooding and related natural hazards, where found to be feasible, cost effective, and environmentally suitable.

6. **Emergency Services Goal.** Improve the efficiency, timing, and effectiveness of response and recovery efforts for flooding and related natural disasters.

5.2 Review of Floodplain Management Activities

5.2.1 Review of Current CRS Floodplain Management Activities

As part of the planning process, an assessment was conducted to identify potential credits for current flood plain management activities under the Community Rating System (CRS) Program. Upon application to the CRS Program, a CRS Verification Visit will be conducted by the Insurance Services Office, Inc. (ISO), which will issue a Verification Report that documents the points that can be credited for the City's initial entry into the CRS Program. Usually, a community will enter the CRS as a class 9 community.

A summary of these findings with estimated credit points for each of the current activities are organized according to the goals of this plan, as follows:

1. **Preventive Activities.**

- Activity 310 – Elevation Certificates: The Building Official maintains elevation certificates for new and substantially improved buildings. (38 points)
- Activity 320 – Map Information Service: Credit is provided for furnishing inquirers with basic flood zone information from the community's latest Flood Insurance Rate Map. To receive credit, the service must be publicized annually and records must be maintained. (30 points)
- Activity 430 – Higher Regulatory Standards: Credit is provided for enforcing regulations that require freeboard for new and substantial improvement construction, cumulative substantial improvement, and local drainage protection. Credit is also provided for the enforcement of building codes. (177 points)
- Activity 440 – Flood Data Maintenance: Credit is provided for maintaining and using overlay maps in the day to day management of the floodplain.

Credit is also provided for maintaining copies of all previous FIRMs. (100 points)

- Activity 450 – Stormwater Management: The community enforces regulations for stormwater management, soil and erosion control. (84 points)

2. **Property Protection Activities**

   - No credit.

3. **Public Education and Awareness Activities**

   - No credit.

4. **Natural Resources Protection Activities**

   - No credit.

5. **Structural Projects Activities**

   - No credit.

6. **Emergency Services Activities**

   - No credit.

5.2.2 Review Criteria

STAPLEE Review

In addition to the current activities, which have been carried forward to the Action Plan, a range of other possible activities have been reviewed for effectiveness in preventing or reducing the severity of the problems identified in *Chapter 4. - Risk Assessment*. With the exception of certain activities that are clearly not feasible or inappropriate, all of the remaining activities described here have been evaluated for possible inclusion in the Action Plan. These include a wide range of possible activities to assure all potential alternatives have been considered.

The pros and cons of each activity have been evaluated by applying the STAPLEE method, the same method applied to the evaluation of mitigation measures in the County plan. The STAPLEE method examines social, technical, administrative, political, legal, environmental, and economic considerations and provides a ready method for rating and prioritizing each mitigation activity. To perform this evaluation, each measure must respond to many of the questions presented below for each of the areas of consideration:

Social Considerations.

- *Environmental justice.* Will the proposed measure be socially equitable to minority, disadvantaged, and special needs populations, such as the elderly and handicapped?

- *Neighborhood impact.* Will the measure disrupt established neighborhoods or improve quality of life for affected neighborhoods?

- *Community support.* Is the measure consistent with community values? Will the affected community support the measure?

- *Impact on social and cultural resources.* Does the measure adversely affect valued local resources or enhance those resources?

Technical Considerations.

- *Technical feasibility.* Is the proposal technically possible? Are there technical issues that remain? Does the measure effectively solve the problem or create new problems? Are there secondary impacts that might be considered? Have professional experts been consulted?

Administrative Considerations.

- *Staffing.* Does the City have adequate staff resources and expertise to implement the measure? Will additional staff, training, or consultants be necessary? Can local funds support staffing demands? Will the measure overburden existing staff loads?

- *Maintenance.* Does the City have the capabilities to maintain the proposed project once it is completed? Are staff, funds, and facilities available for long-term project maintenance?

- *Timing.* Can the measure be implemented in a timely manner? Are the timeframes for implementation reasonable?

