5 Mitigation Strategy

5.1 State Mitigation Strategy

The Final Rule (FR) Subsection 201.4 (c) (3) requires the State Hazard Mitigation Plan to include a Mitigation Strategy. The Mitigation Strategy serves as the blueprint to reduce the State's risk of losses as identified in the Risk Assessment. The State Hazard Mitigation Team reaffirmed Alabama's overall hazard mitigation strategy at the third State Hazard Mitigation Team meeting in May 2018. The state's mitigation strategy is as follows:

> **Reduce vulnerability through collaborative actions and policies that limit the effects of natural hazards on the citizens of Alabama and PHYSICAL assets.**

This section describes the State of Alabama's process for identifying, evaluating, and prioritizing the State's mitigation actions, based on the hazard mitigation goals presented in next section. Several State agencies provided recommendations for goals, objectives and actions to be included in the plan.

5.1.1 Mitigation Goals

When the first plan was drafted in 2004, the SHMT identified six goals supporting the State of Alabama's overall mitigation strategy. These goals are accompanied by objectives and actions that are designed to support the implementation of the goals. A multi-stage process was used to identify, evaluate, and prioritize the goals, objectives, and actions. With each plan update, the State Plan Goals are revisited by the State Hazard Mitigation Team. The purpose of their review is to determine if the goals and associated objectives are still valid. Minor changes were made in the 2007, 2010, and 2013 updates.

For the 2018 plan update, several minor changes were made to the wording and arrangement of the goals and objectives to best reflect the state's intent and continuing update process. The changes were suggested and agreed upon through a process of discussion and voting led by the project consultant at the Mitigation Strategy meeting in May 2018. Several former objectives under Goal 1 were combined into the new Objective 1.1 Also, the former Goals 2 and 3 were combined into the new Goal 2 to strengthen the goal and reduce redundancy. These changes are also reflected in the mitigation action plan. The refined mitigation goals and objectives are as follows:

Goal 1: Enhance the comprehensive statewide hazard mitigation system.

Objective 1.1 Improve local and state capability to study natural hazards by providing direct technical assistance to local public officials and maintaining qualified state mitigation staff.

Objective 1.2 Improve the statewide availability of risk information, particularly in GIS format.

Objective 1.3 Ensure that State, county, and local officials have most current data regarding RL and SRL properties.

Objective 1.4 Develop hazard mitigation policies that also protect the environment.

Goal 2: Reduce the State of Alabama's vulnerability and increase resilience to hazards to protect people, property, and natural resources.

Objective 2.1 Strengthen state building codes to require the latest construction techniques and materials that reduce the effects of natural hazards on buildings and infrastructure.

Objective 2.2 Encourage local governments to adopt and enforce more stringent building and zoning codes, especially in hazardous areas.

Objective 2.3 Enforce a program that reduces the Statewide number of Repetitive Loss and Severe Repetitive Loss properties.

Objective 2.4 Improve the state's ability to prepare for and respond to a natural or man-made disaster.

Objective 2.5 Reduce the impact of hazard events on state departmental functions (i.e., loss of service).

Objective 2.6 Promote hazard mitigation policies that reduce risk to people and property and protect the environment.

Goal 3: Foster public awareness and understanding of their hazard risk and of mitigation opportunities.

Objective 3.1 Publicize and encourage the adoption of appropriate hazard mitigation actions.

Objective 3.2 Educate public about hazards identified in State Plan.

Goal 4: Expand and promote coordination and communication with other government agencies, local governments, other relevant organizations.

Objective 4.1 Establish and maintain lasting partnerships that progress hazard mitigation in the state.

Objective 4.2 Promote and integrate hazard mitigation into activities of other organizations, especially those that do not currently coordinate with AEMA.

Objective 4.3 Improve State and local government capability to administer pre- and post-disaster mitigation programs and long-term recovery programs.

The planning team also reviewed local plans to verify that goals and objectives identified within these plans were compatible with the goals and objectives identified at the State level. In turn, State goals and objectives were determined to be reflective of local goals, objectives, and actions. This local plan review is discussed in greater detail in Section 1.3 Coordination of Local Planning.

5.1.1.1 How Recent Events Have Influenced Mitigation Actions

Since the 2004 Plan was adopted, the State of Alabama was faced with a variety of natural hazard threats. To the misfortune of countless persons in the State, many of these threats transformed into actual disasters. Large-scale disasters play a significant role in shaping the hazard mitigation priorities within Alabama throughout the planning process. Each disaster reveals strengths and weaknesses within the hazard mitigation program, and the State of Alabama must adjust its subsequent mitigation actions to address these weaknesses and reduce the impacts of future disasters.

A complete list of the 68 federal disaster declarations in Alabama since 1961 can be found in Section 5: Risk Assessment. The following are past disasters that have had profound effects on the state's mitigation actions:

- Hurricane Ivan (2004) revealed a lack of sheltering capacity within the coastal counties of Baldwin and Mobile.
- Hurricane Katrina (2005) caused catastrophic damage to counties and parishes bordering the Gulf Coast. In Alabama, the coastline received the most damage as it was impacted by near record storm surges and high winds, however inland flooding and spreading high winds impacted the entire State. The second largest HMGP obligation was made to the state to address a very diverse group of mitigation projects, including a number of elevation, acquisition, and mitigation reconstruction projects.
- The April 2011 tornadoes had a profound effect on the state, highlighting the need for safe rooms that can withstand an EF-5 tornado event (250 mile per hour winds). Nearly $64 million (2011 dollars) was allocated by FEMA for HMGP funding to build 291 community safe rooms and over 4,000 individual safe rooms. (See Table 5.5 below for grant allocation details.)

Since the last plan update, severe storms in 2014 and 2016 caused tornado outbreaks as well as severe flooding across the state resulting in disaster declarations. Continuing the trend that began after the April 2011 tornadoes, the State used $8 million in HMGP money obligated by FEMA for the construction of 55 community and residential safe room projects.

Being proactive, the State of Alabama does not wish to "chase" the last disaster in terms of identifying and implementing mitigation actions. As such, when funding has allowed, the state has pursued a core group of mitigation actions that are directed at achieving the goals identified in the Plan. These types of projects include:

- Safe rooms;
- Elevation;
- Acquisition;
- Drainage improvements;
- Individual and community shelters;
- Siren program; and
- Improved identification of threat through floodplain mapping.

5.1.2 Mitigation Action Plan

5.1.2.1 2018 Mitigation Action Plan Development

The structure of the Mitigation Action Plan is meant to serve as a guide to assist State and local officials and administrators in the determination of which mitigation actions could be implemented within the State of Alabama. Additionally, during the time following a natural disaster, this action plan can be a tool for the State in determining which projects should be pursued. With each plan update, the SHMT is tasked with evaluating the Mitigation Action Plan to determine its effectiveness in meeting the mitigation goals and objectives. This includes reviewing all mitigation actions and determining if there are additional mitigation actions needed.

The SHMT begins this process by reviewing mitigation actions from the previous plan to determine their status of completion. As described in Section 1: Planning Process, the SHMT team members were emailed the mitigation actions from the 2013 plan that were associated with their particular state agency. Team members provided feedback on each action, describing whether it was completed, ongoing, deferred, and/or deleted. Explanations of each action status are listed below:

- Completed: The action is fully implemented and can be removed from the new Action Plan.
- Ongoing: The action is in progress, including having funding and the appropriate staffing to complete the goals.
- Deferred: The action or project is infeasible, impractical, or undesirable to complete at this time.
- Deleted: The action was either previously completed or completed on the 2013 Action Plan or combined with another action to create a more concise action.

The status of the 2013 actions is summarized in Appendix 7.8. The table contains a column called 2018 Proposed Action Changes that tracks the changes made to the original action, whether it was reworded, revised, and/or combined with other actions.

For the 2018 Plan Update, new mitigation actions were created based on the following types of mitigation techniques:

- Local plans and regulations
- Structural projects
- Natural systems protection
- Education programs
- Preparedness and response actions

Using these categories as a framework, SHMT members were also asked to provide new actions where applicable and include all necessary supporting information about the actions for this plan update. These new actions have been incorporated into the 2018 Mitigation Action Plan and are presented in Table 5.3. In addition to the new actions, this table includes the ongoing and deferred

actions identified from the 2013 action plan, some of which have been rewritten or combined with other actions (as explained in Appendix 7.8 - Updates to the 2013 Mitigation Action Plan).

5.1.2.2 Mitigation Action Prioritization

Each mitigation action was prioritized using the Mitigation Action Prioritization Criteria. This process for prioritization includes five criteria categories, and for each category, each mitigation action is given a score of 1, 2, or 3, where 1 is the lowest category for the score, and 3 is the highest category for the score. The definition and weighting of the categories is identified in Table 5.1**.** The total score is then used to determine the action's priority category high, medium, or low as outlined in Table 5.2**.**

Table 5.1 Mitigation Action Prioritization Criteria

Criteria	Weight	Definition
Action Effectiveness	30%	The degree to which the action contributes to mitigating Alabama's risk to natural and technological hazards.
Action Efficiency	30%	The degree to which the action is a wise use of time, cost, and general organizational efficiency.
Multi-Hazard Mitigation	10%	The degree to which the action addresses multiple hazards. 3 = Mitigates against 3+ hazards 2 = Mitigates against 2 hazards 1 = Mitigates against 1 hazard
Addresses Probable Hazard(s)	15%	The degree to which the action addresses the hazard(s) that Alabama is most exposed to. 3 = Highly Likely Probability 2 = Likely Probability 1 = Possible or Unlikely Probability
Addresses Critical Communications/Critical Infrastructure	15%	The degree to which the action helps to keep Alabama service running after a hazard event by targeting critical functions.

Table 5.2 Prioritization Score Categorization

Category	Score
Low	0.00–2.00
Medium	2.01–2.70
High	2.71–3.00

5.1.2.3 Timeline for Action Implementation

The State's Mitigation Strategy also includes a timeline to implement the different mitigation actions. Since funding can often be one of the largest limiting factors, these criteria were used to evaluate the timeframe in which an action or project could be implemented. Three different temporal phases were used:

- **Near-term** is for projects that have the potential to be put into action within **zero to two years**.
- **Mid-term** actions could be implemented within **three to six years**.
- **Long-term** actions are those actions on the horizon for the state, looking forward a **minimum of seven years** for potential execution.

