

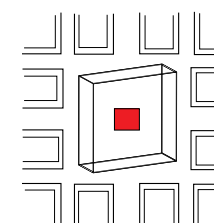


April 29, 2016

3rd Submittal



PLANNING · DESIGN · CONSTRUCTION

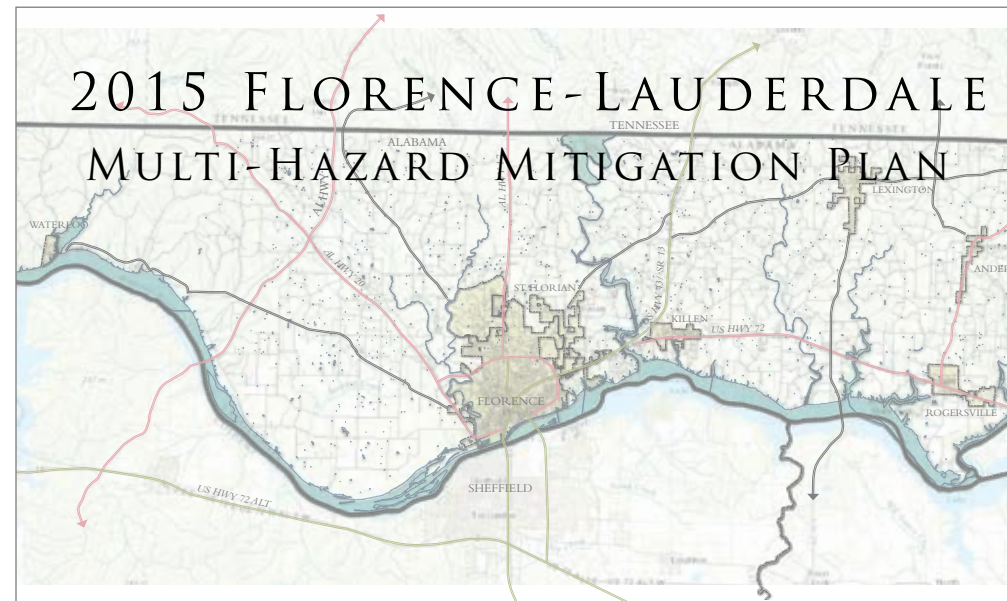


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2015 FLORENCE-LAUDERDALE MULTI-HAZARD MITIGATION PLAN

Acknowledgements

Section

A



Authority

This document is created under the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S. C. 5165. Hazard Mitigation Planning to mitigate natural disasters is a requirement of the Stafford Act in order for local jurisdictions to receive disaster mitigation funds. Natural Hazard Mitigation Planning is the process of reducing or eliminating the loss of life and property damage resulting from natural hazards such as floods, tornadoes, earthquakes and other events. Man Made Hazard Mitigation is the process of reducing or eliminating the loss of life and property damage resulting from manmade hazards.

Funding

Funding for the preparation and development of this plan was provided in part by the Federal Emergency Management Agency (FEMA) through a grant awarded by the Alabama Emergency Management Agency (AEMA) to the Florence-Lauderdale Emergency Management Agency (F-L EMA) and the Lauderdale County Commission.

Background

Preparation and development of this document began in June 2014 with planning and document content development with the Hazard Mitigation Planning Team. The team is composed of George M. Grabryan Jr., Director Florence-Lauderdale EMA; Melissa Bailey, Director, Florence Planning Department; Jesse Davis, Florence-Lauderdale EMA; Ben Smith, Florence Planning Department; Benjamin Farmer, Farmer|Morgan, LLC; Randall Morgan, Farmer|Morgan, LLC; Will Hargrove, Farmer|Morgan, LLC; Chastidy Piper, Farmer|Morgan, LLC

Policy Committee

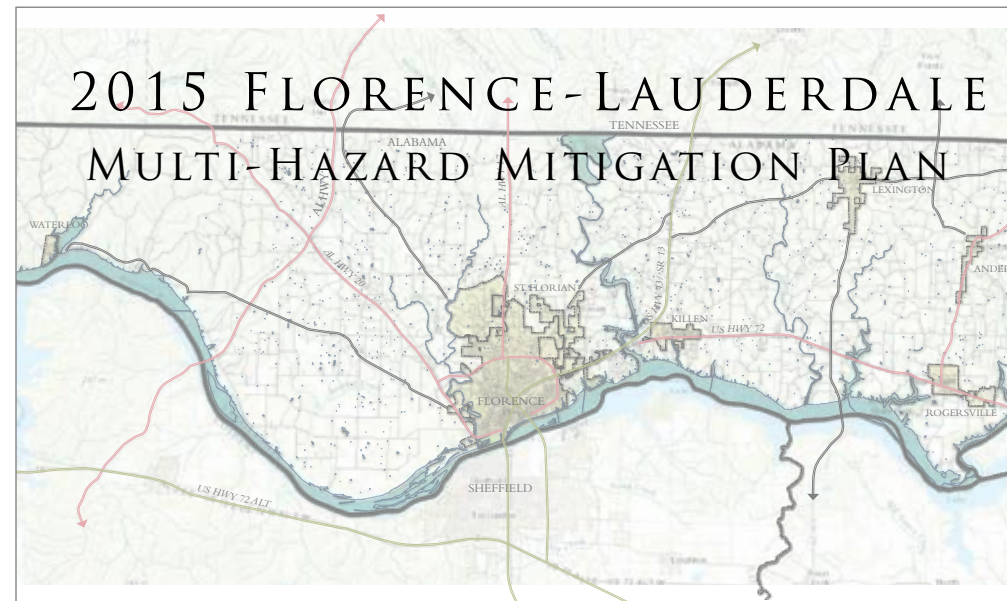
- Leah Newton, Mayor, Town of Anderson
- Mickey Haddock, Mayor, City of Florence
- Tim Tubbs, Mayor, Town of Killen
- Timothy Collier, Mayor, Town of Lexington
- Richard Herston, Mayor, Town of Rogersville
- Don Strait, Mayor, Town of St. Florian
- Mary Jenelee Higgins, Mayor, Town of Waterloo
- Judge, Dewey D. Mitchell, Chairman, Lauderdale County Commission
- George M. Grabryan Jr., EMA Director, Florence-Lauderdale EMA
- Melissa Bailey, Florence City Planner
- Hal Greer, Port Director, Florence Port Authority
- Jennifer Gray, School Superintendent, Lauderdale County Schools
- Janet Womack, School Superintendent, Florence City Schools
- Chief Bob Pastula, UNA Police Department
- Kevin Bowling, Director of Emergency Services, Eliza Coffee Memorial Hospital
- Steve Pierce, Chairman 911 Board/UNA Board of Trustees

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Introduction & Executive Summary

Section

B

INTRODUCTION & EXECUTIVE SUMMARY

- I.1 PURPOSE OF THIS PLAN
- I.2 PLANNING PROCESS
- I.3 GRANT ASSISTANCE ELIGIBILITY
- I.4 2015 MITIGATION PLAN UPDATE
- I.5 EXECUTIVE SUMMARY
- I.6 PLANNING STUDY AREA
- I.7 MODIFICATIONS TO PLAN UPDATE 2010-2015

Each year in this country, natural disasters result in the death of hundreds of people and injure thousands more. Taxpayers pay billions of dollars annually to assist communities, organizations, businesses, and homeowners with recovery efforts from disasters. However, this is just a fraction of the true cost of disasters as insurance companies and other private entities contribute additional monies to assist in the recovery cost. Many natural disasters are predictable and their damage costs could be lessened with adequate planning.

The Federal Emergency Management Agency (FEMA), developed the Hazard Mitigation Planning Process to assist and guide local and state governments in the development of a guidance document to identify, plan, and respond to natural hazards in a way that would reduce the loss of lives, injuries, and associated recovery cost. Hazard mitigation planning is defined by FEMA as “any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event.” The results of a congressional mandated 3-year study found that every \$1 spent on hazard mitigation activities saves taxpayers an average of \$4 in future disaster recovery. Therefore, the Disaster Mitigation Act 2000 was passed and requires governments to develop and implement hazard mitigation plans to be eligible for emergency funding.

I.1 Purpose of this Plan

Lauderdale County and its jurisdictions have prepared this update to the Florence-Lauderdale Multi-Jurisdiction Hazard Mitigation Plan to better protect the people and property of the county against any natural hazard event. The purpose of the plan is to identify potential natural disaster risks in Lauderdale County and it’s communities and proposed mitigation strategies that will reduce their adverse impact. After identifying potential risks, communities establish policies and actions to be implemented over the long term to reduce future risk and losses. The plan serves as the community’s strategy to responding to natural disasters and strives to break the repetitive cycle of disaster loss, reconstruction, and repeated loss through inadequate planning. The goals of the plan are to:

- Reduce the vulnerability of the community to natural and man-made hazards;
- Improve and maintain coordination between jurisdictions;
- Educate the public on potential hazards;
- Improve public hazard communications and safety notifications.

I.2 Planning Process

The planning process for the development of this Multi-Jurisdictional Hazard Mitigation Plan followed FEMA’s guidelines and involved public involvement through community meetings and workshops that resulted in the establishment of a Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan Policy Committee. The Committee, along with area citizens, identified the local hazards and risks through a community profile and determined how vulnerable the community was to these risks. The stakeholders and citizens then identified goals and objectives to address the risks and feasible mitigation strategies to lessen their effects. This data was compiled into this plan to be used as a strategy to guide future disaster mitigation actions and intended to be implemented upon adoption and updated when required.

Using FEMA’s guidelines, a four-step process was used to develop the Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan:

- Planning Process
 - >Organize the Planning Activities
 - > Involve the Public
 - >Coordinate between Jurisdictions
- Risk Assessment
 - > Identify Hazards
 - > Assess Risks
- Mitigation Strategy
 - > Establish Goals
 - > Review Possible Actions
 - > Draft Action Plan
- Plan Maintenance
 - > Adopt the Plan
 - > Implement, Evaluate, and Revise the Plan

I.3 Grant Assistance Eligibility

Multi-Jurisdictional Hazard Mitigation Plan development and adoption is required by all local EMAs and their jurisdictions to be eligible to apply and receive grant assistance for mitigation and response actions to natural disasters. The following technical assistance and funding will be available for application after plan adoption:

- *Emergency Management Performance Grants* - Encourages the development of comprehensive emergency management, including for terrorism consequence management at the state and local level, and to improve emergency management planning, preparedness, mitigation, response, and recovery capabilities.
- *Flood Mitigation Assistance Program* - Helps states and communities plan and carry out activities designed to reduce the risk of flood damage to structures insurable under the NFIP.
- *Hazard Mitigation Grant Program (HMGP)* - Prevents future loss of lives and property due to disasters; implements state or local hazard mitigation plans to enable mitigation measures to be implemented during immediate recovery for a disaster; and provides funding for previously identified mitigation measures to benefit the disaster area.
- *The Pre-Disaster Mitigation Grant Program (PDM)* - The Pre-Disaster Mitigation (PDM) program provides funds for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Funding these

plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds.

- *The Flood Mitigation Assistance Program (FMA)* - The FMA program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FEMA provides FMA funds to assist states and communities implement measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program.
- *The Repetitive Flood Claims (RFC) Program* - The Repetitive Flood Claims (RFC) grant program has \$10 million annually to assist states and communities in reducing flood damages to insured properties that have had one or more claims to the National Flood Insurance Program (NFIP).
- *The Severe Repetitive Loss Program (SRL)* - The Severe Repetitive Loss (SRL) grant program was authorized to provide funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss (SRL) structures insured under the National Flood Insurance Program (NFIP).

I.4 2015 Mitigation Plan Update

The Florence-Lauderdale EMA convened the Hazard Mitigation Policy Committee in the summer of 2014 to initiate the 2010 Florence-Lauderdale Multi-Hazard Mitigation Plan update. A Hazard Mitigation Policy Committee was formed consisting of representatives from each incorporated jurisdiction as well as community stakeholders. After receiving public feedback, the 2010 Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan was assessed for any needed changes and updates. All of the data was updated however, the format of the plan was not changed. A brief description of each section’s modifications are below.

Document Prerequisites

There were no changes to the format or sub-sections of this section. The content was updated to reflect the current planning participation public involvement schedule however, the participating jurisdictions, public sector agencies, and academic institutions remained the same.

Jurisdictional Context

There were no changes to the format or sub-sections of this section. Most of the jurisdictional narrative information remained the same as well as the transportation, geographic and topographic information. All of the population demographics and economic profile data was changed and updated. Most of the utility and communications information remained the same.

Planning Process

There were no changes to the format or sub-sections of the section. However, most of the section’s contents required updating to describe this plan’s planning process, policy committee members, workshop and meeting dates. The public involvement process was expanded to include the addition of an online hazard mitigation strategies survey to increase opportunities for public input and make the process more convenient. The Planning Team did not conduct another Visual Preference Survey with this update and relied on data from the paper hazard identification surveys and the online hazard mitigation action surveys for identification

Risk Assessment

There were a few modifications to the format and sub-sections of this section to better illustrate the effect each identified hazard has on each jurisdiction, the probability of future occurrences, and the magnitude and severity of future occurrences. All the identified hazards remained the same. All previous occurrences data was updated along with future probability assessment data. All of the critical facilities information, repetitive loss data, vulnerability assessment data, and future growth and development data were updated to reflect current information. The extent of jurisdictional affect for the identified hazard, flooding, was upgraded to “extensive” to reflect that based on current data, it affects 50-100% of the planning area.

Mitigation Planning

There were a few modifications to the format of this section however, the sub-sections were not changed. Most of the hazard mitigation strategies proposed for each identified hazard remained the same. However, the following mitigation actions were added to some identified risks: Safe Shelter Requirements; Flood Prone Building Proofing and Retrofitting; River/Stream Corridor Restoration and Protection; Seawalls, Retaining Walls; Neighborhood and Community Safe Rooms. The only mitigation removed was Establishing Defensible Space Within the Wildland Urban Interface, which was a proposed mitigation action for wildfires and landslides. Mitigation actions were also identified by jurisdictions and based on the online mitigation surveys for each jurisdiction. The results from

this survey are contained in the Appendix section of this document. Some of the identified actions from the 2010 plan were removed and some new actions were introduced, per jurisdiction, during this update process. All of the associated information with each identified mitigation action was also updated.

Plan Maintenance

There were no changes to the format or sub-sections of this section and most of the content type remained the same.

B.5 Executive Summary

Document Prerequisites

This section outlines the plan’s adoption procedures for grant eligibility and specifies that plan adoption will occur after the draft version has been reviewed by the Alabama Emergency Management Agency (AEMA) and the Federal Emergency Management Agency (FEMA). This section also indentifies all of the participating jurisdictions within the planning area, which are Lauderdale County, Town of Anderson, City of Florence, Town of Killen, Town of Lexington, Town of Rogersville, Town of St. Florian, and the Town of Waterloo. This section also identifies non-jurisdictional entities consisting of school systems and universities.

Jurisdictional Context

This section contains a narrative description of the planning area, the county, and all of its participating jurisdictions. It describes geographic characteristics, weather, and topography. It also describes population characteristics, housing characteristics, transportation networks, and economic profiles. According to U.S. Census data, the Lauderdale County median household income is \$42,844 in comparison to the State estimate of \$43,253.00. Lauderdale County is served by the Northwest Alabama Regional Airport and contains U.S. Highway 72 and U.S. Highway 43. Caucasians compose 87% of the racial demographic within the county. Total population in the county is estimated to be 93,096 in 2014. There are 21% of the persons above the age of 25 with a bachelors degree.

Planning Process

This section outlines the entire planning process and the involvement from local entities, adjacent communities, and EMA jurisdictions. Opportunities for public involvement occurred on 6/16/14, 6/18/14, 6/23/14, 6/24/14, 6/25/14, and 7/17/14. Online mitigation strategy surveys, hazard identification surveys, and worksheets were also used to receive input. The Policy Committee was created to implement the identified mitigation strategies for reducing or preventing natural hazards.

Bottom Right: Multi-Jurisdictional Mitigation Planning Study Area Map
(Map, 2015: Randy Morgan)

Risk Assessment

This section identifies all potential jurisdictional hazards and includes a description and profile of location within the planning area. The identified hazards are: earthquakes, dam and levee failures, droughts, extreme temperatures, floods, hazardous materials, hurricanes and tropical cyclones, landslides, nuclear accidents, sinkholes, severe storms, tornados, wildfires, and winter storms. This section also identifies historical occurrences, assesses future probability, and estimates future potential loss as a result of each hazard. In addition, this section identifies critical facilities and structures within the planning area. The section also includes a vulnerability assessment per individual hazard and addresses repetitive loss. Vulnerability assessments were done using FEMA’s HAZUS-MH MR-4 analysis for building occupancy type and disaster scenarios run through storm models using HAZUS-MH. Finally, local and regional development trends were reviewed for each jurisdiction and within Lauderdale County.

Mitigation Planning

This section identifies mitigation strategies for each identified hazard that matches the goals and objectives for the planning study area. Descriptions for each mitigation strategy are categorized within each disaster type that is mitigated. The five categories of mitigation actions are: Prevention, Property Protection, Public Education and Awareness, Natural Resource Protection, and Structural Projects. Mitigation strategies are also identified for each participating jurisdiction.

Plan Maintenance

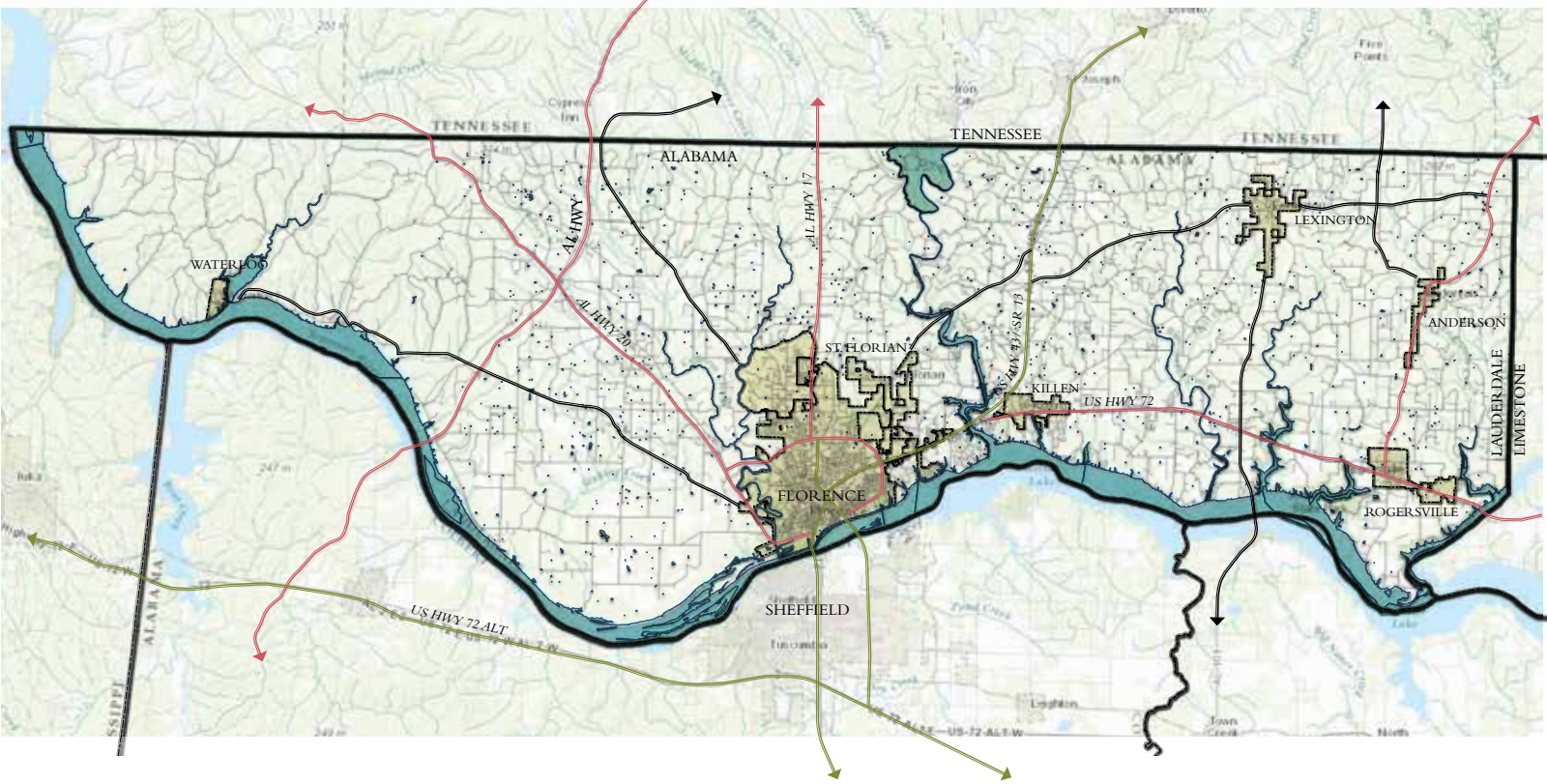
This section outlines the Policy Committee’s proposed actions for plan maintenance in conjunction with the Planning Team and the participating jurisdictions. The planning process for hazard mitigation is a continuous cycle that requires regular monitoring, evaluating, and updating the multi-hazard mitigation plan. It is intended for the Policy Committee to meet four times a year to evaluate each jurisdiction’s accomplishments in mitigating natural disasters within their jurisdiction. The plan maintenance section defines a general agenda for these meetings and how to proceed with implementation over the next five years.

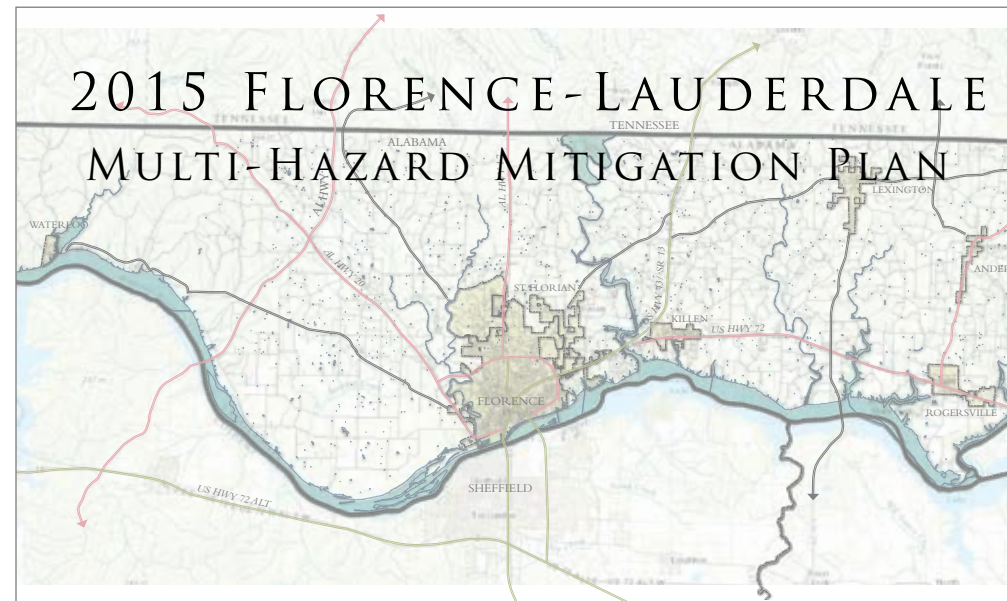
Appendix

The appendix contains documentation of public meetings and workshops, the results of the online hazard mitigation surveys and the paper risk identification surveys, stakeholder and public feedback forms for identified hazards and critical facility information, sign-in sheets, and policy committee presentations.

I.6 Planning Study Area

The planning study area is contained within Lauderdale County located in Northwest Alabama. Lauderdale County has seven incorporated jurisdictions. According to U.S. Census data, the population is estimated at 93,096 for 2014 and the county’s land area in 2010 was 668 square miles. The Florence-Lauderdale EMA is the lead mitigation planning agency within the county and assists the entire planning study area in implementing hazard mitigation planning strategies.





Section
Document Prerequisites

C

44 CFR § 201.6
Local Mitigation Plans:
Federal Prerequisites
(a) Plan requirements.

- A local government must have a mitigation plan approved pursuant to this section in order to receive HMGP project grants. The Administrator may, at his discretion, require a local mitigation plan for the Repetitive Flood Claims Program. A local government must have a mitigation plan approved pursuant to this section in order to apply for and receive mitigation project grants under all other mitigation grant programs.
- (4) Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan. State-wide plans will not be accepted as multi-jurisdictional plans.

(c) Plan content. The plan shall include the following:

- (5) Documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council). For multijurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

DOCUMENT PREREQUISITES

DP.1 JURISDICTIONAL ADOPTION FOR GRANT ELIGIBILITY

DP.2 MULTI-JURISDICTIONAL PLANNING PARTICIPATION

DP.3 MULTI-JURISDICTIONAL PLAN ADOPTION

DP.1 Jurisdictional Adoption for Grant Eligibility

To be eligible for grant assistance through Federal Emergency Management Agency (FEMA) programs, participating jurisdictions must approve and adopt the Florence–Lauderdale Multi-Jurisdictional Hazard Mitigation Plan. The proposed plan must first be reviewed and approved by the Alabama Emergency Management Agency (AEMA), which represents FEMA in the State of Alabama. The AEMA implements the FEMA hazard mitigation programs and serves as the planning authority within the state. Once the plan has been approved by FEMA/AEMA, each participating jurisdiction must adopt the approved plan and send the adoption resolutions to FEMA/AEMA. Formal adoption of the FEMA/AEMA approved plan must occur within the participating jurisdictions within 12 months of receiving FEMA/AEMA approval. Without prior approval from FEMA/AEMA, any jurisdiction or academic institution cannot apply or receive grants under the FEMA hazard mitigation programs. The following types of grant assistance is available to communities through FEMA and AEMA upon adoption of the multi-jurisdictional plan:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Severe Repetitive Loss (SRL)

DP.2 Multi-Jurisdictional Planning Participation

The Florence–Lauderdale Emergency Management Agency (F-L EMA) is the coordinating agency for mitigation planning in Lauderdale County. The Florence–Lauderdale Multi-Jurisdictional Hazard Mitigation Policy Committee was established by the F-L EMA to guide the planning team and development of the Florence–Lauderdale Multi-Jurisdictional Hazard Mitigation Plan. The Policy Committee also directs and implements the adopted 2014 Florence–Lauderdale Multi-Jurisdictional Hazard Mitigation Plan and measures the effectiveness of the proposed mitigation strategies through the life of the Plan. Members of the Policy Committee are familiar with all eight jurisdictions identified within the plan and have worked with these jurisdictions during the implementation of previously adopted hazard mitigation plans. The participating eight jurisdictions are:

- Lauderdale County**
256-760-5750
- City of Florence**
256-760-6400
- Town of Killen**
256-757-1246
- Town of Anderson**
256-247-3350
- Town of Waterloo**
256-764-3237
- Town of St. Florian**
256-767-3690
- Town of Lexington**
256-229-5221
- Town of Rogersville**
256-247-0861

Located within the eight jurisdictions are public sector agencies, academic institutions, and private sector business interests that participated in the planning and development of this plan. Participating academic institutions include:

- University of North Alabama:**
President’s Office
(256-765-4211)

- Lauderdale County School System:**
(256-760-1300)
Allen Thornton Career Technical Center
(256-757-2101)
Anderson Junior High
(256-247-5673)
Brooks Elementary School
(256-757-2171)
Brooks High School
(256-757-2115)
Central School
(256-764-4816)
Cloverdale Junior High School
(256-764-4816)
Lauderdale County High School
(256-247-3414)
Lexington High School
(256-229-6622)
Rogers High School
(256-757-3106)
Underwood Elementary School
(256-764-8939)
Waterloo High School
(256-766-3100)
Wilson School
(256-764-8470)

- City of Florence School System:**
(256-768-3000)
Florence High School
(256-768-2200)
Florence Freshman Center
(256-768-2400)
Florence Middle School
(256-768-3100)
Forest Hills Elementary School
(256-768-2500)
Handy Head Start
(256-768-3400)
Harlan Elementary School
(256-768-2700)
Hibbett Middle School
(256-768-2800)
Weeden Elementary School
(256-768-2900)

The Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Policy Committee and planning team established a strategy for public participation and citizen feedback to develop mitigation strategies for each participating jurisdiction. This included multiple public workshops, public meetings, and an online mitigation strategy public survey that policy committee members, community stakeholders, and residents could take at their convenience. A brief description of these workshop and meetings are listed below with more detailed information provided in the Appendix.

- Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation planning team meeting for review of previous plan, updates of FEMA regulations and new local information, and proposal of the new plan preparation and development schedule. 6-16-14
- 1st Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Policy Committee meeting and workshop for plan review and development and identification or hazards and critical facilities. 6-18-14
- Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation public hearing for the plan update. 6-23-14
- Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation citizen and stakeholder involvement meeting in Elgin. 6-23-14
- Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation citizen and stakeholder involvement meeting in Waterloo. 6-24-14
- Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation citizen and stakeholder involvement meeting. 6-25-14
- 2nd Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Policy Committee meeting and workshop for plan review and development and identification or hazards and critical facilities. 7-17-14
- Online Mitigation Strategy Public Survey for policy committee, stakeholders, and citizen input. 8-26-14 to 3-31-15
- Online email follow-up of mitigation strategies with participating jurisdictions. September 2014 - March 2015
- Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan Draft distribution to policy committee members, stakeholders, and citizens for review and comments. May 25, 2015.

DP.3 Multi-Jurisdictional Plan Adoption

Upon conditional approval from FEMA/AEMA, the Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan must be adopted by all participating jurisdictions identified in this plan by resolution. All state required public notice and public meeting laws and requirements must be complied with prior to adoption. Each participating jurisdiction must adopt the plan within 12 months of receiving conditional approval notification of the plan from FEMA/AEMA. After local adoption, a certified final copy of the adopted plan must be submitted to FEMA/AEMA for final approval. In addition, the Lauderdale County School system, the City of Florence School system, and the University of North Alabama participated in the development of this plan and must also adopt the final plan through the same process identified above. Copies of the adopted resolution are contained in the Appendix of this document and are on file at each participating jurisdiction.



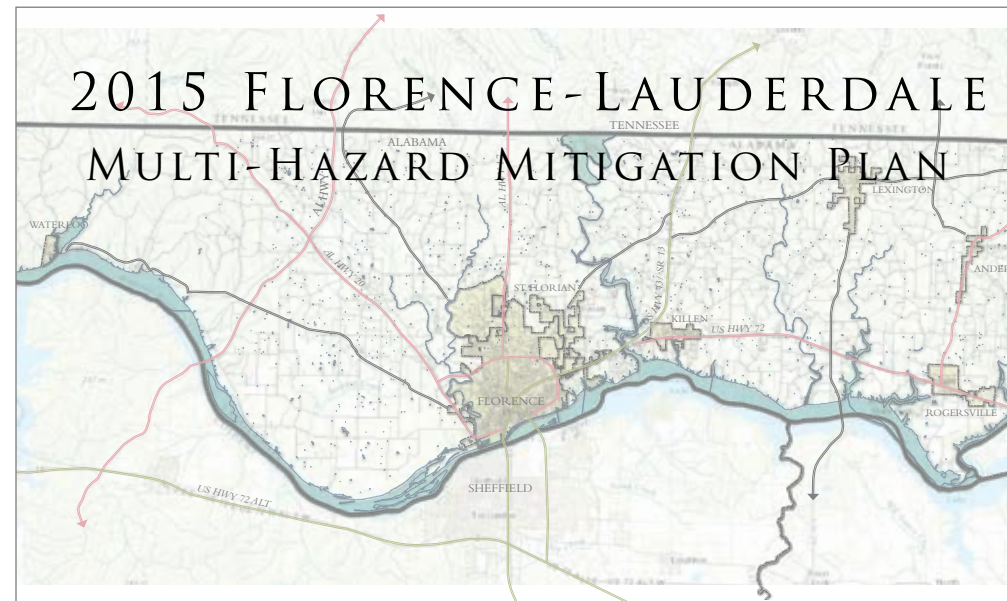
Bottom Right: Stakeholder Meeting Advertisement (Print Ad, 2014: Multi-Hazard Mitigation Planning Team)

Florence - Lauderdale Emergency Management Agency Stake Holder Meeting Dates

Stake Holder Involvement meetings are being held throughout Lauderdale County in order to involve citizens, leadership, agencies, industry and non-profits in the identification of natural, technical and human made hazards. In addition, your input is needed in determining the best method for mitigating local hazards in your community. All meetings are held at 6:00 p.m.

Stake Holder Meeting Date & Location:

Elgin Fire Department:	6-23-14
Waterloo Senior Center:	6-24-14
Florence Municipal Auditorium:	6-25-14



44 CFR § 201.6

Local Mitigation Plans:

Plan Content-Planning Process

Special Considerations:

The planning team should consider including a current description of the jurisdiction in this section or in the introduction of the plan. The general description can include a socioeconomic, historic, and geographic profile to provide a context for understanding the mitigation actions that will be implemented to reduce the jurisdiction’s vulnerability

(Local Multi-Hazard Mitigation Planning Guidance, July, 1, 2008, p. 27).

JURISDICTIONAL CONTEXT

JC.1 NARRATIVE DESCRIPTION OF JURISDICTIONS

JC.2 CLIMATE

JC.3 ECONOMIC DATA

JC.4 TRANSPORTATION

JC.5 DEMOGRAPHIC DATA

JC.6 COMMUNICATIONS

JC.7 UTILITIES

JC.1 Narrative Description of Jurisdictions

Lauderdale County (2010 Population: 92,709)

Lauderdale County was established in 1818 one year before Alabama became a state. It is named after Colonel James Lauderdale, a renowned military officer of the War of 1812 that served under Andrew Jackson. Lauderdale County is located in the northwestern corner of Alabama and is bordered by: Tishomingo Co., Mississippi, to the west; Hardin, Wayne, Lawrence, and Giles Counties in Tennessee to the north; Limestone County, Alabama to the east; and Colbert and Lawrence Counties in Alabama to the south. The City of Florence serves as the county seat with six other incorporated towns in the county.

According to the U.S. Census Bureau, the population of Lauderdale County in 2010 was 92,709 and the 2013 population estimate is 92,797 indicating a growth rate of 1%. The county is part of the Florence – Muscle Shoals Metropolitan Statistical Area known as “The Shoals” which also includes the cities of Muscle Shoals, Sheffield, and Tuscumbia located in abutting Colbert County. Lauderdale County has a total area of 721 square miles, of which 668 square miles are land and 53 square miles are water. Key Cave National Wildlife Refuge, Joe Wheeler State Park, and a portion of the Natchez Trace Parkway and the Elk River State Park are located within the county.

The Lauderdale County Commission is a five-member body of four (4) elected commissioners from two districts and a chairman. The chairman only votes in the event of a tie vote. The county is divided into two districts with two commissioners being elected from each district. The commission establishes policies and appoints a County Administrator to implement the policies and manage the operation of the county. The Commission adopts the millage rate annually and approves the budget, which determines the expenditures and revenue necessary to operate all Lauderdale County Departments.

Town of Anderson (2010 Population: 282)

The Town of Anderson is located in northeastern Lauderdale County and was incorporated in 1973. The town is located on Anderson Creek. Both the town and creek are named after Samuel Anderson who owned a grist mill on the creek in the early 19th century. The town was first settled in 1825 and a post office was constructed in 1860. According to the 2010 U.S. Census, the Town of Anderson had a population of 282. The town’s current total area is 1.3 square miles, all of which is land.

The Town of Anderson has a mayor-council form of government with five council members. It is the responsibility of the Town Council to adopt policies governing the current operation and development of the city. The town also utilizes a nine member Planning Commission to plan and direct new growth and development. Anderson Junior High School is located within their municipal limits and is part of the Lauderdale County School system. Anderson Creek Golf Club is located within the town and was designed by James Bullard and Bob Ingram in 1992.

City of Florence (2010 Population: 39,319)

The City of Florence, also known as Alabama’s Renaissance City, is located in the south central part of Lauderdale County. The City of Florence is the Lauderdale County seat and is the principal city of the Florence – Muscle Shoals Metropolitan Statistical Area known as “The Shoals”. It is considered the primary economic hub of northwest Alabama. The City of Florence was incorporated in 1826 and named after Florence, Italy by an Italian surveyor named Ferdinand Sannoner.

Florence is located on Wilson Lake and Pickwick Lake, bodies of water on the Tennessee River dammed by Wheeler and Wilson Dams. Wilson Dam was constructed by the Tennessee Valley Authority, an agency created by Franklin Roosevelt’s New Deal Legislation. Wilson Dam was the first dam constructed on the Tennessee River. According to the U.S. Census Bureau, Florence has a total land area of 25 square miles, of which 24.9 square miles are land and 0.1 square miles are water. According to the U.S. 2010 Census, the population of Florence was 39,319 and the 2013 population estimate is 40,059 indicating a growth rate of 1.8%.