Political Considerations.

- *Political support.* Do the Mayor and City Council support the proposed measure? Does the public support the measure? Do stakeholders support the measure? What advocates might facilitate implementation of the proposal?

Legal Considerations.

- *Legal authority.* Does the City have the legal authority to implement the measure? What are the legal consequences of taking action to implement

the measure as opposed to an alternative action or taking no action? Will new legislation be required?

Environmental Considerations.

- *National Environmental Policy Act (NEPA).* Will the measure be consistent with Federal NEPA criteria? How will the measure affect environmental resources, such as land, water, air, wildlife, vegetation, historic properties, archaeological sites, etc.? Can potentially adverse impacts be sufficiently mitigated through reasonable methods?

- *State and local environmental regulations.* Will the measure be in compliance with State and local environmental laws, such as flood plain management regulations, water quality standards, and wetlands protection criteria?

- *Environmental conservation goals.* Will the proposal advance the overall environmental goals and objectives of the community?

Economic Considerations.

- *Availability of funds.* Will the measure require Federal or other outside funding sources? Are local funds available? Can in-kind services reduce local obligations? What is the projected availability of required funds during the timeframe for implementation? Where funding is not apparently available, should the project still be considered but at a lower priority?

- *Benefits to be derived from the proposed measure.* Will the measure likely reduce dollar losses from property damages in the event of a hazard? To what degree?

- *Costs.* Are the costs reasonable in relation to the likely benefits? Do economic benefits to the community outweigh estimated project costs? What cost reduction alternatives might be available?

- *Economic feasibility.* Have the costs and benefits of the preferred measure been compared against other alternatives? What is the economic impact of the no-action alternative? Is this the most economically effective solution?

- *Impact on local economy.* Will the proposed measure improve local economic activities? What impact might the measure have on the tax base?

- *Economic development goals.* Will the proposal advance the overall economic goals and objectives of the community?

The STAPLEE method of evaluation also facilitates the prioritization of measures. If a measure under consideration is found to be financially feasible and has

high ratings within other areas of consideration, it might be given a higher priority for implementation than measures that fell lower in the ratings. Moreover, a general economic evaluation can be performed as part of the STAPLEE method, as described above. Weighing potential economic benefits to reducing damages against costs make it possible to select among competing projects.

Especially important to the selection process is availability of funds through local, State, Federal, and private resources. Potential FEMA Hazard Mitigation Assistance (HMA) grant programs, such as FEMA's Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Grant Program (PDM), and the Flood Mitigation Assistance (FMA) Program are sometimes available to help fund eligible projects. As new sources of funding become available through the HMA grant programs, or other sources, the priorities for implementation of select projects may need to be reevaluated.

Another consideration for evaluating alternative mitigation measures is the capability of the City to implement the measures. Appendix D "Community Mitigation Capabilities Assessment" examines select capability measures.

5.2.3 Individual Mitigation Action Plan of the County Plan

The activities listed in this section are those related to the mitigation of flooding and related hazards that are included in the *City of Alabaster Individual Mitigation Action Plan* in the 2016 Shelby County Multi-Jurisdictional Multi-Hazard Mitigation Plan that has been adopted by the Alabaster City Council. All of these activities have been considered for inclusion in the Floodplain Management Action Plan.

Hazard Goal & Actions	Action/Project Description	Responsibility	Funding Source	Estimated Cost/ Benefit	Start/ End Date	Priority
FL1a	Distribute flood awareness and preparedness literature at events. City website.	Local Govt.	Local funds	1,104 110,350	2015 2020	81
HW3a	Adopt/enforce comprehensive Building Code legislation. Use the IBC codes.	Planning	Local funds	1,104 110,350	2015 2020	81
AH3y	Insure building code compliance Inspections are conducted on construction projects.	Building Services	Local funds	11,035 110,350	2015 2020	79
FL3a	Participate in the National Flood Insurance Program (NFIP).	City Govt.	Local funds	1,104 110,350	2015 2020	78
FL3h	Educate developers on Watershed, Floodplain, and wetland development restrictions.	Building	Local funds	1,104 110,350	2015 2020	77