The process of assigning actions to one of the three timeframes should not be considered a final determination of the project's initiation or completion date. This process is a fluid process; and constraints used in the initial determination change, such as availability of funding and priorities of the current political climate. Actions can and should be re-evaluated and adjusted. Placement of an action in a mid- or long-term time frame does not preclude the State or local entities from implementing that action at an earlier time if conditions warrant. Projects can also be deferred from near- and mid-term time frames if the State so decides.

5.1.2.4 Action Feasibility

Any State government construction project – regardless of potential funding source – must be cost-effective, technically feasible, and meet all appropriate Federal, State, and local environmental laws and regulations before it is started. State government projects funded by Federal hazard mitigation grant programs administered by AEMA must meet specific criteria related to cost-effectiveness, environmental soundness and technical feasibility.

The cost of many of the actions outlined in this plan is staff time to review measures, provide technical assistance to local communities, or develop internal guidelines and plans. Actions documented in this plan try to encompass a variety of specific projects that could be pursued at the State and local levels. In the Projected Cost column of Table 5.3, some actions include estimated dollar amounts while others include a general description of costs involved, especially where specific project costs cannot be determined until the project scope has been developed.

5.1.2.5 2018 Mitigation Action Plan

Table 5.3 2018 Mitigation Action Plan

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
1	Establish a schedule to provide state and local offices with current information on past events (including damages).	1.1	Low	All	AEMA	Unknown	Near-Term	Staff Time	Updating state and local officials with current information will improve future decisions regarding mitigation.	Ongoing
2	Provide funding and technical assistance to state agencies, local government, and tribes to administer mitigation activities, including preparing hazard mitigation plans.	1.1	Medium	All	AEMA; FEMA	HMA	Mid-Term	Staff Time and Project costs TBD by Local/Tribal project scope.	Expanding the number of hazard mitigation initiatives will improve the State's resistance to hazards.	Ongoing
3	Develop and update a comprehensive record of ADEM's assets and operations.	1.1	Low	All	ADEM	State Funds	Near-Term	Staff Time	Maintaining a comprehensive record of assets and operations will improve accessibility and expand their use.	Ongoing
4	Assist K-12 schools and state colleges and universities develop vulnerability assessments, mitigation plans and mitigation projects to improve safety in their most vulnerable buildings.	1.1	High	All	AEMA; AARC; Local Government	FEMA, local	Long-Term	Staff Time and Project specific costs based on individual regulations.	Providing technical assistance to educational facilities encourages the use of mitigation and strengthens critical facilities.	Ongoing
5	Inventory and catalog natural hazards studies, maps, digital data and other information available from city, county, state, federal, university, private, and other sources.	1.2	Low	All	AEMA	Unknown	Near-Term	Staff Time	Maintaining a comprehensive invoice/catalog will improve the use of the data by agencies.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
6	Adopt a common Geographical Information System (GIS) data system throughout State, county and local government.	1.2	Low	All	AEMA	Unknown	Near-Term	TBD	Better risk information will improve understanding for decisions to protect lives and property.	Ongoing
7	Alabama State Building Commission to review the state building codes against the most recent standards (eg., IBC for earthquake, wind loads, flood, fire) to identify where state codes require revisions and update accordingly.	2.1	High	All	BLDG. CODE COMMISSION	Operating Budget	Near-Term	Staff Time	Expanding hazard mitigation initiatives will improve the State's resistance to hazards for the future.	Ongoing
8	Develop state regulations that require local governments to incorporate natural hazard mitigation measures into all new public construction projects.	2.1	High	All	Bldg. Code Commission; Local Government	Operating Budget	Long-Term	TBD by project scope	Incorporating natural hazard mitigation into new public construction reduces vulnerabilities and protects live and property.	Ongoing
9	Implement Legislation Title 11-19-1 through 24.	2.2	Medium	All	ADECA; AAR; ACCA	FEMA, local	Mid-Term	Staff Time	Land use management practices that address mitigation increase the probability that lives and property will be protected.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
10	Provide regular educational programs to local building and code enforcement officials about minimum standards for construction in hazardous areas (e.g., wind loads, floodplains, earthquake zones).	2.2	Medium	All	AACC; ALM; ADCNR; Local Government	Bonding Funds; ACAMP-CZMA funds	Mid-Term	Staff Time	Improving building inspections will increase the integrity of structures and protect occupants during hazard events.	Ongoing
11	Administer training to local governments about integrating hazard reduction planning into land-use plans and development regulations.	2.2	Medium	All	AEMA; Local Government	Multiple funding sources	Long-Term	Staff Time	Coordinating plans ensures that mitigation efforts are addressed.	Ongoing
12	Promote, strengthen and coordinate emergency response plans to better identify and mitigate risk to natural and manmade disasters.	2.4	Medium	All	AEMA; ADEM	Multiple funding sources; State funds	Mid-Term	Staff Time	Coordinating plans ensures that mitigation efforts are addressed.	Ongoing
13	Create a statewide training system to test local emergency managers in activating the Emergency Alert Systems.	2.4	Medium	All	AEMA; Local Government	EMPG	Mid-Term	Staff Time	Expanding the number of hazard mitigation initiatives, to include reverse 911 systems, will increase the community's resistance to hazards.	Ongoing
14	Update contact information in the Departmental Emergency Operation SOP on a regular basis and review and update biannually.	2.5	Low	All	AEMA; All State Agencies	EMPG, Operating Revenue, State funds	Near-Term	Staff Time	Improved and up-to-date information in the SOP will improve mitigation and other planning designed to reduce the impact of hazard events.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
15	Develop and maintain Continuity of Operations plans for all State agencies including periodic review and updates.	2.5	Medium	All	All State Agencies	Multiple funding sources, Operating Revenue, State funds, ALDOT O&M	Near-Term, Mid-Term (per ALDOT)	Staff Time	Keeping state departmental functions operational during and following hazard events is important to serving clients.	Ongoing
16	Develop a plan to protect public records.	2.5	Medium	All	All State Agencies	Operating Revenue; State funds	Mid-Term	Staff Time	Protecting public records will ensure that this information is available for future uses.	Ongoing
17	Develop a plan to protect data.	2.5	High	All	All State Agencies	Operating Revenue; State funds	Mid-Term	Staff Time	Protecting data will ensure that this information is available for future uses.	Ongoing
18	Update continuity of government plans to incorporate the most up to date hazard risk data.	2.5	Medium	All	All State Agencies	Multiple funding sources; State funds	Mid-Term	Staff Time	The planning process involved with the maintenance of continuity of government often reveals mitigation opportunities.	Ongoing
19	Establish security system within the Gordon Persons Building to ensure that critical functions are not interrupted due to terrorist activities.	2.5	High	All	ADHR	Existing operating budget	Long-Term	Project costs TBD by project scope.	Keeping state departmental functions operational during and following hazard events is important to serving the public.	Ongoing
20	Advance provision for electrical generators through FEMA grant programs for critical facilities.	2.6	High	All	AEMA	HMA	Near-Term	Staff Time	Reduces loss of function to critical facilities and operations following natural hazards.	Ongoing
21	Disseminate information about Section 106 of the NHP Act and its ramifications in a disaster.	2.6	Medium	All	AHC	N/A	Mid-Term	Staff Time and production cost	Information will improve decisions to protect cultural resources.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
22	Create a communication action plan for informing all stakeholders of the natural and manmade risks identified in the SHMP.	3.2	Medium	All	AEMA; ADEM	Multiple funding sources	Mid-Term	Staff Time	Better risk information will improve understanding for decisions to protect lives and property.	Ongoing
23	Develop and conduct outreach campaigns to educate all stakeholders and the public about the hazards identified in the SHMP.	3.2	Medium	All	AEMA; Local Government	HMA	Mid-Term	Staff Time	Better trained local officials and communities will result in safer, more hazard resistant communities.	Ongoing
24	Facilitate the coordination of local, state, and federal emergency management activities.	4.1	Medium	All	AEMA; FEMA	Multiple funding sources	Near-Term	Staff Time	Coordination between emergency management activities will reduce the risk from hazards.	Ongoing
25	Create a diverse State Hazard Mitigation team that includes regional, state, and federal organizations.	4.1	Medium	All	AEMA	Multiple funding sources	Near-Term	Staff Time	Promoting hazard mitigation will reduce the impact of hazard events on the state.	Ongoing
26	Create a SHMP maintenance schedule that includes at least one progress report meeting halfway through the five-year cycle to assess the status of all mitigation actions.	4.1	Medium	All	AEMA	Multiple funding sources	Near-Term	Staff Time	Promoting hazard mitigation will reduce the impact of hazard events on the state.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
27	Provide the public and forest managers with information about the importance of implementing Best Management Practices on forest land.	4.2	Medium	All	AFC; OWR; Local Government; ADCNR	ACAMP-CZMA funds, US Forest Service	Mid-Term	Staff Time	Informing the public on the warning system will increase understanding of what to do when the warning system is used.	Ongoing
28	Provide guidance on incorporating risk and vulnerability assessment findings into state economic and community planning efforts.	4.2	Medium	All	AARC; ALM; ADECA; AACC	EDA, local planning contracts	Mid-Term	Staff Time	Incorporate hazard mitigation initiatives will increase the community's resistance to hazards	Ongoing
29	Integrate mitigation projects into recovery processes (Public Assistance, Individual Assistance, and SBA program) through education of local communities and program applicants.	4.2	Medium	All	AEMA	Multiple funding sources	Mid-Term	Staff Time	Promote hazard mitigation inclusion and funding through other programs, including Public Assistance and SBA, so that more mitigation measures are implemented.	Ongoing
30	Establish provisions to ensure that Family Assistance program designed for moving families from dependency to self-sufficiency continue after a natural or man-made disaster.	4.3	Low	All	ADHR	Existing operating budget	Long-Term	Staff Time	Keeping state departmental functions operational during and following hazard events is important to serving the public.	Ongoing
31	Provide local economic and community planners with guidance on risk and vulnerability assessments that will impact their future development plans.	1.1	Medium	All	AARC; ALM; ADECA; AACC	EDA, local planning contracts	Mid-Term	Staff Time	Incorporate hazard mitigation initiatives will increase the community's resistance to hazards	New