The City of Florence has a mayor-council form of government. City Council members are elected from six separate districts and the mayor is elected separately. It is the responsibility of the City Council to adopt policies governing the current operation and development of the city. The city utilizes a nine member Planning Commission to

plan and direct new growth and development. The city also created the Florence Planning Department and employees community planners to guide and assist the planning commission and council on future development that is in compliance with adopted city plans, regulations, and ordinances.

The City of Florence is the birth place of W.C. Handy, the “Father of the Blues and is known for the W.C. Handy Music Festival held every August. The Florence – Muscle Shoals Metropolitan Statistical Area is also known worldwide for its contribution to the music industry with pioneering record producer Sam Phillips and his associated FAME Recording Studio and the renown recording artist, The Swampers, and their associated Muscle Shoals Sound Recording Studio. Many famous artist and musicians have traveled to the area for decades to create and record their music and this trend continues today. The success of the music industry in the Shoals has fostered a growing art community that includes all types of artisans and new businesses.

Town of Killen (2010 Population: 1,108)

The Town of Killen is located in south central Lauderdale County and is part of the Florence – Muscle Shoals Metropolitan Statistical Area. It was founded in 1896. In 1826, Joseph Mason was appointed the first postmaster of the new community called Masonville, which later became Killen. In the 1830s, the construction of the Alabama Canal brought growth to the area and many local families worked on the construction of the canal. The Corp of Engineers employed over 200 men during this time who, in addition to working on the canal, built many of the historic homes and buildings in the community. The canal was later named the Muscle Shoals Canal.

According to the U.S. Census, the town has a total area of 1.9 square miles. The 2010 U.S. Census population of Killen was 1,108. The Town of Killen has a mayor-council form of government with five council members. It is the responsibility of the Town Council to adopt policies governing the current operation and development of the city. The town also utilizes a nine member Planning Commission to plan and direct new growth and development. Killen is home to Brooks Elementary School and Brooks High School, both of which are part of the Lauderdale County School System.

Town of Lexington (2010 Population: 735)

The Town of Lexington is located in the northeastern portion of Lauderdale County and is part of the Florence – Muscle Shoals Metropolitan Statistical Area. In 1848, the first settlers built homes in the Lexington community followed by a general store, school,

and two churches. The community continued to grow and was incorporated in 1959. According to the 2010 U.S. Census, the population of Lexington was 735. The town has a total area of 3.2 square miles.

The Town of Lexington has a mayor-council form of government with five council members. It is the responsibility of the Town Council to adopt policies governing the current operation and development of the city. The town also utilizes a nine member Planning Commission to plan and direct new growth and development. Lexington is home to Lexington School, which is part of the Lauderdale County School System.

Town of Rogersville (2010 Population: 1,257)
The Town of Rogersville is located in south central Lauderdale County along the Tennessee and Elk Rivers. The town is part of the Florence - Muscle Shoals Metropolitan Statistical Area. The town incorporated in 1858 and was named after Andrew and Patience Rodgers, the town’s earliest settlers. The post office was established in 1825 and the community was known as a major trading post in north Alabama along the Tennessee River in the 19th Century.

The Town of Rogersville has a mayor-council form of government with five council members. It is the responsibility of the Town Council to adopt policies governing the current operation and development of the city. The town also utilizes a nine member Planning Commission to plan and direct new growth and development. According to the 2010 U.S. Census, the total area of the town is 3.1 square miles and the population was 1,257. Joe Wheeler State Park is located in Rogersville and serves as a tourist destination for outdoor enthusiast.

Town of St. Florian (2010 Population: 413)
The Town of St. Florian is located in south central Lauderdale County, abutting portions of the City of Florence. The town is part of the Florence - Muscle Shoals Metropolitan Statistical Area. It was established in 1872 as a German Catholic settlement with settlers relocating to the community from the midwest and northeast. St. Michael’s Catholic Parish was constructed in 1872 and has been led by Benedictine monks ever since.

The Town of St. Florian was incorporated in 1970 and has a mayor-council form of government with five council members. It is the responsibility of the Town Council to adopt policies governing the current operation and development of the city. The town also utilizes a nine member Planning Commission to plan and direct new

growth and development. The town has a total area of 3.0 square miles and the U.S. Census 2010 population was 413.

Town of Waterloo (2010 Population: 203)
The Town of Waterloo was established in 1819 and is located in the south west portion of Lauderdale County and located on the Tennessee River. The town is part of the Florence - Muscle Shoals Metropolitan Statistical Area. According to the 2010 U.S Census, the total area of the town is 0.8 square miles and the population is 203.

The town has a mayor-council form of government with five council members. It is the responsibility of the Town Council to adopt policies governing the current operation and development of the city. The town also utilizes a nine member Planning Commission to plan and direct new growth and development.

Waterloo is known for its Native American history associated with the Indian Removal Act of 1830 and the Trail of Tears. The town was the location of a camp and the final departure, via the Tennessee River, of over a 1,000 Cherokee Indians traveling from Alabama to the midwest on the Trail of Tears. The Native Americans traveled on foot from Chattanooga, TN to Waterloo where many died. Since then, the Alabama Trail of Tears Corridor has been established and Waterloo is the last destination on that corridor. The largest organized annual motorcycle ride in America, the annual Trail of Tears Commemorative Motorcycle Ride, is held the 3rd weekend in September and starts in Chattanooga, TN and ends in Waterloo, AL with a three day Pow Wow and festival.

JC.2 Climate

The climate of Lauderdale County and its jurisdictions is characterized by hot, humid summers and generally mild to cool winters. The mean annual temperature is 60.7 degrees. Average annual rainfall is 51.58 inches, and the average snowfall is 5 inches.

Climate Averages	
Average Annual Temperature	59° F
Average High Temperature	72.9° F
Average Low Temperature	48.8° F
Highest Recorded Temperature	108° F
Lowest Recorded Temperature	-13° F
Average Annual Precipitation	52.6”
Average # of Days with Precipitation	112
Average Annual Snowfall	5”
Source: weatherbase.com	

JC.3 Economic Data

Industry Summary
According to 2013 U.S. Census data, the labor force in Lauderdale County totaled 43,841 individuals. 3.9% of this labor force was estimated to be unemployed. The largest industry sector in Lauderdale County was Educational Services, Healthcare, and Social Services with 22.9% employment. The second largest industry sector is Manufacturing with 15.4% employment, followed by the Retail Trade industry sector with 13.2% employment. See Table 3.3 for the complete 2013 industry sector data for Lauderdale County. Source: 2013 U.S. Census American Community Survey 1-Year Estimate, Selected Economic Characteristics, Lauderdale County, AL.

Industry Sector	% Labor Force
Agriculture, forestry, fishing, hunting, and mining	1.6%
Construction	6.7%
Manufacturing	15.4%
Wholesale trade	2.6%
Retail trade	13.2%
Transportation and warehousing, and utilities	6.9%
Information	0.8%
Finance and insurance, and real estate and rental and leasing	3.8%
Professional, scientific, and management, and administrative and waste management services	7.9%
Educational services, and health care and social assistance	22.9%
Arts, entertainment, and recreation, and accommodation and food services	9.3%
Other services, except public administration	5.1%
Public administration	3.7%
Source: 2013 U.S. Census American Community Survey 1-Year Estimates	

Population Economics
The 2013 U.S. Census data lists the median household income for Lauderdale County as \$43,891. The State of Alabama’s 2013 estimated median household income was \$42,849, which is slightly less than what is estimated for Lauderdale County. The poverty level for Lauderdale County in 2013 was 17.2%. 12.4% of families in Lauderdale County in 2013 were estimated by the Census Bureau to have a household income below the poverty level. Source: 2013 U.S. Census American Community Survey 1-Year Estimate, Selected Economic Characteristics, Lauderdale County, AL.

Bottom Middle: Climate Averages for Florence-Lauderdale, AL (Table, 2015: Multi-Hazard Mitigation Planning Team)
Center Right: Major Employer Groups. (Table 2015: Multi-Hazard Mitigation Planning Team)

Bottom Right: O’Neal Bridge over the Tennessee River
(Photo, 2007: Tyler Ross; wikipedia.org)

Major Transportation Routes:

- U.S. Highway 43
- U.S. Highway 72
- AL State Route 17
- AL State Route 20
- AL State Route 101
- AL State Route 157
- AL State Route 64
- AL State Route 207
- AL State Route 99
- AL State Route 133

Industrial Rail Lines:

- Tennessee Southern Railroad

Air Transportation:

- Northwest Alabama Regional Airport

Waterways:

- Tennessee River
- Wheeler Lake
- Wilson Lake
- Pickwick Lake
- Elk River
- Cypress Creek
- Shoals Creek
- First Creek
- Second Creek
- Anderson Creek
- Colbert Creek
- Panther Creek

According to the Alabama Department of Labor, the average weekly wage in 2012 in Lauderdale County was \$586 and the average hourly wage was \$14.52. In 2013, the average weekly wage was \$673. Source: Alabama Department of Labor, Labor Market Information, Annual and Quarterly Employment and Wages.

According to U.S. Census data, there were 44,068 housing units in Lauderdale County in 2013. 31.4% of the housing units were built between 1990 and 2013, while 42.2% were constructed between 1950 and 1989, and 12.1% were built before 1950. 67% of the housing units in Lauderdale County in 2013 were owner occupied, while 33% were renter occupied. Of the estimated 2013 housing units sampled, 93% had at least one vehicle for transportation. Median home value in Lauderdale County in 2013 was \$118,600 compared to \$122,700 for the State of Alabama. Source: 2013 U.S. Census American Community Survey 1-Year Estimate, Selected Housing Characteristics, Lauderdale County, AL.

JC.4 Transportation

Lauderdale County’s transportation network consists of U.S. and State highways, rail lines, waterways, and air transportation. U.S. Highway 43 runs north to south in the central portion of the county through Florence and Rogersville. It connects Lauderdale County to Tennessee and extends as far south as Mobile Bay. U.S. 43 serves as one of three U.S. Interstate access routes for the county and provides connection to I-65 in Athens, AL. U.S. 43 connects Lauderdale and Colbert Counties and crosses the Tennessee River in Florence via O’neal Bridge.

U.S. Highway 72 extends east to west from Chattanooga, TN, across the northern portion of Alabama and Mississippi, and ends in Memphis, TN. U.S. 72 extends from Rogersville, through Killen, to Florence and across the Tennessee River via the Singing River Bridge, to connect Lauderdale County with Colbert County and the rest of “The Shoals”. The Singing River Bridge serves as the new route for U.S. 72, AL 157, and other shared routes that previously used the Wilson Dam corridor to cross the Tennessee River. The Wilson Dam corridor is still open but is considered a scenic route.

The Natchez Trace Parkway runs from Natchez, Mississippi to Nashville, Tennessee. The Natchez Trace Parkway is a nationally recognized scenic and historic corridor first used by Indians and early settlers. It runs north to south and extends over the midwestern portion of the county connecting to Tennessee in the north and Colbert County to the south.

Alabama State Route 17 runs the length of the state from Mobile to terminate at the Tennessee state line. It is a partner route to HWY 43 in portions of Lauderdale County. Alabama State Route 101 is a north south route located in the eastern portion of the county. It crosses the Tennessee River near Rogersville via Wheeler Dam and extends from Lawrence County, AL to the Tennessee state line. Alabama State Route 64 is an east west corridor that connects the Town of Lexington and rural communities of northeast portions of the county to central Lauderdale County and the City of Florence. Alabama State Route 20 is an east to west route that connects Lauderdale County with counties and cities to the east and it serves as the second, most southern U.S. Interstate access route for the county, with an I-65 junction in Decatur, AL. It is also a shared route with U.S. 72 through “The Shoals” and extends into the northwestern corner of the county. Alabama State Route 157 is a north south route located in the central portion of the county that connects Lauderdale County to communities to the south. It is the third U.S. Interstate access route for the county providing connection to I-65 in Cullman, AL. Alabama State Route 207 is a north south corridor through the eastern portion of the county that connects the Town of Anderson and rural communities of the county to “The Shoals”. State Route 99 is a north south route located in the eastern portion of the county that connects the Town of Anderson and small communities to Athens, AL and Limestone County. Alabama State Route 133 is a primary corridor through Lauderdale County, “The Shoals”, and the City of Florence and forms an outer loop around Florence through shared routes with AL 157, AL 20, U.S. 72, and U.S. 43.

Tennessee Southern Railroad provides industrial rail service to northwestern Alabama and middle Tennessee with over 149 miles of track throughout its region. In Lauderdale County, its southern terminus is located in downtown Florence along the banks of the Tennessee River adjacent to the Florence Harbor. The tracks extend north out of the city paralleling the AL 157 and AL 17 corridors into Tennessee.

Lauderdale County is served by the Northwest Alabama Regional Airport. The airport provides direct commuter service to Atlanta International Airport (ATL) via Delta Airlines. Huntsville International Airport (HSV), Nashville International Airport (BNA), and Birmingham International Airport (BHM) provide international air travel. Air cargo is received at the inter-modal Center at the Huntsville International Airport and at the Memphis International Airport.

Lauderdale County’s southern boundary is the Tennessee River, which extends from Tennessee and Mississippi across the length of the county and the northern portion of the State Alabama. The Wilson Dam Navigational Lock, located in Florence, is one of several navigational locks along the Tennessee River. The main lock is a single chamber measuring 110 feet wide and 600 feet long. On average, 10 million tons in commodities are transported through the lock every year, which include wheat, corn, scrap metal and chemicals. Over 7,000 commercial barges lock through the dam every year and there are more than 1,000 lockages for recreational traffic each year. It is the highest single lift lock east of the Rocky Mountains with a normal lift of between 93 and 100 feet. Source: Tennessee Valley Authority Webpage, Wilson Reservoir.

The county has an abundant amount of navigational waterways due to the county’s location on the banks of the Tennessee River. Most of the incorporated towns and cities within the county have water access and public boat launches. Wheeler, Wilson, and Pickwick Lakes provide large public water access and outdoor areas for county residents and attract tourists year round. Some of the smaller tributaries of the Tennessee River in Lauderdale County include: Elk River, Cypress Creek, Shoals Creek, First Creek, Second Creek, Anderson Creek, Colbert Creek, and Panther Creek.



O’Neal Bridge over the Tennessee River

JC.5 Demographic Data

Population Growth

Lauderdale County has had a population growth since 2010. According to 2013 U.S. Census data, Lauderdale county had an estimated total population of 92,679 in 2010 and an estimated population of 92,797 in 2013 with a population growth of 1%. The table below illustrates the population changes for Lauderdale County and its jurisdictions. *Source: 2013 U.S. Census American Community Survey 1-Year Estimate, Comparative Social Characteristics and U.S. Census 2013 Population Estimate Program-Annual Estimates of Resident Population.*

Population Change				
Incorporated Place	2010 Census	2011 Estimate	2012 Estimate	2013 Estimate
Lauderdale County	92,679	92,781	92,542	92,796
City of Florence	39,319	39,436	39,706	40,059
Town of Rogersville	1,257	1,253	1,248	1,240
Town of Killen	1,108	993	991	988
Town of Lexington	735	734	732	730
Town of St. Florian	413	414	416	423
Town of Anderson	282	282	281	280
Town of Waterloo	203	201	199	198
<i>Source: U.S. Census 2013 Population Estimate Program-Annual Estimates of Resident Population.</i>				

Population By Age and Race

According to 2013 U.S. Census data, 67% of Lauderdale County residents are over the age of 25. 4.6% of the population is under the age of five years and 18% is school age. 18% of the population is age 65 and older. The median age of the Lauderdale County population is 41.6. Children and the elderly are more dependent on the general population and are more vulnerable in emergencies requiring public assistance. 24% of the population is under the age of 15 and over the age of 75 and, therefore likely dependent on another individual for transportation in the event of an emergency. The table below illustrates the age composition of the population of Lauderdale County. *Source: 2013 U.S. Census American Community Survey 1-Year Estimate, ACS Demographic and Housing Characteristics.*

Population By Age		
Under 5 years	4,309	4.6%
5 to 9 years	5,256	5.7%
10 to 14 years	5,466	5.9%
15 to 19 years	6,213	6.7%
20 to 24 years	9,108	9.8%
25 to 34 years	10,548	11.4%
35 to 44 years	10,173	11.0%
45 to 54 years	12,400	13.4%
55 to 59 years	8,255	8.9%
60 to 64 years	4,428	4.8%
65 to 74 years	9,231	9.9%
75 to 84 years	5,221	5.6%
85 years and over	2,189	2.4%
Median age (years)	41.6	
<i>Source: 2013 U.S. Census American Community Survey 1-Year Estimate, ACS Demographic and Housing Characteristics.</i>		

According to 2013 U.S. Census data, 87% of the population is Caucasian, 10% is African American, and 3% is some other race. *Source: 2013 U.S. Census American Community Survey 1-Year Estimate, Race-Total Population.*

Education

The 2013 U.S. Census data reported 83% of the population in Lauderdale County has a high school diploma. Almost 18% of the population has a bachelor's degree or higher. The table below illustrates the educational attainment of the population of Lauderdale County. *Source: 2013 U.S. Census American Community Survey 1-Year Estimate, Selected Social Characteristics.*

Educational Attainment of Population		
Population 25 years and over	62,445	
Less than 9th grade	2,867	4.6%
9th to 12th grade, no diploma	7,546	12.1%
High school graduate (includes equivalency)	21,559	34.5%
Some college, no degree	14,801	23.7%
Associate's degree	4,667	7.5%
Bachelor's degree	7,048	11.3%
Graduate or professional degree	3,957	6.3%
Percent high school graduate or higher		83.3%
Percent bachelor's degree or higher		17.6%
<i>Source: 2013 U.S. Census American Community Survey 1-Year Estimate, Selected Social Characteristics</i>		

Disabled Population

16.7% of the population of Lauderdale County is disabled according to U.S. 2013 Census data. 3.4% of the disabled are under the age of 18, 14.2% are between the ages of 18 to 64, and 14% are age 65 and older. This population can be more vulnerable to emergencies if they lack the ability to respond accordingly on their own and may need public assistance. *Source: 2013 U.S. Census American Community Survey 1-Year Estimate, Selected Social Characteristics*

JC.6 Communications

The ability to communicate information to the population within a jurisdiction is extremely important in a time of emergency. Local governments and emergency responders use various forms of communication to achieve public notification including television, radio, internet (social media), the newspaper and telephone. The Times Daily of Florence,Alabama is the main newspaper in Lauderdale County. The following provides cable or satellite T.V. service in Lauderdale County: Comcast Communications, Direct T.V., Dish Network, Charter Cable, and AT&T. Comcast Communications and AT&T provide telephone service to the county. Local radio stations in the area include: WBCF, WBTG-FM 106.3, WGOL, WLAY FM 100.3, WSBM, WYTK 93.9, WZZA, WFIX, and WQLT 107.3.

Internet providers in Lauderdale County include Comcast Communications, AT&T, Charter Cable, Direct T.V., and Century Link. According to 2013 U.S. Census data, 77.6% of the population in Lauderdale County has a computer at home and 62.1% of this population has internet subscription. *Source: 2013 U.S. Census American Community Survey 1-Year Estimate, Selected Social Characteristics.*

Left Center: Population Change 2010-2013 (Table, 2015: Multi-Hazard Mitigation Planning Team)

Middle Top: 2013 Population by Age. (Table, 2015: Multi-Hazard Mitigation Planning Team)

Middle Bottom: 2013 Educational Attainment of Population (Table, 2015: Multi-Hazard Mitigation Planning Team)

Television:

- Comcast Communications
- DirecTV
- AT&T
- Dish Network
- Charter Cable

Newspapers:

- Times Daily – Florence, AL
- Huntsville Times – Huntsville, AL
- Birmingham News – Birmingham, AL
- East Courier Journal

Telecommunications:

- AT&T
- Comcast Communications

Local Radio Stations:

- WBCF
- WBTG – FM 106.3
- WGOL
- WLAY – FM 100.3
- WSBM
- WYTK – 93.9
- WZZA
- WFIX
- WQLT – FM 107.3

Internet:

- Comcast Communications
- AT&T
- Charter Cable
- DirecTV
- Century Link

JC.7 Utilities

The City of Florence provides water and sewer services within their municipal boundary. The Town of Waterloo provides water from the Central Heights Water District and receives water from the West Lauderdale Water Authority. The Town of Killen and St. Florian receive municipal water from the City of Florence. The Rogersville Water and Sewer Board provides water and sewer to the residents of Rogersville. The Town of Anderson provides water to their residents from the East Lauderdale Water District. The Town of Lexington receives water from the Springfield Water System.

Electrical utilities are provided throughout the entire county by the Florence Utility and the Florence Electricity Department. The Tennessee Valley Authority manages power generation and grid distribution for the region. Natural gas providers in Lauderdale County are the Alabama-Tennessee Natural Gas Company and Florence Utilities. The Tennessee Gas Pipeline is the wholesale provider for these companies.

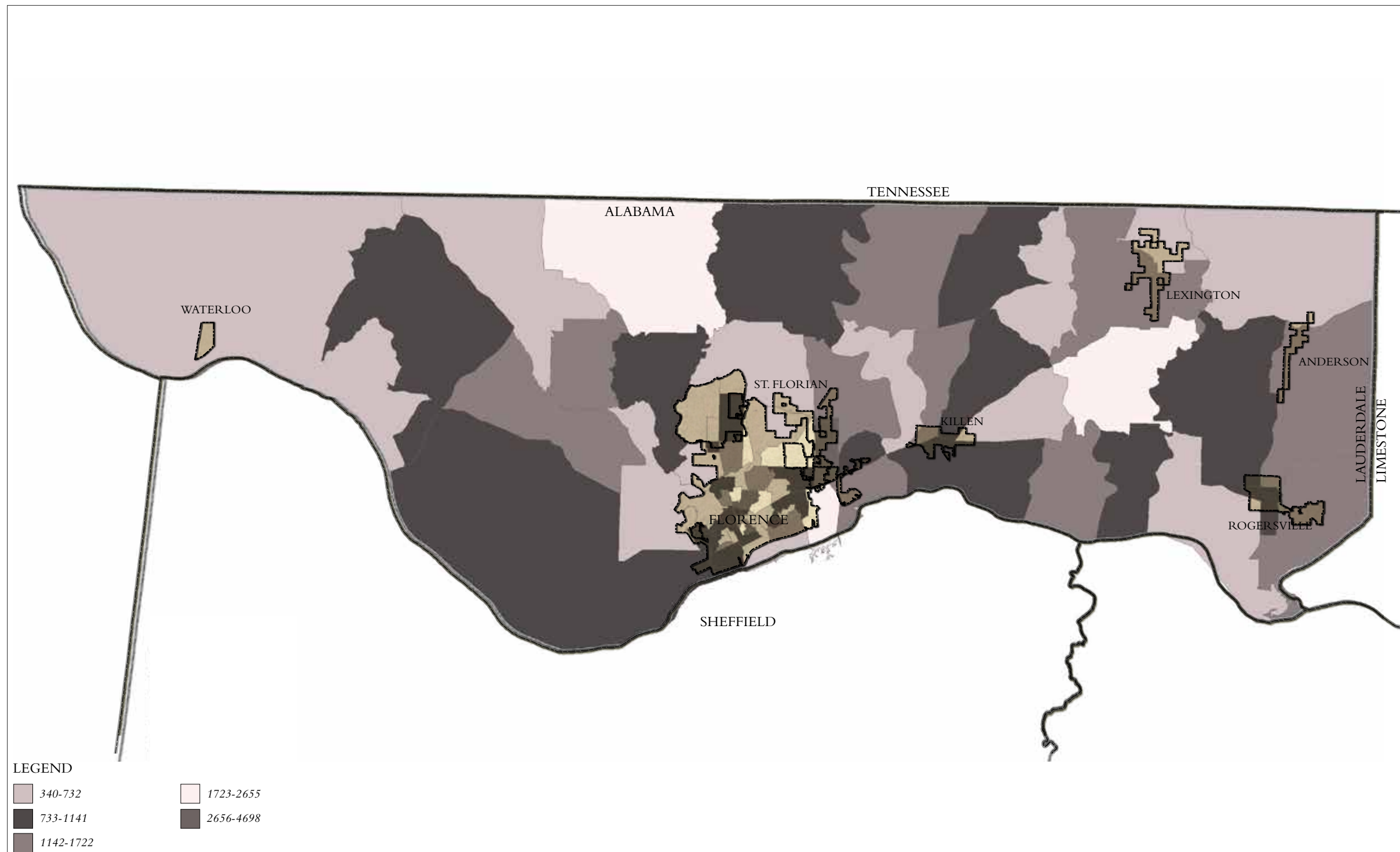


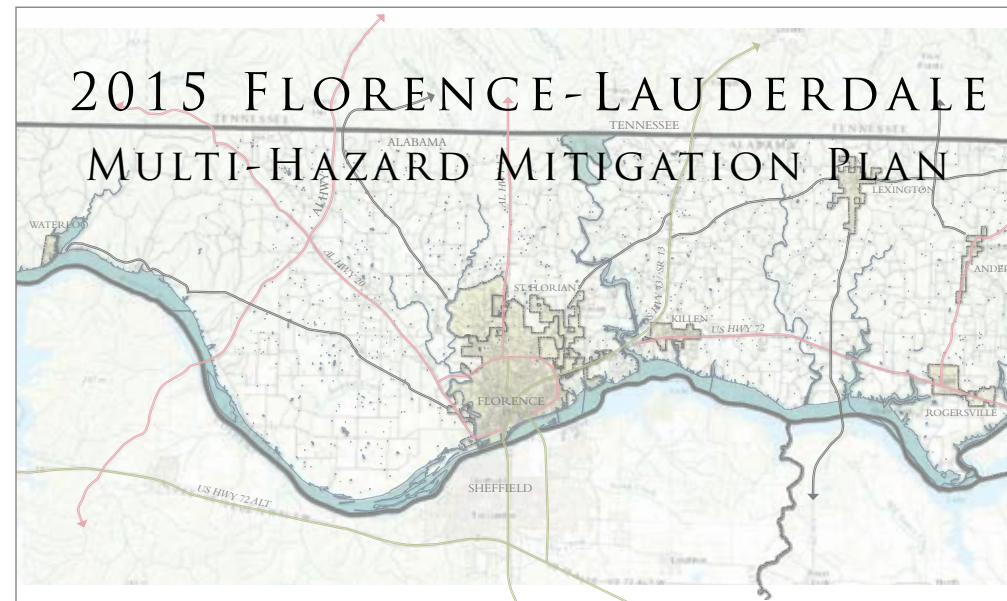
Image: Population of 2010 Census
(Map, 2015: Multi-Hazard Mitigation Planning Team)

Population of 2010 Census

Image: Population by Blockgroup
(Map, 2015: Multi-Hazard Mitigation Planning Team)



Households per Blockgroup



Section
Planning Process

E

Requirements §201.6(b) and §201.6(c)(1):
An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;

2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and nonprofit interests to be involved in the planning process; and

3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

PLANNING PROCESS

PP.1 DOCUMENTATION OF PLANNING PROCESS

PP.2 OPPORTUNITIES FOR PUBLIC COMMENT

PP.3 OPPORTUNITIES FOR STAKEHOLDER INVOLVEMENT

PP.4 PUBLIC & POLICY COMMITTEE PARTICIPATION

PP.5 PRECEDENT & PLAN STUDY INTEGRATION

PP.6 PLAN PREPARATION

PP.7 IMPLEMENTATION PERIOD PUBLIC INVOLVEMENT

This section documents the planning process which details the opportunities for the public to comment on the plan at all stages of its formation, and the involvement of any neighboring communities, interested agencies, and private and non-profit organizations.

PP.1 Documentation of Planning Process

A strategy for public involvement in the planning process was established by the Florence-Lauderdale Hazard Mitigation Policy Committee during the initial meetings held in June 2014. Public involvement continued throughout the development of the plan and directed the goals and objectives identified by Policy Committee members within their jurisdictions. The initial planning process resulted in the identification of four mitigation planning groups: the Florence-Lauderdale Hazard Mitigation Policy Committee, the Florence-Lauderdale Hazard Mitigation Planning Team, the Florence-Lauderdale Stakeholders and the planning jurisdiction Citizen Participants.

The Policy Committee is responsible for overseeing the implementation of the hazard mitigation strategies and is composed of elected and appointed officials such as mayors, school superintendents, hospital executives, and university policy officials. A list identifying policy committee members is located in this section. The stakeholders are first responders, police and fire department personnel, and individuals representing local, state, regional, and federal agencies. Stakeholders also include major employers, non-profit organizations, and neighboring counties. The citizen participants are interested citizens from the planning study area in

Lauderdale County. Each group contributed to the identification of potential hazards within the study area and proposed mitigation strategies to lessen their adverse effects.

The planning process update officially began with a kick-off meeting on June 16, 2014 with the Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Planning Team for review of the previous plan, updates of FEMA regulations and new local information, and proposal of the new plan preparation and development schedule. The first Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Policy Committee meeting was held on June 18, 2014 and focused on educating the policy committee participants on existing conditions and potential natural disasters within their study area and informing them on possible mitigation actions for each disaster. Subsequent meetings with policy committee members, the mitigation planning team, stakeholders, and citizens allowed for further clarification and identification of mitigation actions for each hazard potential within the study area. Communication with the Planning Team and among planning groups was readily available via, mail, phone, email, and local meetings. Policy Committee members also continued to discuss plan development within the jurisdictions they administrate.

Neighboring communities located outside of the study area were contacted for participation in the planning process by either attending meetings as stakeholders or providing valuable information considered in the development of this plan. Participating adjacent jurisdictions include EMA Offices of Colbert, Lawrence, and Limestone Counties of Alabama as well as the Tennessee Counties of Giles, Hardin, Lawrence and Wayne.

Communities of interest not directly adjoining the study area were also contacted through the Northwest Alabama Council of Local Governments (NACOLG). NACOLG serves as the regional planning agency for five counties in Northwest Alabama. Lauderdale County and the planning study jurisdictions participate in regional planning with the regional council.

A public hearing to receive comments on the plan was held by each jurisdiction within the study area. Each individual participating jurisdiction adopted this document by resolution and the original resolutions are kept on file at the Florence- Lauderdale Emergency Management Office.

PP.2 Opportunities for Public Comment

The Florence-Lauderdale Hazard Mitigation Planning Team held several meetings throughout the development of this plan within the study area to provide opportunity for public participation. In attendance at these meetings were members of the Florence-Lauderdale Hazard Mitigation Policy Committee and community stakeholders who guided interested citizen participants through the identification of hazards and possible mitigation efforts within their communities. Public involvement resources included a Hazard Identification Survey and a Mitigation Strategy Survey. Public involvement was also possible through participation in an online survey, the Florence-Lauderdale Hazard Mitigation Public Survey, which was assessable via the internet for seven months during plan development. The public had an additional comment period after the development of the plan during a draft plan review meeting in May 2015. The following community meetings were hosted by the Florence-Lauderdale Hazard Mitigation Planning Team within the study area to facilitate citizen participation and public comments during the development of this plan:

- Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Planning Team meeting for review of previous plan, updates of FEMA regulations and new local information, and proposal of the new plan preparation and development schedule. 6-16-14
- 1st Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Policy Committee meeting and workshop for plan review and development and identification or hazards and critical facilities. 6-18-14
- Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation public hearing for the plan update. 6-23-14
- Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation citizen and stakeholder involvement meeting in Elgin. 6-23-14
- Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation citizen and stakeholder involvement meeting in Waterloo. 6-24-14
- Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation citizen and stakeholder involvement meeting in Florence. 6-25-14
- 2nd Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Policy Committee meeting and workshop for continued plan review and development and identification or hazards and critical facilities. 7-17-14

- Online Mitigation Strategy Public Survey for policy committee, stakeholders, and citizen input. 8-26-14 to 3-31-15
- Online email follow-up of mitigation strategies with participating jurisdictions. September 2014 – March 2015
- Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan Draft distribution to policy committee members, stakeholders, and citizens for review and comments. April 30, 2015.



PP.3 Opportunities for Stakeholder Involvement

The Florence-Lauderdale Multi-Hazard Mitigation Planning Team encouraged community stakeholder participation through meeting attendance, phone calls, emails, and online survey participation. The Planning Team requested participation from all applicable regional, state, and federal agencies and received input and cooperation. The agencies provided a wealth of information in regards to the hazard profiles, vulnerability assessment, potential losses, land use and development trends, existing plans, and data mapping. The following is a list of participating agencies that provided input in the development of this plan:

Federal Agencies

- National Weather Service-Huntsville
- United States Geological Survey,Alabama District
- Tennessee Valley Authority
- United States Army Corps of Engineers
- Federal Emergency Management Agency

State Agencies

- Alabama Emergency Management Agency
- Alabama Forestry Commission

Regional Agencies

- Lauderdale County Revenue Commissioner’s Office
- Florence-Lauderdale EMA
- Northwest Alabama Council of Local Governments

Local Agencies

- City of Florence Utility District
- West Lauderdale Water Board
- Rogersville Water and Sewer Board
- Lauderdale County E-911
- Business, Academia, and Non-Profit Agencies
- University of North Alabama
- Lauderdale County School System
- North Alabama Industrial Development Agency
- Shoals Economic Development Authority
- Shoals Chamber of Commerce
- Eliza Coffee Memorial Hospital
- Florence City School System
- River Bend Center for Mental Health

PP.4 Public & Policy Committee Participation

Policy Committee Composition

The Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Policy Committee is composed of elected leaders, or their appointees, from the county or municipalities within the planning area. In addition, key personnel of agencies and/or entities involved with hazard response within the planning area also serve on the policy committee. The members of the policy committee are listed below:

- Leah Newton, Mayor, Town of Anderson
- Mickey Haddock, Mayor, City of Florence
- Tim Tubbs, Mayor, Town of Killen
- Timothy Collier, Mayor, Town of Lexington
- Richard Herston, Mayor, Town of Rogersville
- Don Strait, Mayor, Town of St. Florian
- Mary Jenelee Higgins, Mayor, Town of Waterloo
- Judge Dewey D. Mitchell, Chairman, Lauderdale County Commission
- George M. Grabryan Jr., EMA Director, Florence-Lauderdale EMA
- Melissa Bailey, Florence City Planner
- Hal Greer, Port Director, Florence Port Authority
- Jennifer Gray, School Superintendent, Lauderdale County Schools
- Janet Womack, School Superintendent, Florence City Schools
- Chief Bob Pastula, UNA Police Department
- Kevin Bowling, Director of Emergency Services, Eliza Coffee Memorial Hospital
- Steve Pierce, Chairman 911 Board/UNA Board of Trustees

Hazard Mitigation Plan Update

The 2015 Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan was updated under the direction of the Hazard Mitigation Planning Team which consists of the Florence-Lauderdale EMA, the City of Florence Planning Department, and Farmer | Morgan, L.L.C. The 2015 plan format is consistent with the 2010 format in most sections. The format has been slightly changed in some sections to meet new FEMA requirements associated with hazard mitigation plan design. Benjamin Farmer, AICP principal of Farmer | Morgan, L.L.C. has served as the planning consultant and will continue to provide planning consulting to the planning team and the Florence-Lauderdale EMA with revisions, amendments and updates to the 2015 Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan.

Left Center: Ben Farmer presents to the Multi-Hazard Mitigation Policy Committee (Photo, 2009: Multi-Hazard Mitigation Planning Team)

Bottom Left: Multi-Hazard Mitigation Policy Committee Survey (Screenshot, 2015: Multi-Hazard Mitigation Planning Team)

PP.5 Precedent & Plan Study Integration

Coordination between all participating jurisdictions and applicable local and state agencies is paramount to developing a successful hazard mitigation plan. Therefore, each jurisdiction within the planning area provided existing plans, studies, ordinances, regulations, and city/ town codes from their jurisdiction. Other local and state agency documents and plans were also consulted for consistency with future hazard mitigation strategies. Integrating existing planning efforts and mitigation action strategies into this plan establishes a credible and comprehensive plan that ties into and supports other community programs. The Northwest Alabama Council of Local Governments (NACOLG) assists many of the municipalities within the planning area with planning assistance and regulatory document developments and updates. NACOLG maintains a local resource library that serves the region and provides support and coordination between counties and local governments within their jurisdiction. The Council is an invaluable resource to the region and their online document library was reviewed for hazard mitigation strategy development and updates. The following documents were reviewed and consulted during the 2015 Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan:

- Alabama Emergency Management Agency Annual Report, 2013
- Florence-Lauderdale County Emergency Operations Plan ,2012
- Shoals Area MPO 2035 Long Range Transportation Plan, 2010
- The Lauderdale County Transportation Plan for Hazardous Incident Response
- The Wildfire Prevention Plan, Alabama Forestry Commission
- The Wildfire Readiness Plan, Alabama Forestry Commission
- Flood Insurance Study of Lauderdale County, Alabama
- The Tennessee Valley Authority Dam Safety Emergency Action Plan
- Tennessee Valley Authority Wheeler Watershed Plan
- Tennessee Valley Authority Dam Safety Emergency Action Plan
- Lauderdale County Subdivision Regulations
- Lauderdale County Solid Waste Management Plan
- The City of Florence Comprehensive Plan, 2007
- City of Florence Zoning Ordinance
- City of Florence Subdivision Regulations

- City of Florence Building Code
- The West Florence Specific Plan
- Town of Killen Master Plan, 2009
- Town of Killen Zoning Ordinance
- Town of Killen Subdivision Regulations
- Town of Killen Building Code
- Town of St. Florian Comprehensive Sketch Plan
- Multi-hazard Loss Estimation Methodology-*Hurricane Model User Manual for HAZUS - MH MR-4*
- Multi-hazard Loss Estimation Methodology-*Earthquake Model User Manual for HAZUS - MH MR-4*
- Multi-hazard Loss Estimation Methodology-*Flood Model User Manual for HAZUS - MH MR-4*

PP.6 Plan Preparation

The planning process update officially began with a kick-off meeting on June 16, 2014 with the Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Planning Team for the review of the previous plan, updates of FEMA regulations and new local information, and proposal of the new plan preparation and development schedule. Since the 2010 Plan, there have been changes in elected officials within the study area as well as initiatives. After updating these changes, the Planning Team organized the Policy Committee, developed the public participation process, and began collecting new data and documents applicable to the update of the plan.