AH1i	Develop/maintain a public information website on hazard preparedness and response. City website.	City officials	City Budget	11,035 551,750	2015 2020	74
FL3d	Participate in the NFIP Community Rating System.	City Govt.	Local funds	1,104 110,350	2015 2020	74
FL3a5	Obtain and maintain NFIP FIRMS to identify jurisdiction flood prone areas.	Building	Local funds	8,828 110,350	2015 2020	72
FL3f	Identify roadways, culverts, and bridges damaged by flooding (several locations). Inspected every 2 years.	Street	Grant Local funds	1,104 11,035	2015 2020	71
FL3a4	Educate developers, builders, and the public on the location of NFIP designated floodplains.	City Govt. Planning	Local funds	1,104 11,035	2015 2020	70
FL3f3	Obtain/install barriers to block flooding roadways and bridges.	Street	Grant Local funds	11,035 110,350	2015 2020	70
FL3a1	Adopt/enforce an NFIP floodplain management plan that includes wetlands and watersheds.	City Govt.	Local funds	11,035 110,350	2015 2020	68
FL3a2	Adopt/enforce floodplain legislation to require structure to be elevated above the NFIP BFE.	City Govt.	Local funds	1,104 110,350	2015 2020	68
FL3a3	Educate builders, developers, and the public on the National Flood Insurance Program (NFIP). Continual.	City Govt. Planning	Local funds	1,104 110,350	2015 2020	65
FL3f	Develop a storm water management plan for the jurisdiction.	Planning City Govt.	Local funds	1,104 11,035	2015 2020	65
FL3c	Obtain funding to retrofit, elevate, or relocate NFIP repetitive flooding structures.	EMA, City Govt.	Grant Local funds	1,103,500 5,000,000	2015 2020	64
FL3e	Adopt/enforce land use floodplain wetlands and watershed zoning. No zoning for restrictive use areas.	City Govt.	Local funds	1,104 110,350	2015 2020	64
FL3g	Adopt/enforce storm water legislation to reduce runoff from developments.	City Govt.	Local funds	1,104 11,035	2015 2020	64

FL3f1	Install/replace/maintain culverts, ditches, and bridges to reduce storm water flooding. Review annually or as needed.	Street	Grant Local funds	551,750 1,103,500	2015 2020	60

5.2.4 Discussion of Alternative Mitigation Activities

The Floodplain Management Planning Committee (FMPC) reviewed the current activities that could be credited under the Community Rating System (CRS) Program (see section 5.2.1 above), the activities endorsed by the City of Alabaster in its Individual Mitigation Action Plan, adopted as a component of the 2016 Shelby County Multi-Jurisdictional Multi-Hazard Mitigation Plan and further evaluated a full range of alternative mitigation activities presented in this section. All of these potential mitigation activities were summarized and presented as an exercise completed by members of the FMPC and discussed at their March 13, 2018, meeting. The results of this exercise can be found in Appendix G "Alternative Mitigation Measures Exercise." The alternatives considered for inclusion in the Floodplain Management Action Program have been grouped according to the six goal areas, noted below. These activities have been evaluated according to the STAPLEE method for appropriateness, taking into account the pros and cons of each potential mitigation activity. Further, the City's funding and implementation capabilities have been carefully considered. A discussion of the evaluation results follows.

1. Preventive Activities

Existing Preventive Activities.

The City has a range of planning and regulatory tools available to manage development and reduce future flood losses, as discussed below. The City Engineer, Planning and Zoning Coordinator, and Building Official have primary responsibility for maintaining and enforcing these tools.

The City has a longstanding record of active comprehensive planning. Comprehensive plans adopted by the City over the past decades intend to manage future growth and development throughout the City, thereby reducing future flood losses.