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
32	Provide large employers and local counties with GIS files for hazard-prone areas and encourage them to assess any new planned development or renovations with hazard data to inform development.	1.2	High	All	AEMA; AGIO	Unknown	Near-Term	Staff Time	Better risk information will improve understanding for decisions to protect lives and property.	New
33	Make hazard mapping tools available online for residents and design professionals to view and download.	1.2	Low	All	AEMA	Unknown	Near-Term	Staff Time	Better risk information will improve understanding for decisions to protect lives and property.	New
34	Construct 15 community saferooms within existing shelters along I-65, following the evacuation route from the coastal area.	2.4	Medium	All	AEMA	HMGP	Long-Term	Staff Time	Constructing safe rooms along major transportation routes will increase accessibility to the public and prevent loss of life to high wind events.	New
35	Purchase a back-up generator for the Alabama Emergency Operations Center.	2.4	High	All	AEMA	HMGP	Near-Term	Staff Time	A back-up power supply will allow for the Alabama EOC to remain fully operational during extended power outages.	New
36	Assess proposed new, or planned renovations in, state assets and critical infrastructure against identified hazard-prone areas using GIS assessment to inform development decisions.	2.5	High	All	AEMA; AGIO	Unknown	Mid-Term	Staff Time	Better risk information will improve understanding for decisions to protect lives and property.	New

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
37	Create a program to educate local governments about different types of hazard mitigation measures/projects and other available funding sources.	3.1	Medium	All	AEMA	N/A	Mid-Term	Staff Time	Building awareness of mitigation project types and funding will increase the number of projects that are implemented.	New
38	Work with communities to develop local resiliency plans to assess ability to react to stressors on the jurisdiction.	1.1	Medium	All	NOAA; Local Government; AFC	No info provided	Mid-Term	Staff Time and Project costs TBD by project scope.	The use of erosion control measures will protect farmland and watershed infrastructure from floods.	Deferred - due to funding
39	Review local and county mitigation plans following disasters or serious hazard occurrences to evaluate risk assessments and mitigation priorities.	1.2	Medium	All	AEMA; Local Government	Multiple funding sources	Mid-Term	Staff Time	Reviewing local and county mitigation plans will increase the community's resistance to hazards.	Deferred - due to funding
40	Increase state agency accessibility to critical power lines by identifying and prioritizing utility ROW's for tree and brush removal.	2.6	Medium	All	ALDOT	No info provided	Mid-Term	Construction costs TBD by project specifics.	Increasing accessibility to critical power lines will increase the opportunity of repair crews to restore power following a hazard event.	Deferred - due to funding
41	Develop an inventory of the number of radio repeater sites and dispatch centers currently without backup electricity	2.6	High	All	AFC	No info provided	Near-Term	Staff Time	Backup communication will keep the AL Forestry Commission operational during a hazard event	Deferred - due to funding

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
42	Create a state dam safety program that will reduce the overall number of unsafe dams.	2.4	Medium	Dam Failure	ADEM	National Dam Safety Program Grants	Long-Term	Staff Time and Construction costs TBD by project specifics.	Reducing the number of unsafe State dams will protect lives and property in the downstream floodplain.	Ongoing
43	Develop a statewide geodatabase and map of all dams in the state, including a status of their condition.	1.2	Medium	Dam Failure	ADEM	National Dam Safety Program Grants	Mid-Term	Staff Time	Better risk information will improve understanding for decisions to protect lives and property.	New
44	Develop and implement a process to continually update the geodatabase as new dams are constructed and as the condition of dams changes over time.	1.2	Low	Dam Failure	ADEM	National Dam Safety Program Grants	Mid-Term	Staff Time	Better risk information will improve understanding for decisions to protect lives and property.	New
45	Develop Emergency Action Plans for all high hazard dams, including the development of inundation maps.	2.4	Low	Dam Failure	ADEM	National Dam Safety Program Grants	Long-Term	Staff Time	Prepares communities for an emergency, increasing awareness of hazard areas, and ultimately saving lives.	New
46	Educate dam owners on the importance of dam safety, especially with regards to public access to dams and dam maintenance.	3.1	Low	Dam Failure	ADEM	National Dam Safety Program Grants	Mid-Term	Staff Time	Better trained local officials will result in safer, more hazard resistant communities.	New
47	Coordinate an education campaign to notify the public about dam inundation areas and explain to them their risk.	3.2	Medium	Dam Failure	ADEM	National Dam Safety Program Grants	Mid-Term	Staff Time	Educating the public about hazards in their area builds capacity to complete mitigation projects that increase community resilience.	New

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
48	Routinely collect, monitor, and evaluate selected climatic, water- supply and water-use data to identify at an early stage the onset of a drought or potential for drought, geographic extent of the affected area and changes in the drought levels.	1.1	Medium	Drought	ADECA OWR	Multiple funding sources	Mid-Term	Staff Time	Obtaining comprehensive data pertaining to drought will improve local and state capabilities response to and mitigation measures against droughts.	Ongoing
49	Develop agreements for secondary water sources that may be used during drought conditions.	4.1	Low	Drought	ADEM	N/A	Near-Term	Staff Time	Redundancy in water supply will prevent lapses in service during drought conditions.	New
50	Partner with the Alabama Cooperative Extension System to educate stakeholders and the public about the resources available through http://drought.aces.edu/ regarding the risk of drought and how to prepare for and mitigate effects of drought.	3.1	Low	Drought	AEMA; ACES	State Funds	Mid-Term	Staff Time	Better trained local officials and communities will result in safer, more hazard resistant communities.	New
51	Maintain membership and participation in the Central United States Earthquake Consortium.	2.6	Low	Earthquake	AEMA; GSA	Federal, USGS	Near-Term	Approx.$500	Keeping state departmental functions operational during and following hazard events is important to protecting lives and property.	Ongoing
52	Perform research to understand the geologic conditions that cause earthquakes in Alabama.	2.6	Low	Earthquake	GSA	USGS, NEHRP/ FEMA, NSF	Mid-Term	Staff Time	Will enable prediction of areas where earthquakes might originate.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
53	Identify areas within Alabama that are most susceptible to earthquakes.	2.6	Low	Earthquake	GSA	USGS, NEHRP/ FEMA	Mid-Term	Staff Time	Close monitoring of smaller earthquakes may indicate areas likely to have larger earthquakes.	Ongoing
54	Develop standard code language that considers the effects of soil liquefaction in the design of new buildings and infrastructure such as bridges, embankment dams and retaining structures.	2.1	Medium	Earthquake	GSA; AEMA; ALDOT	USGS, NEHRP/ FEMA	Mid-Term	Staff Time	Stronger local building codes will reduce property and infrastructure damage after earthquakes.	New
55	Create a seismic safety committee to provide policy recommendations, evaluate and recommend changes in seismic safety standards, and give an annual assessment of local and statewide implementation of seismic safety improvements.	2.1	Medium	Earthquake	GSA; AEMA	USGS, NEHRP/ FEMA	Mid-Term	Unknown	A committee dedicated to earthquake safety will drive mitigation initiatives forward towards completion.	New
56	Facilitate outreach to communities in the northwestern part of the state to educate homeowners and homebuilders about methods to strengthen and retrofit non-reinforced masonry buildings and non-ductile concrete facilities that are particularly vulnerable to ground shaking.	3.1	Medium	Earthquake	AEMA; GSA; ACES	USGS, NEHRP/ FEMA	Mid-Term	Unknown	Stronger building methods prevent damage and losses during earthquakes.	New

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
57	Upgrade the State's monitoring capabilities for earthquakes.	2.6	Medium	Earthquake	AEMA; GSA	USGS, NEHRP/ FEMA	Long-Term	Individual Project costs associated with Map Production and Seismic monitoring equipment	Resulting maps indicate areas of greatest risk. Such maps can lead to wiser use of land and substantial savings to the State and its citizens.	Deferred - due to funding
58	Establish a system of 6 short-band seismic stations within the state.	2.6	Low	Earthquake	AEMA; GSA	USGS, NSF	Long-Term	Individual project costs associated with each short-band seismic station.	Provides a system of 6 short-band seismic stations to monitor seismic activity within the State that may indicate areas at risk for larger quakes.	Deferred - due to funding
59	Develop an emergency preparedness and response plan about earthquakes, landslides and sinkholes/subsidence for the state's Boards of Education to use in each school system.	2.4	High	Earthquake; Landslides; Sinkholes/Subsidence	AEMA; GSA	USGS, FEMA	Long-Term	Staff Time and production costs TBD by scope for each school system	Prepares citizens for an emergency. Avoids panic and saves lives.	Deferred - due to funding
60	Develop an earthquake, landslide and sinkhole/subsidence education program for the state's Boards of Education to use in each school system.	4.2	Low	Earthquakes; Landslides; Sinkholes/Subsidence	AEMA; GSA	USGS, FEMA	Mid-Term	Staff Time and production costs	Prepares citizens for an emergency. Avoids panic and saves lives.	Deferred - due to funding
61	Work with local communities to identify and establish new locations for state temporary relief centers for extreme temperature events.	2.4	Low	Extreme Temperature	AEMA	HMGP	Long-Term	Construction costs TBD by project specifications.	Creating centers in communities provides a place for the public to go for relief from extreme temperature events. Mitigates loss of life to events.	New