The first Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Policy Committee meeting was held on June 18, 2014 and focused on educating the Policy Committee participants on existing conditions and potential natural disasters within their study area and informing them on possible mitigation actions for each disaster. The meeting introduced each member to mitigation planning and their role in guiding the planning, development and implementation of the hazard mitigation plan. Committee members participated in hazard mitigation workshop exercises and were divided into mitigation strategy category action groups for the development of mitigation actions per identified risks. Copies of the 2010 Plan were distributed with specific components of the document discussed. A hazard mitigation survey was distributed to identify potential hazard risks most prevalent for the planning area. Finally, critical facilities surveys were distributed for evaluation and updating from the 2010 Plan. Each jurisdiction evaluated the previous list of critical facilities

and modified it according to the current needs and assessment of the jurisdiction.

The first stakeholder and citizen involvement meeting was held on June 23, 2014 in Elgin, a community in west Lauderdale County between Killen and Rogersville. This meeting included a public hearing on the update of the plan. Subsequent stakeholder and citizen involvement meetings were held on June 24, 2014 in Waterloo, and June 25, 2014 in Florence. All meetings were held at 6:00 P.M. allowing for greater participation from stakeholders and citizens.

The second policy committee meeting was held on July 17, 2014 to review identified risks, continue to develop mitigation strategies, and establish completion dates for the hazard mitigation plan. The five mitigation action groups were evaluated for potential strategies for mitigating disasters.

The Planning Team collected 18 Hazard Identification surveys at the meetings and workshops. Data collection from the Policy Committee, stakeholders, and citizens continued via an online Mitigation Strategy Public Survey from August 2014 to March 2015. All Planning Team members, Policy Committee members, and stakeholders were contacted via email with a link to the online survey and asked to distribute the survey throughout their jurisdiction. The intent of the survey was to increase public involvement in the process by making the survey more convenient and accessible to all citizens. There were 10 respondents to the online mitigation strategy survey. The results of the survey are contained in the Appendix.

Policy Committee members and stakeholders who were unable to attend meetings or workshops were provided with the material discussed at the meeting and given assistance, if needed, by a member of the Planning Team. The week of May 15, 2015, the Planning Team and Policy Committee reviewed the draft plan with distribution being made available to the public within each planning jurisdiction. Afterwards, the planning team assembled the final draft for submission to FEMA/ALEMA.

Hazard Identification Survey Results	
Hazard	Number of Respondents that Identified the Hazard as a Threat within the Planning Area
Avalanche	4
Dam/Levee Failure	15
Drought	16
Earthquake	17
Expansive Soils	8
Extreme Heat	16
Flood	18
Hailstorm	18
Hurricane	12
Land Subsidence	12
Severe Winter Storm Freeze	18
Tornado/Severe Storm	18
Wildfire	18
Windstorm	17
Source: Responses from Meeting and Workshop Attendants	

Mitigation Strategies Survey Results	
Proposed Mitigation Strategy	Number of Respondents that Identified their Jurisdiction as Using the Strategy or Would Use the Strategy in the Future
Comprehensive Planning	8
Building Codes and Construction Requirements	7
Capital Improvements Programs	8
Open Space Preservation	5
Storm Water Management	7
Land Use Development Regulations	8
Subdivision Regulations	8
Floodplain Management Programs	6
Levee and Dam Management	4
Establishing Defensible Space within the Wildland Urban Interface	0
Burn Permits	8
Safe Shelter Requirements	9
Public Right-of-Way Maintenance Regulations	9
Critical Facilities Assessments	6
Geographic Information Systems	5
Planning Studies	5
Mitigation Planning Technology Support	7
Real Estate Flooding Acquisition and Building Relocations	3
Flood Prone Building Proofing and Retrofitting	2
Critical Facilities Protection	5
Freeboard Requirements for Building Elevations	2
Emergency Power Generation	8
Separate Sewer System Collection and Protection	4
Storm Shutter Programs and Installation	2
Building Retrofit and New Construction of Shatter Resistant Glass Structures	4
Outreach Projects	5
Real Estate Disclosure Requirements	7
Hazard Information Kiosk and Centers	5
School Age Education Programs	7
Adult and Community Education Programs	5
Hazard Mitigation Plan and Pamphlet Distribution	6
Flood Map Information Distribution	5
NOAA Weather Radio Programs	8

Press and Media Mitigation Releases and Training Sessions	7
Sediment and Erosion Control	6
Stream Corridor Restoration	4
Watershed Management	5
Forest and Vegetation Management	4
Wetland Restoration and Preservation	6
Open Space Easements and Acquisition	6
River/Stream Corridor Restoration and Protection	5
Urban Forestry Planning and Development Programs	5
Press and Media Mitigation Releases and Training Sessions	7
Water Resource Conservation Programs	6
Storm Water Diversion Culverts	6
Storm Water Flood Walls	4
Seawalls	4
Retaining Walls	7
Neighborhood and Community Safe Rooms	7
Dam Modifications	3
Storm Sewer System Construction	6
Ground Stabilization	5
Reservoir Construction	5
Source: Mitigation Strategies Online Public Survey Respondents	

Left: Hazard Identification Survey Results (Chart, 2015: Multi-Hazard Mitigation Planning Team)

Center: Mitigation Strategies Survey Results (Chart, 2015: Multi-Hazard Mitigation Planning Team)

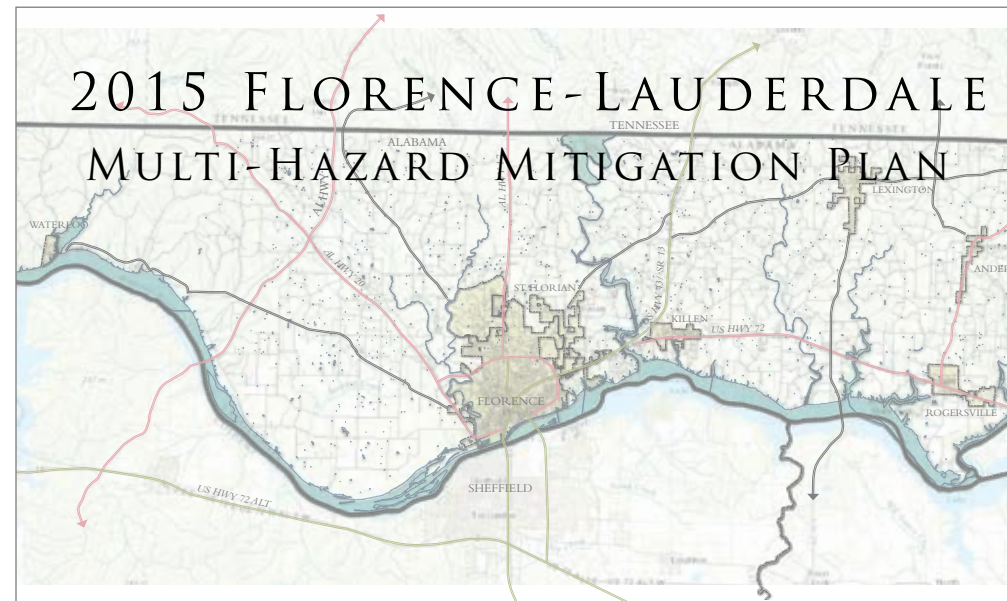
Image: Florence-Lauderdale Multi-Hazard Mitigation Policy Committee Meeting
(Photo, 2009: Multi-Hazard Mitigation Planning Team)

PP.7 Implementation Period Public Involvement

The 2015 Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan Policy Committee will oversee the implementation and maintenance of the plan. The Florence-Lauderdale EMA will serve as the plan facilitator throughout the planning area and will host quarterly scheduled meetings to monitor the implementation of mitigation strategies throughout the jurisdictions and evaluate the effectiveness of the strategies for each identified risk. A more detailed description of plan implementation efforts is discussed in the Plan Maintenance section of this document.

The Florence-Lauderdale EMA will also maintain ongoing public education, outreach, and involvement with the plan and provide comment periods within the five year planning cycle. A hard copy of the plan will be available at appropriate entities as well as via individual request and on the web.





2015 FLORENCE-LAUDERDALE MULTI-HAZARD MITIGATION PLAN

Section
Risk Assessment

F

44 CFR Requirement §201.6(c)(2):
[The plan shall include] A risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

Requirement §201.6(c)(2)(i):
[The risk assessment shall include a] description of the type...of all natural hazards that can affect the jurisdiction.

Right: Identified Hazards in Lauderdale County (Chart, 2015: Multi-Hazard Mitigation Planning Team)

RISK ASSESSMENT

- RA.1 IDENTIFICATION OF JURISDICTIONAL HAZARDS
- RA.2 HAZARD DESCRIPTIONS & HAZARD PROFILES
- RA.3 ASSESSING VULNERABILITY OVERVIEW
- RA.4 ADDRESSING REPETITIVE LOSS PROPERTIES
- RA.5 IDENTIFYING STRUCTURES
- RA.6 ESTIMATING POTENTIAL LOSSES
- RA.7 ANALYZING DEVELOPMENT TRENDS

Risk assessment identifies and profiles hazards likely to occur within an area and assesses the impact to lives, property, and infrastructure from these hazards. The goal of the risk assessment process is to estimate the potential loss in the planning area, including loss of life, personal injury, property damage, and economic loss, from a hazard event. It allows communities to better understand their potential risk to natural hazards and develop a plan for responding to the hazard to minimize loss and damage within the community.

RA.1 Identification of Jurisdictional Hazards

The jurisdictional hazards listed in this plan were identified by the Florence - Lauderdale Multi-Jurisdictional Hazard Mitigation Policy Committee through citizen meetings and workshops, policy committee surveys, the online Mitigation Public Survey, community stakeholders, and local knowledge and expertise obtained from the Florence-Lauderdale EMA. Other resources used include The State ofAlabama 2014 Hazard Mitigation Plan Update guides and resources, the National Weather Service, NOAA Storm Events Database, local newspapers, and internet sources. The hazards were quantified by their level of probability and concern within the study area. There were over 50 respondents to the online Hazard Mitigation Survey and paper Hazard Identification Surveys submitted at workshops and meetings. These surveys assisted the planning team in understanding the public’s perception of the types of hazards that impact the study area and determined what hazards were included in this plan. The hazards identified as impacting the study area are listed in the table below.

Lauderdale County Identified Hazards									
Hazard Type	Associated Hazard	Lauderdale County	Anderson	Florence	Killen	Lexington	Rogersville	St. Florian	Waterloo
Earthquake	Landslides	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Extreme Temperatures	Wildfires	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dam/Levee Failure	Floods	Yes	No	Yes	Yes	No	Yes	Yes	Yes
Hazardous Materials		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hurricanes/ Coastal Storms	Tropical Storms Severe Storms High Winds Floods	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Landslides		Yes	No	No	No	No	No	No	No
Nuclear Accidents		Yes	No	No	No	No	Yes	No	No
Sinkholes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Severe Storms Hail High Wind	Thunder Storms Hail High Winds Lightening Tornados Floods	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tornado	Severe Storms High Winds	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wildfires		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Winter Storm Freezes	Snow Storms Hail Extreme Cold	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Expansive Soils		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Source: Hazard Mitigation Planning Team Surveys									

RA.2 Hazard Descriptions & Hazard Profiles

For each of the hazards identified in this plan, the following information is specified: the hazard description, locations impacted by hazard, previous occurrences of the hazard, an estimated probability of future occurrence, magnitude or severity of the hazard, and estimated annual damage expectations. The following formulas were used to calculate annual estimates:

- Location:**
It is the extent of jurisdictional effect and the percentage of study area susceptible to the hazard and categorized as follows:
- Extensive- 50-100% of planning area affected
 - Significant - 10-50% of planning area affected
 - Limited - Less than 10% of planning area affected

- Probability of Future Occurrence:**
The frequency of past events is used to gauge the likelihood of future occurrences. Therefore, the number of historical events in a time period divided by the number of years from first and last incidents occurred will equal the percent probability of the hazard occurring in any given year.
- Highly Likely - Near 100% chance of occurring in a year
 - Likely - 10-100% chance of occurrence in a year or 1 chance in every 10 years
 - Occasional - 1-10% chance of occurring in a year or 1 chance in every 100 years
 - Unlikely - Less than 1% chance of occurrence in a year or less than 1 chance every 100 years

- Magnitude/Severity of Hazard:**
- Catastrophic - Multiple, widespread deaths and severe injuries; widespread, severe property destruction and damage; widespread interruption of essential facilities and services for over a week.
 - Critical - Isolated deaths and severe injuries; isolated property destruction and damage; isolated interruption of essential facilities and services for over 3 days.
 - Limited - Moderate to minor injuries and illness; moderate to minimal property damage; interruption of essential facilities and services for over 24 hour.
 - Negligible - Few or no injuries or illness; little or no property damage; brief interruption of essential facilities and services for less than 24 hours.

Annual Damage Expectations Formula:
Total dollar amount of damages for each event divided by the number of damage causing events within the time period will equal the average annual damages of that hazard event per year.

Earthquake
Description and Profile
An earthquake is the sudden and often violent shaking of the ground as a result of movements in the earth’s crust, particularly along fault lines. They can affect thousands of square miles and cause billions of dollars in damage. Earthquakes are common along the west coast but can also be fairly common in the eastern United States and do occur in North Alabama. The North Alabama region is susceptible to earthquakes due to its proximity to two seismic zones: the Southern Appalachian Seismic Zone (SASZ) and the New Madrid Seismic Zone (NMSZ). Several methods have been developed to quantify the strength of an earthquake. The most common method used is the Richter Magnitude Scale. The Richter Magnitude Scale measures earthquake strength or the amount of energy released. One Richter value is calculated for each earthquake and is measured at the event’s epicenter and is expressed as a whole number and decimals. The lower the number, the weaker the earthquake and amount of energy released.

Location
The 2014 U.S. Geological Survey National Seismic Peak Acceleration Map on the following page displays earthquake ground motions for various probability levels across the United States. These probability levels are applied to seismic provisions of building codes, insurance rate structures, risk assessments, and other public policy regulations. The map identifies Lauderdale County as being located in an area with 0.14g of hazard probability which necessitates a profile and mitigation plan for this natural hazard. There are two earthquake seismic zones located in close proximity to Lauderdale County with the ability to produce a hazardous earthquake event. The Southern Appalachian Seismic Zone (SASZ) is located to the northeast of the study area and has a low level of activity. The New Madrid Seismic Zone (NMSZ) is located to the northwest of the study area and is moderately active. Both seismic zones have the capability of affecting the entire planning area, therefore the percentage of the study area susceptible to this hazard is categorized as extensive.

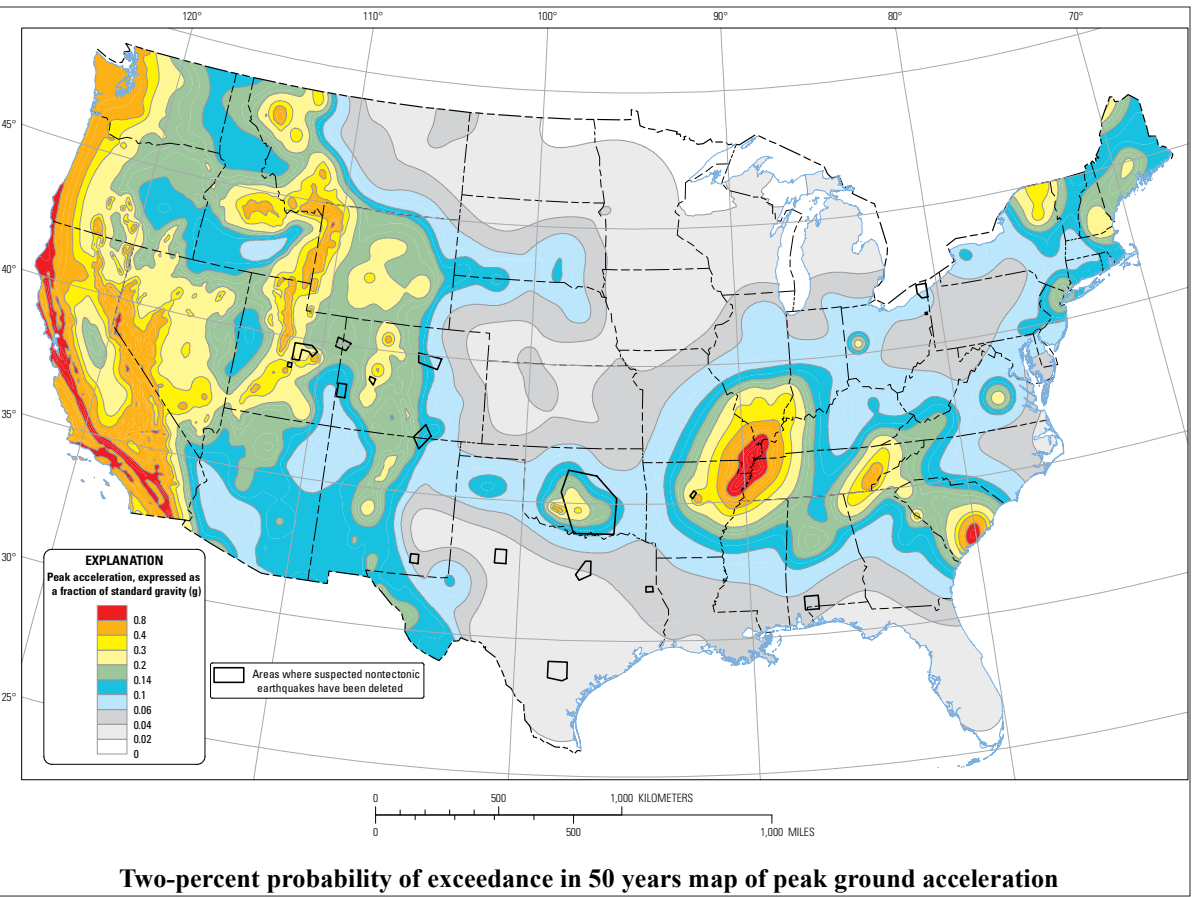
Richter Magnitude Scale		
-1	Negligible	Usually not felt by people but recorded by seismograph; no damage.
0		
1		
2	Minor	Felt by some; hanging objects may sway; dishes may rattle; rarely cause damage
3		Felt by most in the affected area; indoor items shake, sway, and rattle; possible minor damage
4	Moderate	Felt by most and some may seek shelter; some may have trouble standing; minor to moderate damage possible at epicenter a few miles out; walls and door facings may crack; furniture may fall over; damage to poorly constructed buildings; little to no injuries/deaths
5		Difficult to stand; furniture falls over, walls crack; windows break; doors jam closed; moderate damage to buildings at epicenter and beyond; can be destructive up to 100 miles away in populated areas; minor to moderate injuries/deaths
6	Severe	Impossible to move; furniture thrown about; walls and roofs collapse; utilities are damaged and interrupted; roads and bridges damaged; ground distorts; moderate to major damage to most buildings with damage being more severe closer to the epicenter and extending out for miles; moderate to significant injuries /deaths
7		Widespread death and severe injuries; major destruction for miles; structures destroyed; infrastructures and utilities destroyed; roads and bridges destroyed; ground severely distorted; severe destruction to entire communities
8+	Catastrophic	
Source: USGS Earthquake Hazards Program		

Requirement §201.6(c)(2)(i):
[The risk assessment shall include a] description of the...location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

Right: Richter Magnitude Scale
(Chart, 2015: USGS Earthquake Hazards Program)

Left: 2014 United States National Seismic Peak Acceleration Map
(Map, 2014: U.S. Geological Survey)

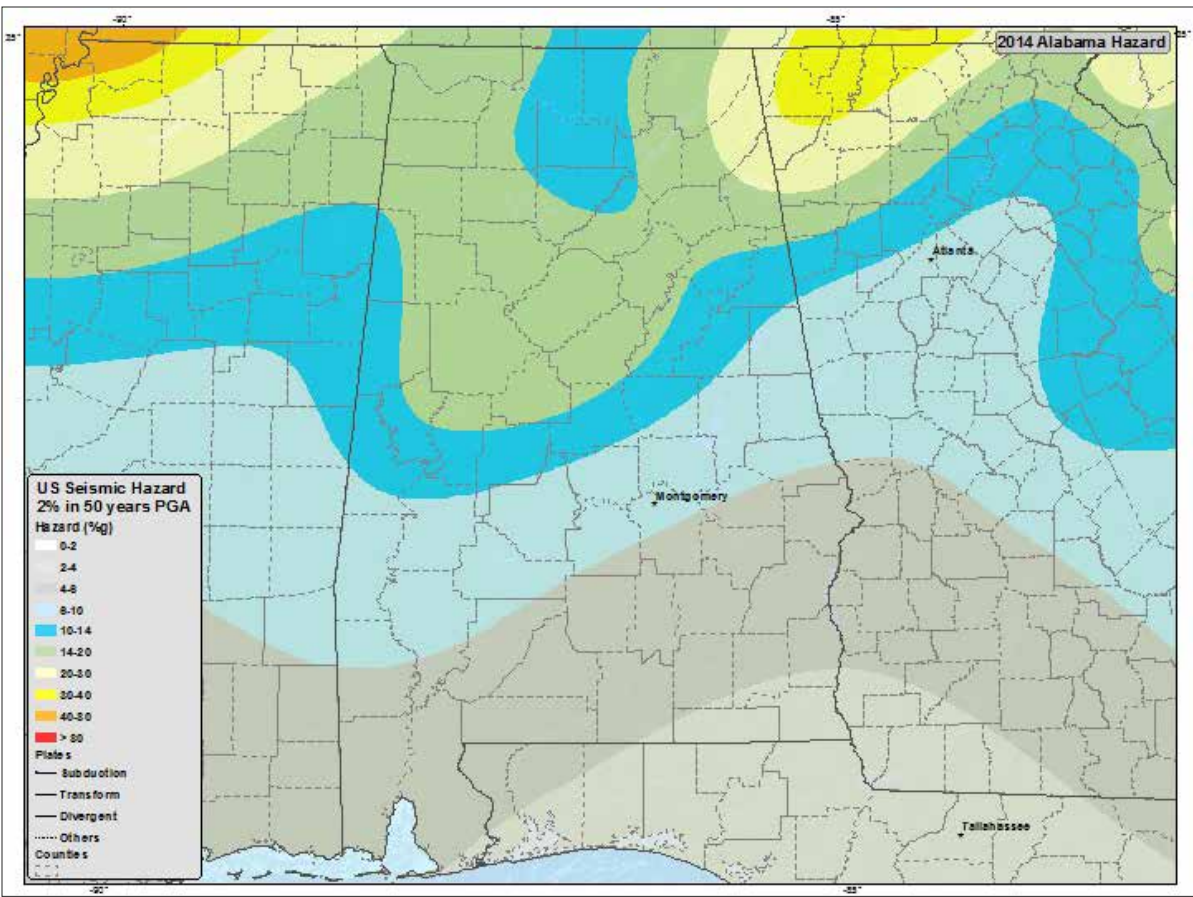
Right: 2014 Alabama Seismic Hazard Map
(Map, 2014: U.S. Geological Survey)



2014 United States National Seismic Peak Acceleration Map

Source: U.S. Geological Survey

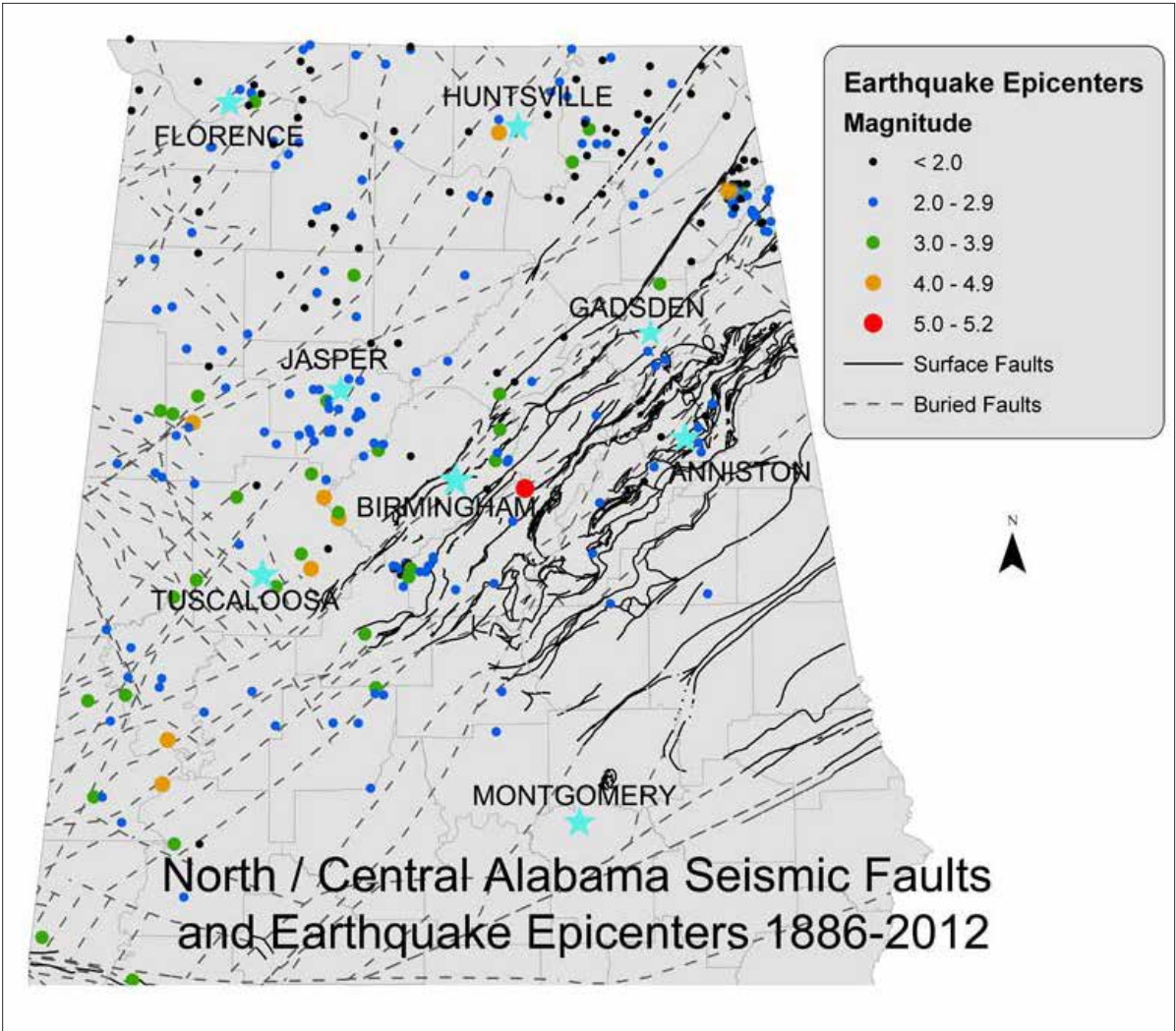
The 2014 U.S. Geological Survey shaking-hazard map for Alabama, below, is based on the rate at which earthquakes occur and the distance shaking extends from quake source. Colors show the levels of horizontal shaking that have a 1-in-10 chance of being exceeded in a 50-year period. Shaking is expressed as a percentage of g (g is the gravitational acceleration of a falling object). The geographic extent and probability of earthquakes occurring in Lauderdale County was assessed as a threat by the policy committee for the entire planning jurisdiction. This threat is based on an 14% to 20% g.



2014 Alabama Seismic Hazard Map

Source: U.S. Geological Survey

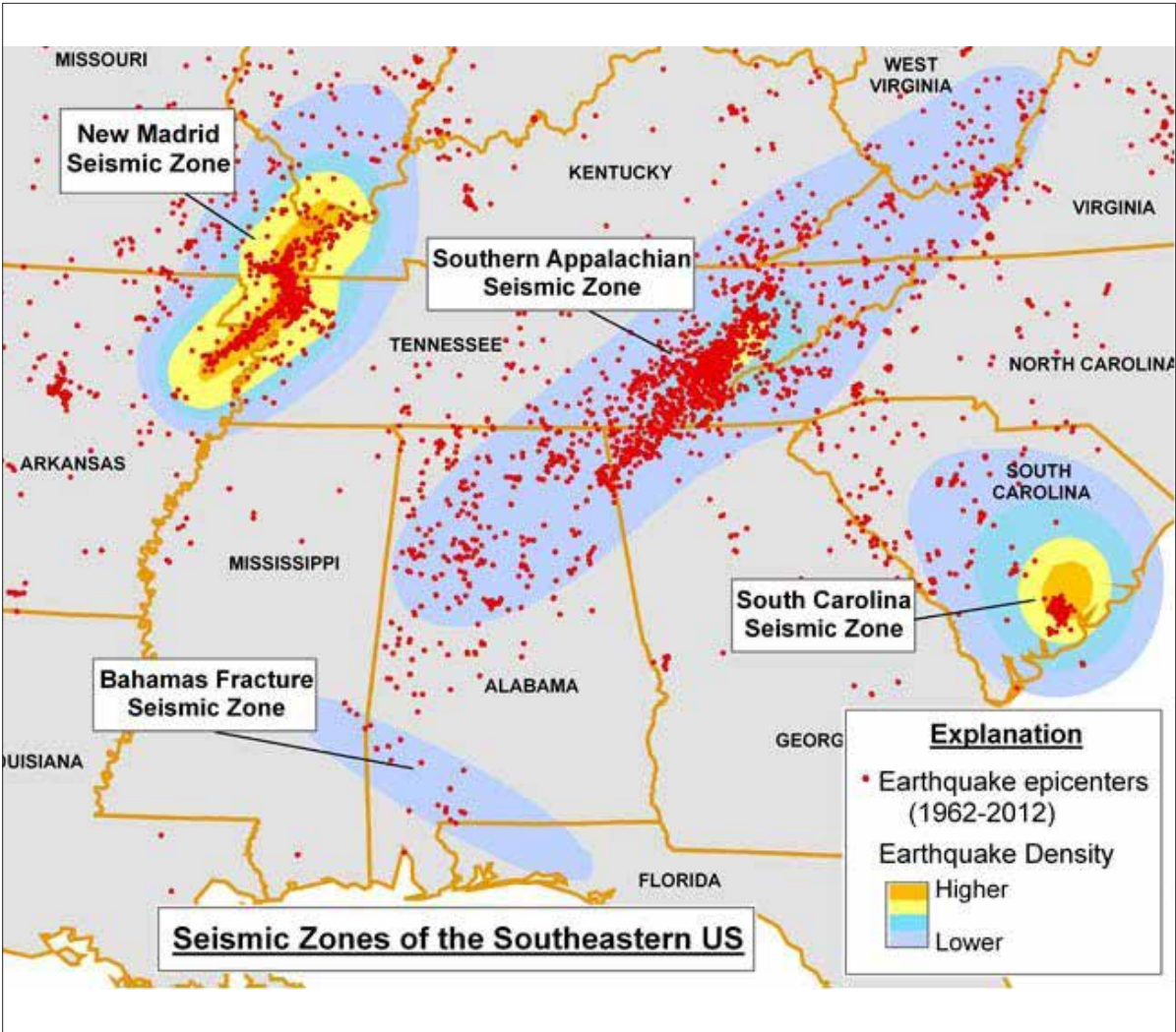
The illustration below shows epicenters of historical Alabama earthquakes from 1886 to 2012 and their associated magnitude. According to the U.S. Geological Survey (USGS), the Southern Appalachian Seismic Zone (SASZ) is capable of a 7.5 magnitude event, however the likelihood of this is very low. Occurrence of a 5-6 magnitude event is estimated at once every 200-300 years. The New Madrid Seismic Zone (NMSZ) is more active and USGS estimates that for the next 50-year period, the probability of a repeat of the 1811-1812 earthquakes is 7-10%. USGS also estimates that the probability of a magnitude 6 or greater event over the next 50 years is 24-40%.



Historical Earthquakes of North/Central Alabama 1886-2012

Source: U.S. Geological Survey

The following image illustrates seismic zones in the southeastern U.S. and identifies earthquake epicenters occurring throughout the south. The Southern Appalachian Seismic Zone and the New Madrid Seismic Zone are clearly defined and a pattern of earthquake activity is visible in the areas that surround these zones. Activity lessens the further away you move from the seismic zone’s center. According to this resource, Lauderdale County has experienced considerable seismic activity between 1962 and 2012.



Left: Historical Earthquakes of North/Central Alabama Map 1886-2012 (Map, 2012: U.S. Geological Survey)

Right: Seismic Zones of the Southeastern United States Map (Map, 2012: U.S. Geological Survey)

Previous Occurrences

According to data from USGS in the chart below, there have been 12 earthquake events of a magnitude of 1 or greater with the epicenter occurring within the planning jurisdiction since 1983. Other low magnitude earthquakes have been reported to have occurred in north Alabama that have been felt in Lauderdale County by sources other than the U.S. Geological Survey or the Geological Survey of Alabama. Local news reports and newspapers have all reported increased seismic activity felt in the planning area since the 2010 plan update. It is possible some of the felt seismic activity may be the result of land disturbing activities such as mining and are not true earthquakes. Therefore, to be consistent with the data sources, these alleged earthquake events are not included in this analysis and only U.S Geological Survey and Geological Survey of Alabama data will be used. None of the 12 earthquake events have exceeded a 2.7 in magnitude. According to the USGS, the Richter earthquake magnitude scale defines earthquakes of 2.9 magnitude or less as generally not felt by people and having no damage. Damage and breakage occur with earthquakes of a 4.0 magnitude or higher.

Left: Earthquakes in Lauderdale County 1886-2012
(Chart, 2015: Geological Survey of Alabama, Planning Team)

Top Right: Earthquake Probability Assessment Based on Historic Data from 1982-2012
(Chart, 2015: Multi-Hazard Mitigation Planning Team)

Bottom Center: Historical Earthquakes of Alabama (1886-2012)
(Photos, 2012: Geological Survey of Alabama)

Bottom Right: Earthquake Photos
(Photos, 2009, 2005: wikipedia.org)

Earthquakes in Lauderdale County 1886-2012

Date	Time	Community	Magnitude
1886	N/A	N/A	N/A
9-28-83	N/A	Florence	2.7
1-25-86	5:14	Greenhill (Killen)	1.9
6-29-87	N/A	Florence	2.0
7-8-87	1:45	Lauderdale County	2.1
4-1-88	14:15	Florence	1.9
3-26-90	17:01	Florence	2.0
12-3-90	4:12	Florence	1.8
10-19-93	7:43	Florence	1.1
5-19-97	2:32	Florence	1.7
4-20-02	7:28	Cedar Grove (Rogersville)	1.8
3-27-05	22:08	Waterloo	1.3
12-3-05	22:29	Lexington	2.4

Source: Geological Survey of Alabama

Future Probability and Magnitude/ Severity

Although the Florence-Lauderdale planning jurisdiction has not experienced an earthquake event higher than 2.7 in the past 30 years, USGS has identified the area as having a probability of a magnitude of 6 or greater event in the next 50 years and therefore mitigation strategies to this risk must be developed. Based on this determination, the future probability of an earthquake event higher than 2.7 is categorized as occasional. The magnitude/severity of the event would depend on the strength of the earthquake and could range between negligible to critical.