As described in Appendix D "Mitigation Capabilities Assessment," the City adopted the Alabaster Forward Comprehensive Plan on March 14, 2016. The overall purpose of this plan is to guide decisions and actions that can influence future growth and land development over a long-range period.

The City administers the 2009 International Code Series of building and technical codes that establish minimum design and construction standards for all aspects of building construction. The codes are enforced through residential and commercial

permitting systems and are integrated with other development controls, including floodplain management controls, through permitting systems and interdepartmental review processes.

Central to land use and development control is the Zoning Ordinance of Alabaster, Alabama. The Zoning Ordinance lays out district land use, dimensional standards, and other development criteria in accordance with a zoning map of the land use districts. In turn, the comprehensive plan guides the mapping of zoning district. The Alabaster Subdivision and Development Regulations, work in concert with the Zoning Ordinance and other development controls to ensure minimum design and construction standard be met for major subdivisions, and the regulations set out the procedures for platting lots.

The Flood Hazard Ordinance follows the model provisions recommended by the State NFIP Coordinator but exceeds the minimums required for participation in the NFIP. An estimated CRS Credit for 177 points is available for higher regulatory standards. Credit can be given for enforcing regulations that require a one foot freeboard (elevation) construction within the floodplain. Other points can be credited for cumulative substantial improvement provisions, local drainage protection, and the enforcement of building codes.

The FMPC considered many preventive options and determined that the City's floodplain management ordinance could be amended to include additional higher regulatory standards to further reduce potential flood losses. Among other revisions that might be considered are higher regulatory standards to increase the freeboard. Given the extents of the flood risks identified in Chapter 4 "Risk Assessment" and projected City growth, a review of all of the development controls discussed in this section would assure a more integrated program of floodplain management.

2. Property Protection Activities

As noted in Appendix G, the FMPC considered various property protection activities, such as property acquisitions, which might be feasible.

3. Public Education and Outreach Activities

Public outreach activities are low cost and popular. The FMPC offers full support of such efforts, which is reflected in the Floodplain Management Action Plan in Section 4.3.

4. Natural Resource Protection Activities

A range of natural resource protection activities were considered including zoning and subdivision controls to require open space or establish larger lot size minimums in the floodplains.

5. Structural Projects Activities

The City recognizes the benefits of comprehensive drainage system maintenance to reduce flood losses and would consider additional measures to improve maintenance. Among other measures to be considered is a program of regular channel inspections and debris removal.

6. Emergency Services Activities

The Shelby County EMA has primary responsibility county-wide for emergency response to flooding and other natural disasters.

5.3 Floodplain Management Action Plan

This section presents the Floodplain Management Action Plan recommended by the Floodplain Management Planning Committee and adopted by the Alabaster City Council. This Action Plan is the culmination of the planning process and schedules implementation of the listed measures over the next five year planning cycle ending on December 31, 2023. The Action Plan is continually reviewed for progress towards implementation and may be updated and amended from time-to-time, in accordance with Chapter 6 "Plan Maintenance Procedures."

The following key explains the components of the Action Plan:

Key

- *"Mitigation Actions by Goal Area and Objective."* Each mitigation action has been grouped according to the six long-term planning goals. Within each goal area, the actions have been organized according to plan objectives.
- *"Implementation Responsibility."* This action plan assigns lead responsibility for implementation to a specific department or agency or position within the organization.
- *"Timeframe for Completion."* Timeframes are *Short-Range* (less than 2 years), *Mid-Range* (2-3years), *Long-Range* (more than 3 years) or *Ongoing*.
- *"Funding Source(s)." P*otential funding sources are identified. FEMA Hazard Mitigation Assistance (HMA) grant programs, where noted, include the Hazard Mitigation Grant Program (HMGP), the Pre-Disaster Mitigation (PDM) grant, and Flood Mitigation Assistance (FMA) grants. These are possible funding sources but are subject to final eligibility determination, including, among other eligibility criteria, a positive benefit/cost analysis and the availability of funds.
- *"Priority." Priorities are High, Medium, and Low.*
- *"TBD"* is to be determined.