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
62	Create an education campaign to raise public awareness of the location of state relief centers for extreme temperature events.	3.2	Low	Extreme Temperatur e	AEMA	Multiple funding sources; State funds	Mid-Term	Staff Time	Educating the public about hazards in their area builds capacity to complete mitigation projects that increase community resilience.	New
63	Provide technical assistance (community assistance visits, contacts, workshops and/or publications) to local officials on proper implementation of the NFIP.	1.1	Medium	Flood	OWR	FEMA CAP and CTP Grants	Near-Term	Staff Time	Well trained local officials in the NFIP will result in safer communities.	Ongoing
64	Evaluate community Flood Insurance Studies (FIS's) and Flood Insurance Rate Maps (FIRMs) for accuracy in order to prioritize requests for funding from FEMA to update flood studies and maps, and create additional risk mapping products.	1.1	Medium	Flood	ADCNR; OWR	N/A	Near-Term	Staff Time	Lack of information on flood vulnerability can inhibit effective flood protection measures.	Ongoing
65	Perform outreach to communities to promote the development and maintenance of critical facilities spatial databases to use for hazard mapping and analysis.	1.1	Medium	Flood	OWR	No info provided	Near-Term	Staff Time	Lack of maps that include critical facilities can inhibit effective flood protection of these structures.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
66	Support communities in reviewing the preliminary Flood Insurance Studies and Flood Insurance Rate Maps for approval and adoption.	1.1	Low	Flood	OWR; Local Government	FEMA CTP Grant	Near-Term	Staff Time	Understanding vulnerability will help to frame discussions by decision makers on how to preserve and protect assets from hazard events.	Ongoing
67	Obtain periodic updates of RL and SRL lists from FEMA/NFIP and ensure that appropriate officials have access to the data.	1.3	Low	Flood	AEMA; ADECA; FEMA	N/A	Near-Term	Staff Time	Flooding (particularly repetitive losses) is the single most significant natural hazard in the State, in terms of monetary losses and disruptions. The overall State mitigation strategy is focused on reducing these damages by various means, including FEMA grant programs. These programs rely on sound information as the basis for prioritizing actions.	Ongoing
68	Ensure that site-specific risk assessments are available to local officials, as the basis for identifying and prioritizing mitigation actions on a site-specific basis. This action may be accomplished in a number of ways, including AEMA performing risk assessments (either itself or using consultants/ contractors), or continuing to provide training and technical support.	1.3	Medium	Flood	AEMA	Existing State staff; potential outside resources to be determined	Near-Term	Staff time	Flooding is the most significant natural hazard in the State. This information is the basis for implementing numerous FEMA grant programs.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
69	Develop model ordinance for Gulf-fronting communities that requires higher standards for setbacks from waterfront and freeboard.	2.2	High	Flood	AEMA; ADCNR; SARPC; Local Government	ACAMP-CZMA funds	Mid-Term	Staff Time	Increased setbacks will reduce property damage from storm surge.	Ongoing
70	Develop and implement a detailed severe repetitive loss mitigation strategy that will qualify the State for 90-10 cost share under the FEMA SRL program	2.3	Medium	Flood	AEMA	N/A	Near-Term	Existing Federal and State Resources	Part of the process to initiate SRL program; establishes priorities for State and local jurisdictions to begin	Ongoing
71	Conduct community outreach, workshops, and training to increase NFIP participation	2.3	Low	Flood	AEMA, ADECA	N/A	Near-Term	Existing State Resources	Allows residents the ability to receive flood insurance claims and maintains eligibility in the FMA program of which flood insurance is a requirement	Ongoing
72	Provide updated SRL and RL lists to communities in advance of grant application windows. Include FEMA calculated avoided damages for SRL properties and any State calculated avoided damages for RL properties	2.3	Medium	Flood	AEMA	N/A	Near-Term	Existing State Resources	Retrofitting, elevating, or removing repetitive loss properties from known hazard areas protects property and lives as well as preserve personal, state, and federal financial resources	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
73	Increase state and local agencies' ability to issue flood warnings. (Construct automated stream gauging stations with rainfall measurement devices equipped with telemetry systems) - Choctawhatchee Pea Yellow River Watershed Authority's Flood Warning system in place. Consider expanding the program.	2.4	Low	Flood	OWR	No info provided	Long-Term	TBD based on individual project costs and other specific information.	Better information on rainfall data will provide the NWS and state and local agencies with the necessary data to issue flood warnings and protect lives and property.	Ongoing
74	Identify channels and ditches that must be improved to provide maximum drainage capacity.	2.6	Medium	Flood	AEMA; ADECA; ADCNR	FEMA CTP Grant; ACAMP-CZMA funds	Mid-Term	Staff Time	Supporting existing efforts to mitigate flood risk will reduce the impact of hazard events.	Ongoing
75	Develop regulations that preserve and rehabilitate natural systems to serve natural hazard mitigation functions (i.e., floodplains, wetlands, watersheds, and urban interface areas).	2.6	Medium	Flood	USDA; ADCNR; USACE; AEMA	ADCNR-EDRP, NOAA-CRP	Mid-Term	TBD by project scope	Preserving and rehabilitating natural systems will result in the production of natural hazard mitigation.	Ongoing
76	Create technical bulletin that educates local floodplain managers about the benefit of evaluating the hazard posed by the encroachment of non-native plant species into floodways.	3.1	Medium	Flood	OWR; AEMA	Unknown	Long-Term	Staff Time	Informing local officials on invasive plant species will contribute to the effective management of wetlands.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
77	Create technical bulletin that educates local floodplain managers to account for and incorporate wetland protection and mitigation sites into the planning process when preparing new studies for watercourses.	3.1	Medium	Flood	OWR; AEMA	Unknown	Mid-Term	Staff Time	Incorporating wetlands into the planning process will result in effective wetland management.	Ongoing
78	Modernize and improve access to flood gates for levee systems.	2.6	Medium	Flood	OWR; USACE	No info provided	Long-Term	Construction costs TBD by project specifics.	The modernization of flood control systems, such as flood gates for levee systems, will reduce the flooding hazard to lives and property.	Ongoing
79	Reduce the flooding risk to communities by acquiring property located in the 100-year floodplain and return it to open space.	2.6	Medium	Flood	AEMA; OWR; Local Government	HMA, HMGP grants	Near-Term	Construction costs TBD by project specifics. (historically >$1 million)	Open space will significantly reduce the flooding risk to communities.	Ongoing
80	Provide information and guidance to local communities to ensure they utilize flood control measures including the use of retention/detention basins and other stormwater management practices to retard the flow of water and reduce downstream damage.	3.2	Medium	Flood	OWR; USACE; ADCNR; Local Government	ACAMP-CZMA funds	Long-Term	Staff Time	The use of flood control measures will provide protection to properties from floods.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
81	Create education programs that increase community awareness about the process of requesting updated floodplain mapping from FEMA.	3.2	Low	Flood	ADECA; (OWR)	FEMA CTP Grant	Near-Term	Staff Time, Outreach Materials	Lack of information on flood vulnerability can inhibit effective flood protection measures.	Ongoing
82	Educate homeowners and renters that live in flood prone areas to purchase flood insurance, especially through the NFIP.	3.2	Low	Flood	OWR	No info provided	Mid-Term	Staff Time and production costs for outreach	Purchase of flood insurance will increase the awareness of flood mitigation among homeowners.	Ongoing
83	Increase the number of communities and tribes who participate in the Community Rating System through targeted education and outreach programs.	3.2	Low	Flood	OWR	No info provided	Near-Term	Staff Time	Increased CRS scores will result in lower insurance premiums for homeowners and will decrease the flood risk to the community.	Ongoing
84	Educate communities and tribes about methods to improve their CRS classification.	3.1	Low	Flood	OWR	No info provided	Mid-Term	Staff Time and production costs	Increased CRS scores will result in lower insurance premiums for homeowners and will decrease the flood risk to the community.	Ongoing
85	Coordinate activities between the state and local or regional water management authorities.	4.1	Low	Flood	OWR	No info provided	Near-Term	Staff Time	Effective coordination between water management agencies will reduce the risk from future flooding.	Ongoing
86	Create statewide minimum standards of 1-foot freeboard for new and substantially improved buildings.	2.2	Medium	Flood	AEMA; Alabama Building Commission	N/A	Mid-Term	Staff Time	Adding one foot of freeboard, above the mapped base flood elevation, can lower insurance costs on the structure and can better protect it from future flood events.	New

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
87	Identify erosion control projects to protect state assets and critical infrastructure from floods and implement as identified (e.g., reshape fields, reestablish terrace systems, stabilize active gullies and watercourses, removed sediment bars and debris in channels and stabilize channel banks.)	2.5	Medium	Flood	OWR; ADCNR; Local Government	None	Long-Term	Construction costs TBD by project specifics.	The use of erosion control measures will protect farmland and watershed infrastructure from floods.	Deferred - due to funding
88	Conduct an awareness campaign that educates the public about hail storms and methods to protect property from damages.	3.1	Low	Hail	AEMA	N/A	Near-Term	Staff Time	Educating the public about hazards in their area builds capacity to complete mitigation projects that increase community resilience.	New
89	Plant soil-stabilizing vegetation on steep, publicly-owned slopes to prevent roadway damage and traffic disruptions from landslides.	2.5	Medium	Landslide	ALDOT; GSA	USGS, FEMA	Long-Term	Construction costs TBD by project specifications.	Planting soil-stabilizing plants on steep slopes will prevent, or lessen the severity of landslides, protecting public roadways and maintaining operations and accessibility.	New
90	Retrofit existing state-owned facilities with surge protection systems to protect these facilities against damage from lightning.	2.5	Medium	Lightning	AEMA; Alabama Department of Economic and Community Affairs	HMGP	Near-Term	Approx. $5,000	Protecting state-owned facilities from lightning damage can prevent interruptions of critical services.	New