Earthquake Future Probability Assessment Based on Historic Data from 1983-2012			
Extent of Jurisdictional Affect: Extensive	Previous Occurrences: 12	Percent Probability of Future Annual Occurrences: Occasional-Likely	Magnitude/ Severity of Event:
Lauderdale County	12	41%	<3.0 Magnitude= Negligible - Critical
Town of Anderson	0	0	<3.0 Magnitude= Negligible - Critical
City of Florence	7	24%	<3.0 Magnitude= Negligible - Critical
Town of Killen	1	3.4%	<3.0 Magnitude= Negligible - Critical
Town of Lexington	1	3.4%	<3.0 Magnitude= Negligible - Critical
Town of Rogersville	1	3.4%	<3.0 Magnitude= Negligible
Town of St. Florian	0	0	<3.0 Magnitude= Negligible
Town of Waterloo	1	3.4%	<3.0 Magnitude= Negligible

Source: Hazard Mitigation Planning Team



Dam or Levee Failure

Description and Profile

A dam or levee failure is defined as an uncontrolled release of the water reservoir. The causes of dam or levee failures can be due to dam overtopping, excessive seepage, and structural failure of a component. Dam or levee failure can result from excessive rainfall, flooding, earthquakes, and landslides. Dam or levee failure can be catastrophic to surrounding communities and can result in significant loss of life. Any natural event or situation that has the potential to compromise the integrity of a dam or levee is considered a dam safety emergency.

Location

According to the U.S. Department of Energy, there were over 80,000 dams in the United States in 2011. In Alabama, there are an estimated 2,000 dams of sufficient size that can pose a significant threat to life and property. Approximately 32 of these dams are federally regulated with no state legislation in place to regulate dam inspection. Lauderdale County has six dams or levees of significant size in the county that include Wilson Dam ,Wheeler Dam, and four smaller dams located throughout the county. Wilson and Wheeler Dams are hydroelectric power generating facilities and are operated by the Tennessee Valley Authority (TVA). Wilson Dam is located on the Tennessee River in the south central portion of the county. Wheeler Dam is located in the southeastern corner of the county on the Tennessee River. All six dams located within Lauderdale County have the capability of affecting the entire planning area, however the Towns of Lexington and Anderson are located northeast of the dam systems and would likely not be directly impacted. The percentage of the study area susceptible to this hazard is categorized as extensive because 10-50% of the planning area would be affected by this hazard.



Previous Occurrences

There have been no occurrences of dam failures within the planning jurisdiction.

Future Probability and Magnitude/ Severity

The Tennessee Valley Authority implements a Dam Safety Emergency Action Plan for emergency preparedness in the event of failure at the dams. The Lauderdale County EMA has a copy of this plan and is prepared to coordinate efforts if the need arises. Probability of future occurrence of dam failure is categorized as unlikely. In the event of dam failure, both major dams have the potential to create emergency situations in Lauderdale County, which necessitates the need for a profile and mitigation for this event. The extent of the potential hazard event for the participating jurisdictions would be severe and cause wide spread damage. Therefore, the magnitude/ severity of dam failure within the planning jurisdiction is categorized as critical to catastrophic.

Dam Failure Probability Assessment & Extent of Disaster 1940-2013			
Extent of Jurisdictional Affect:	Previous Occurrences:	Percent Probability of Future Annual Occurrence:	Magnitude/ Severity of Event:
Extensive	0	Unlikely	Critical -Catastrophic
Lauderdale County	0	0	0
City of Florence	0	0	0
Town of Anderson	0	0	0
Town of Killen	0	0	0
Town of Lexington	0	0	0
Town of Rogersville	0	0	0
Town of St. Florian	0	0	0
Town of Waterloo	0	0	0

Source: Hazard Mitigation Planning Team



Left: Dam Inspection
(Photo, 2015: istockphoto.com)

Center: Dam Failure Probability Assessment & Extent of Disaster 1940-2013
(Chart, 2015: Hazard Mitigation Planning Team, Chastidy Piper)

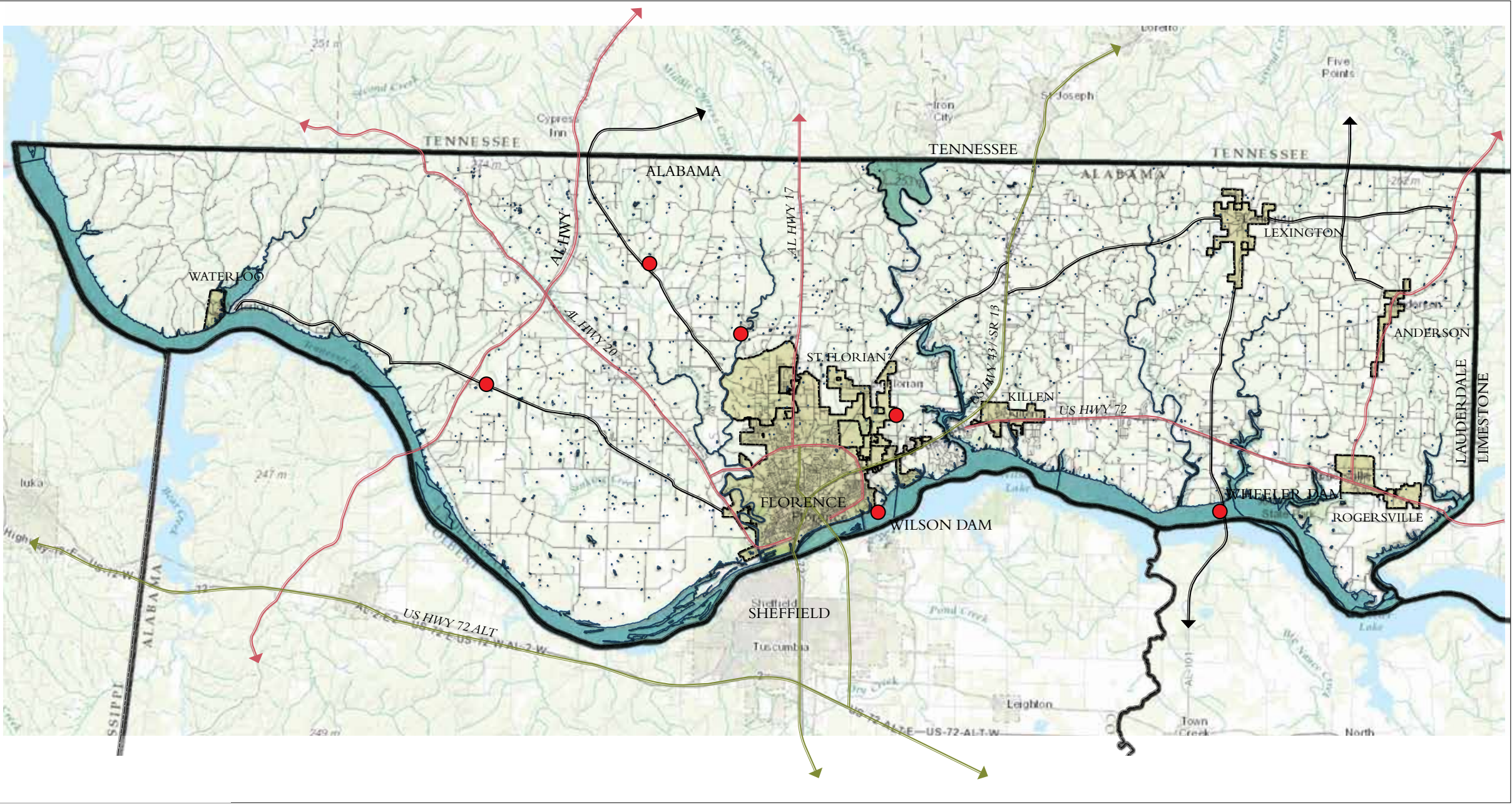
Top Right: Wheeler Dam
(Photo, 2015: tva.com via wikipedia.org)

Top Middle: Wilson Dam
(Photo, 2015: USACE via wikipedia.org)

Bottom Right: Operating Dam
(Photo, 2015: istockphoto.com)

Map: Lauderdale County Dam Locations
(Map, 2015: Multi-Hazard Mitigation Planning Team)

LEGEND
● Dam Locations



Dam Locations

Drought

Description and Profile

Drought is a prolonged period of low precipitation severe enough to reduce soil moisture and water levels below the minimum necessary for sustaining plant, animal, and economic systems. Droughts are a natural part of the climate cycle and can reduce water supply, threaten crops that rely on natural precipitation, and increase the threat of wildfires. Droughts can have a widespread impact on the environment and the economy. It is difficult to predict when they will occur or when they will end.

Location

Lauderdale County occasionally experiences short droughts and extreme heat events in the summer season. According to FEMA’s Declaration of Disaster Archives, only one drought event has been significant enough to result in a declaration of emergency in Lauderdale County, which occurred in the summer of 1977. The drought was significant enough to cause crop and property damage and a disaster declaration was made on June 20, 1977 for many counties in the state, including Lauderdale County. The use of the Tennessee River and its watersheds to irrigate crops and farmland throughout the county has likely prevented more frequent widespread damage from drought events in the planning jurisdiction.

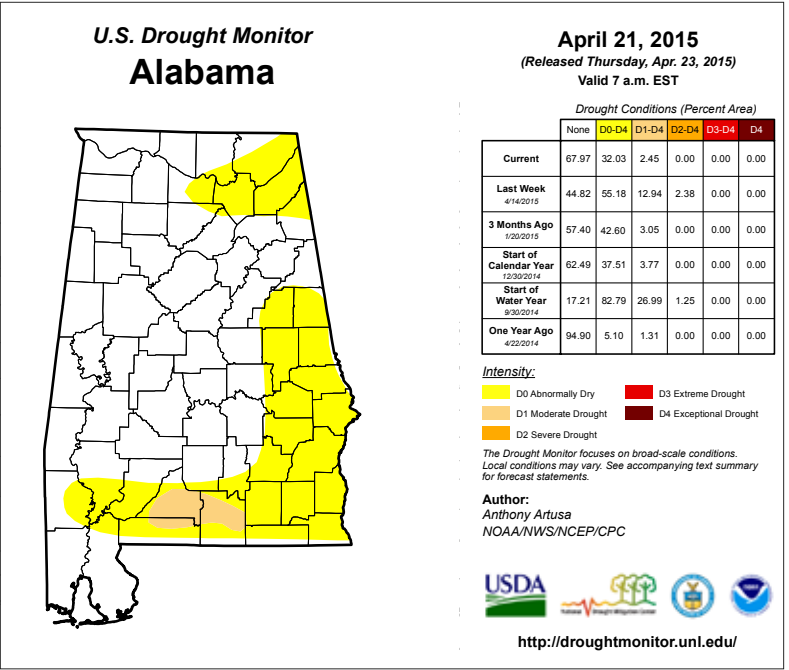
According to NOAA’s Average Annual Precipitation Map for Alabama below, Lauderdale County typically receives between 54-58 inches of rainfall a year. The National Weather Service’s 2014 Total Yearly Rainfall map for Alabama illustrates that Lauderdale County received average annual rainfall amounts in 2014. However, during the growing season, NOAA’s 2014 June–August Precipitation map indicates Lauderdale County was below average in rainfall. NOAA’s 2014 Palmer–Z Index Map for September also indicates moderate drought for the planning area. All participating jurisdictions identified drought as a significant hazard with the capability of affecting the entire planning area, therefore the percentage of the study area susceptible to this hazard is categorized as extensive.

Previous Occurences

According to NOAA’s Storm Events Database for Lauderdale County, there have been 16 significant drought events within the planning area between January 1950 and August 2014. However, none of these drought events had any reported deaths, injuries, or property damage according to NOAA.

Future Probability and Magnitude/ Severity

Based on current NOAA data and past trends, the future probability of a drought event occurring in Lauderdale County is categorized as likely. The magnitude/severity of the event would be determined by the duration of the event but the possible affect is categorized as limited to critical.



Individual Incidents of Drought Within Lauderdale County, AL Between January 1950 and August 2014				
Date	Deaths	Injuries	Total Property Damage	Total Crop Damage
3-27-2007	0	0	\$0.00	\$0.00
4-01-2007	0	0	\$0.00	\$0.00
5-01-2007	0	0	\$0.00	\$0.00
6-01-2007	0	0	\$0.00	\$0.00
7-01-2007	0	0	\$0.00	\$0.00
8-01-2007	0	0	\$0.00	\$0.00
9-01-2007	0	0	\$0.00	\$0.00
10-01-2007	0	0	\$0.00	\$0.00
11-01-2007	0	0	\$0.00	\$0.00
12-01-2007	0	0	\$0.00	\$0.00
01-01-2008	0	0	\$0.00	\$0.00
02-01-2008	0	0	\$0.00	\$0.00
3-01-2008	0	0	\$0.00	\$0.00
4-01-2008	0	0	\$0.00	\$0.00
5-01-2008	0	0	\$0.00	\$0.00
7-3-2012	0	0	\$0.00	\$0.00
Source: 2014 NOAA Storm Events Database				

Drought Probability Assessment & Extent of Disaster Based on Historical Data From 1950–2014			
Extent of Jurisdictional Affect:	Historical Occurrences:	Percent Probability of Future Annual Occurrence:	Damage Expectations of Event:
Extensive	16	Likely	Limited to Critical Damage from a drought event would depend on the longevity of the event.
Lauderdale County	16	25%	0
Town of Anderson	16	25%	0
City of Florence	16	25%	0
Town of Killen	16	25%	0
Town of Lexington	16	25%	0
Town of Rogersville	16	25%	0
Town of St. Florian	16	25%	0
Town of Waterloo	16	25%	0
Source: Hazard Mitigation Planning Team			

Center: U.S. Drought Monitor Alabama, April 21, 2015 (Map, 2015: droughtmonitor.unl.edu)

Bottom: Drought Probability Assessment & Extent of Disaster Base on Historical Data 1950-2014 (Chart, 2014: Hazard Mitigation Planning Team)

Top Right: Individual Instances of Drought Within Lauderdale County, AL Between January 1950 - August 2014 (Chart, 2014: NOAA Storm Events Database)

Top Right: Monthly Temperature Normals & Extremes for the Shoals Area
(Chart, 2015: NOAA National Weather Service, Multi-Hazard Mitigation Planning Team)

Bottom Right: Extreme Temperature Events in Lauderdale County between 1950-2014
(Chart, 2014: NOAA National Climatic Data Center, Multi-Hazard Mitigation Planning Team)

Extreme Temperatures

Description and Profile

The Lauderdale County planning area experiences extremes in temperatures that consist of hot summers and cold winters. Alabama summers are one of the hottest in the nation, with daily highs averaging over 90 F. Heat is the number one weather related killer in the U.S. Extreme temperatures over 90 F can cause health issues such as severe sunburns, heat stroke, and death. Winters within the planning area are usually mild but can sustain periods of extreme cold with temperatures plunging below freezing. Exposure to extreme cold temperatures can result in hypothermia, cold stress, frostbite, freezing of extremities, death, and property damage.

Extreme heat is defined as temperatures, which hover 10 degrees or more above the average high temperature for a region and last for several weeks and have the potential to cause injury to people and animals and damage crops. The National Weather Service created a Heat Index chart to demonstrate how air temperature increases with relative humidity and the adverse effect prolonged heat exposure has on the population.

Extreme cold weather events are defined as days where the mean daily temperature (average of the high and low recorded temperatures over a 24-hour period) falls below 32° F. As the temperature drops and wind speed increases heat can leave the body more rapidly. This is known as the wind-chill effect and it can exacerbate an extreme cold event. The NWS created a wind chill chart that measures apparent temperature felt on exposed skin due to the combination of air temperature and wind speed and the minimum exposure time at which frostbite begins to occur.

Location

NOAA’s National Weather Service Climatology Station at Northwest Shoals Regional Airport, located in adjacent Colbert County six miles south of Florence, reports monthly normal and extreme temperature events for the Shoals area and the historical data is illustrated below. The hottest temperature recorded for the Shoals was 108 F and occurred four times: June 1914, September 1925, and July and August 1930. The coldest temperature recorded was -13 F and occurred in February 1905. All participating jurisdictions identified extreme temperatures as a significant hazard with the capability of affecting the entire planning area, therefore the percentage of the study area susceptible to this hazard is categorized as extensive.

Monthly Temperature Normals and Extremes for the Shoals Area												
	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Normal High	50.7	55.4	64.4	73.3	80.9	87.8	90.8	90.9	84.7	74.3	63.3	52.8
Normal Low	31.3	35.0	42.0	49.5	58.7	66.3	70.0	68.8	61.6	49.8	40.9	33.8
Normal Average	41.0	45.2	53.2	61.4	69.8	77.0	80.4	79.8	73.2	62.1	52.1	43.3
Record High Temp and Year	84 1936	83 1962	92 1929	96 1925	99 1941	108 1914	108 1930	108 1930	108 1925	99 1925	86 1915	81 1956
Record Low Temp and Year	-11 1985	-13 1905	7 1899	24 1940	32 1909	42 1894	49 1937	47 1917	35 1901	23 1917	2 1950	-5 1989
Source: NOAA National Weather Service												

Previous Occurrences

There are nine weather stations within Lauderdale County as identified on the NOAA website (<http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwDI~SelectStation~USA~AL>). The stations are located in the following areas: Anderson, Center Star, Florence One, Florence Two, Florence at Lock, New Wilson Lock, Smithsonia, Waterloo, Young’s Store. These weather stations are operable year round and record events of extreme weather that are reported to NOAA and stored in their Storm Events Database. The Storm Events Database stores data geographically categorized by state and county and historical data is available from January 1, 1950 through September 30, 2014, at the time of this plan.

According to NOAA’s Storm Events Database for Lauderdale County, there have been five extreme heat events between 1950 and September 30, 2014. The extreme heat event that occurred on June 19, 2009 resulted in 12 injuries. There have been six extreme cold events between 1950 and September 30, 2014. The extreme cold event that occurred on March 7, 1996 caused \$2 million in crop damages.

Extreme Temperature Events in Lauderdale County between 1950 - September 30, 2014					
Event Type	Date	Deaths	Injuries	Property Damage	Crop Damage
Extreme Cold	2/3/96	0	0	0	0
Extreme Cold	2/23/96	0	0	0	0
Extreme Cold	3/7/96	0	0	0	\$2 M
Extreme Heat	8/1/07	0	0	0	0
Extreme Cold	1/16/09	0	0	0	0
Extreme Heat	6/19/09	0	12	0	0
Extreme Heat	6/27/09	0	0	0	0
Extreme Heat	8/15/10	0	0	0	0
Extreme Heat	7/10/11	0	0	0	0
Extreme Cold	1/6/14 AM	0	0	0	0
Extreme Cold	1/6/14 PM	0	0	0	0
Total Number of Extreme Temperature Events					
11		0	12	0	\$2 M
Source: 2014 NOAA National Climatic Data Center -Storm Events Database at http://www.ncdc.noaa.gov/					

Future Probability and Magnitude/Severity

Based on historical weather data, Lauderdale County and its municipalities are susceptible to extreme heat and cold weather events and therefore, hazard mitigation planning is required due to the probability of it occurring every year. The future probability of an extreme heat event occurring within the planning area is categorized as likely. The magnitude/severity of the potential hazard event is categorized between limited to critical and could cause millions of dollars in damages to the agriculture industry.

Extreme Temperature Probability Assessment & Extent of Disaster Based on Historical Data between 1996 - September 30, 2014			
Extent of Jurisdictional Effect: Extensive	Historical Occurrences: 11	% Probability of Future Annual Occurrence: Likely	Magnitude/Severity of Event: Limited to Critical
Lauderdale County	11	61%	\$1,000,000
Town of Anderson	11	61%	\$1,000,000
City of Florence	11	61%	\$1,000,000
Town of Killen	11	61%	\$1,000,000
Town of Lexington	11	61%	\$1,000,000
Town of Rogersville	11	61%	\$1,000,000
Town of St. Florian	11	61%	\$1,000,000
Town of Waterloo	11	61%	\$1,000,000
Source: Hazard Mitigation Planning Team			



Left: Extreme Temperature Probability Assessment & Extent of Disaster Based on Historical Data between 1996-2014 (Chart, 2015: Hazard Mitigation Planning Team)

Top Center: Fighting Fire in Freezing Weather (Photo, 2009: istockphoto.com)

Top Right: Extreme Heat (Photo, 2009: bike198.com)

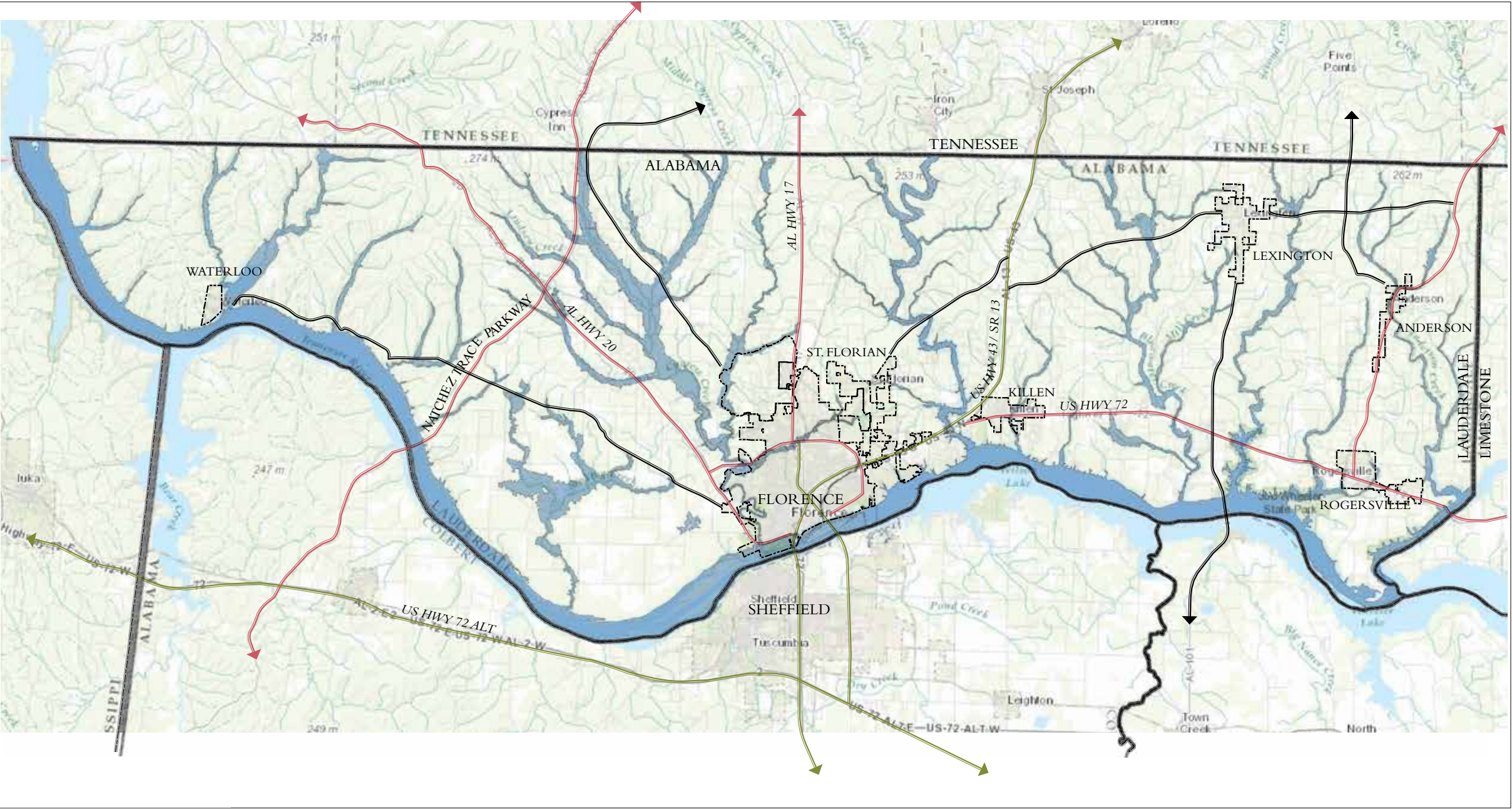
Bottom Center: Extreme Heat (Photo, 2011: cnn.com)

Bottom Right: School Buses in Extreme Cold (Photo, 2014: thetimesweekly.com)

Map: Lauderdale County Flood Zone Map
(Map, 2015: Multi-Hazard Mitigation Planning
Team)

LEGEND

100Year Floodplain



Flood Zones

Flood

Description and Profile

Floods are the most common and widespread of all natural disasters and can be the most costly in terms of human hardship and economic loss. A flood, as defined by the National Flood Insurance Program, is: “A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from: overflow of inland or tidal waters, unusual and rapid accumulation or runoff of surface waters from any source, or a mudflow”.

There are several different types of flood events likely to occur in Lauderdale County including flash, riverine, and urban storm water. Flooding is most always attributed to excessive rainfall, either in the flood area or upstream reach. Flash floods are localized flood events of great volume and short duration. Riverine flood events occur when a watercourse exceeds its bank capacity due to prolonged rainfall and typically effects large areas. Urban storm water flood events result as land loses its ability to absorb rainfall as it is converted from fields or woodlands to roads, buildings, and parking lots. Lauderdale County, and all its incorporated places, are located within the Tennessee River drainage basin and therefore are very susceptible to flood events of all types.

The immediate danger from flooding is the strength of the water, which causes destruction of personal property such as structures and vehicles. Flooding can remove houses from their foundation and push debris miles from its origin causing injury or death to people and animals in its path. Long-term adverse effects include power outages, damage to infrastructure, contaminated water supply, and outbreak of disease.

Location

The National Flood Insurance Program (NFIP) was authorized by Congress with the enactment of the National Flood Insurance Act of 1968. Under the NFIP, flood insurance is made available at rates that are intended to be affordable in return for community adoption of ordinances to regulate development in mapped flood hazard areas. Lauderdale County has all eight jurisdictions within the planning area participating in the NFIP Program.

Lauderdale County and all of its cities and towns are located within the Tennessee River drainage basin and are susceptible to flood events every year. Therefore, the entire planning area is susceptible to flood events and the planning area affected is categorized as extensive.

Previous Occurrences

According to data from NOAA’s National Climatic Data Center, the planning area has experienced 122 previous flood events in the past 18 years resulting in 1 death, 2 injuries, and totaling \$15,000 in crop damage and \$2,011,000 in property damage. The most destructive flooding event in Lauderdale County occurred on May 2, 2010, causing \$1 million worth of property damage. 2 to 5 inches of rainfall accumulations were reported across north Alabama. Northwestern Alabama was hit the hardest and Shoal Creek in Lauderdale County reached a record flood stage of 23.12 feet the following day as a result of the heavy rainfall and additional runoff upstream. The entire planning area was affected. This flood event serves as the worst extent expected in the planning area.

Historical Flood Events for Lauderdale County between 1996 - October 2014						
Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
Florence	3/6/96	Flash Flood	0	0	25.00 K	0
Florence	6/23/06	Flash Flood	0	0	10.00 K	0
Florence	8/8/96	Flash Flood	0	0	10.00 K	0
Countywide	1/7/98	Flash Flood	0	0	25.00 K	5.00 K
Killen	7/14/98	Flash Flood	0	2	30.00 K	10.00 K
Greenhill	6/28/99	Flash Flood	0	0	20.00 K	0
Countywide	4/3/00	Flash Flood	0	0	10.00 K	0
Countywide	1/23/02	Flash Flood	0	0	400.00 K	0
Countywide	1/24/02	Flash Flood	0	0	50.00 K	0
Florence	2/15/03	Flash Flood	0	0	0	0
Rogersville	2/21/03	Flash Flood	0	0	0	0
Anderson	2/21/03	Flash Flood	0	0	0	0
Lexington	2/21/03	Flash Flood	0	0	0	0
Florence	2/22/03	Flash Flood	0	0	0	0
Countywide	2/22/03	Flash Flood	0	0	0	0
Countywide	2/22/03	Flash Flood	0	0	0	0
Countywide	5/6/03	Flash Flood	0	0	350.00 K	0
Anderson	5/6/03	Flash Flood	0	0	0	0
Florence	5/6/03	Flash Flood	0	0	0	0
Rogersville	5/6/03	Flash Flood	0	0	0	0
Florence	5/11/03	Flash Flood	0	0	0	0
Countywide	6/18/03	Flash Flood	0	0	0	0
Greenhill	7/16/03	Flash Flood	0	0	0	0
Greenhill	7/22/03	Flash Flood	0	0	0	0
Lexington	7/22/03	Flash Flood	0	0	0	0
Center Star	8/6/03	Flash Flood	0	0	0	0
Florence	8/6/03	Flash Flood	0	0	0	0
Countywide	2/5/04	Flash Flood	0	0	0	0
Countywide	2/6/04	Flood	0	0	0	0
Florence	3/5/04	Flash Flood	0	0	0	0
Florence	7/14/04	Flash Flood	0	0	0	0
Florence	7/25/04	Flash Flood	0	0	0	0
Florence	9/12/04	Flash Flood	0	0	0	0
Countywide	9/16/04	Flash Flood	0	0	0	0
Florence	10/19/04	Flash Flood	0	0	0	0
Waterloo	10/19/04	Flash Flood	0	0	0	0
Florence	11/23/04	Flash Flood	0	0	0	0

Chart: Historical Flood Events for Lauderdale County between 1996-2014
(Chart, 2014: NOAA Climatic Data Center, Multi-Hazard Mitigation Planning Team)

RISK ASSESSMENT

Chart: Historical Flood Events for Lauderdale County between 1996-2014
(Chart, 2014: NOAA Climatic Data Center, Multi-Hazard Mitigation Planning Team)

Countywide	11/30/04	Flash Flood	0	0	0	0
Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
Florence	12/6/04	Flash Flood	0	0	0	0
Countywide	12/09/04	Flash Flood	0	0	0	0
Countywide	2/21/05	Flash Flood	0	0	0	0
Countywide	2/21/05	Flash Flood	0	0	0	0
Countywide	4/6/05	Flash Flood	0	0	0	0
Florence	1/22/06	Flash Flood	0	0	0	0
Murphy Xrds	3/1/07	Flash Flood	0	0	0	0
Florence	7/6/07	Flash Flood	0	0	0	0
Rogersville	4/4/08	Flash Flood	0	0	1.00 K	0
Lauderdale Co	5/27/08	Flash Flood	0	0	0	0
Rogersville	5/27/08	Flash Flood	0	0	5.00 K	0
Oliver	5/27/08	Flash Flood	0	0	0	0
Countywide	5/27/08	Flash Flood	0	0	0	0
Countywide	5/27/08	Flash Flood	1	0	30.00 K	0
Weeden Heights	12/9/08	Flash Flood	0	0	0	0
Anderson	12/11/08	Flood	0	0	0	0
Lexington	12/11/08	Flood	0	0	0	0
Pritton	12/11/08	Flood	0	0	0	0
Anderson	12/11/08	Flood	0	0	0	0
Rogersville	1/6/09	Flash Flood	0	0	0	0
Anderson	1/6/09	Flash Flood	0	0	0	0
Greenhill	1/6/09	Flash Flood	0	0	0	0
Whitehead	1/6/09	Flood	0	0	0	0
Greenhill	3/26/09	Flood	0	0	0	0
Toonersville	3/26/09	Flood	0	0	0	0
Greenhill	3/26/09	Flood	0	0	0	0
Anderson	3/26/09	Flood	0	0	0	0
Whitehead	5/1/09	Flash Flood	0	0	0	0
Waterloo	5/1/09	Flood	0	0	0	0
Pritton	5/6/09	Flash Flood	0	0	0	0
Pritton	5/6/09	Flood	0	0	0	0
Powell	7/5/09	Flash Flood	0	0	0	0
Powell	7/5/09	Flood	0	0	0	0
Florence	7/16/09	Flash Flood	0	0	0	0
Sullivan Xrds	8/11/09	Flash Flood	0	0	0	0

Oakland	9/16/09	Flash Flood	0	0	0	0
Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
Waterloo	9/17/09	Flash Flood	0	0	0	0
Greenhill	9/17/09	Flash Flood	0	0	0	0
Wilson Lake	9/17/09	Flash Flood	0	0	0	0
Pritton	9/17/09	Flash Flood	0	0	0	0
Petersville	9/17/09	Flash Flood	0	0	0	0
Killen	9/17/09	Flash Flood	0	0	0	0
Florence	9/17/09	Flash Flood	0	0	0	0
Jacksonburg	9/17/09	Flash Flood	0	0	0	0
Florence	9/17/09	Flash Flood	0	0	0	0
Greenhill	9/17/09	Flash Flood	0	0	0	0
Greenhill	9/17/09	Flash Flood	0	0	0	0
Whitehead	9/17/09	Flash Flood	0	0	0	0
Florence	9/17/09	Flash Flood	0	0	0	0
Center Star	9/20/09	Flash Flood	0	0	0	0
Lexington	12/8/09	Flash Flood	0	0	0	0
Grassy	1/20/10	Flood	0	0	0	0
Lexington	2/5/10	Flood	0	0	18.00 K	0
Anderson	2/5/10	Flood	0	0	0	0
Antioch	2/5/10	Flood	0	0	0	0
Wright	5/1/10	Flash Flood	0	0	0	0
Waterloo	5/2/10	Flash Flood	0	0	0	0
Waterloo	5.2/10	Flash Flood	0	0	0	0
Arkdell	5/2/10	Flash Flood	0	0	0	0
Pritton	5/2/10	Flood	0	0	1,000 M	0
Antioch	3/9/11	Flash Flood	0	0	0	0
Anderson	3/9/11	Flash Flood	0	0	0	0
Center Hill	3/9/11	Flash Flood	0	0	0	0
Mars Hill	3/9/11	Flash Flood	0	0	0	0
Center Star	6/28/11	Flash Flood	0	0	0	0
Arkdell	6/28/11	Flash Flood	0	0	0	0
Countywide	6/28/11	Flash Flood	0	0	5.00 K	0
Countywide	6/28/11	Flash Flood	0	0	0	0
Whitehead	6/28/11	Flash Flood	0	0	0	0
Countywide	6/28/11	Flash Flood	0	0	0	0
Gravelly Spgs	6/28/11	Flash Flood	0	0	0	0
Countywide	6/28/11	Flash Flood	0	0	0	0
Countywide	6/28/11	Flash Flood	0	0	0	0
Pritton	6/28/11	Flash Flood	0	0	0	0

Mars Hill	6/28/11	Flash Flood	0	0	0	0
Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
Kimbrough Xrds	1/17/12	Flash Flood	0	0	0.50 K	0
Rogersville	1/17/12	Flash Flood	0	0	1.00 K	0
Anderson	1/23/12	Flash Flood	0	0	0.50 K	0
Florence	9/17/12	Flash Flood	0	0	0	0
Lauderdale Co	6/5/13	Flash Flood	0	0	0	0
Holloway	7/13/13	Flash Flood	0	0	20.00 K	0
Florence	8/6/13	Flash Flood	0	0	0	0
Petersville	6/11/14	Flash Flood	0	0	0	0
Florence	7/8/14	Flash Flood	0	0	0	0
TOTAL EVENTS: 122			1	2	2.011 M	15.00 K
Source: 2014 NOAA National Climatic Data Center -Storm Events Database at http://www.ncdc.noaa.gov/stormevents/						

Future Probability and Magnitude/Severity

The percent probability of a flood event occurring in Lauderdale County is highly likely with a future probability percentage of 394% that a flood event will occur in the next year. The assessed magnitude and severity is categorized as limited to critical and depends on the duration of rainfall and the areas affected. The extent of the potential hazard could cause millions in economic loss to property and agriculture.

Flood Future Probability Assessment and Extent of Disaster Based on Historical Data between 1996 - October 2014			
Extent of Jurisdictional Affect: Extensive	Historical Occurrences: 122	Percent Probability of Future Occurrence: Likely- Highly Likely	Magnitude/ Severity of Event: Limited - Critical
Lauderdale County	71	394%	\$1,915,500
Town of Anderson	9	50%	\$500
City of Florence	24	133%	\$45,000
Town of Killen	2	11%	\$40,000
Town of Lexington	5	28%	\$18,000
Town of Rogersville	6	33%	\$7,000
Town of St. Florian	0	0%	0
Town of Waterloo	5	28%	0
TOTAL	122	678%	\$2,026,000
Source: Hazard Mitigation Planning Team			



Top Left: Historical Flood Events for Lauderdale County between 1996-2014 (Chart, 2014: NOAA Climatic Data Center, Multi-Hazard Mitigation Planning Team)

Bottom Left: Flood Future Probability Assessment & Extent of Disaster based on Historical Data between 1996-2014 (Chart, 2014: Multi-Hazard Mitigation Planning Team)

Top Right: Flood Road Closures (Photo, 2009: Multi-Hazard Mitigation Planning Team)

Bottom Right: Flooded Home (Photo, 2009: Multi-Hazard Mitigation Planning Team)



Bottom: 2014 EPA Enforcement & Compliance History Online (ECHO) Report for Facilities located in Lauderdale County Incorporated Places (Chart, 2014: EPA Envirofacts, Multi-Hazard Mitigation Planning Team)

Top Right: 2014 EPA Regulated/Permitted Facilities in Lauderdale County (Chart, 2014: EPA Envirofacts, Multi-Hazard Mitigation Planning Team)

Hazardous Materials

Description and Profile

Hazardous materials (HAZMAT) are part of the technological hazards category that originate from human activities. Hazardous materials (HAZMAT) are chemical substances that can pose a threat to the environment or health of people and animals if released and exposure occurs. Hazardous chemicals are found throughout Lauderdale County in areas of industry, agriculture, commercial development, and medical facilities. HAZMAT can come in the form of explosives, flammable and combustible substances, corrosives, gases, poisons and radioactive materials. Exposure to HAZMAT can cause mild to severe health problems including long lasting health effects and death. Exposure can damage buildings, homes, and entire sections of communities including rivers, streams, and drinking water supplies. Due to the potential public hazard, facilities possessing HAZMAT are required to register and receive permits through state and federal agencies for the monitoring of proper storage, transport, and care of HAZMAT material. Under normal conditions, these substances are controlled and pose no threat to human life and the environment. However, when a release occurs, they can produce disastrous results. Releases may come from fixed sources, such as a manufacturing or storage facility, or from a transportation source, such as a truck, railcar, or boat. Accidental releases can occur due to equipment failure, human error, or a natural or manmade hazard event.