Table 5-1. 2018-2023 Floodplain Management Action Plan

#	Mitigation Actions by Goal Area and Objective	Implementation Responsibility	Timeframe for Completion	Funding Source	Priority
1	***Goal for Prevention.*** ***Manage the development of land and buildings to minimize risks of loss due to flooding and related natural hazards. Protect structures and their occupants and contents from the damaging effects of such hazards.***				
1.1	**Elevation Certificates.** Maintain FEMA Elevation Certificates for buildings in the floodplain.				
1.1.1	Maintain FEMA elevation certificates for all new or substantially-improved buildings and existing "post-FIRM" buildings constructed after the effective date of the City's first FIRM on January 2, 1981.	City Engineer	Ongoing	Existing City funds	High
1.2	**Floodplain Mapping.** Keep accurate and current floodplain maps and data used for regulatory purposes.				
1.3	**Higher Regulatory Standards.** Amend the City's Flood Damage Prevention Ordinance to establish new regulatory standards that exceed the NFIP minimums that are effectively administered by qualified City staff.				
1.3.1	Consider a requirement for additional freeboard of more than one foot for minimum building elevation and flood protection.	City Engineer	Mid-Range	Existing City funds	Medium
1.3.2	Consider a requirement for foundations to be designed by a licensed engineer.	City Engineer	Mid-Range	Existing City funds	Medium
1.3.3	Consider lowering the threshold for substantial improvements to less than 50% of the building value requires full compliance with floodplain management ordinance.	City Engineer	Long-Range	Existing City funds	Low
1.3.4	Consider a requirement that improvements, modifications, and additions to existing buildings are counted cumulatively for at least 10 years.	City Engineer	Long-Range	Existing City funds	Low
1.3.5	Consider protection of critical facilities (police, fire, public utilities, schools, medical, etc.) to the 500 year flood elevation.	City Engineer	Mid-Range	Existing City funds	Medium
1.3.6	Consider a requirement for compensatory storage for fill.	City Engineer	Long-Range	Existing City funds	Low
1.3.7	Consider a prohibition on outdoor storage of hazardous materials in the floodplain.	City Engineer	Mid-Range	Existing City funds	Medium
1.4	**Flood Data Maintenance.** Maintain essential field data for floodplain management.				
1.4.1	Maintain elevation reference marks.	Public Works and City Engineer	Ongoing	Existing City funds	Low
1.5	**Stormwater Management.** Effectively manage stormwater to maintain water quality and minimize flooding.				

#	Mitigation Actions by Goal Area and Objective	Implementation Responsibility	Timeframe for Completion	Funding Source	Priority
1.5.1	Enforce stormwater management standards (design storm and size of development) for the regulation of new development to ensure that post-development peak runoff is no worse than pre-development conditions	City Engineer	Ongoing	Existing City funds	High
1.5.2	Enact regulations to require the implementation of low impact development (LID) techniques to minimize the need for more traditional stormwater management controls (pipes, channels, and detention).	City Engineer	Short-Range	Existing City funds	High
2	***Property Protection Goal.*** ***Protect structures and their occupants and contents from the damaging effects of flooding and related natural hazards.***				
2.1	**Acquisition and Relocation.** Remove flood-threatened buildings from high risk flood locations.				
2.1.1	Acquire and demolish flood-prone buildings and maintain the property as permanent open space, where feasible.	City Engineer	Long-Range	FEMA HMA Grants	Low
2.1.2	Relocate flood-prone buildings so that they are out of the floodplain, where feasible.	City Engineer	Long-Range	FEMA HMA Grants	Low
2.2	**Flood Protection.** Take measures to permanently protect existing flood-prone properties from flood damage on a building-by-building basis.				
2.2.1	Retrofit existing non-residential flood-prone buildings by flood proofing.	City Engineer	Long-Range	FEMA HMA Grants	Low
2.3	**Flood Insurance Promotion.** Promote the purchase of flood insurance, especially for high risk properties in the flood plain.				
3	***Public Education and Awareness Goal.*** ***Educate and inform the public about the risks of flooding and related natural hazards and the techniques available to reduce threats to life and property.***				
3.1	**Map Information Service.** Provide flood map information to the public.				
3.1.1	Provide Flood Insurance Rate Map (FIRM) information to people who inquire and publicize this service.	Building Safety and City Engineer	Ongoing	Existing City funds	High
3.2	**Outreach Projects.** Regularly perform public outreach and education programs to inform the public of flood risks and mitigation alternatives.				
3.2.1	Send information about the flood hazard, flood insurance, flood protection measures, and/or the natural and beneficial functions of floodplains to residents.	City Engineer	Ongoing	Existing City funds	Medium
3.3	**Hazard Disclosure.** Take steps to inform the public of flood hazards.				
3.3.1	Encourage real estate agents to advise potential purchasers of flood-prone property about the flood hazard.	Building Safety and City Engineer	Ongoing	Existing City funds	High