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
91	Create a state education program through the Alabama State Department of Education that teaches school children about the dangers of lightning and how to take safety precautions.	3.2	Low	Lightning	AEMA; ALSDE	HMGP	Mid-Term	Staff Time	Educating the public about hazards in their area builds capacity to complete mitigation projects that increase community resilience.	New
92	Develop a Transportation Resilience Plan for the Port of Mobile.	2.4	Medium	Sea Level Rise	AEMA; USACE; NWS	USDOT; NCHRP	Mid-Term	~$50,000	Understanding vulnerability will help to frame discussions by decision makers on how to preserve and protect assets from hazard events.	New
93	Perform a state-wide transportation vulnerability assessment.	2.4	Low	Sea Level Rise	AEMA; USACE; ALDOT; NWS	USDOT; NCHRP	Long-Term	~$250,000	Understanding vulnerability will help to frame discussions by decision makers on how to preserve and protect assets from hazard events.	New
94	Identify areas at risk of subsidence by monitoring changes in groundwater levels.	1.2	Medium	Sinkholes/Subsidence	GSA; AEMA	N/A	Mid-Term	Staff Time	Risk awareness allows for better planning to prevent loss of life and property.	New
95	To prevent property loss, acquire and demolish or relocate buildings and infrastructure in high-risk areas.	2.3	Medium	Sinkholes/Subsidence	AEMA; GSA	FEMA PDM; FEMA HMGP; HUD CDGB-DR	Long-Term	Contingent on number of building and infrastructure projects.	Relocating at-risk properties outside of hazardous areas prevents future loss of life and property.	New
96	Educate farmers about groundwater withdrawal and water conservation practices.	3.1	Low	Sinkholes/Subsidence	AEMA; Alabama Cooperative Extension System (ACES); GSA	N/A	Near-Term	Staff Time	Educating farmers about groundwater withdrawal conservation practices will diminish the rate of sinkhole formation.	New

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
97	Educate design professionals about where to locate information on subsidence rates and maps.	3.1	Low	Sinkholes/Subsidence	AEMA; GSA	N/A	Near-Term	Staff Time	Better informed design professionals can build safer buildings and infrastructure.	New
98	Develop and maintain a statewide real-time or near real-time record or reporting system of sinkhole/subsidence, landslides and earthquake events throughout the state.	1.2	Medium	Sinkholes/Subsidence, Landslides and Earthquakes	AEMA; GSA	N/A	Mid-Term	Staff Time	Better risk information will improve understanding for decisions to protect lives and property.	New
99	Construct five safe houses for district offices and purchase one 5KW generator for each safe house.	2.5	Medium	Tornadoes	ADCNR	FEMA HMA	Near-Term	Pending bids by contractors	Provides safe sheltering place	Deferred - due to funding
100	Develop an online GIS map that shows tsunami runup areas.	1.2	Low	Tsunami	Alabama Geographic Information Office (AGIO); GSA	Unknown	Mid-Term	Staff Time	Better risk information will improve understanding for decisions to protect lives and property.	New
101	Develop and deliver an education program that teaches residents about the risk of submarine landslide induced tsunamis.	3.2	Low	Tsunami	AEMA; GSA	N/A	Mid-Term	Staff Time	Educating the public about hazards in their area builds capacity to complete mitigation projects that increase community resilience.	New
102	Identify communities at risk to wildfire in urban interface; complete a minimum of (1) Community Wildfire Plan in each county	1.1	Low	Wildfire	AFC	US Forest Service, FEMA	Near-Term	$167,500 ($2,500 per plan x 67 counties)	Engage new development residents and developers in designing wildfire resistant neighborhoods.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
103	Coordinate with neighboring states to offer training courses on wildfire management, compatible with the National Wildfire Coordinating Ground Incident Command System.	1.1	Medium	Wildfire	AEMA; AFC	N/A	Near-Term	Staff Time	Better trained local officials will result in safer, more hazard resistant communities.	New
104	Develop standard zoning ordinance language that restricts development in wildland-urban interface zones.	2.2	Medium	Wildfire	AEMA; AFC	State Funds	Mid-Term	Staff Time	Limiting development in the wildland-urban interface zone reduces property damage and loss of life.	New
105	Educate homeowners about the resources available through the Alabama Forestry Commission website regarding protecting homes and forestland from wildfire. http://www.forestry.alabama.gov/homeowner_resources.aspx	3.2	Low	Wildfire	AEMA	N/A	Near-Term	Staff Time	Educating the public about hazards in their area builds capacity to complete mitigation projects that increase community resilience.	New
106	Implement a state fuels management program to reduce hazardous vegetative fuels on public lands, new essential infrastructure, or on private lands by working with landowners.	3.1	Medium	Wildfire	AEMA; AFC	US Forest Service, FEMA	Mid-Term	Unknown	Reducing hazardous vegetative fuels reduces the risk of wildfire, especially reducing the risk in the wildland-urban interface zone.	New
107	Encourage local governments to inventory their urban forests.	1.1	Medium	Wind	AFC	US Forest Service	Near-Term	Staff Time	Better asset information will improve understanding for decisions to protect lives and property.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
108	Maintain tornado safe room initiatives statewide.	2.6	Medium	Wind	AEMA; NOAA; Local Government	HMA	Near-Term	Staff Time	Continues efforts to reduce tornado risk to citizens Statewide. Tornadoes, included in the "High Wind" hazard, are identified as one of three most significant hazards in the State.	Ongoing
109	Create a state rebate or grant program for retrofitting (or modifying) existing residential homes, community critical facilities, and infrastructure to reduce future wind damage.	2.6	High	Wind	AL Insurance Department	State funds	Near-Term	Staff Time and Production costs	Improving the structural integrity of vulnerable homes and securing contents will improve the safety of households that might not be able to afford repairs.	Ongoing
110	Encourage the use of software such as ITREE to both manage and predict tree damage.	2.6	Low	Wind	Department of Forestry	US Forest Service	Near-Term	Staff Time and Software costs	Promoting use of software will assist in risk identification.	Ongoing
111	Retrofit state owned public buildings and critical facilities to reduce future wind damage from tornados and hurricanes (per FEMA 361).	2.6	Medium	Wind	AEMA; Local Government	Multiple funding sources	Long-Term	Staff Time	Retrofitting structures can mitigate future damage from wind events.	Ongoing
112	Create a state program to promote the planting of indigenous trees that are more resilient to high wind events.	2.6	Medium	Wind	AFC	US Forest Service	Long-Term	TBD - Cost of trees in critical areas	Proper use of indigenous trees can serve to mitigate damage to structures by shielding from wind. Additionally, they are less likely to result in debris.	Ongoing

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
113	Encourage the integration of Tree Emergency Plans into the risk assessment portion of all local mitigation plans.	2.6	Medium	Wind	AFC	US Forest Service, FEMA	Mid-Term	Staff Time	Increasing accessibility to new information/data such as Tree Emergency Plans strengthens mitigation planning as trees are a major source of damage during wind events.	Ongoing
114	Conduct ongoing outreach to communities to inform residents of state run shelter locations and evacuation routes.	3.2	Medium	Wind	AEMA	N/A	Mid-Term	Staff Time	Educating the public about hazards in their area builds capacity to complete mitigation projects that increase community resilience.	New
115	Develop and incorporate a new standard in all state-wide building codes that requires a standard system be incorporated into window design and protection for all new construction.	2.1	High	Wind	AACC; ALM	N/A	Long-Term	Staff Time	Improving building inspections will increase the integrity of structures and protect occupants during hazard events.	Deferred - due to funding
116	Create teams of Arborists to assist in performing damage assessments and recommend mitigation projects.	4.2	Low	Wind	Department of Forestry	US Forest Service	Mid-Term	Staff Time	Coordinating with specialists prior to a disaster will aid in the implementation of mitigation actions following a disaster.	Deferred - due to funding
117	Develop design criteria for marinas, piers and other coastal structures with respect to storm resistance.	2.1	Medium	Wind; Floods	Building Code Commission; OWR; Local Government	Operating Budget	Mid-Term	Staff Time	Developing design criteria will reduce the probability that these structures will be affected by hazards.	Deferred - due to funding

Action #	Action	Obj.	Priority	Hazard(s) Addr.	Responsible Agency	Funding Source	Projected Timeline	Projected Cost	How Action Contributes to Mitigation Strategy	2018 Status
118	Establish capacity to purchase and utilize remotely sensed imagery as a tool to develop localized risk models to mitigate storm damaged forest hazards.	1.1	Medium	Wind; Storm Surge; Wildfire	AFC	US Forest Service, FEMA	Near-Term	$19,386 (ERDAS IMAGINE Pro 10 software license; 3-yr maintenance contract)	By implementing collaborative AFC and local agency strategies to mitigate potential damage, injuries, and costs related to storm damaged urban and interface trees and forests.	Deferred - due to funding

5.1.3 Strategy for Mitigating Repetitive Loss and Severe Repetitive Loss Properties

Mitigating risk to Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties is a high priority for the State of Alabama. In conjunction with FEMA initiating the SRL program, the State is presently re-emphasizing its commitment to mitigating losses to flood prone properties through a range of actions, including:

1. Develop, adopt, and implement Repetitive Loss/Severe Repetitive Loss Mitigation appendix to the State Hazard Mitigation Plan.
2. Promulgate most current guidance and requirements to local municipalities. The guidance includes plan review criteria so that jurisdictions with RL and SRL properties clearly understand the importance of having an approved plan, regarding qualifying for FEMA mitigation grant program funding.
3. Perform detailed study of risks and costs of mitigating properties and identify the most at risk and most cost-effective properties to mitigate.
4. Re-emphasize the need for counties and local communities to include RL and SRL properties in their mitigation plans and provide guidance and technical assistance in methods to accomplish this.
5. Develop criteria related to RL and SRL properties in county and local mitigation plans.
6. Implement a mitigation project ranking methodology that gives higher priority to projects that mitigate risk to RL and SRL properties (by assigning higher scores to projects that do so).
7. In the State HMP, assign high priority to actions that mitigate SRL and RL properties.
8. Provide training and technical assistance to the jurisdictions with the greatest numbers of RL and SRL properties. This effort includes providing the same level of training to the top SRL/RL counties in the State that FEMA provided to Alabama when the Agency initiated the SRL program. The State will incorporate most current FEMA guidance and training when it delivers training and assistance.
9. Provide local and regional jurisdictions with annual updates to SRL and RL lists, FEMA actuarial calculations of the potential benefits of mitigation actions for SRL and RL properties, and to the extent possible, risk estimates for RL properties.