Location

HAZMAT can be associated with a fixed facility or with a transportation corridor such as a highway or railway. With fixed facility HAZMAT, the substances are identified and permitted by the Environmental Protection Agency (EPA) and Alabama Department of Environmental Management (ADEM) and the facility is required to store and handle the substances per established regulations for public and environmental safety. These facilities are required to develop emergency plans and spill plans for the purpose of responding to a HAZMAT release.

According to the Environmental Protection Agency (EPA) EnviroFacts online community information database, there were 461 EPA regulated facilities in Lauderdale County in 2014. The table below specifies what regulation/permit category these facilities are associated with and how many facilities are permitted for each category within the county.

The Environmental Protection Agency (EPA) Enforcement Compliance History Online (ECHO) Report identifies EPA regulated facilities within incorporated places and their associated regulation/permit categories, as well as any violations these facilities may have. The table below illustrates 2014 EPA regulated facilities within the incorporated places in Lauderdale County and identifies if any of these facilities have violations. There were eight facilities in Lauderdale County in 2014 with an EPA violation.

2014 Environmental Protection Agency (EPA) Regulated/Permitted Facilities in Lauderdale County	
Regulated/Permitted Category	Number of Facilities
AFS - Facilities that are permitted for air emissions	24
BR - Facilities that are permitted to generate hazardous waste	9
RCRA - Facilities that are permitted to handle hazardous waste	127
PCS/ICIC - Facilities permitted to discharge waste water into waterbodies	286
TRI - Facilities permitted to have toxic releases	15
Source: EPA-Envirofacts: http://www.epa.gov/enviro/facts/topicsearch.html	

2014 EPA Enforcement and Compliance History Online (ECHO) Report for Facilities located in Lauderdale County Incorporated Places							
Town/ City	Facility with Current Violation	Facility with Violation in last 3 Years	Facility with Formal Enforcement Actions in 5 Years	Facilities with CAA Source - Air Emissions	Facilities with CWA Permits -Waste Water Discharge	Facilities with RCRA IDs - Waste Handlers	Facilities with TRI Releases-Toxic Releases
City of Florence	5	24	6	18	90	67	8
Town of Anderson	1	3	0	0	7	0	0
Town of Killen	1	4	1	1	14	3	0
Town of Lexington	1	2	0	0	4	1	0
Town of Rogersville	0	4	0	1	13	3	0
Town of St. Florian	0	0	0	0	0	0	0
Town of Waterloo	0	1	0	0	4	0	0
Source: EPA-Envirofacts: http://www.epa.gov/enviro/facts/topicsearch.html							

Transportation HAZMAT incidents can also occur when hazardous substances are being transported via roadway,railway,or waterway from one facility to the next. The transportation of hazardous material is regulated by state and federal agencies including the U.S. Department of Transportation, U.S. Environmental Protection Agency, and the Alabama Department of Environmental Management. All hazardous substances being transported through Alabama must be properly stored, contained, and labeled and transported between permitted facilities.

There are four main highways in Lauderdale County that serve as freight truck routes: U.S. Highway 43; U.S. Highway 72; AL Highway 20; and AL Highway 17. According to the North Alabama Industrial Development Association, north Alabama is served by more than 65 commercial trucking companies. Tennessee Southern Railroad provides industrial rail service through the county with its southern terminus located in downtown Florence along the banks of the Tennessee River. The tracks extend north out of the city paralleling the AL 157 and AL 17 corridors into Tennessee. The Tennessee River runs east to west along the southern boundary of Lauderdale County. According to the Tennessee Valley Authority, over 50 million tons of freight move up and down the Tennessee River including various types of petroleum products and industrial chemicals and materials.

Previous Occurrences

The EPA’s Emergency Response Notification System (ERNS) requires that all accidents or spills of HAZMAT material from all types of facilities, whether fixed or in transit, be reported. The National Response Center is operated by the U.S. Coast Guard and the database of incidents is also managed by the Coast Guard at <http://www.nrc.uscg.mil/>. The table below list all hazardous material related incidents that have occurred in Lauderdale County from 1982 through 2014 and were reported to the ERNS. According to the Emergency Response Notification System (ERNS), there have been 138 incidents in the past 32 years resulting in 3 fatalities, 11 injuries, 355 people evacuated, and \$50,000 in property damage.

The Emergency Response Notification System database also records the type of facility the incident occurred from including fixed facilities, mobile vehicles such as trucks, rail, ships, or planes. Of the 138 incidents that occurred in Lauderdale County between 1982 and 2014, 52 of the incidents originated from mobile vehicles, 40 originated from fixed sites, and 36 were discovered as an unknown sheen on the surface of water.

Emergency Response Notification System (ERNS) Reported Incidents from 1982-2014 for Places in Lauderdale County and Incorporated Places						
Location	Total # Incidents	Fatalities	Hospitalizations	Injuries	Total # People Evacuated	Total Property Damage
Lauderdale County	20	1	1	1	3	0
City of Florence	87	1	8	8	352	\$50,000
Town of Anderson	0	0	0	0	0	0
Town of Killen	17	1	2	2	0	0
Town of Lexington	1	0	0	0	0	0
Town of Rogersville	12	0	0	0	0	0
Town of St. Florian	0	0	0	0	0	0
Town of Waterloo	1	0	0	0	0	0
Total	138	3	11	11	355	\$50,000
Source: National Response Center U.S. Coast Guard, http://www.nrc.uscg.mil/						

Emergency Response Notification System (ERNS) Reported Incidents Types from 1982-2014 for Places in Lauderdale County	
Type of Facility Incident	Number of Incident
Fixed Site	40
Storage tank, pipeline, drilling platform	9
Mobile vehicle (truck, rail, ship, plane)	52
Unknown sheen on water	36
Continuous release	0
Other	1
Source: National Response Center U.S. Coast Guard, http://www.nrc.uscg.mil/	



Top: ERNS Reported Incidents from 1982-2014 for Places in Lauderdale County (Chart, 2014: National Reponse Center, Multi-Hazard Mitigation Planning Team)

Middle: ERNS Reported Incident Types from 1982-2014 for Places in Lauderdale County (Chart, 2014: National Reponse Center, Multi-Hazard Mitigation Planning Team)

Bottom Right: Hazardous Materials (Photo, 2009: istockphoto.com)

Chart: Hazardous Material Incident Future Probability Assessment & Extent of Disaster based on Historical Data between 1982-2014 (Chart, 2014: Hazard Mitigation Planning Team, Chastidy Piper)

Map: HAZUS-MH Identified Hazardous Materials (Map, 2015: Randy Morgan)

Future Probability and Magnitude/Severity

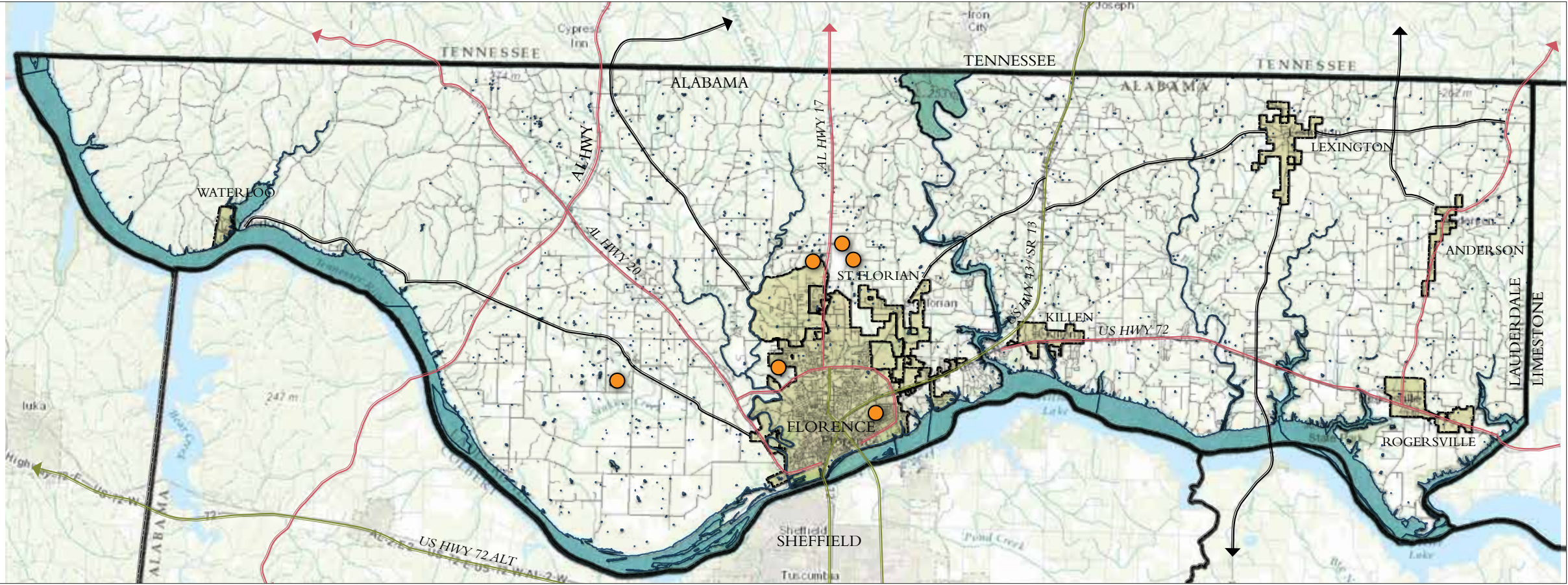
The percent probability of a hazardous material incident occurring in Lauderdale County is highly likely with a future probability percentage of 431% that a hazardous material incident will occur in the next year. The assessed magnitude and severity is categorized as negligible to limited and depends on the type of hazardous material released, the size of the release, and the exposure to the release. The extent of the potential hazard could cause thousands of dollars in property damage.

Hazardous Material Incident Future Probability Assessment and Extent of Disaster Based on Historical Data between 1982 - 2014			
Extent of Jurisdictional Affect: Extensive	Historical Occurrences: 138	Percent Probability of Future Occurrence: Occasional -Highly Likely	Magnitude/ Severity of Event: Negligible - Limited
Lauderdale County	20	63%	0
City of Florence	87	272%	\$50,000
Town of Anderson	0	0	0
Town of Killen	17	53%	0
Town of Lexington	1	3%	0
Town of Rogersville	12	38%	0
Town of St. Florian	0	0	0
Town of Waterloo	1	3%	0
TOTAL	138	431%	\$50,000

Source: Hazard Mitigation Planning Team

LEGEND

● Hazardous Materials



Hurricanes and Tropical Cyclones

Description and Profile

Tropical depressions, tropical storms, and hurricanes are collectively called tropical cyclones. A tropical cyclone is an organized, rotating system of clouds and thunderstorms that originates over tropical and subtropical waters and forms a circular rotation around an eye. Tropical cyclones are the most devastating natural hazards in the U.S. and an average of five hurricanes occur per year in the Atlantic Region.

A tropical depression is a cyclone with maximum sustained winds of 38 mph or less. A tropical storm is a cyclone with maximum sustained winds of 39 to 73 mph. A hurricane is a cyclone with maximum sustained winds of 74 mph or higher. Once a cyclone reaches hurricane strength, the Saffir/Stimpson Hurricane Scale is used to classify the storms strength and damage potential. A number scale from 1 to 5 is used to categorize hurricanes. The higher the number, the stronger the hurricane. Hurricane categories are defined by a storms central pressure, wind speed, storm surge height, and damage potential.

Associated hazards with hurricanes include: severe winds, storm surge flooding, high waves, coastal erosion, extreme rainfall, thunderstorms, lightning and possibly tornadoes.

Location

The Gulf of Mexico has an extremely active hurricane season and many hurricanes make landfall from New Orleans to Pensacola and have the potential to impact north Alabama as they track north. Hurricanes do not directly impact Lauderdale County due to its distance from the coast however, tropical storms and tropical depressions are capable of impacting the county as they move inward from the Gulf. Although no hurricane force cyclone storm events have hit Lauderdale County, their associated downgraded tropical storms have. Downgraded tropical storms have caused property damage and have impacted all parts of the county. Therefore, the potential impact of the planning area is classified as extensive.

Previous Occurrences

According to NOAA’s Historical Hurricane Tracker Interactive Online Mapper, six tropical cyclones have tracked through Lauderdale County. Of these six tropical storms and depressions whose storm center passed directly through the county, the damage reported was negligible to none as they dissipated and weakened moving inward. The worst extent expected in the planning area is tropical storm winds.

Saffir/ Stimpson Hurricane Scale		
Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt 119-153 km/h	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph 83-95 kt 154-177 km/h	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 mph 96-112 kt 178-208 km/h	Devastating damage will occur: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph 113-136 kt 209-251 km/h	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt or higher 252 km/h or higher	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
Source: NOAA National Weather Service, National Hurricane Center		

Lauderdale County Historical Hurricane Tracks from 1891 to Present			
Hurricane/Cyclone Name	Date (Storm Life)	Deaths/Injuries	Property Damage
Not Named 1891	July 3-8, 1891	0	0
Not Named 1916	October 9-19, 1916	0	0
Ethel	September 14-17, 1960	0	0
Frederic	August 29 - September 14, 1979	0	0
Danny	August 12-20, 1985	0	0
Arlene	June 8-14, 2005	0	0
Source: 2014 NOAA Historical Hurricane Tracker Interactive Online Mapper , http://coast.noaa.gov/hurricanes/			

NOAA’s National Climatic Data Center Storm Event Database lists three cyclone storm events occurring in Lauderdale County since 1950.

Top: Saffir / Stimpson Hurricane Scale
(Chart, 2014: NOAA National Weather Service, National Hurricane Center, Chastidy Piper)

Bottom: Lauderdale County Historical Hurricane Tracks from 1891-Present
(Chart, 2014: NOAA Climatic Data Center, Chastidy Piper)

Bottom Left: State of Alabama Hurricane History Map
(Map, 2009: NOAA Coastal Service Center)

Top Right: Hurricane & Tropical Storm Events Reported in Lauderdale County between 1950-2014
(Map, 2014: NOAA National Climatic Data Center, Multi-Hazard Mitigation Planning Team)

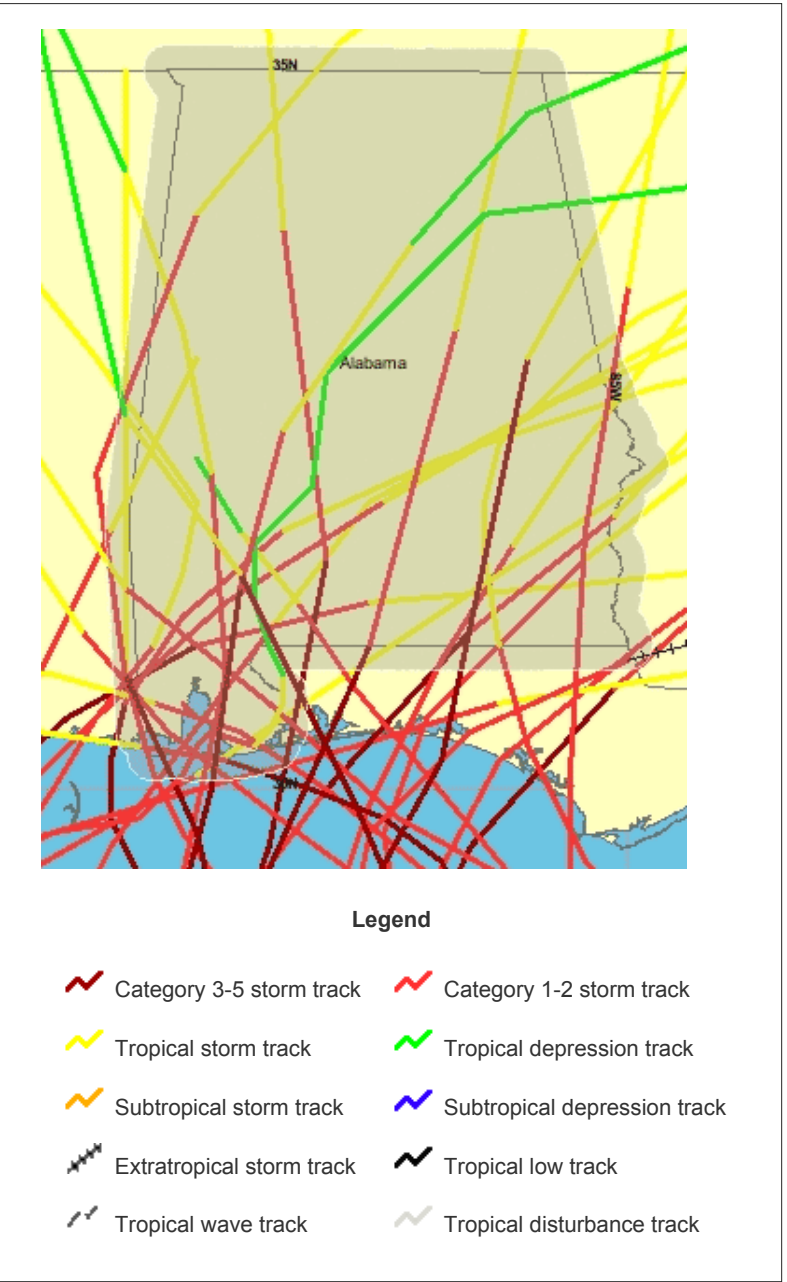
Middle Right: Hurricane/Tropical Storm Event Future Probability Assessment & Extent of Disaster based on Historical Data between 1891-2014
(Map, 2014: Multi-Hazard Mitigation Planning Team)

Bottom Center: Hurricane Photo
(Photo, 2009: istockphoto.com)

Bottom Right: Hurricane Gustav
(Photo, 2002: nasa.gov, Jesse Allen)

Future Probability and Magnitude/Severity

The percent probability of a hurricane or tropical storm event occurring in Lauderdale County is categorized as occasional with a future probability percentage of 7% that a cyclone storm event will occur in the next year. The assessed magnitude and severity is categorized as negligible to limited and depends on the intensity of the storm. The extent of the potential hazard could cause millions in economic loss to property and agriculture.



Hurricane and Tropical Storm Events Reported in Lauderdale County between 1950 - 2014							
Hurricane/Tropical Storm	Date	Staffir-Simpson Scale Cat.	Wind Speed	Inches of Rain	Death/Injuries	Property Damage	Crop Damage
Tropical Storm (Opal)	10-4-95	(Tropical Storm)	<40mph	3-5	2 Deaths	\$100 Million	\$10 Million
Tropical Storm	7-10-05	(Tropical Storm)	N/A	N/A	0	0	0
Tropical Storm	8-29-05	(Tropical Storm)	<60mph	4-5	0	0	0
Source: 2014 NOAA National Climatic Data Center -Storm Events Database at http://www.ncdc.noaa.gov/stormevents/							

Hurricane/Tropical Storm Event Future Probability Assessment and Extent of Disaster Based on Historical Data between 1891-2014			
Extent of Jurisdictional Affect:	Historical Occurrences:	Percent Probability of Future Occurrence:	Magnitude/ Severity of Event:
Extensive	9	Occasional	Negligible - Limited
Lauderdale County	9	7%	110 Million
City of Florence	9	7%	110 Million
Town of Anderson	9	7%	110 Million
Town of Killen	9	7%	110 Million
Town of Lexington	9	7%	110 Million
Town of Rogersville	9	7%	110 Million
Town of St. Florian	9	7%	110 Million
Town of Waterloo	9	7%	110 Million
TOTAL	9	7%	110 Million
Source: Hazard Mitigation Planning Team			



Landslides

Description and Profile

A landslide is a downward and outward movement of slope-forming soil, rock, and vegetation under the influence of gravity. Landslides are triggered by natural and human-induced changes in the environment. Landslides include soil creeps, surface slides, and rock falls. These changes may be contributed to the following activities:

- Weaknesses in composition or structure of the rock or soil
- High precipitation
- Changes in ground-water level
- Seismic activity
- Construction or mining activity
- Over-steepening of slopes
- Changes in surface water runoff
- Heavy loads on slopes

Landslides are a major geologic hazard because they are widespread and occur in all U.S. states. Damage in the U.S. equals over \$1-2 billion in damages and includes more than 25 fatalities on average each year. In Alabama, damages are over a million dollars every year. Landslides pose serious threats to highways and to structures that support community infrastructure and function, community economy, and general transportation. Landslides commonly happen concurrently with other major natural disasters such as earthquakes and floods, which exacerbate relief and reconstruction efforts. The increased development of urban and recreational areas within steep slopes has led to increased threats, deaths and property damage by landslides. This development trend must be taken into account in Lauderdale County as growth within the planning study area continues.

Location

The State of Alabama reports 50 out of the 66 counties are vulnerable to landslides. However, in Lauderdale County, there are no records of significant landslide events, and Lauderdale County is ranked with moderate susceptibility with a low incidence by the Alabama Geologic Survey. With changes in development patterns and densities occurring, there is a greater chance of future landslide activity associated with future construction of buildings, highways, railroads and/or mining activities. Monitoring and land use planning activities must continue during the planning implementation period to ensure a low occurrence of significant landslides. The extent of a landslide hazard event is possible countywide, however it is more likely within the participating jurisdictions located on the western end of Lauderdale County due to the geologic nature of the area. Therefore, the potential impact of the planning area is classified as limited to significant.

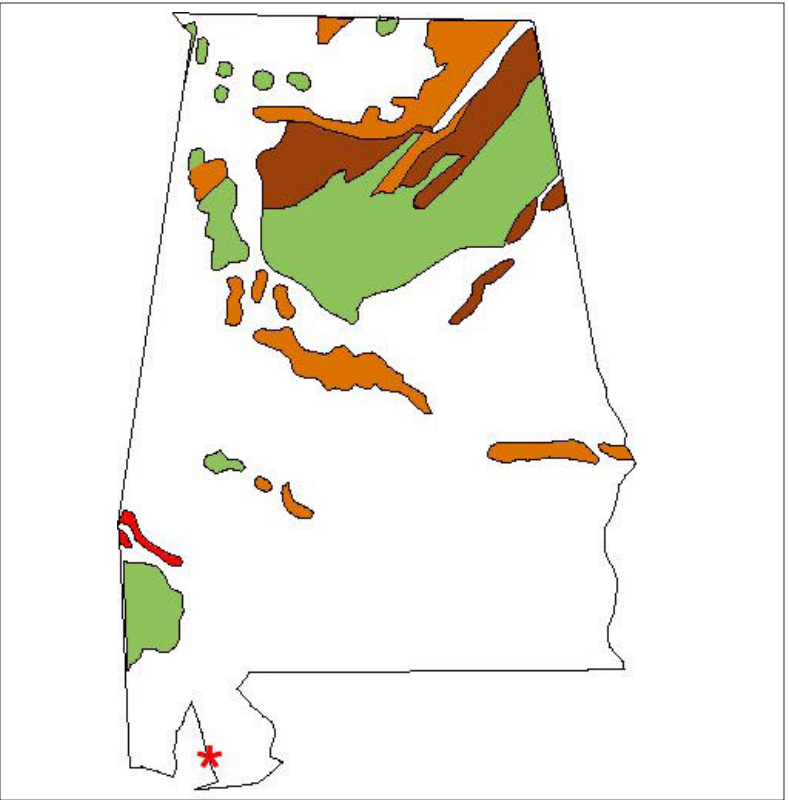
Previous Occurrences

There have been no recent or historical landslide events in Lauderdale County according to the U.S. Geological Survey data. However, there is a small chance that the western portion of the county could experience a landslide event due to geologic conditions therefore, the planning team included this potential hazard in this assessment and has identified it as a possible threat.

Future Probability and Magnitude/Severity

The percent probability of a landslide hazard event occurring in Lauderdale County is categorized as occasional with a future probability percentage of 0-10% that a landslide event will occur in the next year. The assessed magnitude and severity is categorized as negligible to limited and depends on the severity of the landslide event. Property damage and economic loss from landslides is estimated to be low to moderate.

Landslide Hazard Event Future Probability Assessment and Extent of Disaster Based on Previous Occurrences			
Extent of Jurisdictional Affect	Historical Occurrences	Percent Probability of Future Occurrence	Magnitude/Severity of Event
Limited to Significant	0	Occasional	Negligible - Limited
Source: Hazard Mitigation Planning Team			

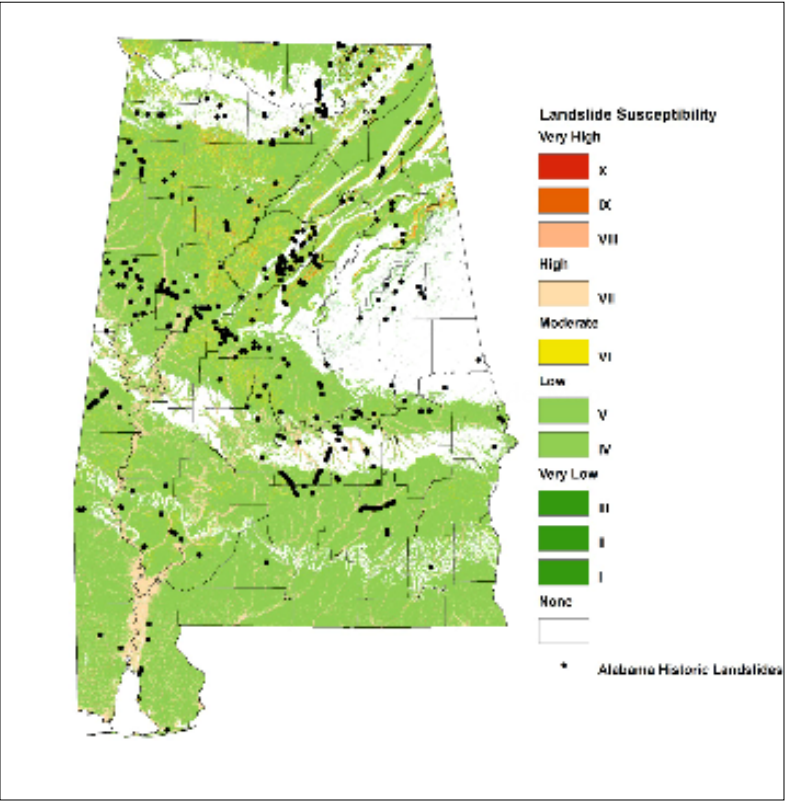
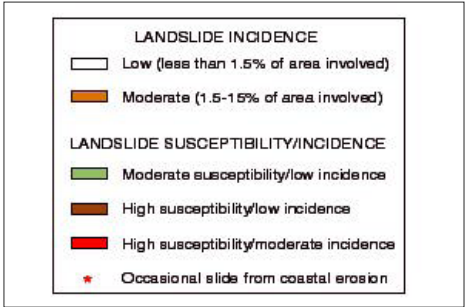


Middle Center: Landslide Hazard Event Future Probability Assessment & Extent of Disaster base on Previous Occurrences (Chart, 2014: Multi-Hazard Mitigation Planning Team)

Middle Bottom: Landslide Photo (Photo, 2014: U.S. Geological Survey)

Top Right: Alabama Landslide Incidence Map (Map, 2009: U.S. Geological Survey)

Bottom Right: Alabama Landslide Susceptibility Map (Map, 2013: Alabama State Hazard Mitigation Plan Update 2013)



Top Middle: Nuclear Accident Hazard Event Future Probability & Extent of Disaster Based on Previous Occurences
(Chart, 2014: Hazard Mitigation Planning Team)

Top Right: Brown’s Ferry Nuclear Power Plant
(Image, 2015: United States Nuclear Regulatory Commission)

Bottom Right: Brown’s Ferry Nuclear Power Plant Map
(Image, 2015: Multi-Hazard Mitigation Planning Team)

Nuclear Accidents

Description and Profile

According to FEMA, a nuclear accident involves an actual or potential release of radioactive material at a commercial nuclear power plant or other nuclear facility, in sufficient quantity to constitute a threat to the health and safety of the off-site population. Even though nuclear facilities are designed to withstand aircraft attacks and incidents of natural disasters, emergency response plans must be in place for communities living in close proximity to these facilities in the event there is structural failure resulting in a release.

Location

There are no nuclear facilities in Lauderdale County, however there is one in neighboring Limestone County to the east. The Tennessee Valley Authority Brown’s Ferry Nuclear Power Plant is located 14 miles from Lauderdale County and 40 miles from the City of Florence. The facility sits on 840 acres beside Wheeler Reservoir near Athens, Alabama, and is within the 10 mile Emergency Planning Zone (EPZ). Though the construction and operation of nuclear power plants are closely monitored and regulated by the Nuclear Regulatory Commission (NRC), accidents at these plants are considered a possibility and appropriate on-site and off-site emergency planning is conducted. FEMA, TVA and local jurisdictions have developed Federal Radiological Emergency Response Plans (FRERP). The potential impact of a nuclear release on the planning area is classified as extensive due to the close proximity of the plant to the county and its location on the Tennessee River. The entire County and all its municipalities would be adversely affected.

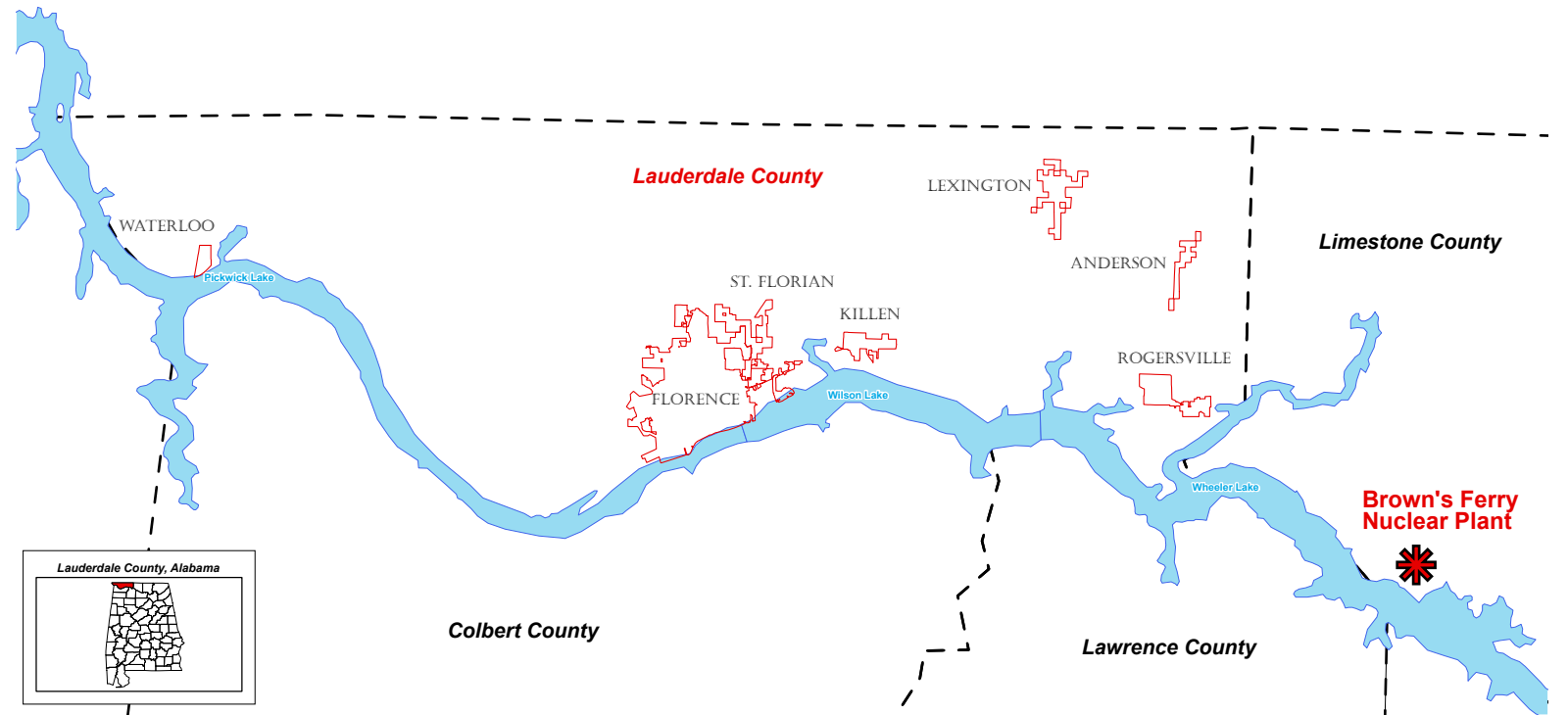
Previous Occurrences

According to the Tennessee Valley Authority, there have been no incidents of nuclear release from the Brown’s Ferry Nuclear Power Plant.

Future Probability and Magnitude/Severity

The percent probability of a nuclear release incident occurring in Lauderdale County is categorized as occasional with a future probability percentage of 0-10% that a nuclear release will occur in the next year. The assessed magnitude and severity of a nuclear release is categorized as catastrophic. Property damage and economic loss would be devastating and is estimated to be in the billions. Human and animal mortality would be high as would severe injury and illness.

Nuclear Accident Hazard Event Future Probability Assessment and Extent of Disaster Based on Previous Occurrences			
Extent of Jurisdictional Affect	Historical Occurrences	Percent Probability of Future Occurrence	Magnitude/Severity of Event
Extensive	0	Occasional	Catastrophic
Source: Hazard Mitigation Planning Team			



Brown’s Ferry Nuclear Plant

Sinkholes and Land Subsidence

Description and Profile

Sinkholes are a naturally occurring geologic feature resulting in the ground above a natural or manmade void to collapse. Areas that have sinkholes are known as karst terrain. The bedrock under areas where sinkholes form is usually made of limestone. The acid content in rainwater dissolves the limestone bedrock and begins an underground erosion process called dioxide cascade. Over time, this process forms cracks, crevices, tunnels and caves. When the roof of the cave can no longer support the weight of the ground above, it collapses forming the sinkhole. The process is also known as land subsidence. Sinkholes can also be caused by a drop in the water table due to drought, excessive rainfall/flood, drainage problems or heavy construction.

Sinkholes pose hazards to property and the environment and can result in millions of dollars of damage. They can cause substantial property damage, threaten water and environmental resources by draining streams, lakes, and wetlands, and creating pathways for transmitting surface waters directly into underlying aquifers. Where these new pathways form, movement of surface contaminants into the underlying aquifer systems can degrade ground-water resources. Conversely, when sinkholes become plugged, they can cause flooding by capturing surface-water flow and can create new wetlands, ponds, and lakes.

Location

Most of Alabama’s sinkholes are located in the northern portion of the state. An extremely large concentration of sinkholes is located just south of the Tennessee River in the western portion of the state forming a band that stretches east to west from Colbert County to Marshal County. Although Lauderdale County abuts Colbert and Lawrence Counties, the two counties in the state with the greatest number of sinkholes, Lauderdale County only possess a moderate amount of sinkholes in comparison. All participating jurisdictions within the county are susceptible to sinkholes as a potential hazard, therefore the percentage of the study area susceptible to this hazard is categorized as extensive.

Previous Occurrences

The Geological Survey of Alabama website has an interactive map of the state of Alabama that allows users to zoom into specific locations and view sinkholes. The map was created in 2010 using data obtained from topographic maps of Lauderdale County. According to this map, the greatest concentration of sinkholes in Lauderdale County is located just west of the City of Florence, along the banks

of the Tennessee River, around the Key Cave National Wildlife Refuge. There are close to 200 identified sinkholes in this area located to the southeast of the Natchez Trace Parkway and to the southwest of Highway 20. This area consist of rural residential land use transitioning to larger farmland parcels the further south you go towards the river. The Tennessee Valley Authority owns most of the waterfront property in this area.

There are around 22 identified sinkholes in the mid-Lauderdale County region north of the City of Florence. There are around 25 identified sinkholes in eastern Lauderdale County west of Highway 43 in the area of Killen, Rogersville,Anderson, and Lexington. There are no identified sinkholes in the western corner of Lauderdale County west of the Natchez Trace Parkway in the Waterloo area. Experts have reported that the sinkholes in Lauderdale County on average are relatively small, measuring about 5-6 feet deep, as compared to one of the largest sinkholes in U.S. history, found in Shelby County,Alabama, measuring 300 feet across. Because of this history, the worst extent expected in the planning area is smaller sinkholes measuring 5-6 feet deep.