#	Mitigation Actions by Goal Area and Objective	Implementation Responsibility	Timeframe for Completion	Funding Source	Priority
3.4	**Flood Protection Information.** Distribute flood protection information to the general public.				
3.4.1	Maintain FEMA publications and reference materials in the City's public library.	City Engineer	Ongoing	Existing City funds	High
3.4.2	Create a webpage on the City's website to disseminate flood protection information to the public.	I.T.	Mid-Range	Existing City Funds	Medium
3.5	**Flood Protection Assistance.** Provide technical guidance for protection of buildings from flood damage.				
4	***Natural Resources Protection Goal. Preserve and restore the beneficial functions of floodplains and the natural environment to promote sustainable community development that balances the constraints of nature with the social and economic demands of the community.***				
4.1	**Open Space Preservation.** Preserve open space to restore the natural functions of the flood plain, where feasible.				
4.1.1	Preserve City-owned floodplain lands as permanent open space, kept free from development through deed restrictions.	Parks and Recreation, City Engineer	Ongoing	Existing City funds	High
4.1.2	To the extent possible, maintain or restore City-owned flood plains to their natural condition.	Parks and Recreation	Ongoing	Existing City funds	High
4.1.3	Provide zoning and subdivision incentives to set aside flood plains as permanent open space in new developments. Enforce provisions for clustering and conservation subdivisions.	Planning and Zoning	Short-Range	Existing City funds	High
5	***Structural Projects Goal. Apply engineered structural modifications to natural systems and public infrastructure to reduce the potentially damaging impacts of flooding and related natural hazards, where found to be feasible, cost effective, and environmentally suitable.***				
5.1	**Drainage System Maintenance.** Maintain natural and manmade drainage systems to effectively discharge stormwater and reduce flooding.				
5.1.1	Conduct regular inspections and maintenance of all channels and conveyance facilities and remove debris as needed.	Public Works	Ongoing	Existing City funds	High
5.1.2	Regularly inspect all detention and retention facilities constructed pursuant to the City's stormwater management regulations and all city-owned facilities to ensure proper functioning.	Public Works	Ongoing	Existing City funds	High
5.1.3	Establish an annual capital improvements programming process for drainage system improvements.	City Manager, Public Works, City Engineer	Ongoing	Existing City funds	High
5.1.4	Enforce no stream dumping regulations.	Police, Building Safety	Ongoing	Existing City funds	High
5.2	**Flood Protection.** Implement structural improvements where deemed effective to reduce flooding.				

#	Mitigation Actions by Goal Area and Objective	Implementation Responsibility	Timeframe for Completion	Funding Source	Priority
6	***Emergency Services Goal.*** ***Improve the efficiency, timing, and effectiveness of response and recovery efforts for flooding and related natural disasters.***				
6.1	**Flood Warning and Response.** Apply advanced technological systems to monitor flood threats and warn the public.				
6.1.1	Coordinate flood warning and response activities with critical facilities operators.	Police, Fire, and Shelby County EMA	Ongoing	Existing City funds	High