As part of implementing this RL/SRL Strategy, the State is establishing Mobile and Baldwin counties as priorities in its ongoing efforts to mitigate flood risks to such properties. However, there is a wide distribution of these properties across the state, so although these counties may be the State's priority areas, in many cases there may be highly cost-effective projects in other areas. The State will always consider mitigation projects on a case-by-case basis.

5.1.3.1 Strategy to Encourage Local Communities to Mitigate RL and SRL Properties

The State of Alabama has a well-established and effective system for supporting local communities in developing mitigation projects. AEMA intends to increase emphasis on mitigating

SRL and RL properties at the local level through the following actions, many of which are already part of existing procedures:

1. Continue to support local communities with technical training related to mitigation, including risk assessment, benefit-cost analysis, and environmental compliance.
2. Provide communities with the most current lists of SRL and RL properties, including (when possible) preliminary risk calculations to allow communities to prioritize their actions.
3. Increase the emphasis on mitigating SRL and RL properties during applicant briefings.
4. Issue planning guidance to counties reiterating FEMA/State emphasis on RL/SRL.
5. Make communities aware that the State is implementing a project ranking procedure that emphasizes mitigating SRL and RL properties by assigning higher scores to projects that mitigate such risks.

5.1.3.2 Actions in the Mitigation Strategy that address RL and SRL Properties

The following actions specific to reducing the number of RL and SRL properties statewide were developed by AEMA, reviewed by the SHMT, and incorporated into the 2018 Plan Update. The goals, objectives and actions addressed in the Mitigation Strategy have been created to focus on the mitigation of RL and SRL properties.

Goal 1: Enhance the comprehensive statewide hazard mitigation system.

Objective 1.3: Ensure that State, county and local officials have most current data regarding RL and SRL properties.

Action	Obtain periodic updates of RL and SRL lists from FEMA/NFIP and ensure that appropriate officials have access to the data.
Priority	Low
Hazard(s) Addressed	Flood
Responsible Agency	AEMA; ADECA; FEMA
Funding Source	N/A
Projected Timeline	Ongoing
Projected Cost	Staff Time
How Action Contributes to Mitigation Strategy	Flooding (particularly repetitive losses) is the single most significant natural hazard in the State, in terms of monetary losses and disruptions. The overall State mitigation strategy is focused on reducing these damages by various means, including FEMA grant programs. These programs rely on sound information as the basis for prioritizing actions.
2018 Status	Ongoing

Goal 2: Reduce the State of Alabama's vulnerability and increase resilience to hazards to protect people, property, and natural resources.

Objective 2.3: Enforce a program that reduces the Statewide number of Repetitive Loss and Severe Repetitive Loss properties.

Action	Develop and implement a detailed severe repetitive loss mitigation strategy that will qualify the State for 90-10 cost share under the FEMA SRL program
Priority	Medium
Hazard(s) Addressed	Flood
Responsible Agency	AEMA
Funding Source	N/A
Projected Timeline	Near-Term
Projected Cost	Existing Federal and State Resources
How Action Contributes to Mitigation Strategy	Part of the process to initiate SRL program; establishes priorities for State and local jurisdictions to begin
2018 Status	Ongoing

Action	Provide updated SRL and RL lists to communities in advance of grant application windows. Include FEMA calculated avoided damages for SRL properties and any State calculated avoided damages for RL properties
Priority	Medium
Hazard(s) Addressed	Flood
Responsible Agency	AEMA
Funding Source	N/A
Projected Timeline	Near-Term
Projected Cost	Existing State Resources
How Action Contributes to Mitigation Strategy	Retrofitting, elevating, or removing repetitive loss properties from known hazard areas protects property and lives as well as preserve personal, state, and federal financial resources
2018 Status	Ongoing

5.2 Prioritization of Funding

The prioritization of funding for mitigation projects in communities and local jurisdictions includes consideration of the following criteria that will be discussed in further detail in these sections:

- Jurisdictions with the highest risk

- Repetitive loss properties
- Development pressure
- Cost benefit review

Applicants must demonstrate that their risk is sufficient to merit grant funds, particularly when compared to the project cost, but there is often considerable uncertainty in risk determinations. For this and other reasons, the State considers a variety of factors in addition to risk and benefit-cost (BC) analysis in determining its priorities for mitigation grants.

There was no official grant evaluation process in Alabama prior to 2005. In 2005, following the State's HMGP allocation after Hurricane Katrina (Federal Disaster Declaration 1605), AEMA developed a process to evaluate grants and prioritize funding. Relevant criteria such as jurisdictions with the highest risk and a benefit cost analysis were considered and the specific process can be found in previous versions of the plan. However, until the DR-1971 April Tornadoes event, the state had not been faced with a situation where the amount of money requested exceeded that received. As a result, the process was revised and is referred to as the Hazard Mitigation Grant Program Implementation Process. Details of this three-phase implementation process have been captured in Appendix 7.10.

For hazard mitigation plan development grants specifically, the current process is for AEMA to request and divide the funds among the counties who request it, thus serving as the grantee and sub-grantee. Those counties whose plan expires first are given the highest priority for funds.

5.2.1 Jurisdictions with Highest Risk

One of the primary purposes of this Plan is to identify the areas within Alabama with the highest risk of damage from natural hazards. **Section 5.3** of this plan contains the Vulnerability Assessment and Loss Estimation for the three most significant hazards in Alabama. The estimated property damage loss results from each hazard's assessment were ranked from 1 to 67, where 1 is the county with the largest estimated losses. In addition, RL and SRL data was summarized by county, and the total claims payments were ranked as well, where 1 is the county with the largest total claims paid. The rankings for RL (where available), SRL (where available), flood, hurricane wind, tornado wind, and earthquake were combined into one table and an average ranking score was computed for each county. The results of this analysis are shown in Table 5.4 and suggest that a well-defined group of counties, mostly those with the greatest populations and those close to the Gulf coastline, are at the greatest risk to impacts from a variety of hazards. Those counties that ranked in the top ten in the table generally have populations close to or greater than 100,000 and have some of the greatest loss potential. Mobile and Baldwin counties ranked highest for flood and hurricane wind loss, however their loss potential for an earthquake and historic reported tornados was significantly lower than other counties.

Although the State does not have a formal system established to evaluate and prioritize potential mitigation projects based on risk, this plan update is partly intended to identify those jurisdictions with the greatest risk. While the ranking methodology described above and shown below

highlights areas with the greatest loss potential, it may not fully reflect the risk that is faced by some of the smaller, less populated counties in the state. In general, the State will continue to direct mitigation grant funds to the areas with the highest risk. However, in many cases, more localized risk assessments (often produced in the local mitigation planning process), as well as risk assessments and benefit cost analyses done in support of applications, could demonstrate many areas of high vulnerability outside the higher-risk counties identified in this plan.

This ranking should be considered only a general indication of risk statewide. As noted elsewhere in this plan, accurate risk assessments and information about the performance and costs of mitigation measures (including policy changes), are the primary basis of mitigation planning. To be truly accurate, risk assessments must be highly localized, often addressing a single asset or operation. Because of this, the state-level risk assessment should be considered only a guide that identifies where the most risk is at a county level.

Table 5.4 Average Ranking for Hazard Losses by County

County	Overall Rank	Average Rank	RL Total Payments	SRL Total Payments	Historic Tornado Damage ($ 2017)	Wind Property Damage (AAL)	1-Percent-Annual Flood	Earthquake Property Damage (AAL)	Population
Jefferson	1	3.0	3	4	2	5	3	1	659,521
Shelby	2	7.0	4	3	13	12	6	4	210,622
Tuscaloosa	3	7.2	11	N/A	1	14	7	3	206,102
Madison	4	8.0	12	8	4	20	2	2	356,967
Baldwin	5	13.2	1	1	38	2	1	36	208,563
Mobile	6	13.5	2	2	47	1	4	25	414,836
Limestone	7	17.2	10	15	3	41	23	11	92,753
Morgan	8	18.6	17	N/A	24	36	10	6	119,012
Calhoun	9	19.0	36	N/A	10	27	9	13	114,611
St. Clair	10	19.2	28	N/A	5	34	13	16	88,019
Montgomery	11	19.4	37	N/A	33	4	5	18	226,349
Coffee	12	20.5	6	12	6	8	37	54	51,226
Talladega	13	21.0	35	N/A	16	29	8	17	80,103
Autauga	14	21.7	8	7	37	19	24	35	55,416
Etowah	15	22.2	22	N/A	32	31	17	9	102,564
Marshall	16	23.8	25	9	22	45	32	10	95,157
Elmore	17	24.2	38	N/A	21	17	16	29	81,799
Colbert	18	24.5	14	5	43	56	22	7	54,216
Dallas	19	25.0	21	N/A	35	23	12	34	40,008
Walker	20	25.2	33	N/A	7	39	33	14	64,967
Lauderdale	21	25.3	16	13	56	48	14	5	92,318
Dale	22	25.8	7	6	20	9	58	55	49,226
Lee	23	26.0	34	N/A	30	15	25	26	158,991
Cullman	24	26.0	N/A	N/A	8	38	46	12	82,471
Escambia	25	26.4	5	N/A	54	3	18	52	37,728
Dekalb	26	27.0	N/A	N/A	25	54	21	8	70,900
Houston	27	27.2	13	N/A	45	6	27	45	104,056