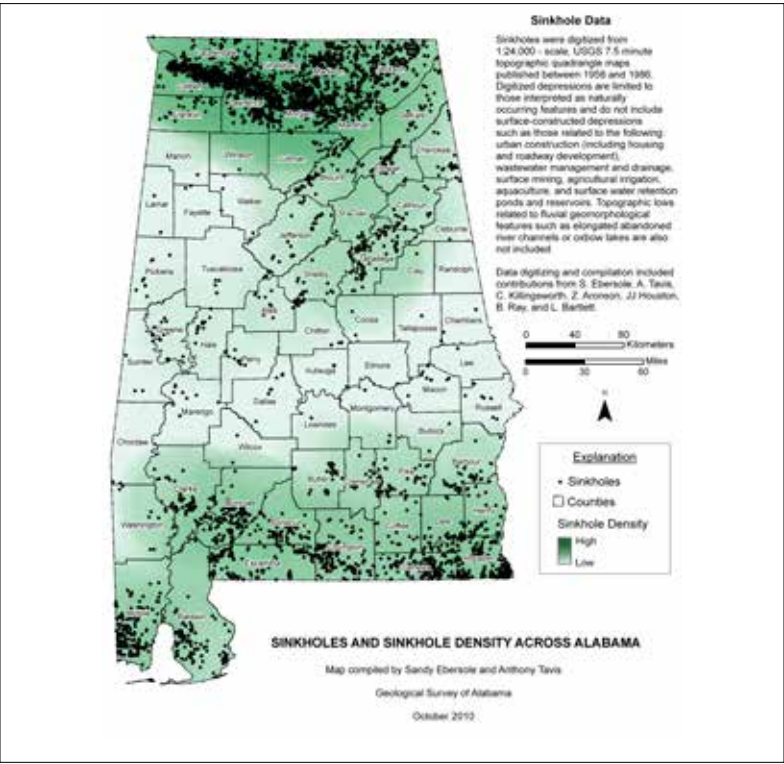
Identified Sinkholes in Lauderdale County in 2010 by the Geological Survey of Alabama Online Interactive Map		
County Region	Municipalities in Region	Identified Sinkholes
Middle, North of Florence	City of Florence Town St. Florian	22
Middle, West of Florence	City of Florence	200
Eastern	Town of Killen Town of Lexington Town of Rogersville Town of Anderson	25
Western	Town of Waterloo	0
Lauderdale County Total		247
Source: Geological Survey of AL, http://gsa.state.al.us/gsa/geologichazards/Sinkholes_AL.htm		

Future Probability and Magnitude/Severity

According to county and city engineers, sinkholes occurring in municipal limits do not happen very often but when they do, they are typically associated with failed storm water drainage infrastructure and damage is minor to moderate. Sinkholes located in populated areas that present a danger are filled to prevent any hazard. However,

most sinkholes in Lauderdale County are in rural farmland areas and present little to no danger to the general public. However, due to the karst terrain of areas of Lauderdale County, it is possible that a sinkhole of significant size could occur in a populated area of the county and present a serious hazard. Based on the Geological Survey of Alabama’s 2010 sinkhole data, the percent probability of a new sinkhole forming in Lauderdale County is categorized as likely. Its location within the county would determine if it is a hazard requiring further action. The assessed magnitude and severity of a sinkhole is categorized as negligible to critical depending on its location and size.

Sinkhole Hazard Event Future Probability Assessment and Extent of Disaster Based on Previous Occurrences				
County Region	Municipalities in Region	Identified Sinkholes	Probability of Future Occurrence	Magnitude/Severity of Event
Middle, North of Florence	City of Florence Town St. Florian	22	Likely	Limited -Critical
Middle, West of Florence	City of Florence	200	Highly Likely	Limited -Critical



Middle Center: Identified Sinkholes in Lauderdale County in 2010 by the Geological Survey of Alabama Online Interactive Map (Chart, 2010: Geological Survey of Alabama)

Top Right: Sinkhole Hazard Event Future Probability Assessment & Extent of Disaster based on Previous Occurrences (Chart, 2014: Multi-Hazard Mitigation Planning Team)

Bottom Right: Sinkhole & Sinkhole Density Across Alabama (Map, 2014: Geological Survey of Alabama)

Bottom Middle: Thunderstorm & High Wind Events in Lauderdale County 1961-2014
(Chart, 2014: NOAA National Climatic Data Center, Multi-Hazard Mitigation Planning Team)

Top Right: Lightning Events in Lauderdale County between 1996-2014
(Chart, 2014: NOAA National Climatic Data Center, Multi-Hazard Mitigation Planning Team)

Top Right: Hail Events in Lauderdale County between 1969--2014
(Chart, 2014: NOAA National Climatic Data Center, Multi-Hazard Mitigation Planning Team)

Severe Storms

Description and Profile

For the purpose of this document, severe storm events include thunderstorms, high winds, lightning, and hail. The combination of these events or as individual occurrences can be deadly. Thunderstorms are heavy rainstorm accompanied by thunder, lightning, strong winds, and sometimes hail. Thunderstorms can produce strong winds known as a down-burst or straight-line winds which may exceed 120 mph. These storms can tear off roofs, topple trees, and overturn mobile homes. Some thunderstorms can be accompanied by tornadoes. The typical thunderstorm is 15 miles in diameter and lasts an average of 30 minutes.

According to the National Oceanic and Atmospheric Administration, approximately 10 percent of the thunderstorms that occur each year in the United States are classified as severe. A thunderstorm is classified as severe when it contains one or more of the following phenomena:

- Hail measuring three quarters of an inch or larger in diameter; and/or
- Winds equal or exceed 58 mph

The National Weather Service will issue the following public safety announcements associated with thunderstorms:

- A *severe thunderstorm watch* is issued when the weather conditions are such that a severe thunderstorm is likely to develop. They are issued well in advance of the actual occurrence of severe weather. During the watch, people should review severe thunderstorm safety rules and be prepared to move to a place of safety if threatening weather approaches.
- A *severe thunderstorm warning* is issued when a severe thunderstorm has been sighted or indicated by weather radar. At this point, the danger is very serious and it is time to go to a safe place, turn on a battery-operated radio or television, and wait for the “all clear” from authorities.

High winds associated with a severe storm are capable of damaging property and structures and include straight-line winds, down-bursts, and micro-bursts. Straight-line winds are high winds across a wide area that can reach 140 mph. Down-burst are localized currents of air blasting down from a thunderstorm to the ground resulting in outward bursts of damaging winds. Micro-bursts are small down-burst covering an area less than 2.5 miles across and include a strong wind shear.

Lightning is the visible electric discharge associated with a thunderstorm. Lightning can occur within a cloud, from cloud to cloud, cloud to air, or cloud to ground. In the U.S., lightning causes an average of 60 fatalities and 300 injuries a year.

Hail occurs when strong rising air currents associated with a thunderstorm, called updrafts, carry water droplets to a height where freezing can occur. When the ice particles fall to the ground, they are called hail. Severe thunderstorms have been known to produce hail three quarters of an inch or more in diameter and fall at speeds close to 100 mph. In the U.S., hail storms cost more than \$1 billion in damages to property and crops every year.

Location

Severe storms impact the entire Lauderdale County planning area and typically occur from mid-March through September. However, they can occur anytime in the year when conditions are warm and favorable. According to National Weather Service data, Lauderdale County and all of its municipalities have experienced severe storm events that have resulted in deaths, injuries, property damage, and crop damage. The entire planning area will continue to experience severe storms and be impacted by their hazardous conditions, therefore the percentage of the study area susceptible to this hazard is categorized as extensive.

Previous Occurrences

According to data from NOAA’s Storm Event Database, there have been 429 thunderstorm and high wind events in Lauderdale County between 5/1/61 and 12/31/14. These hazardous events resulted in 2 deaths and 4 injuries. Property damage from these events totaled \$4.626 M and crop damage totaled \$519.00 K.

Thunderstorm and High Wind Events in Lauderdale County between 5/1/61-12/31/14				
Thunderstorm and High Wind Events	Deaths	Injuries	Property Damage	Crop Damage
429	2	4	\$4.626 M	\$519.00 K
Source: 2014 NOAA National Climatic Data Center -Storm Events Database at http://www.ncdc.noaa.gov/				

The NOAA Storm Event Database reports 27 lightning events in Lauderdale County between 6/1/96 and 12/31/14. These events resulted in 7 injuries and \$148.50 K in property damage.

Lightning Events in Lauderdale County between 6/1/96-12/31/14				
Lightning Events	Deaths	Injuries	Property Damage	Crop Damage
27	0	7	\$148.50 K	0
Source: 2014 NOAA National Climatic Data Center -Storm Events Database at http://www.ncdc.noaa.gov/				

According to the NOAA Storm Event Database, there have been 175 hail events in Lauderdale County between 6/1/69 and 12/31/14. These events resulted in \$163.50 K in property damage and \$77.00 K in crop damage.

Hail Events in Lauderdale County between 6/1/69-12/31/14				
Hail Events	Deaths	Injuries	Property Damage	Crop Damage
175	0	0	\$163.50 K	\$77.00K
Source: 2014 NOAA National Climatic Data Center -Storm Events Database at http://www.ncdc.noaa.gov/				

Future Probability and Magnitude/Severity

There were 631 severe storm events that included thunderstorms, high winds, lightning, and hail in the planning area in the past 53 years. The most destructive storm event occurred in 2007 in the Grassy community in northeast Lauderdale County with \$1 million in reported property damage. Event details, such as wind speeds or hail size, were not reported. In 2014 alone, there were two hail events with quarter-sized hail reported for both. The worst extent expected for hail events is quarter-sized hail. The storm event that took place on April 29, 2014 reported up to five inches of rain in the Oakland community. Wind speeds were not reported. However, there were nine Thunderstorm events in 2014. Of the events where wind speed was reported, winds clocking in between 50–60 mph was reported in several areas of the county. The worst extent expected in the planning area is strong storm winds at roughly this speed. The percent probability of a severe storm event occurring in Lauderdale County is categorized as highly likely with a future probability percentage of 1,190% that one or a combination of these severe storm hazards will occur in the next year. The assessed magnitude and severity is categorized as limited to critical and depends on the intensity and size of the storm. The extent of the potential hazard



could cause millions in economic loss to property and agriculture as well as injuries and death.

Severe Storm Event Future Probability Assessment and Extent of Disaster Based on Historical Data between 5/8/61-12/31/14			
Extent of Jurisdictional Affect: Extensive	Historical Occurrences: 631	Percent Probability of Future Occurrence: Likely - Highly Likely	Magnitude/ Severity of Event: Limited-Critical
Lauderdale County	361	681%	\$2.769 M
City of Florence	106	200%	\$700.00 K
Town of Anderson	25	47%	\$64.50 K
Town of Killen	36	68%	\$130 K
Town of Lexington	26	49%	\$1.207 M
Town of Rogersville	37	70%	\$329 K
Town of St. Florian	8	15%	\$23.5 K
Town of Waterloo	32	60%	\$312 K
TOTAL	631	1,190%	\$5.534 M



- Left: Lightning Photo
(Photo, 2013: noaa.gov)
- Top: Severe Storm Event Future Probability Assessment & Extent of Disaster Based on Historical data between 1961-2014
(Chart, 2014: Hazard Mitigation Planning Team)
- Middle Center: Storm Drain during Storm Event
(Photo, 2010: istockphoto.com)
- Right Center: Severe Storm Photo
(Photo, 2005: noaa.gov)
- Bottom Center: Severe Storm Damage
(Photo, 2010: istockphoto.com)
- Bottom Right: Thunderstorm Photo
(Photo, 1980: noaa.gov)

Bottom Left: Wind Zones in the United States
(Map, 2014: fema.gov)

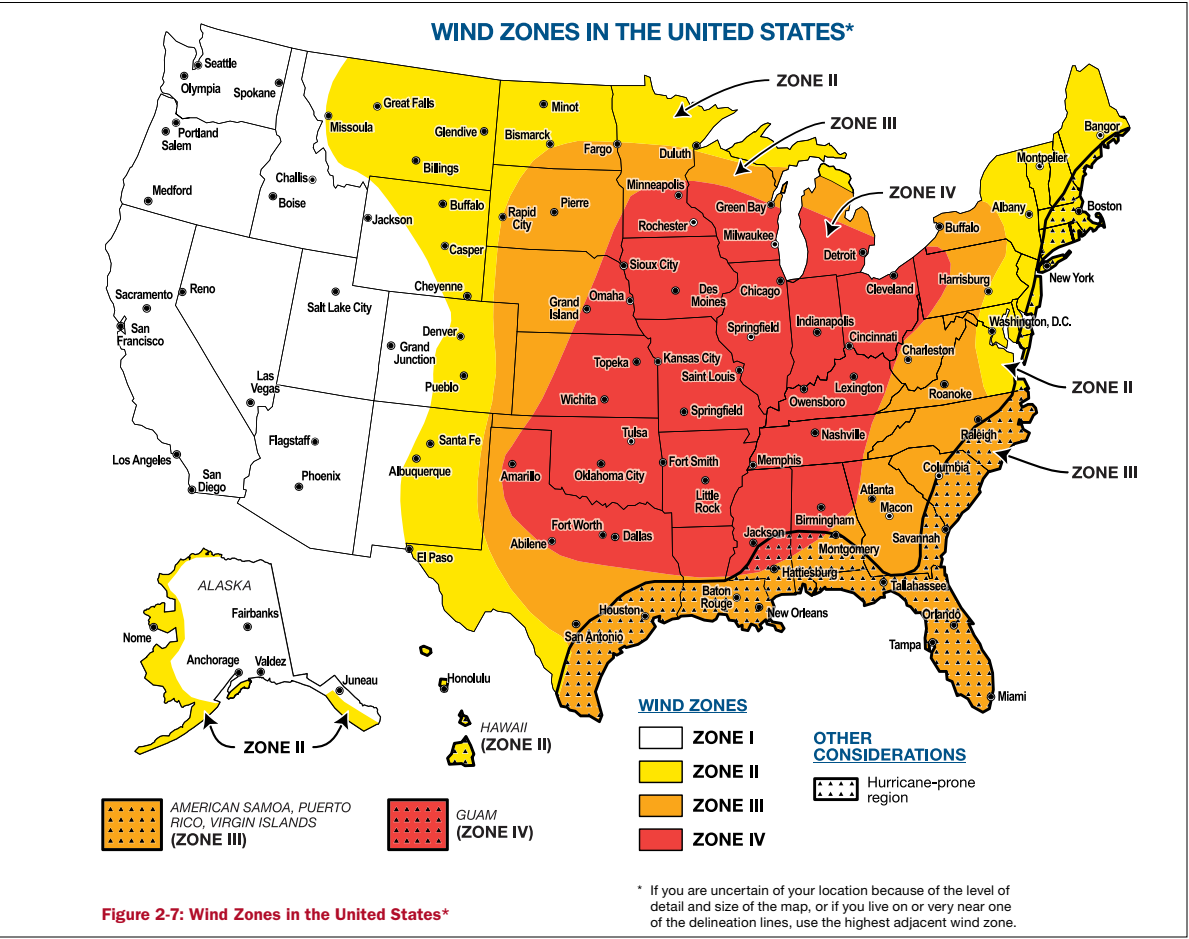
Top Right: Enhanced Fujita Scale
(Chart, 2010: NOAA Storm Prediction Center)

Tornados

Description and Profile

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud and is formed from a horizontal change in wind speed and direction that is then uplifted into a vertical formation. The vertical mass can be greater than six miles wide in rotation. Tornadoes are the most violent of all atmospheric storms and are capable of tremendous destruction with wind speeds that can exceed 250 mph. Damage paths can be more than one mile wide and 50 miles long. Tornado season is generally March–August and again in November–December, although tornadoes can occur at any time of year. Over 80 percent of all tornadoes strike between noon and midnight.

The Fujita Scale was developed in 1971 and is used to measure tornado strength using sets of wind measurements based on damage that results from wind speed. It was enhanced in 2007 and now includes 28 damage indicators and associated degrees of damage allowing for more detailed analysis and better correlation between damage and wind speed. Tornadoes are classified by the damaging pattern, which is categorized by EF0 through EF5.



Enhanced Fujita Scale		
EF-Scale:	Old F-Scale:	Typical Damage:
EF-0 (65–85 mph)	F0 (65–73 mph)	Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF-1 (86–110 mph)	F1 (73–112 mph)	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF-2 (111–135 mph)	F2 (113–157 mph)	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF-3 (136–165 mph)	F3 (158–206 mph)	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF-4 (166–200 mph)	F4 (207–260 mph)	Devastating damage. Whole frame houses Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF-5 (>200 mph)	F5 (261–318 mph)	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd); high-rise buildings have significant structural deformation; incredible phenomena will occur.
EF No rating	F6–F12 (319 mph to speed of sound)	Inconceivable damage. Should a tornado with the maximum wind speed in excess of EF-5 occur, the extent and types of damage may not be conceived. A number of missiles such as iceboxes, water heaters, storage tanks, automobiles, etc. will create serious secondary damage on structures.
Source: NOAA Storm Prediction Center		

Location

Tornadoes are most prevalent in the United States and occur in the Midwest, Southwest, and Southeast. Alabama ranks fourth in the nation in the number of killer tornadoes and fifth in the number of fatalities. The entire state is vulnerable to the threat of tornadoes, however Lauderdale County and the entire planning area is extremely susceptible. The planning study area is located in a Zone IV Wind Zone, according to the FEMA U.S. Wind Zone Map. This map shows frequency and strength of extreme windstorms in the U.S. Lauderdale County is at the highest risk of damage from these events.

Based on the NOAA Storm Prediction Center map of historic tornado data from 1950 thru 1998, Lauderdale County and all its municipalities are located in the highest tornado zone (>25) of previously recorded tornados of F3 category and higher occurring per 3,700 square miles. Therefore, tornadoes were assessed as a significant threat to the entire planning area and every jurisdiction of Lauderdale County and categorized as extensive with the capability of affecting 50–100% of the planning area.

Previous Occurrences

According to NOAA’s 2014 National Climatic Data Center Storm Events Database, there have been a total of 34 tornado events in Lauderdale County between 1950 and 2014. These tornado events resulted in 2 deaths, 19 injuries, and 2.893 M in property damage. The referenced tornado events are the ones that resulted in the most damages, deaths, and injuries during this period and serve as the extent or severity that could be experienced by Lauderdale County due to a tornado event; the ranking is major.

Tornado Events Reported in Lauderdale County between 1950 -2014					
Location	Date	Magnitude	Death/Injuries	Property Damage\$	Crop Damage\$
Lauderdale County	11/15/51	F2	0/6	2.50K	0
Lauderdale County	3/22/53	F2	0/0	2.50K	0
Lauderdale County	9/20/58	F1	0/0	25.00K	0
Lauderdale County	3/9/64	F3	2/2	250.00K	0
Lauderdale County	3/17/65	F3	0/0	250.00K	0
Lauderdale County	10/24/67	F3	0/1	250.00K	0
Lauderdale County	3/20/76	F2	0/2	25.00K	0
Lauderdale County	4/11/79	F1	0/1	0	0
Lauderdale County	4/17/82	F1	0/0	250.00K	0
Lauderdale County	8/16/85	F1	0/0	0.03K	0
Lauderdale County	6/11/86	F1	0/0	2.50K	0
Lauderdale County	11/4/88	F0	0/0	0	0
Lauderdale County	5/3/93	F0	0/0	0	0
Lauderdale County	6/26/94	F3	0/3	500.00K	0
Florence	5/18/95	F1	0/0	200.00K	0
Killen	2/27/99	F2	0/0	145.00K	0
Florence	5/6/03	F1	0/0	200.00K	0
Rogersville	5/17/03	F1	0/0	250.00K	0
Lauderdale County	5/30/04	F1	0/0	5.00K	0
Florence	5/30/04	F1	0/0	30.00K	0
Killen	5/30/04	F1	0/0	30.00K	0
Anderson	5/30/04	F1	0/0	40.00K	0
Lauderdale County	10/18/04	F1	0/0	20.00K	0
Lexington	10/18/04	F1	0/0	5.00K	0
St. Florian	4/7/06	F0	0/0	0	0
Lauderdale County	5/8/08	EF1	0/2	300.00K	0
Lauderdale County	5/8/08	EF1	0/0	5.00K	0
Lauderdale County	5/10/08	EF1	0/0	100.00K	0
Lauderdale County	5/10/08	EF1	0/0	5.00K	0
Waterloo	4/27/11	EF1	0/0	0	0
Lauderdale County	4/27/11	EF1	0/1	0	0
Lauderdale County	5/25/11	EF1	0/0	0	0
Lauderdale County	2/20/14	EF1	0/0	0	0
Anderson	2/20/14	EF1	0/1	0	0
TOTAL 34			2/19	2.893M	\$0

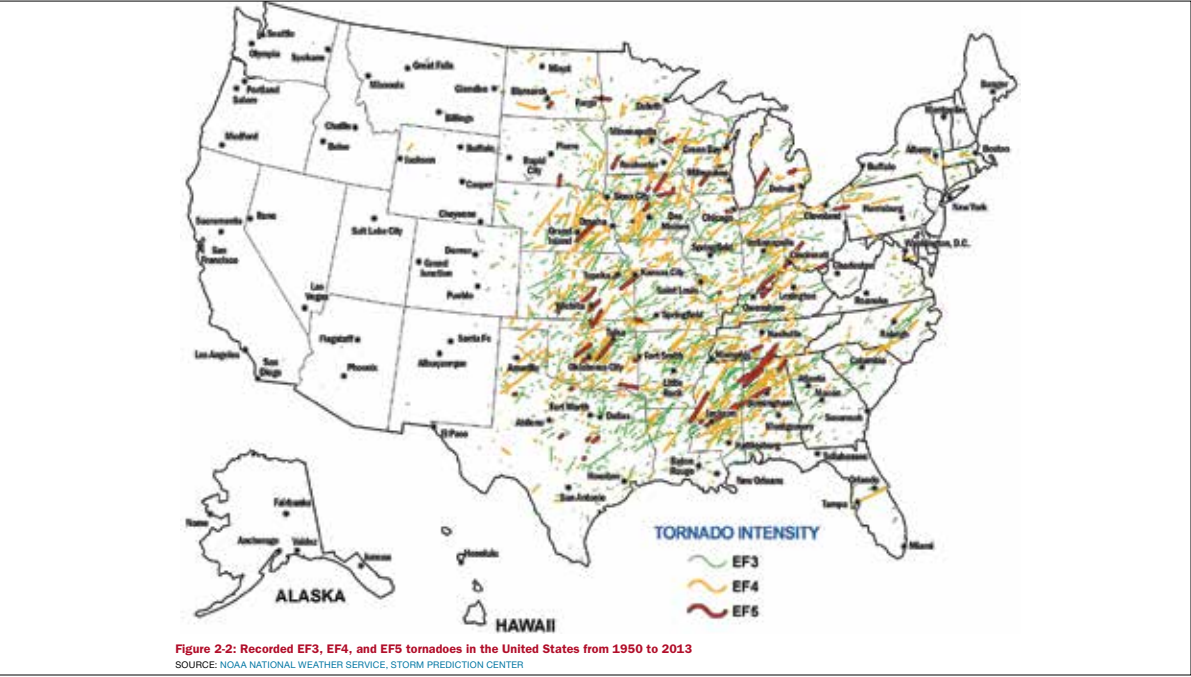
Source: 2014 NOAA National Climatic Data Center -Storm Events Database at <http://www.ncdc.noaa.gov/>

Future Probability and Magnitude/Severity

There were 34 tornado events in the planning area in the past 64 years. The percent probability of a severe storm event occurring in Lauderdale County is categorized as occasional to likely with a future probability percentage of 53% that a tornado will occur somewhere in Lauderdale County in the next year. The assessed magnitude and severity is categorized as limited to critical and depends on the intensity and size of the storm. The extent of the potential hazard could cause millions in economic loss to property as well as injuries and death.

Tornado Event Future Probability Assessment and Extent of Disaster Based on Historical Data between 1/1/50-12/31/14			
Extent of Jurisdictional Affect: Extensive	Historical Occurrences: 34	Percent Probability of Future Occurrence: Occasional -Likely	Magnitude/ Severity of Event: Limited-Critical
Lauderdale County	23	40%	1.993M
City of Florence	3	5%	430K
Town of Anderson	2	3%	40K
Town of Killen	2	3%	175K
Town of Lexington	1	2%	5K
Town of Rogersville	1	2%	250K
Town of St. Florian	1	2%	0
Town of Waterloo	1	2%	0
TOTAL	34	53%	2.893M

Source: Hazard Mitigation Planning Team



Left: Tornado Events Reported in Lauderdale County 1950-2014
(Chart, 2014: NOAA National Climatic Data Center, Multi-Hazard Mitigation Planning Team)

Top Right: Tornado Event Future Probability Assessment & Extent of Disaster based on Historical Data between 1950-2014
(Chart, 2014: Multi-Hazard Mitigation Planning Team)

Bottom Right: Tornado Activity in the United States
(Map, 2014: fema.gov)

Middle Center: Wildfire Events in Lauderdale County between 1997-2012
(Chart, 2014: State of Alabama Hazard Mitigation Plan Update 2013)

Bottom Center: Alabama Wildland Urban Interface 2000
(Chart, 2003: University of Wisconsin, Madison)

Middle Right: Wildfire Event Future Probability Assessment & Extent of Disaster for Lauderdale County based on Historical Data between 1997-2012
(Chart, 2014: Hazard Mitigation Planning Team)

Wildfires

Description and Profile

A wildfire is an uncontrollable fire spreading through vegetation that poses a threat to structures, wildlife, crops and lives. As with most natural disasters, wildfires are strongly influenced by weather phenomena and often begin unnoticed and spread quickly through dry vegetation. There are three factors that contribute to wildfire behavior and an area’s potential to burn: fuel, topography, and weather. Fuel is the material that feeds the fire and can consist of dead tree needles, twigs, brush, branches of dead trees, cured grass, and other associated natural combustibles. An area’s topography affects a wildfire’s ability to spread and become larger. Slopes contribute to increased fire activity due to a fire’s tendency to rise via convection. A fire’s intensity and rate of spread increases as slope increases. Weather factors such as temperature, humidity, wind and lightning also affect the potential for wildfires. Drought conditions increase an area’s chance for wildfires.

The Wildland-Urban Interface (WUI) is the area where houses meet or intermingle with undeveloped wildland vegetation. This makes the WUI a focal area for human-environment conflicts such as wildland fires, habitat fragmentation, invasive species, and biodiversity decline. Below is the Wildland Urban Interface map of Alabama illustrating areas of WUI areas of intermix and interface across the state.

Location

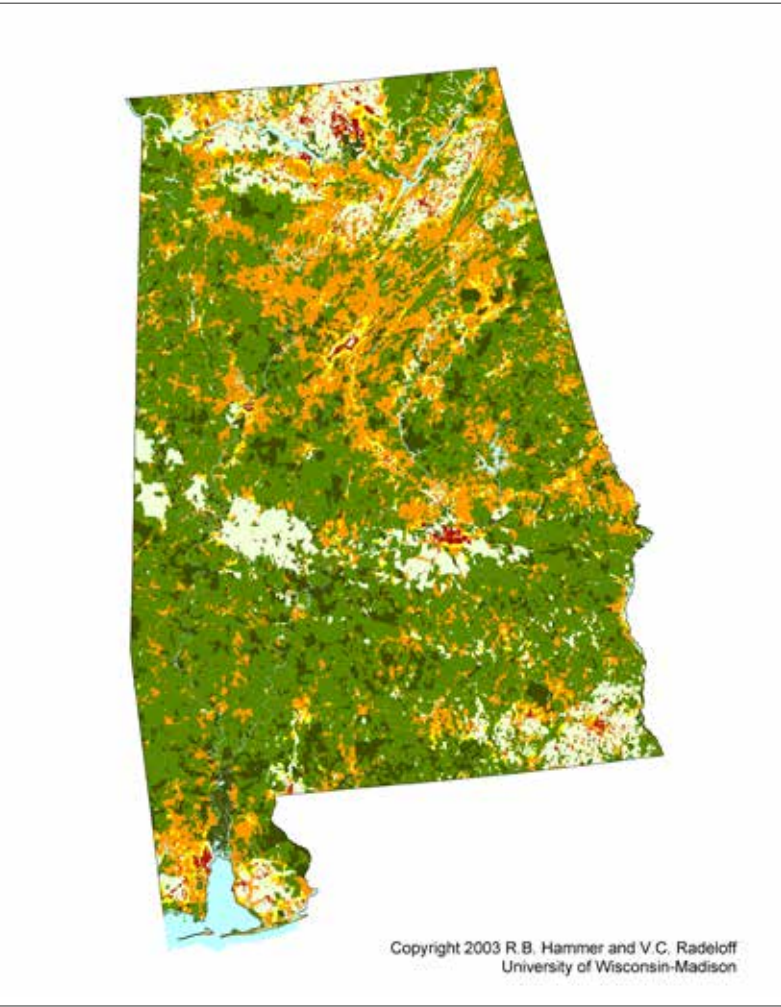
According to the Alabama Forestry Commission, an average wildland fire year in Alabama produces 4,000 wildland fires that burn over 40,000 acres. Nearly all wildfires in Alabama are human-caused with only 3 percent being caused by lightning. Debris burning and arson are major causes of wildland fire. Each year, Alabama wildfires damage or destroy 46 homes, 114 structures, and 1,100 vehicles. Rapid population growth has resulted in extensive areas of wildland/urban interface across the State. An initial estimate found over 1,350 wildland/urban interface communities with potential wildland fire damage risk. Approximately 94 percent of Alabama’s forestlands are privately owned, therefore the vast majority of wildland fires occur on privately owned lands.

Wildfires are identified as a threat to Lauderdale County and the entire planning area, especially areas where the interface and rural development patterns meet. The Lauderdale County Wildfire Risk Map below identifies areas within the planning area that are at high and extreme risk for wildfires. Based on this map, wildfires were assessed as a significant threat to the entire planning area and every jurisdiction of Lauderdale County and categorized as extensive with the capability of affecting 50–100% of the planning area.

Previous Occurrences

According to NOAA’s 2014 National Climatic Data Center Storm Events Database, there have been no wildfires in Lauderdale County between 1950 and 2015. However, we know this to not be accurate due to reports from county and municipal officials and recognize that there is a lack of data for this hazard with this resource. However, the 2013 State of Alabama Hazard Mitigation Plan Update documents 1,036 wildfires in Lauderdale County between 1997 and 2012 resulting in 6,789 acres burned.

Wildfire Events in Lauderdale County between 1997 and 2012			
Total Number of Wildfires	Total Acres Burned	Number of Deaths	Number of Injuries
1,036	6,789	0	0
Source: 2013 State of Alabama Hazard Mitigation Plan Update			



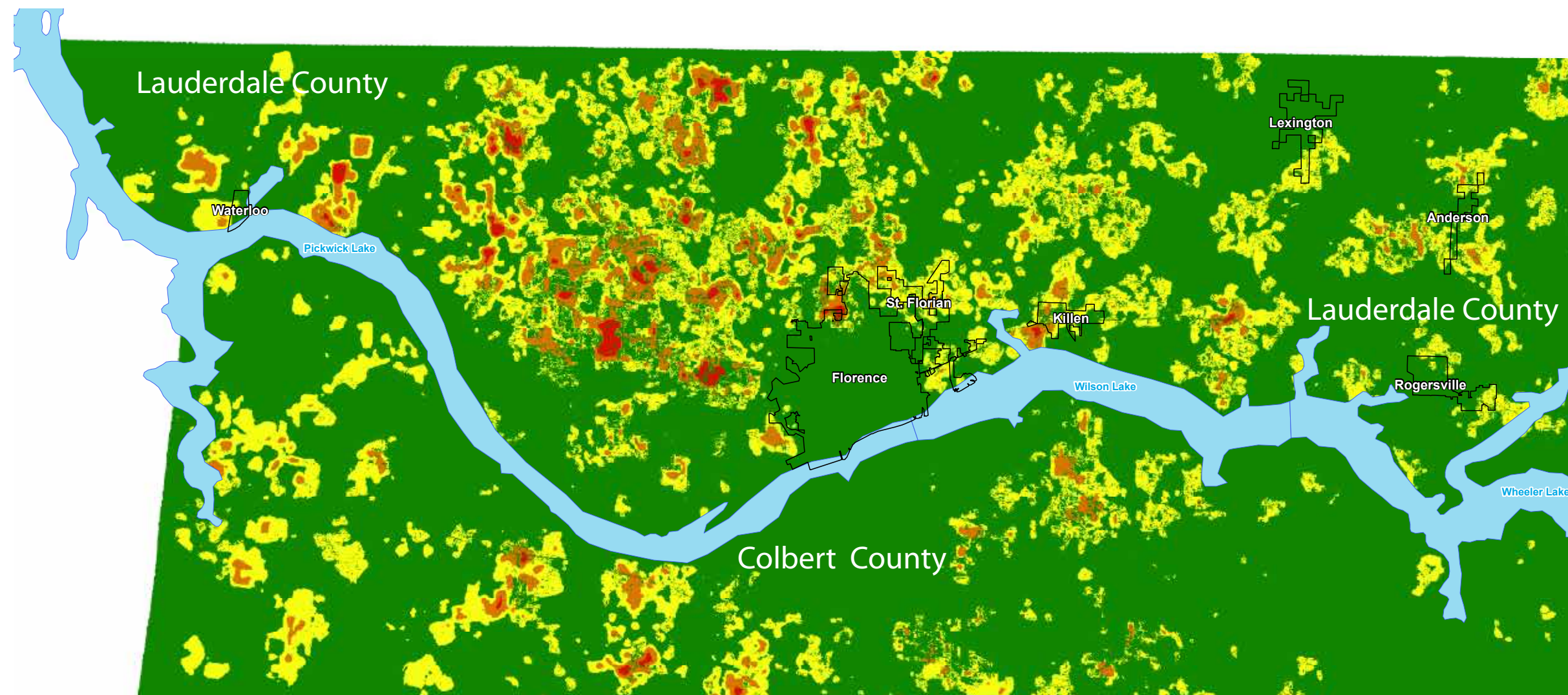
Future Probability and Magnitude/Severity

There were 1,036 wildfire events in the planning area in the past 15 years. The percent probability of a wildfire event occurring in Lauderdale County is categorized as highly likely with a future probability percentage of greater than 1000% that a wildfire will occur somewhere in Lauderdale County in the next year. The assessed magnitude and severity is categorized as negligible to limited and depends on the size and location of the wildfire. The extent of the potential hazard could cause millions in economic loss to property, crops, as well as injuries and death if the fire is spreads into the wildland urban interface and into developed areas of the county.

Wildfire Event Future Probability Assessment and Extent of Disaster for Lauderdale County Based on Historical Data between 1997 and 2012			
Extent of Jurisdictional Affect:	Historical Occurrences:	Percent Probability of Future Occurrence:	Magnitude/Severity of Event:
Extensive	1,036	Highly Likely (greater than 1000%)	Negligible-Limited
Source: Hazard Mitigation Planning Team			

LEGEND:

WUI	
Intermix	Interface
Non-WUI Vegetated	
Very Low Density Housing	No Housing
Non-Vegetated or Agriculture	
Medium and High Density Housing	Low and Very Low Density Housing
Water	



Right: Winter Storm Events Reported in
Lauderdale County 1950-2014
(Chart, 2014: NOAA National Climatic Data
Center, Multi-Hazard Mitigation Planning Team)

Winter Storms

Description and Profile

Winter storms in the south involve snow and freezing rain and pose a threat to public safety, damage personal property and utilities, disrupt transportation, commerce, and public services. Large storms can isolate portions of communities and shut down services and access for days. Heavy snow and ice can collapse roofs and down trees and power lines. They can cause power outages, freeze water lines, and result in people being trapped in their homes for days without power, heat, or supplies. Icy roadways result in many traffic accidents. Death from exposure to cold temperatures can also occur.

Location

Winter storms in Alabama are not as severe or common as they are in northern states. A winter storm in Alabama usually consists of freezing rain, sleet, and a few inches of snow that may or may not accumulate. Most counties in Alabama do not experience a winter storm every year. Lauderdale County’s location in the northern portion of the state results in its increased chance of a winter storm in comparison to other counties in Alabama. According to FEMA’s Frequency of Winter Storm Events By County : 1996-2013 map below, Lauderdale County is categorized as having 1-4 winter storm events per year based on historic data recording in this 17 year period. Due to the size and weather pattern of winter storms in north Alabama, winter storms were assessed as a significant threat to the entire planning area and every jurisdiction of Lauderdale County and categorized as extensive with the capability of affecting 50-100% of the planning area.

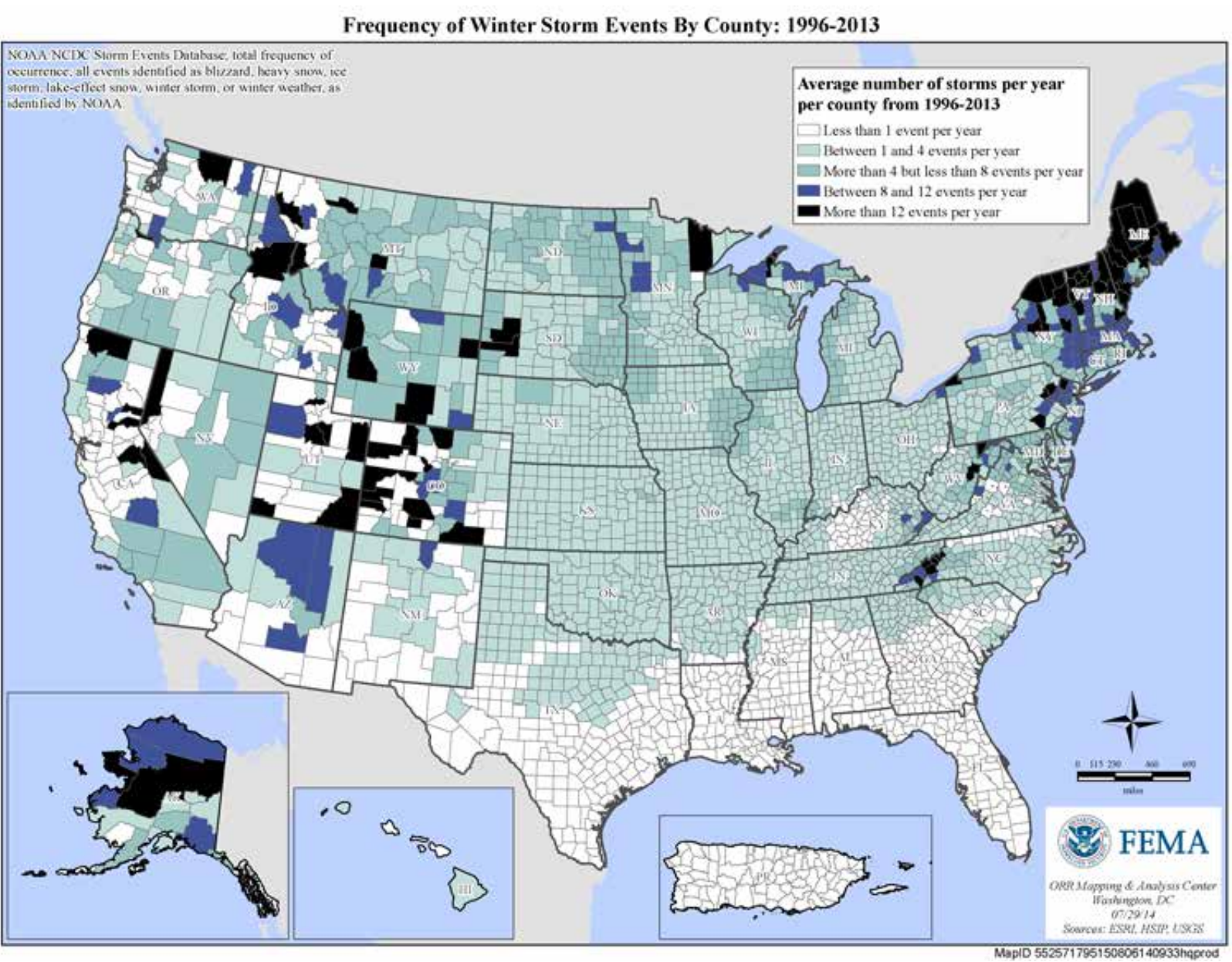
Previous Occurrences

According to NOAA’s 2014 National Climatic Data Center Storm Events Database, there have been a total of 42 winter storm events in Lauderdale County between 1950 and 2014. These winter storm events included winter weather, heavy snow, ice storms, and sleet. They resulted in 6 deaths, 4 injuries, and 5.25 B in property damage and 1.00K in crop damage. The most destructive reported storm during this timeframe occurred on December 23, 1998, and resulted in \$2million in property damage. Liquid equivalent precipitation ranged from one to three inches, and ice accumulations of one half to one inch were reported across the county and surrounding areas. Numerous trees were down across the area, and significant power outages were encountered in several counties that were affected, including Lauderdale County. The worst extent expected in the planning area is ice accumulations up to one inch.

Winter Storm Events Reported in Lauderdale County between 1950 - 2014					
Location	Date	Event Type	Death/Injuries	Property Damage\$	Crop Damage\$
Statewide	3/12/93	Winter Storm	4/0	0	0
Lauderdale County	1/6/96	Winter Storm	0/0	10.00K	1.00K
Lauderdale County	2/1/96	Winter Storm	0/0	15.00K	0
Lauderdale County	1/10/97	Winter Storm	0/0	10.00K	0
Lauderdale County	12/29/97	Winter Storm	0/0	0	0
Lauderdale County	12/23/98	Ice Storm	0/0	2.00M	0
Lauderdale County	12/21/99	Ice Storm	0/0	0	0
Lauderdale County	1/27/00	Winter Storm	0/0	15.00K	0
Lauderdale County	2/5/02	Winter Storm	0/0	1.00K	0
Lauderdale County	3/15/05	Winter Weather	0/0	0	0
Lauderdale County	2/1/07	Heavy Snow	0/0	0	0
Lauderdale County	3/7/08	Winter Storm	0/0	0	0
Lauderdale County	12/1/08	Winter Weather	0/0	0	0
Lauderdale County	12/11/08	Heavy Snow	0/0	0	0
Lauderdale County	12/23/08	Winter Weather	0/0	0	0
Lauderdale County	3/1/09	Heavy Snow	0/0	0	0
Lauderdale County	1/7/10	Winter Weather	0/0	0	0
Lauderdale County	1/18/10	Winter Weather	0/0	0	0
Lauderdale County	1/29/10	Winter Storm	2/2	0	0
Lauderdale County	2/8/10	Winter Storm	0/0	0	0
Lauderdale County	2/15/10	Winter Weather	0/0	0	0
Lauderdale County	3/2/10	Winter Weather	0/0	0	0
Lauderdale County	12/15/10	Winter Weather	0/0	0	0
Lauderdale County	12/26/10	Winter Weather	0/0	0	0
Lauderdale County	12/25/10	Heavy Snow	0/0	0	0
Lauderdale County	1/9/11	Heavy Snow	0/0	0	0
Lauderdale County	1/20/11	Winter Weather	0/0	0	0
Lauderdale County	2/9/11	Winter Weather	0/0	0	0
Lauderdale County	11/28/11	Winter Weather	0/0	0	0
Lauderdale County	1/12/12	Winter Weather	0/0	0	0
Lauderdale County	1/14/13	Winter Weather	0/0	0	0
Lauderdale County	1/17/13	Sleet	0/0	0	0
Lauderdale County	2/2/13	Winter Weather	0/0	0	0
Lauderdale County	2/11/14	Heavy Snow	0/0	0	0
Lauderdale County	2/12/14	Winter Weather	0/0	0	0
TOTAL			6/4	5.25 B	1.00K
Source: 2014 NOAA National Climatic Data Center -Storm Events Database at http://www.ncdc.noaa.gov/					

Future Probability and Magnitude/Severity

There were 42 winter storm events in the planning area in the past 64 years. The percent probability of a winter storm event occurring in Lauderdale County is categorized as likely with a future probability percentage of 66% that a winter storm will occur somewhere in Lauderdale County in the next year. The assessed magnitude and severity is categorized as limited to critical and depends on the size and location of the winter storm. The extent of the potential hazard could cause billions in economic loss to property, crops, as well as injuries and death if the winter storm effects metropolitan areas and last for several days.



Left: Extreme Winter Storm
(Photo, 2010: istockphoto.com)

Top Right: Frequency of Winter Storm Events
by County: 1996-2013
(Map, 2014: fema.gov)

Bottom Right: Winter Storm Future Probability
Assessment & Extent of Disaster for Lauderdale
County Based on NOAA Storm Event Data
between 1950-2014
(Chart, 2014: Hazard Mitigation Planning Team)

Winter Storm Event Future Probability Assessment and Extent of Disaster for Lauderdale County Based on NOAA Storm Event Data between 1950 and 2014			
Extent of Jurisdictional Affect:	Historical Occurrences:	Percent Probability of Future Occurrence:	Magnitude/ Severity of Event:
Extensive	42	66%- Likely	5.25 B Limited-Critical
Source: Hazard Mitigation Planning Team			

Requirement §201.6(c)(2)(ii) :
[The risk assessment shall include a] description of the jurisdiction’s vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

Requirement §201.6(c)(2)(ii)(A):
The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

Requirement §201.6(c)(2)(ii)(B) :
[The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate.

Requirement §201.6(c)(2)(ii)(C):
[The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

Requirement §201.6(c)(2)(ii):
(As of October 1, 2008) [The risk assessment] must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged floods.

Top Right: Individual Jurisdictions’ Vulnerability to Identified Hazards
(Chart, 2014: Hazard Mitigation Planning Team)

Bottom Right: Population Distribution & Population Projection by Jurisdiction
(Chart, 2014: U.S. Census Data, Multi-Hazard Mitigation Planning Team)

RA.3 Assessing Vulnerability Overview

The vulnerability assessment determines the extent of vulnerability the identified hazards have on various components of the planning jurisdiction and includes: Jurisdiction Vulnerability, Critical Facilities and Structures, Estimated Potential Loss, Repetitive Loss, and Development Trends and Population Growth.

Jurisdiction Vulnerability to Each Identified Hazard

The vulnerability of each jurisdiction to each identified hazard is discussed in each hazard description earlier in this section and the following classification was used:

- Extensive– 50–100% of planning area affected by hazard
- Significant – 10–50% of planning area affected by hazard
- Limited – Less than 10% of planning area affected by hazard

The planning area is equally susceptible to all identified hazards described and profiled with the exception of one hazard, landslides. Landslides are more likely within the rural communities located on the western end of Lauderdale County due to the geologic nature of the area. Therefore, the potential impact of the planning area is classified as limited to significant. The table to the right illustrates each jurisdictions vulnerability to each hazard.

The populations of each jurisdiction and county are vulnerable to each of the identified hazards. The table to the right describes the population distribution within Lauderdale County as well as population projections for the year 2020. According to the linear population projection methodology, Lauderdale County’s population will grow by 1,953 people to 94,749 in 2020. If current growth trends remain the same with five of the participation jurisdictions experiencing population loss, the overall growth of the county will take place in the unincorporated areas. The projection indicates that the City of Florence will continue a trend of increased growth with a 2020 population projection of 42,586.

Individual Jurisdiction’s Vulnerability to Identified Hazards								
Identified Hazard	Lauderdale County	Anderson	Florence	Killen	Lexington	Rogersville	St. Florian	Waterloo
Dam/Levee Failure	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive
Drought	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive
Earthquake	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive
Extreme Temps	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive
Flood	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive
Hazardous Materials	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive
Hurricane	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive
Landslides	Limited	Limited	Limited	Limited	Limited	Limited	Limited	Limited
Nuclear Accidents	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive
Sinkholes	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive
Severe Storms	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive
Tornado	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive
Wildfires	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive
Winter Storms	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive

Population Distribution and Population Projection by Jurisdiction					
Jurisdiction	2012 Population Estimate	2013 Population Estimate	Average Annual % Change	2020 Projected Population	% of Total County Population
Lauderdale County	92,542	92,796	0.3%	94,749	100%
City of Florence	39,706	40,059	0.9%	42,586	43%
Town of Rogersville	1,248	1,240	-0.6%	1,184	1%
Town of Killen	991	988	-0.3%	954	1%
Town of Lexington	732	730	-0.3%	709	0.8%
Town of St. Florian	416	423	1.7%	479	0.5%
Town of Anderson	281	280	-0.4%	266	0.3%
Town of Waterloo	199	198	-0.5%	184	0.2%
Source: U.S. Census Data and Planning Team					

RA.4 Addressing Repetitive Loss Properties

Addressing Repetitive Loss Properties

According to FEMA, a repetitive loss property is a residential property that has two or more losses of at least \$1,000.00 each of which has been paid under the National Flood Insurance Program (NFIP) within any 10 year period since 1978. All eight participating jurisdictions are in compliance with NFIP standards. Currently, there are only two jurisdictions within the planning area with NFIP losses as of December 2014: Lauderdale County and the City of Florence. Lauderdale County has 92 losses with \$642,202,67 in total payments. Florence has 27 losses with \$378,495.55 in total losses.

NFIP Losses as of December 2014			
Jurisdiction	Total Losses	Types of Structures	Total Payments
Florence	27	Residential	\$378,495.55
Lauderdale County	92	Residential	\$642,202.67

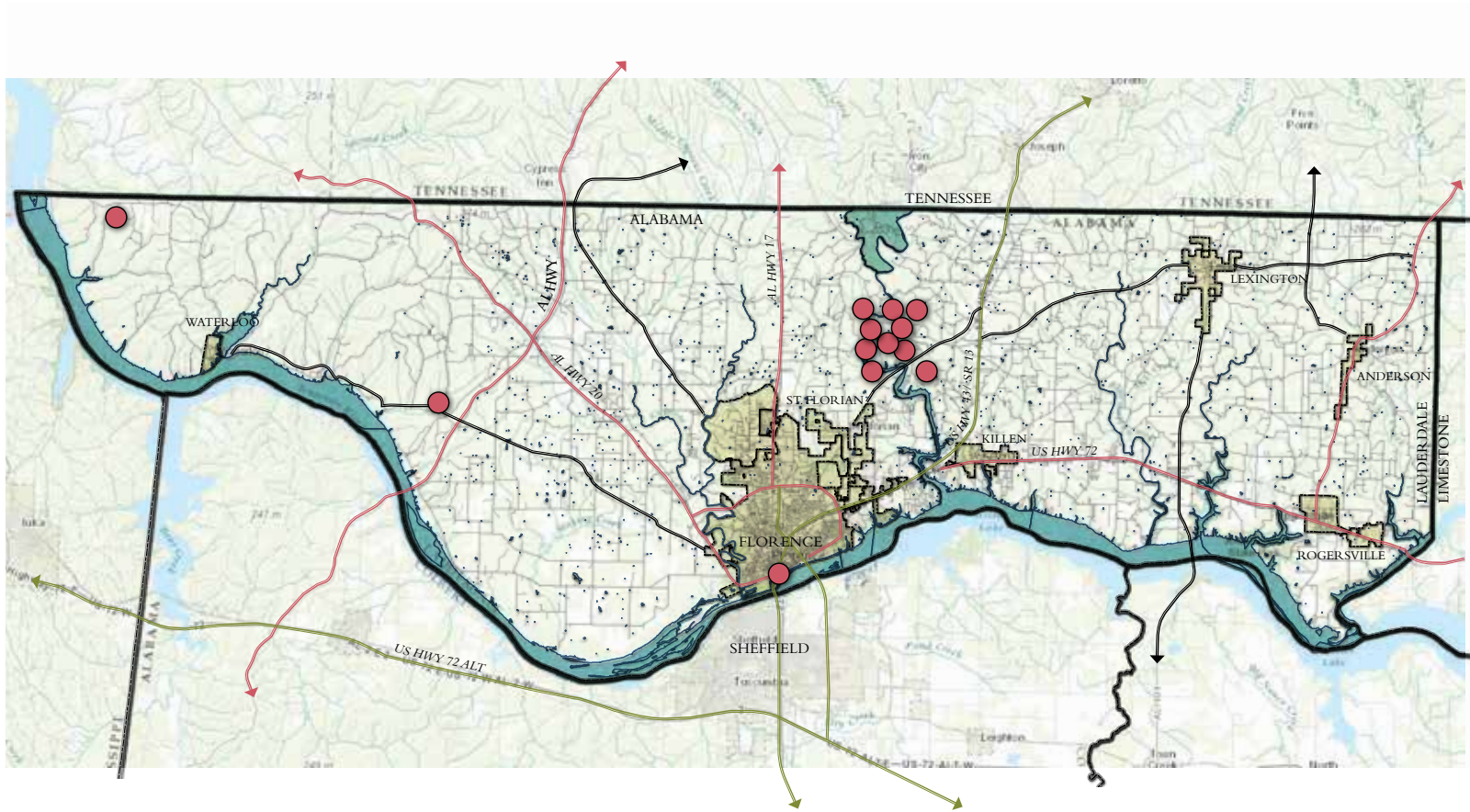
Source: <http://bsa.nfipstat.fema.gov/reports/1040.htm#01>

There are currently 194 NFIP policies within the planning area as of December 2014. Lauderdale County has a total of 154 policies alone with \$32,255,800 in insurance in force and \$104,140 in written premiums in force.

NFIP Insurance Policies as of 12/31/14			
Jurisdiction	Policies In Force	Insurance In Force	Written Premium In Force
Florence	36	\$9,545,600	\$36,332
Killen	4	\$1,077,000	\$2,683
Anderson	2	\$710,000	\$3,623
Lauderdale County	154	\$32,255,800	\$104,140

Source: <http://bsa.nfipstat.fema.gov/reports/1011.htm#ALT>

The map to the right illustrates the flood prone areas within the planning jurisdictions and identifies where there have been repetitive flooding events.



- Top Left: NFIP Losses as of December 2014 (Chart, 2014: fema.gov, Multi-Hazard Mitigation Planning Team)
- Bottom Left: NFIP Insurance Policies as of 12/31/14 (Chart, 2014: fema.gov, Multi-Hazard Mitigation Planning Team)
- Top Right: Lauderdale County Flood Prone Areas Map (Map, 2015: Multi-Hazard Mitigation Planning Team)
- Bottom Center: Flood Photo (Map, 1999: noaa.gov)
- Bottom Right: Flood Photo (Map, 2013: noaa.gov)

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- Flood Prone Areas



Middle: Selected Critical Facility Values in
Lauderdale County
(Chart, 2014: Policy Committee Critical Facility
Sheets & HAZUS data)

Bottom Right: HAZUS-Selected Essential
Facilities in Lauderdale County Replacement
Costs
(Table, 2015: HAZUS Data)

RA.5 Identifying Structures

Critical Facilities and Structures

A critical facility is defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. For the purposes of this plan, the delineation of facilities as critical is based on FEMA’s HAZUS standards of critical facility definitions and public feedback from policy committee members. In terms of determining the impact a particular hazard has on an identified critical facility, the HAZUS model is used to estimate potential loss and associated costs. The FEMA HAZUS critical facilities definitions are as follows:

- Essential Facilities – These facilities are critical to the health and welfare of the entire county population and are essential following hazard events. They include emergency response facilities, medical care facilities, schools, and shelters for evacuation.
- Lifeline Utility Systems – These facilities are essential lifelines that include potable water, wastewater, natural gas, electric, and communication systems.
- Transportation Systems – These facilities include highways, bridges, railways, and waterways.
- High Potential Loss Facilities – These facilities include military installations and high potential loss dams.
- Hazardous Materials Facilities – These facilities may pose a threat if disrupted by natural hazards and include hazardous chemicals, explosives, flammables, toxins, and radioactive materials.

Each jurisdiction within the planning area identified critical facilities within their community and the structure type and estimated value was assessed. Local data was gathered in regards to each participating jurisdictions’ select critical facilities, as they are perceived by that jurisdiction. In addition, the vulnerability of critical facilities was discussed in relation to future buildings, infrastructure and critical facilities within the planning study area.

Identified critical facilities were delineated by category and include law enforcement stations, fire stations, national guard locations, hospitals, school buildings, warning sirens locations, and transportation facilities. Hazardous materials locations were identified and discussed earlier in the hazard profile portion of this section.

To further verify building types and material values obtained from public feedback, the planning team applied a level one HAZUS-

MH analysis to obtain building material types and the amount of structures within those material types. That information along with building types by use are described with the overall estimated replacement value. However, these numbers are estimates and further local data should be gathered to increase the estimates accuracy.

Selected Critical Facility Values Jurisdiction: Lauderdale County	
Facility Type	Facility Value
Courthouse, Sheriff’s Office	\$7,065,150.00
Cloverdale Rd. Transfer Station	\$105,000.00
Court Street Commodities Building	\$147,000.00
State Street Office Building	\$94,500.00
State Street Shop Building	\$225,750.00
State Street Gas House	\$10,000.00
State Street Pump Shed	\$945.00
State Street Storage Shed	\$73,500.00
State Street Warehouse	\$42,000.00
Seminary Street Warehouse	\$8,400.00
Highway 57 Solid Waste Office & Warehouse	\$367,500.00
Highway 57 Solid Waste Equipment Shed	\$105,000.00
Chisholm Road Health Department	\$1,835,265.60
Allen Thorton Career Technical Center	\$35,000,000.00
Brooks Elementary	\$30,000,000.00
Brooks High School	\$45,000,000.00
Central High School	\$60,000,000.00
Cloverdale Jr. High School	\$3,929,033.85
Lauderdale County High School	\$60,000,000.00
Lexington High School	\$50,000,000.00
Rogers High School	\$60,000,000.00
Underwood Elementary School	\$25,000,000.00
Waterloo High School	\$30,000,000.00
Wilson School	\$60,000,000.00
System Wide	\$27,306,133.05
Lauderdale County School Board Complex	\$10,000,000.00
Anderson Volunteer Fire Department	\$235,305.00
Center Star Volunteer Fire Department	\$414,776.25
Central Volunteer Fire Department	\$525,000.00
Cloverdale Volunteer Fire Department	\$641,827.20
Elgin Volunteer Fire Department	\$524,576.85
Greenhill Volunteer Fire Department	\$1,417,500.00
Killen Volunteer Fire Department	\$1,575,000.00
Lexington Volunteer Fire Department	\$574,595.70
Mid-Lauderdale Volunteer Fire Department	\$687,761.55

Oakland Volunteer Fire Department	\$876,750.00
Rogersville Volunteer Fire Department	\$787,500.00
Underwood / Pertersville Volunteer Fire Department	\$1,575,000.00
Waterloo Volunteer Fire Department	\$9,940.95
Zip City Volunteer Fire Department	\$18,439.00
Total Critical Facilities Amount:	\$516,179,150.00
Source: Policy Committee Critical Facility Sheets and HAZUS data	

Hazus-Selected “Essential Facilities” Lauderdale County	
Facility Type	Replacement Cost
Allen Thornton Career Technical Center	\$6,733,000.00
Brooks Elementary	\$1,4132,000.00
Brooks High School	\$11,837,000.00
Central High School	\$24,516,000.00
Lauderdale County High School	\$18,340,000.00
Lexington High School	\$15,346,000.00
Rogers High School	\$24,422,000
Anderson Junior High School	\$3,248,000.00
St. Joseph School	\$2,054,000.00
Florence Christian	\$1,572,000.00
Florence High School	\$16,328,000.00
Underwood Elementary School	\$3,403,000.00
Waterloo High School	\$4,637,000.00
Wilson School	\$26,691,000.00
Rogersville Police Department	\$1,260,000.00
Lexington Police Department	\$1,260,000.00
Lauderdale County Sheriff’s Department	\$1,260,000.00
Killen Police Department	\$1,260,000.00
Waterloo Police Department	\$1,260,000.00
St. Florian Police Department	\$1,260,000.00
Florence Police Traffic Ticket Department	\$1,260,000.00
Florence Police Department	\$1,260,000.00
Eliza Coffee Memorial (ECM) Hospital	\$92,739,000.00
Source: HAZUS Data	

Selected Critical Facility Values Jurisdiction: City of Florence	
Facility Type	Facility Value
ECM Hospital	\$388,500,000.00
ECM Hospital East	\$28,182,000.00
East Mo B	\$3,616,830.00
Cox Creek Mo B	\$3,648,330.00
Collins Mo B	\$7,124,250.00
Port of Florence & Lauderdale County	\$26,250,000.00
Police Department Headquarters	\$4,725,000.00
Police Department Wal-Mart Substation	\$15,750.00
Police Department Mall Substation	\$15,750.00
Police Department Huntsville Road Substation	\$15,750.00
Police Department Court View Sub-Station	\$15,750.00
Fire Department Station One	\$4,200,000.00
Fire Department Station Two	\$2,100,000.00
Fire Department Station Three	\$1,470,000.00
Fire Department Station Four	\$1,470,000.00
Fire Department Station Five	\$1,470,000.00
Florence Housing Authority Administration Building	\$385,087.50
Florence Housing Authority Maintenance Building	\$611,310.00
City of Florence Municipal Building	\$13,358,035.95
Florence-Lauderdale EMA Office	\$115,500.00
Gas Administration Office	\$1,260,000.00
Gas Warehouse & Storage Building	\$945,000.00
Gates Regulator Stations, Sub-Station	\$45,045,000.00
Water Treatment Plans One & Two	\$63,000,000.00
Waste Water Treatment Plant	\$78,750,000.00
Water Storage Tanks One Through Eight	\$9,450,000.00
Water Booster Stations One Through Four	\$2,100,00.00
Sewer Lift Stations One Through Four	\$210,000.00
Construction Warehouse & Equipment	\$1,575,000.00
Electricity Transformer Office	\$1,365,000.00
Fire Department Station Five	\$1,470,000.00
Florence Electrical Department Building A	\$133,350.00
Florence Electrical Department Meter Lab, Crew Room	\$207,900.00
Florence Electrical Department Building C	\$173,250.00
Florence Electrical Department Building D	\$357,000.00
Florence Electrical Department Pump Island Canopy	\$3,150.00

Florence Electrical Department Building E	\$57,750.00
Florence Electrical Department Building Storage Barn	\$37,800.00
Florence Electrical Department Building & Antenna	\$94,500.00
Florence Electrical Department 706 College Street	\$36,750.00
Florence Electrical Department 708 College Street	\$16,800.00
Florence Electrical Department Administration Office	\$630,000.00
Florence Electrical Department 1 through 48 Substations	38,430,000.00
Total Critical Facilities Amount:	\$730,537,593.45
Source: Policy Committee Critical Facility Sheets and HAZUS data.	

Selected Critical Facility Values by Jurisdiction: Town of Anderson	
Facility Type	Facility Value
Anderson Town Hall	\$183,750.00
Fire Department	\$262,500.00
First Baptist Church of Anderson	\$420,000.00
Water Storage Tank	\$472,500.00
Anderson Junior High	\$3,383,229.15
Total Critical Facilities:	\$4,721,979.15
Source: Policy Committee Critical Facility Sheets and HAZUS data.	

Selected Critical Facility Values Jurisdiction: Town of Killen	
Facility Type	Facility Value
Town Hall	\$1,000,000.00
Fire Department	\$1,000,000.00
Emergency Service Building	\$500,000.00
Police Department	\$400,000.00
Killen Senior Center	1,000,000.00
Killen Public Library	1,000,000.00
Killen Park	\$400,000.00
Killen Church of Christ Storm Shelter	\$10,000,000.00
Killen Methodist Church Storm Shelter	\$12,000,000.00
Killen Baptist Church Storm Shelter	\$15,000,000.00
Brooks Elementary School	\$7,000,000.00
Brooks High School	\$10,000,000.00
Total Critical Facilities:	\$59,300,000.00
Source: Policy Committee Critical Facility Sheets and HAZUS data.	

Selected Critical Facility Values Jurisdiction: Town of Lexington	
Facility Type	Facility Value
Town Hall	\$750,000.00
Police Department	\$300,000.00
Fire Department	\$150,000.00
Medical Clinic	\$136,333.00
Lexington School	\$11,190,015.90
Senior Citizen Center	\$367,500.00
Colonial Bank (Storm Shelter)	\$500,000.00
Fire Substation	\$200,000.00
Total Critical Facilities:	\$13,593,848.90
Source: Policy Committee Critical Facility Sheets and HAZUS data.	

Selected Critical Facility Values Jurisdiction: Town of Rogersville	
Facility Type	Facility Value
Town Hall	\$1,500,000.00
Fire Department / Police Department	\$787,500.00
Lauderdale County High School	\$12,722,549.70
Rogersville Water Department	\$525,000.00
Alagasco	\$525,000.00
Clark Gas Company	\$262,500.00
Rogersville Funeral Home	\$262,500.00
Rogersville Church of Christ	\$787,500.00
Rogersville Baptist Church	\$787,500.00
Rogersville United Methodist Church	\$1,050,000.00
Total Critical Facilities:	\$17,710,049.70
Source: Policy Committee Critical Facility Sheets and HAZUS data.	

Selected Critical Facility Values by Jurisdiction: Town of St. Florian	
Facility Type	Facility Value
Town Hall	\$150,000.00
Senior Center	\$300,000.00
Buffler House	\$300,000.00
Total Critical Facilities:	\$750,000.00
Source: Policy Committee Critical Facility Sheets and HAZUS data.	

- Left: Selected Critical Values in Florence (Chart, 2014: Policy Committee Critical Facility Sheets & HAZUS Data)
- Middle Center: Selected Critical Values in Anderson (Chart, 2014: Policy Committee Critical Facility Sheets & HAZUS Data)
- Bottom Middle: Selected Critical Values in Killen (Chart, 2014: Policy Committee Critical Facility Sheets & HAZUS Data)
- Top Right: Selected Critical Values in Lexington (Chart, 2014: Policy Committee Critical Facility Sheets & HAZUS Data)
- Right Center: Selected Critical Values in Rogersville (Chart, 2014: Policy Committee Critical Facility Sheets & HAZUS Data)
- Bottom Right: Selected Critical Values in St. Florian (Chart, 2014: Policy Committee Critical Facility Sheets & HAZUS Data)

Top Left: Selected Critical Values in Waterloo
(Chart, 2014: Policy Committee Critical Facility
Sheets & HAZUS Data)

Left Center: Building Material Types within
Lauderdale County
(Chart, 2014: HAZUS Data)

Bottom Left: Building Asset Values for
Lauderdale County
(Chart, 2014: HAZUS Data)

Top Right: Building Inventory by Material Type
for Lauderdale County
(Chart, 2014: HAZUS Data)

Bottom Right: Building Inventory by Occupancy
for Lauderdale County
(Chart, 2014: HAZUS Data)

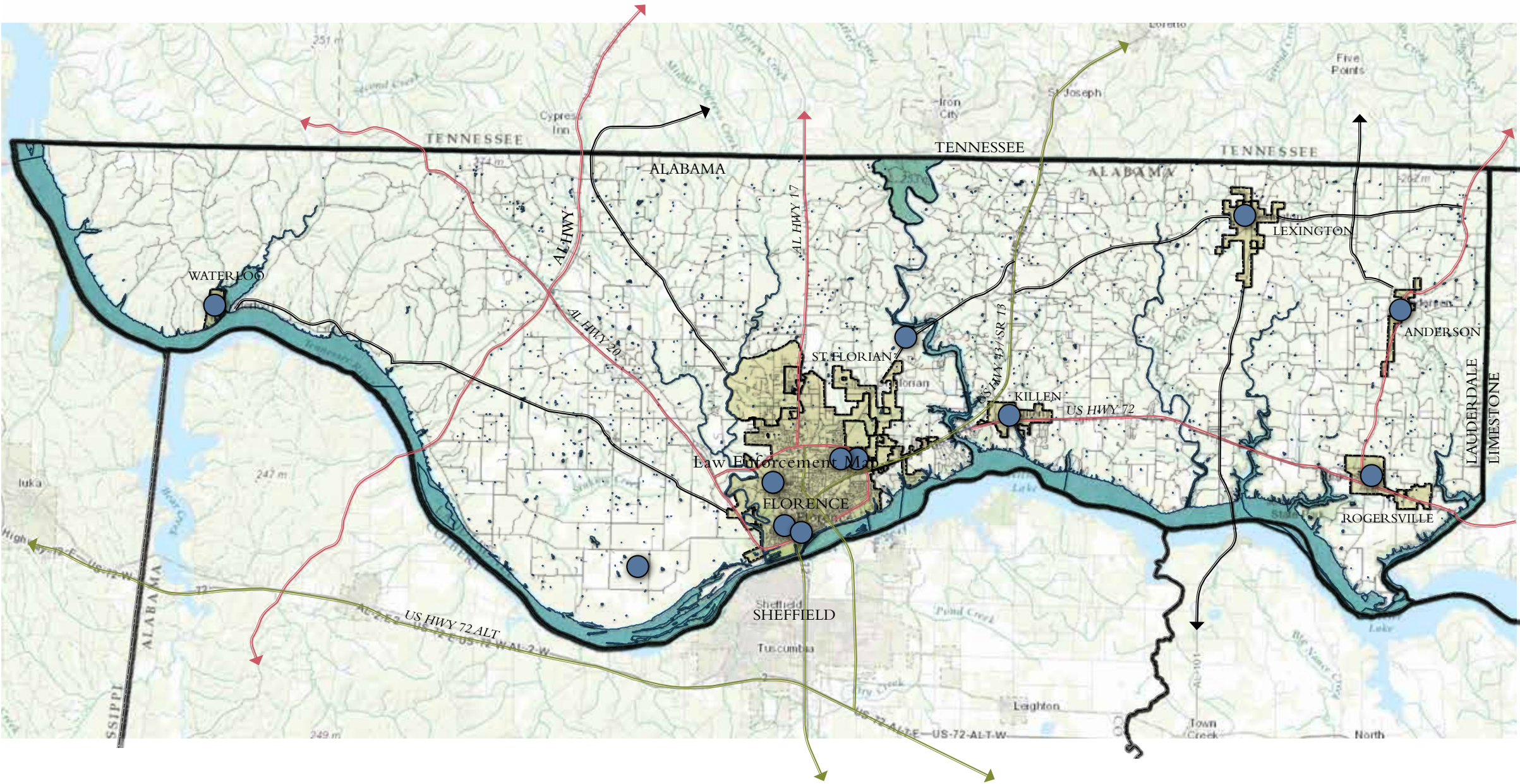
Selected Critical Facility Values by Jurisdiction:Town of Waterloo	
Facility Type	Facility Value
Waterloo School	\$5,782,000.00
Waterloo Fire Station One	\$105,000.00
Waterloo Fire Station Two	\$80,000.00
Waterloo Fire Station Three	\$80,000.00
Waterloo Community Center	\$180,000.00
Waterloo Town Hall & Police Station	\$80,000.00
Waterloo Post Office	\$255,000.00
Waterloo Museum	\$541,000.00
Total Critical Facilities:	\$7,103,000.00
Source: Policy Committee Critical Facility Sheets and HAZUS data.	