County	Overall Rank	Average Rank	RL Total Payments	SRL Total Payments	Historic Tornado Damage ($ 2017)	Wind Property Damage (AAL)	1-Percent-Annual Flood	Earthquake Property Damage (AAL)	Population
Blount	28	28.2	15	N/A	26	44	35	21	57,704
Russell	29	28.3	N/A	N/A	23	26	20	44	58,172
Hale	30	28.6	26	N/A	11	43	26	37	14,952
Marion	31	29.4	29	N/A	9	58	31	20	29,998
Jackson	32	30.2	30	N/A	34	57	15	15	52,138
Tallapoosa	33	30.3	N/A	N/A	19	28	43	31	40,727
Cherokee	34	30.6	31	N/A	28	59	11	24	25,725
Lawrence	35	31.5	23	14	29	61	40	22	33,244
Pickens	36	31.8	20	N/A	15	53	39	32	20,324
Bibb	37	34.6	44	N/A	14	46	36	33	22,643
Chilton	38	34.8	N/A	N/A	39	32	41	27	43,941
Geneva	39	35.0	9	11	63	10	53	64	26,614
Marengo	40	35.0	N/A	N/A	36	35	28	41	19,673
Choctaw	41	35.4	32	N/A	46	30	19	50	12,993
Covington	42	36.8	24	N/A	48	7	49	56	37,458
Coosa	43	38.8	27	10	42	55	51	48	10,581
Franklin	44	39.3	N/A	N/A	27	66	45	19	31,628
Fayette	45	40.5	N/A	N/A	17	63	54	28	16,546
Greene	46	41.4	18	N/A	49	60	34	46	8,422
Perry	47	42.8	N/A	N/A	12	52	60	47	9,574
Sumter	48	42.8	45	N/A	41	47	38	43	13,040
Chambers	49	42.8	39	N/A	52	40	44	39	33,843
Monroe	50	43.2	43	N/A	44	13	59	57	21,530
Clarke	51	44.3	N/A	N/A	55	16	57	49	24,392
Clay	52	44.5	N/A	N/A	18	65	55	40	13,492
Washington	53	44.8	42	N/A	61	11	50	60	16,756
Randolph	54	46.5	N/A	N/A	51	50	47	38	22,652
Henry	55	46.5	N/A	N/A	31	25	63	67	17,164

County	Overall Rank	Average Rank	RL Total Payments	SRL Total Payments	Historic Tornado Damage ($ 2017)	Wind Property Damage (AAL)	1-Percent-Annual Flood	Earthquake Property Damage (AAL)	Population
Lamar	56	46.6	40	N/A	53	62	48	30	13,918
Pike	57	47.3	N/A	N/A	50	22	64	53	33,286
Winston	58	48.0	N/A	N/A	40	64	65	23	23,805
Wilcox	59	49.2	41	N/A	65	37	42	61	10,986
Cleburne	60	50.5	N/A	N/A	64	67	29	42	14,924
Butler	61	50.8	N/A	N/A	62	21	61	59	19,998
Lowndes	62	50.8	N/A	N/A	60	51	30	62	10,358
Barbour	63	51.5	N/A	N/A	59	33	56	58	25,965
Conecuh	64	51.8	N/A	N/A	57	18	67	65	12,395
Macon	65	52.8	N/A	N/A	66	42	52	51	18,963
Crenshaw	66	52.8	N/A	N/A	58	24	66	63	13,913
Bullock	67	61.0	N/A	N/A	67	49	62	66	10,362

5.2.2 Repetitive Loss Properties

Although the Flood Mitigation Assistance (FMA) programs prioritizes funding towards the mitigation of repetitive loss properties, FEMA currently has no formal requirement that grants funded through the HMGP or PDM address repetitive losses. However, in response to the Federal emphasis on reducing the burden of repetitive losses on the NFIP, the State presently considers the repetitive loss status of properties in determining the grants it will support (i.e. forward to FEMA for consideration and funding). The FMA program mandates that grant funds be directed to NFIP insured repetitive loss properties, and the State will continue to comply with this requirement, as it has since the inception of the FMA program.

The National Flood Insurance Reform Act (NFIRA) of 2004 was signed into law by the President on June 30, 2004. NFIRA reforms the NFIP to create a disincentive for property owners to live in repetitively flooded areas. Rather than continue to rebuild, the program would provide repeatedly flooded homeowner's assistance in either elevating or moving their homes away from flood waters. The Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12) required the NFIP to reduce subsidies provided to pre-Flood Insurance Rate Maps structures over time, further incentivizing the need to mitigation structures. Those who refuse mitigation assistance would incur the long-term losses associated with living in high risk areas.

The county ranking table in section 5.2.1 summarizes the counties with the largest total payments towards RL and SRL properties. The two coastal counties, Mobile and Baldwin, have the largest total payments, followed by the inland counties of Birmingham and Shelby. These counties will be prioritized by the state for outreach to educate local officials on how to pursue funding for property mitigation.

5.2.3 Most Intense Development Pressure

Development pressure is clearly a potential factor in any risk determination, however, development undertaken in accordance with effective comprehensive planning and plan implementation tools, such as building codes, zoning ordinances, subdivision regulations, floodplain management ordinances, and capital improvements programming should in many cases be less risky than existing developed areas. The State recognizes that increased development does cause new population settlements, construction of new buildings, and expansion of infrastructure. These development pressures could increase exposure of population, buildings, and infrastructure to the risks of natural hazards. Although development and growth are in themselves not risks, local mitigation planning fully integrated into a community's comprehensive planning and regulatory program can reduce exposure of new development to natural hazards risks. A community's planning responses to manage growth and development is essential to effective local mitigation, and these factors are carefully considered by the State in its project review process.

5.2.4 Maximizing Benefits According to Benefit-Cost Review of Local Projects

The regulations that apply to all FEMA mitigation grant programs require all mitigation projects to be cost effective. Under some pre-established conditions, certain projects may be exempt from this regulation, but in most cases, projects are provided a benefit-cost analysis either prior to submission to AEMA and FEMA for funding consideration, or during the grant evaluation process. The PDM program further emphasizes the role of cost effectiveness by making the benefit-cost ratio the single most important criterion in project rating and evaluation.

For all Hazard Mitigation Assistance grant programs (HMGP, PDM, and FMA), the regulations require only that proposed mitigation projects are cost-effective, not that they are the most cost-effective of projects that the State or FEMA is considering. In most cases, grant applications are either accompanied by a benefit cost analysis (BCA), or AEMA or FEMA perform one in accordance with FEMA and OMB regulations. Projects that do not achieve the required 1.0 benefit cost ratio and are not exempt from BCA are rejected from funding consideration. This is the case for all FEMA mitigation grant programs.

5.3 Mitigation Successes

From 2004 to present, Alabama has successfully implemented mitigation projects throughout the state that address a variety of hazards. FEMA's Hazard Mitigation Grant Program has been a primary source of funding to complete these mitigation projects. To date, over $200 million has been obligated towards mitigation projects pursued by the State of Alabama using HMGP funds (Table 5.5). A little over half of these funds (~$111 million) have been used to fund 817 safe room projects (Table 5.6) across the state. In addition, Alabama has successfully secured several FEMA PDM grants to fund several hazard mitigation plan updates and flood mitigation projects (Table 5.7).

While all mitigation projects, big and small, have contributed to the effectiveness of Alabama's recovery and mitigation, several projects have been highlighted as Alabama "Success Stories" in the section below.

Table 5.5 Federal Funds Obligated for Alabama HMGP Projects from 2004- 2018

Disaster Number	Declaration Date	Event	Acquisition	Elevation	Feasibility, Engineering and Design Studies	Flood Control	Floodproofing	Generators	Hazard Mitigation Plan	Infrastructure Protective Measures	Mitigation Reconstruction	Relocation	Retrofitting	Safe Room	Stabilization	Stormwater Management	Utility Protective Measures	Warning Systems	Total
DR-1549	9/15/2004	Hurricane Ivan	$9,159,077	$553,375	$6,070,229	$0	$0	$2,318,670	$640,055	$69,041	$0	$0	$472,886	$8,320,773	$0	$1,340,107	$6,655,911	$2,280,423	**$37,880,547**
DR-1593	7/10/2005	Hurricane Dennis	$0	$58,526	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$888,750	$0	$0	**$947,276**
DR-1605	8/29/2005	Hurricane Katrina	$5,384,969	$1,038,386	$7,138,580	$0	$844,825	$4,035,864	$2,815,004	$205,258	$1,053,149	$17,650	$5,938,385	$22,082,257	$0	$5,144,372	$1,092,158	$3,858,847	**$60,649,704**
DR-1687	3/3/2007	Severe Storms And Tornadoes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$690,000	$813,000	$0	$0	$0	$0	**$1,503,000**
DR-1789	9/10/2008	Hurricane Gustav	$0	$0	$0	$0	$0	$0	$152,277	$0	$0	$0	$0	$1,294,528	$0	$0	$0	$0	**$1,446,805**
DR-1797	9/26/2008	Severe Storms And Flooding Associated With Hurricane Ike	$0	$37,223	$0	$0	$0	$0	$63,750	$0	$0	$0	$0	$158,804	$0	$1,546,125	$0	$105,105	**$1,911,007**
DR-1835	4/28/2009	Severe Storms, Flooding, Tornadoes & Straight-Line Winds	$582,168	$271,819	$0	$0	$0	$290,001	$149,762	$33,410	$0	$0	$0	$1,478,829	$0	$0	$377,538	$867,375	**$4,050,902**
DR-1836	5/8/2009	Severe Storms, Flooding, Tornadoes, And Straight-Line Winds	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$550,269	$0	$0	$0	$74,164	**$624,433**
DR-1842	6/3/2009	Severe Storms, Tornadoes, Flooding, And Straight-Line Winds	$0	$0	$0	$554,347	$0	$0	$0	$0	$0	$0	$0	$187,588	$0	$690,143	$0	$0	**$1,432,078**
DR-1866	12/22/2009	Tropical Storm Ida	$0	$0	$0	$0	$0	$0	$47,090	$0	$0	$0	$0	$1,153,171	$0	$68,156	$21,269	$135,550	**$1,425,236**
DR-1870	12/31/2009	Severe Storms And Flooding	$543,366	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,067,298	$0	$0	$0	$93,300	**$1,703,964**
DR-1908	5/3/2010	Severe Storms, Tornadoes, Straight-Line Winds, And Flooding	$5,717,219	$0	$0	$60,672	$0	$669,803	$0	$0	$0	$0	$0	$1,145,350	$0	$0	$318,310	$58,236	**$7,969,590**
DR-1971	4/28/2011	Severe Storms, Tornadoes, Straight-Line Winds, And Flooding	$0	$216,318	$0	$0	$0	$3,325,580	$1,221,695	$0	$0	$0	$1,435,711	$64,218,827	$0	$0	$0	$3,153,834	**$73,571,965**
DR-4052	2/1/2012	Severe Storms, Tornadoes, Straight-Line Winds, And Flooding	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$146,221	$0	$0	$0	$0	**$146,221**
DR-4082	9/21/2012	Hurricane Isaac	$0	$0	$0	$0	$0	$23,099	$0	$0	$0	$0	$1,573,107	$1,018,297	$0	$22,500	$0	$43,300	**$2,680,303**
DR-4176	5/2/2014	Severe Storms, Tornadoes, Straight-Line Winds, And Flooding	$307,939	$67,726	$0	$0	$147,263	$73,427	$0	$0	$0	$0	$0	$6,313,781	$0	$53,624	$0	$802,500	**$7,766,260**
DR-4251	1/21/2016	Severe Storms, Tornadoes, Straight-Line Winds, And Flooding	$0	$0	$0	$0	$0	$1,295,830	$0	$0	$0	$0	$0	$1,698,084	$0	$0	$0	$227,700	**$3,221,614**
		Total:	**$21,694,738**	**$2,243,373**	**$13,208,809**	**$615,019**	**$992,088**	**$12,032,274**	**$5,089,633**	**$307,709**	**$1,053,149**	**$17,650**	**$10,110,089**	**$111,647,077**	**$0**	**$9,753,777**	**$8,465,186**	**$11,700,334**	**$208,930,905**

Table 5.6 Count of HMGP Projects by Disaster, 2004 - Present

Disaster Number	Acquisition	Advanced Assistance	Elevation	Feasibility, Engineering and Design Studies	Flood Control	Floodproofing	Generators	Hazard Mitigation Plan	Infrastructure Protective Measures	Mitigation Reconstruction	Relocation	Retrofitting	Safe Room	Stabilization	State Admin Costs	Stormwater Management	Utility Protective Measures	Warning Systems	Total Projects	Federal Share Obligated
1549	17		8	1			37	6	3			4	42		1	6	11	48	**184**	$39,661,678.00
1593			1									1				1			**3**	$947,276.00
1605	20		14	1		1	56	20	2	8	1	10	81		1	22	8	85	**330**	$63,138,573.00
1687												3	3						**6**	$1,503,000.00
1789								6					25		1	1			**33**	$1,486,158.00
1797			1					1					4		1	2		1	**10**	$1,990,734.00
1835	3		3				2	3	1				3		1		1	6	**23**	$5,066,771.00
1836					1								6		1			3	**11**	$688,694.00
1842					1								1		1	2		1	**6**	$1,495,005.00
1866								2					7		1	1	1	4	**16**	$1,505,845.00
1870	1						1						2		1			1	**6**	$1,703,964.00
1908	1				1		3						13		1		1	3	**23**	$7,979,621.00
1971			1				41	5				1	617		1			68	**734**	$74,189,344.00
4052													1						**1**	$146,221.00
4082							3					5	7		1	1		5	**22**	$2,723,359.00
4176	2	1	2			1	4						32		1	1		1	**45**	$7,856,448.00
4251							4						23		1			1	**29**	$3,347,358.00
Total	**112**	**1**	**45**	**12**	**9**	**2**	**151**	**59**	**14**	**8**	**4**	**26**	**871**	**3**	**19**	**67**	**25**	**259**	**1687**	**$260,379,842.00**

Table 5.7: Open Pre-Disaster Mitigation Grants by Project Type (as of first quarter of 2018)

Project Type	Total Project Amount	Count of Projects
Acquisition	$666,667.00	1
Community Safe Room	$927,635.00	3
Drainage	$7,882,343.00	4
Flood Reduction Project	$325,800.00	1
Local Hazard Mitigation Plan Update	$835,328.63	14
Plan Integration	$203,059.72	3
State Management Cost	$90,250.00	1
Total	$10,931,083.35	27

5.3.1 Mitigating RL and SRL Properties

Alabama has a successful record of implementing projects that mitigate damages to repetitive and severe repetitive loss properties. According to data provided by FEMA/NFIP, the State and federal governments have funded site-specific mitigation projects for 466 properties in 8 Alabama counties. These figures include mitigation actions for individual sites, including elevations, acquisitions, demolitions and relocations. According to the database, the NFIP had paid 3,133 flood insurance claims for damage to these properties; the claims totaled $140.5 million (historic value of claims, not inflated to present value). Project funds were provided through various FEMA mitigation grant programs (except the PDM and SRL, which had not funded any single-site mitigation projects, according to the database).

Over the past 10 years, the State of Alabama and FEMA have also funded numerous flood control projects statewide, and these presumably mitigate risk to repetitive and severe repetitive loss properties. However, neither FEMA nor the State maintain readily accessible or detailed records of specific RL or SRL properties that are protected by these projects. The State has consistently met FEMA requirements for proving the cost effectiveness of mitigation actions it funds, so presumably, many of the properties within the areas protected by these projects are in fact RL/SRL properties. Table 5.8 lists Alabama RL and SRL properties that have been mitigated (elevated, acquired, floodproofed and/or relocated). The figures refer only to mitigation actions funded by FEMA or the State.

Table 5.8 Mitigated RL and SRL Properties in Alabama (FEMA/NFIP Query)

County	# Mitigated RL/SRL Properties	NFIP Paid Claims	Value of NFIP Claim Paid
[PLACEHOLDER – AWAITING INFORMATION]			

5.3.2 Success Stories

5.3.2.1 Poarch Creek Flume Redesign

Willow Creek, a housing subdivision in the Poarch Creek Indian Reservation near Atmore experienced frequent flooding events from a nearby drainage basin. This put the residents of Willow Creek, including 30 elderly or disabled citizens, and an adjacent utilities building, at significant risk. Using accurate risk and mitigation studies, the Reservation identified an opportunity to rebuild an inadequately designed flume at the mouth of the basin. Using funds awarded from AEMA, Poarch Creek completed the project in 2002 for a total cost of $60,000, saving the Reservation from hundreds of thousands of dollars of potential damages in the years since.

5.3.2.2 Middle Coosa Watershed Areas of Mitigation Interest

As part of the FY 2011 Middle Coosa Watershed project, 427 Areas of Mitigation Interest (AoMIs) were identified. The OWR identified the need to assist the watershed by providing a link between this data and FEMA's Mitigation Action Tracker. Therefore, the 427 AoMIs were screened using geospatial analysis and engineering judgement to arrive at a list of eight "Mitigation Opportunities" in high average annualized loss (AAL) locations. The following information was provided for each Mitigation Opportunity: 1) physical identification on a map and description of the opportunity, 2) loss value estimates to establish the cost of the problem, and 3) suggested mitigation action to address the problem.

The mitigation actions presented can be input directly into FEMA's Mitigation Action Tracker, and OWR can provide support to the communities to advance these opportunities. Additionally, the Mitigation Opportunities can be utilized to assist in mitigation planning in the form of grant applications for action advancement funding. OWR plans to produce a similar report for future watersheds as part of the Risk MAP program.

5.3.2.3 Dauphin Island

Several homes in the Town of Dauphin Island, situated in Mobile County between Mobile Bay and the Gulf of Mexico, were regularly inundated by the storm surges that frequently accompany hurricanes. After Hurricane Ivan in 2004, the Town partnered with AEMA to acquire three of these homes. For less than $525,000, most of which was funded by FEMA's HMGP, the Town removed the repetitive-loss structures and built community parks in their place. Today, these parks are enjoyed by the whole community, featuring playground equipment, benches, and a habitat for native birds.

Buyout programs like this provide a cost-effective and long-term solution for both the community and for property owners by replacing at-risk structures with flood-resistant projects like parks or natural spaces.

5.3.2.4 Risk MAP

Risk MAP is a FEMA program that builds on the flood maps and flood hazard data produced by the Flood Map Modernization Program. Risk MAP continues to provide flood data to communities

but focuses on risk communication. Like Map Mod, the Alabama Department of Economic and Community Affairs –OWR is responsible for implementing the Risk MAP program within the State. There are five goals of the program including addressing flood hazard gaps, public awareness and outreach, hazard mitigation planning, enhanced digital platform, and alignment and synergies of risk analysis programs.

FEMA undertook a multi-year engineering analyses and mapping effort in cooperation with ADECA OWR to assess the risk of riverine and coastal flooding in Mobile and Baldwin Counties. Phase 1, Scoping, identified 33 riverine miles and 100 coastal miles in Mobile and 55 riverine miles and 111 coastal miles in Baldwin for new detailed engineering study. After the preliminary flood insurance study (FIS) and Flood Insurance Rate Maps (FIRMs) were completed in Phase 2, Phase 3 was initiated with the distribution of the preliminary FIS and FIRMs in November 2017 for Mobile County and July 31, 2017 for Baldwin County. Effective products are anticipated in the summer and winter of 2019. Together, these new detailed flood studies will more accurately portray present day flood risk in the riverine and coastal communities of these counties and will aid decision makers and homeowners in making decisions about methods to mitigate risk and plan for the future.

Watershed studies are scheduled to occur throughout Alabama and some are underway. However, none are complete now. Watershed planning transcends political boundaries to study risk and vulnerability in the entire hazard area. Ultimately, Risk MAP will help local officials make more informed decisions with regards to mitigation using these enhanced products and risk communication.

5.3.2.5 Alabama Safe Rooms

Severe storms impacted Alabama between April 27 and 30, 2014 and again between January 20 and 21, 2016, in both instances causing widespread tornado outbreaks and resulting in disaster declarations. The 2014 severe weather outbreak also caused very severe flooding when 20-26” of rain fell in Baldwin County. As a result of these disasters, $8 million was obligated by FEMA through the HMGP to fund community and residential safe room projects in the state. The obligation of these funds is a mitigation success for Alabama because these safe rooms will help to reduce lives lost in future tornado events.