Building Material Types within Lauderdale County and Participation Jurisdictions	
Material Type	Total Cost
Wood	\$6,952,547
Steel	\$1,014,430
Masonry	\$1,194,325
Concrete	\$323,853
Manufactured	\$189,812
Total Structures	\$9,674,967
Source: HAZUS -MH	

Building Asset Values for Lauderdale County and Participating Jurisdictions		
Building Types	Amount of Buildings	Replacement Value
Residential	38,534	\$7,516,734,000.00
Commercial	2,066	\$1,361,506,000.00
Industrial	492	\$430,141,000.00
Agriculture	131	\$22,421,000.00
Religious	266	\$194,946,000.00
Government	59	\$50,577,000.00
Education	52	\$98,485,000.00
Total Structures	41,615	\$9,674,810,000.00
Source: HAZUS -MH		

HAZUS –MH MR-4 Building Inventory by Material Type for Lauderdale County and Participating Jurisdictions		
Material Type	Building Amount	Percent of Total
Wood	32,879	79%
Steel	1,373	3%
Masonry	2,846	7%
Concrete	186	1%
Manufactured Housing	4,242	10%
Total Buildings	41,526	100%
Source: HAZUS -MH		

HAZUS –MH MR-4 Building Inventory by Occupancy for Lauderdale County and Participating Jurisdictions		
Occupancy Type	Building Amount	Percent of Total
Residential	38,534	93%
Commercial	2066	5%
Industrial	492	1%
Agriculture	131	.3%
Religion	266	.6%
Government	59	.1%
Education	67	.2%
Total Buildings	41,615	100%
Source: HAZUS -MH		

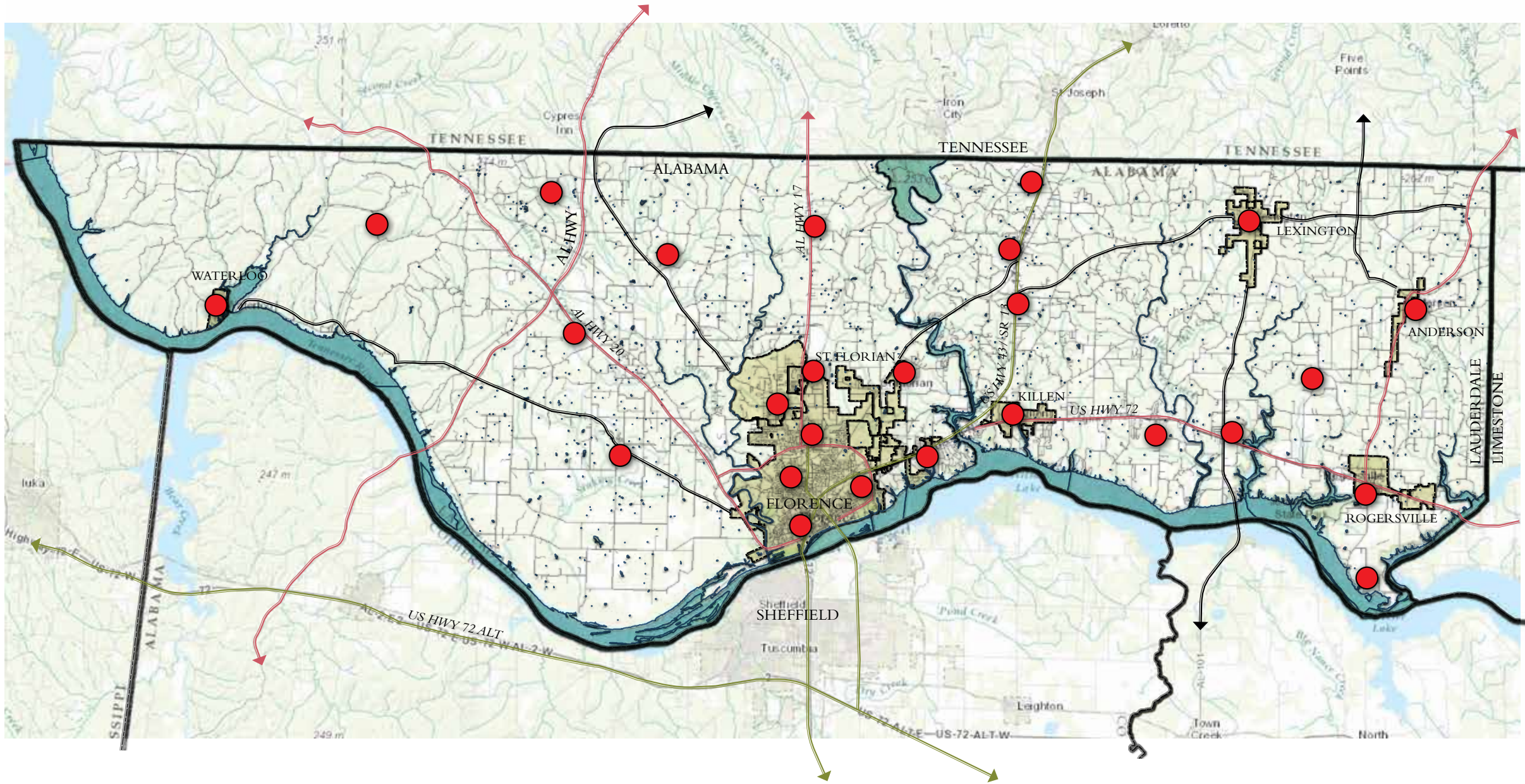


Map: Lauderdale County Essential Facilities -
Law Enforcement Locations
(Map, 2015: Multi-Hazard Mitigation Planning
Team)

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● Law Enforcement Locations

Law Enforcement Locations

Map: Lauderdale County Essential Facilities -
Fire Station Locations
(Map, 2015: Multi-Hazard Mitigation Planning
Team)

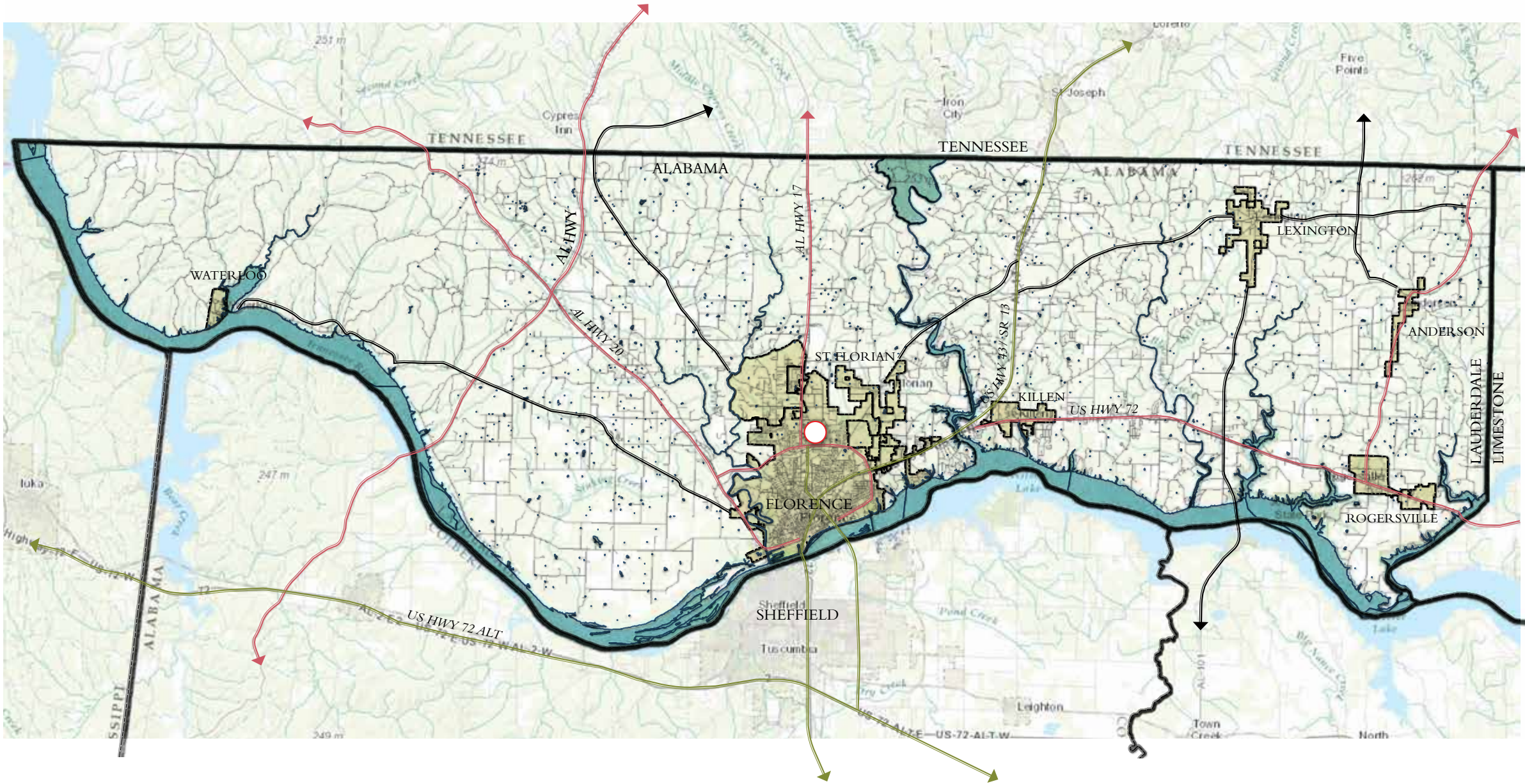


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● Fire Stations

Fire Station Locations

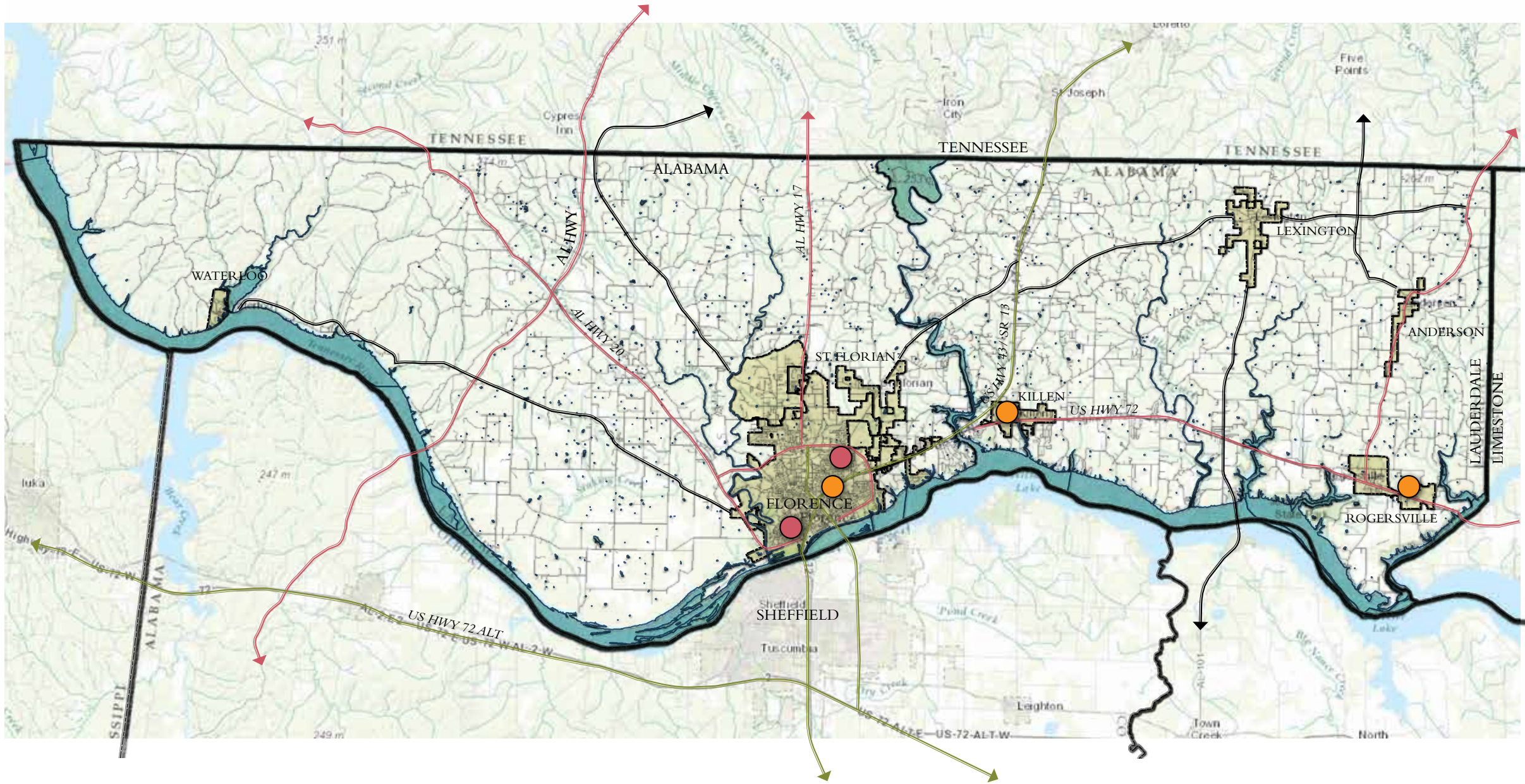
Map: Lauderdale County Essential Facilities -
National Guard Locations
(Map, 2015: Multi-Hazard Mitigation Planning
Team)



National Guard Locations

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National Guard Locations

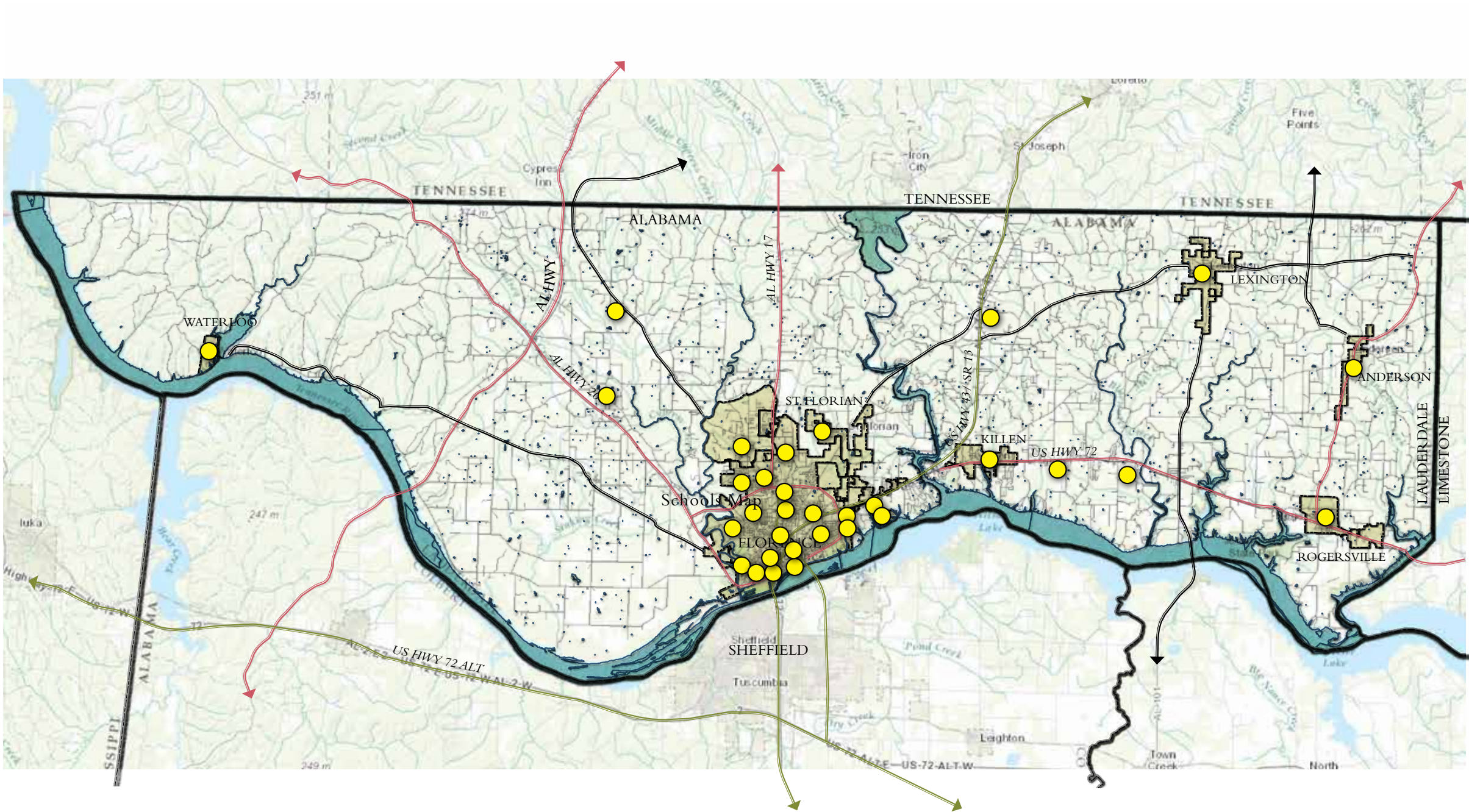
Map: Lauderdale County Essential Facilities -
Hospital Locations
(Map, 2015: Multi-Hazard Mitigation Planning
Team)



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- Hospitals
- Ambulance Stations

Hospital Locations

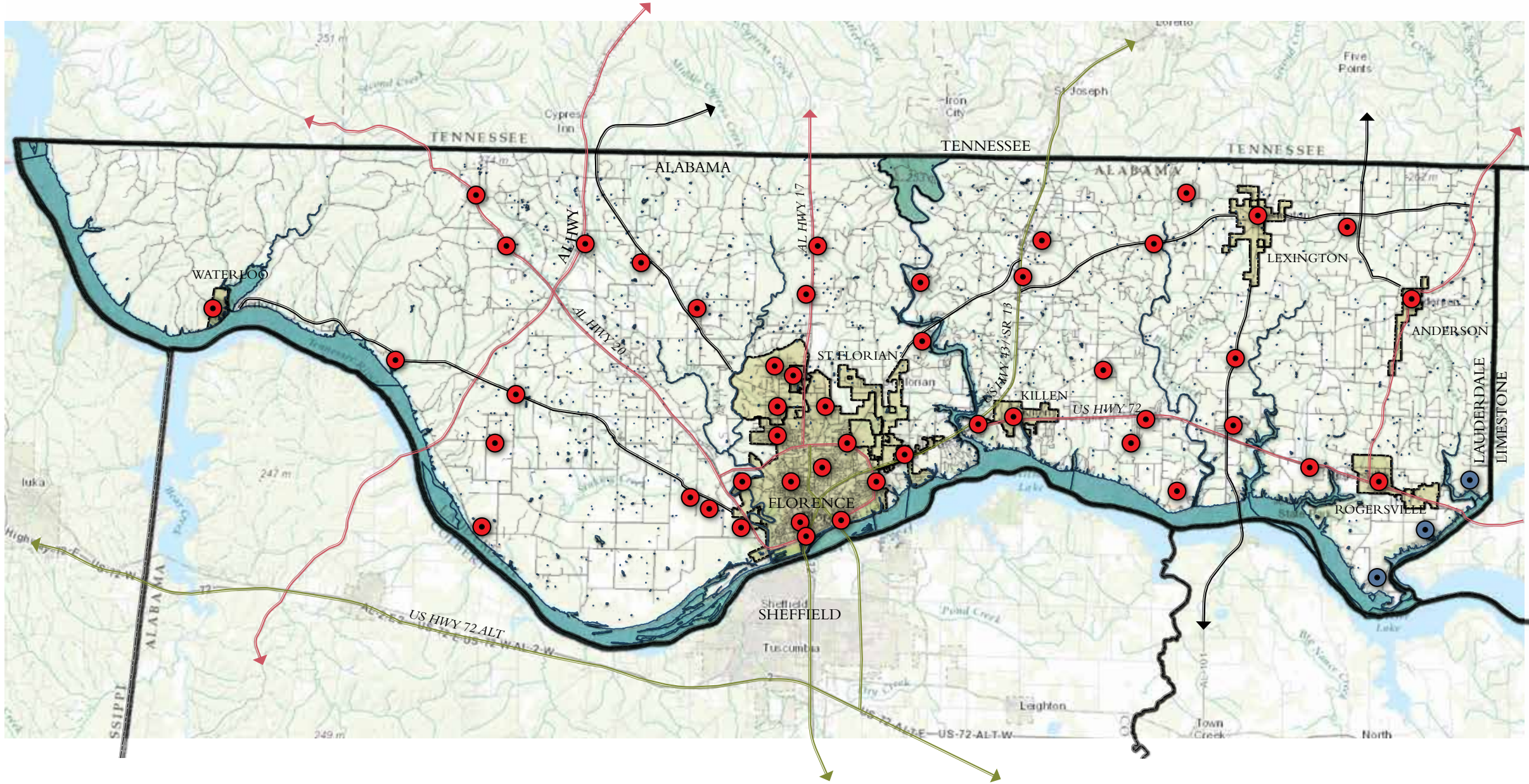


Map: Lauderdale County Essential Facilities -
School Locations
(Map, 2015: Multi-Hazard Mitigation Planning
Team)

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● School Locations

School Locations

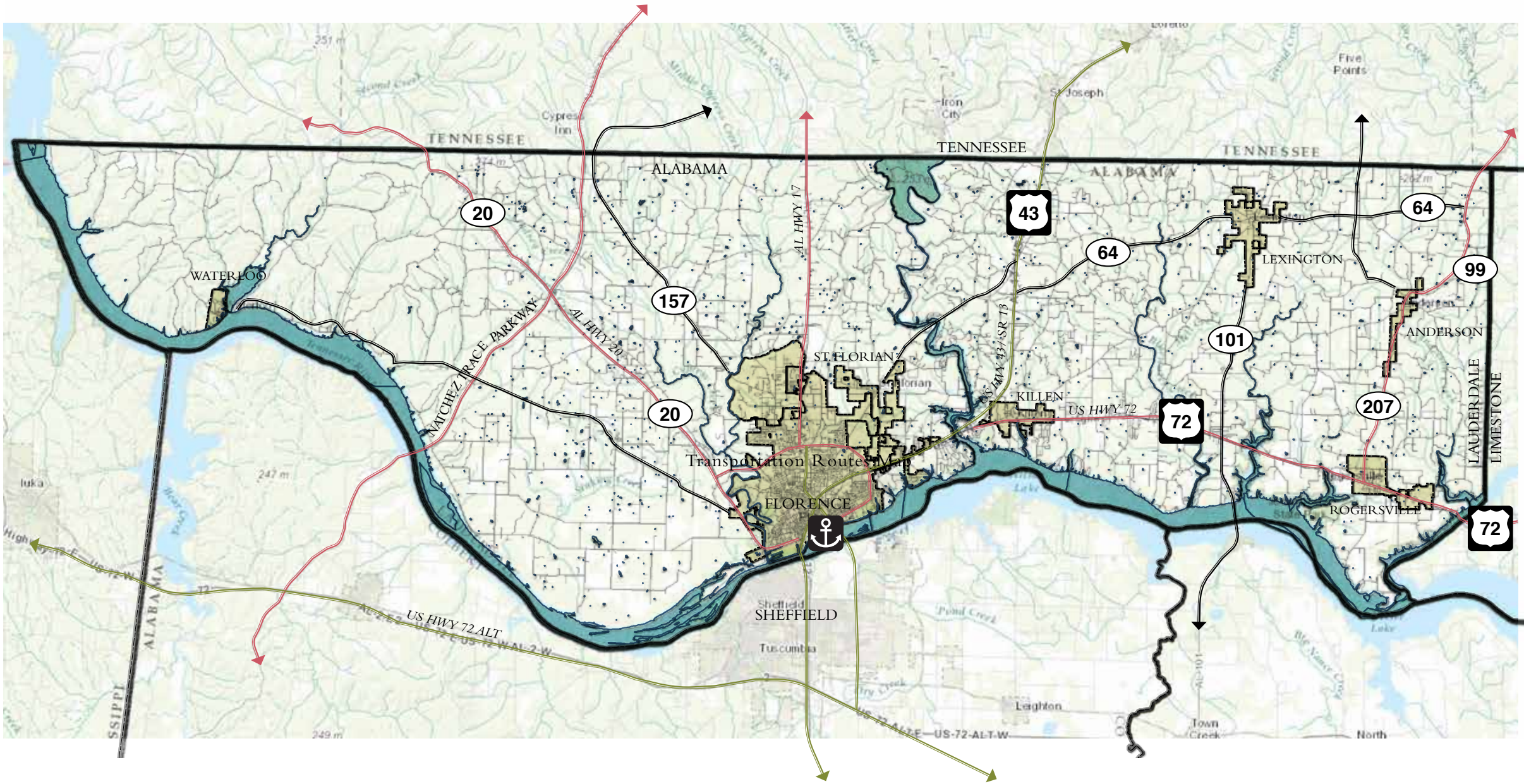
Map: Lauderdale County Essential Facilities -
Warning Siren Locations
(Map, 2015: Multi-Hazard Mitigation Planning
Team)



- LEGEND
- Warning Sirens
 - TVA Warning Sirens

Warning Siren Locations

Map: Lauderdale County Essential Facilities -
Transportation Routes
(Map, 2015: Multi-Hazard Mitigation Planning
Team)



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- U.S. Highway
- State Highway
- Ports

Transportation Route Locations

Top Left: Population by Jurisdiction
(Chart, 2014: U.S. Census Data, Multi-Hazard Mitigation Planning Team)

Top Right: Population Vulnerable to Hazards
(Chart, 2015: FEMA HAZUS Data, Multi-Hazard Mitigation Planning Team)

Top Right: Value of Buildings Exposed to Hazards in Lauderdale County
(Chart, 2014: FEMA HAZUS Data, Multi-Hazard Mitigation Planning Team)

RA.6 Estimating Potential Losses

Estimated Potential Loss

The financial estimated loss for each identified hazard is discussed within each hazard description and profile in the beginning of this section. In addition, FEMA HAZUS -MH analysis and damage estimates for the following hazards were also done: floods, dam and levee failure, and landslides. HAZUS-MH scenario estimates were obtained for these hazards because their impact to the jurisdiction can be more localized due to geographic locations.

Economic losses by jurisdiction were calculated by applying the 2013 population estimate of each jurisdiction in relation to the overall county population. This allows for a generalized estimate of the economic losses by jurisdiction for hazards that are likely to occur countywide and are less likely to be localized. For this study, localized disasters consist of landslides, dam/levee failures, and floods. Flood economic losses were calculated by HAZUS-MH MR-4. In addition, the Value of Buildings Exposed to Hazards table deducts a percentage of economic value if the hazard was not perceived to affect the particular jurisdiction. For example, dam/levee failure and the jurisdictions of Lexington and Anderson have a total apportionment of 0.014% of the building value. However, they are not affected by dam and levee failure in the planning study area. Therefore, an apportionment was deducted from each category of building value in regards to dam and levee failure.

According to FEMA’s Multi-Hazard Loss Estimation Methodology Flood Model, Users Manual for HAZUS-MH MR-4, the loss estimates from HAZUS are “ crude estimates of losses based on a minimum of local input.” It is recommended that users of the HAZUS software develop “a local inventory that best reflects the characteristics of their region such as building types and demographics.” Also, the “quality and uncertainty of the results are affected by the detail and accuracy of the community-specific data provided.” HAZUS program developers have intended the default data sets to be used as initial estimates to determine where more detailed data collection is needed.

Population by Jurisdiction	
Jurisdiction	2013 Population Estimate
Lauderdale County	92,796
City of Florence	40,059
Town of Rogersville	1,240
Town of Killen	988
Town of Lexington	730
Town of St. Florian	423
Town of Anderson	280
Town of Waterloo	198
Source: U.S. Census Data	

Population Vulnerable To Hazards		
Hazard Type	Estimated Population	Estimated Households
Dam/Levee Failure	92,796	37,920
Drought	92,796	38,458
Earthquake	92,796	38,458
Extreme Temperatures	92,796	38,458
Flood (HAZUS – MH 100 Year Flood Shelter Requirements)	N/A	N/A
Hazardous Materials	92,796	38,458
Hurricane	92,796	38,458
Landslides	100	48
Nuclear Accidents	92,796	38,458
Sinkholes	92,796	38,458
Severe Storms	92,796	38,458
Tornado	92,796	38,458
Wildfires	92,796	38,458
Windstorms	92,796	38,458
Source: FEMA HAZUS -MH		

Value of Buildings Exposed To Hazards in Lauderdale County								
Hazards	Residential	Commercial	Industrial	Agricultural	Religious	Government	Education	County Total
Dam/Levee Failure	\$7,411,499,724	\$1,342,444,916	\$424,119,026	\$22,107,106	\$192,216,756	\$49,868,922	\$97,106,210	\$9,539,362,660
Drought	\$7,516,734,000	\$1,361,506,000	\$430,141,000	\$22,421,000	\$194,946,000	\$50,577,000	\$98,485,000	\$9,674,810,000
Earthquake	\$7,516,734,000	\$1,361,506,000	\$430,141,000	\$22,421,000	\$194,946,000	\$50,577,000	\$98,485,000	\$9,674,810,000
Extreme	\$4,089,309,000	\$917,053,000	\$292,556,000	\$15,535,000	\$136,653,000	\$34,394,000	\$61,683,000	\$5,547,183,000
Temperatures	\$7,516,734,000	\$1,361,506,000	\$430,141,000	\$22,421,000	\$194,946,000	\$50,577,000	\$98,485,000	\$9,674,810,000
Flood 100 year	\$102,132,000	\$19,650,000	\$23,121,000	\$314,000	\$1,598,000	\$2,103,000	\$843,000	\$149,761,000
Hazardous Materials	\$4,089,309,000	\$1,361,506,000	\$430,141,000	\$22,421,000	\$194,946,000	\$50,577,000	\$98,485,000	\$9,674,810,000
Hurricane	\$4,089,309,000	\$1,361,506,000	\$430,141,000	\$22,421,000	\$194,946,000	\$50,577,000	\$98,485,000	\$9,674,810,000
Landslides	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Nuclear Accidents	\$7,516,734,000	\$1,361,506,000	\$430,141,000	\$22,421,000	\$194,946,000	\$50,577,000	\$98,485,000	\$9,674,810,000
Sinkholes	\$7,516,734,000	\$1,361,506,000	\$430,141,000	\$22,421,000	\$194,946,000	\$50,577,000	\$98,485,000	\$9,674,810,000
Severe Storms	\$7,516,734,000	\$1,361,506,000	\$430,141,000	\$22,421,000	\$194,946,000	\$50,577,000	\$98,485,000	\$9,674,810,000
Tornado	\$7,516,734,000	\$1,361,506,000	\$430,141,000	\$22,421,000	\$194,946,000	\$50,577,000	\$98,485,000	\$9,674,810,000
Wildfires	\$7,516,734,000	\$1,361,506,000	\$430,141,000	\$22,421,000	\$194,946,000	\$50,577,000	\$98,485,000	\$9,674,810,000
Windstorms	\$7,516,734,000	\$1,361,506,000	\$430,141,000	\$22,421,000	\$194,946,000	\$50,577,000	\$98,485,000	\$9,674,810,000
Source: FEMA HAZUS-MH Data								

Estimated Loss for Flooding

Flooding is, by far, the most frequently occurring identified hazard within the planning jurisdiction. The hazard description and profile in the beginning of this section projects future probability of a flooding event in the next year somewhere within Lauderdale County at 678%. There is a 394% future probability a flooding event will be located within the county, but outside municipal limits. The City of Florence has a 133% probability of experiencing a flood event in the next year followed by the Town of Anderson, with a 50% probability.

The tables below show the total economic losses, value of buildings exposed to floods, and a quick assessment of the 100 year and 500 year flood events within the planning jurisdiction. The apportionment table takes the percent of each jurisdiction’s population and extrapolates the countywide economic loss of a 100 year flood. This table indicates that the larger population centers within the county will be the hardest hit and sustain the most damages from a major flood event.

The 100-year flood table evaluates the value of buildings exposed to a 100 year flood. The FEMA HAZUS-MH software places structures into eight categories and assigns an overall dollar value to each category. The HAZUS flood model estimates residential buildings to be the hardest hit from a 100 year flood event with \$102,132,000.00 in exposure. The Quick Assessment Report identifies 40,401 residential structures within the study area. The assessment also expects there to be 1,002 households displaced from a 100 year flood event.

Total Property Losses by Jurisdictional Apportionment for 100 Year Flood			
Jurisdiction	2013 Population Estimate	Percent of Total County Population	Amount of Total Economic Losses
Lauderdale County	92,796	100%	\$152,089,000.00
Anderson	280	0.3%	\$608,356.00
Florence	40,059	43%	\$63,877,380
Killen	988	1%	\$1,520,890.00
Lexington	730	0.8%	\$1,520,890.00
Rogersville	1,240	1%	\$1,520,890.00
St. Florian	423	0.5%	\$1,520,890.00
Waterloo	198	0.2%	\$304,178.00
Source: FEMA HAZUS-MH Data			

Number of Buildings Exposed to 100 Year Flood		
Building Type	Replacement Value	% of Total Value of Buildings
Residential	\$7,516,734,000.00	78%
Commercial	\$1,361,506,000.00	14%
Industrial	\$430,141,000.00	4%
Agriculture	\$22,421,000.00	.2%
Religious	\$194,946,000.00	2%
Government	\$50,577,000.00	.5%
Education	\$98,485,000.00	1%
Total Value	\$9,674,810,000.00	100%
Source: FEMA HAZUS-MH Data		

Quick Assessment Report Lauderdale County	100 Year Flood
Area(square miles)	669
Number of Census Blocks	4,233
Number of Residential Buildings	38,534
Number of Building Total	41,615
Number of People in Region	92,796
Building Exposure - Residential	\$7,516,734
Building Exposure - Total	\$9,674,810
Source: FEMA HAZUS-MH Data	1,002
People Needing Short Term Shelter	1,481
Residential Property Losses	\$89,790,000
Total Property Losses	\$152,890,000
Business Interruption Losses	\$740,000
Total Estimated Economic Loss	\$243,420,000
Source: FEMA HAZUS-MH Data	

The following maps show the 100-year floodplain residential damage and 100-year floodplain total building damage projections within the planning area. Census maps have been overlaid with the 100-year floodplain to show the specific areas of concern for a flooding event within the planning area as well as the housing density and population distribution.

Estimated Loss for Magnitude Earthquake 5.0 Probabilistic Loss Estimates

The impact of a 5.0 magnitude earthquake was evaluated with the HAZUS-MH MR-4 software. The 5.0 earthquake model indicates minimal damage to buildings and infrastructure in the planning area.

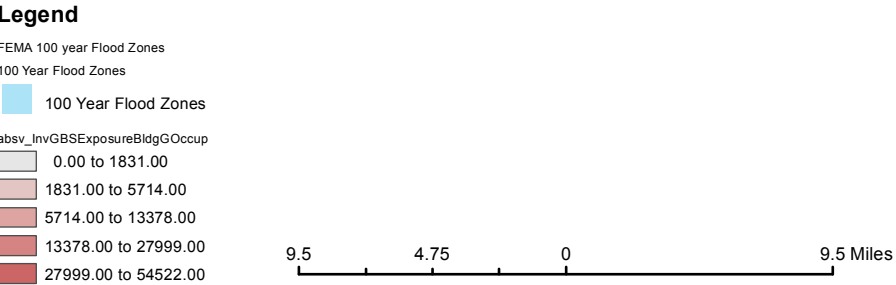
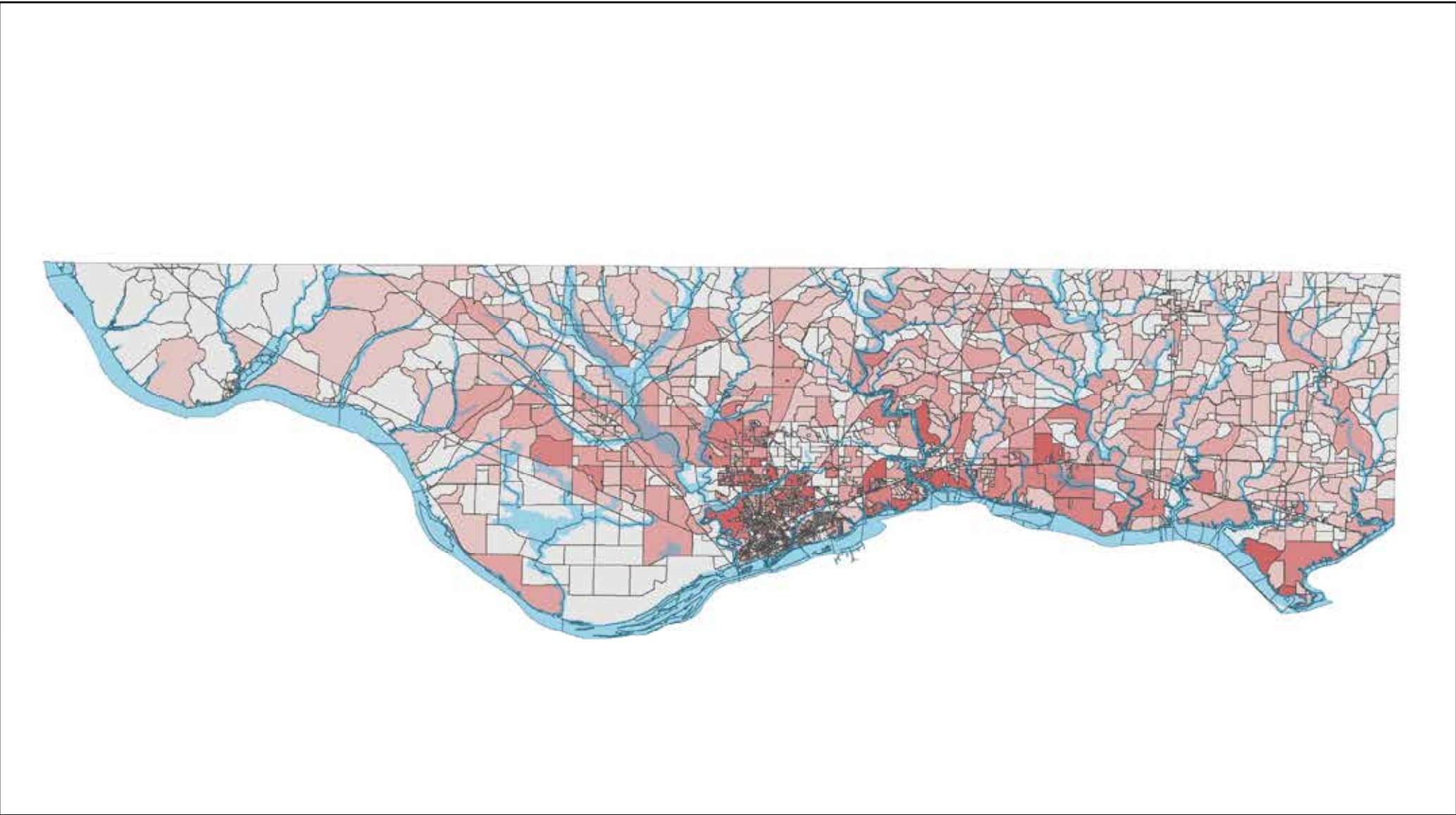
Bottom Left: Total Property Losses by Jurisdictional Apportionment for 100 Year Flood (Chart, 2014: FEMA HAZUS Data)

Top Right: Number of Buildings Exposed to 100 Year Flood (Chart, 2015: FEMA HAZUS Data)

Bottom Right: Quick Assessment Report Lauderdale County (Chart, 2015: FEMA HAZUS Data)

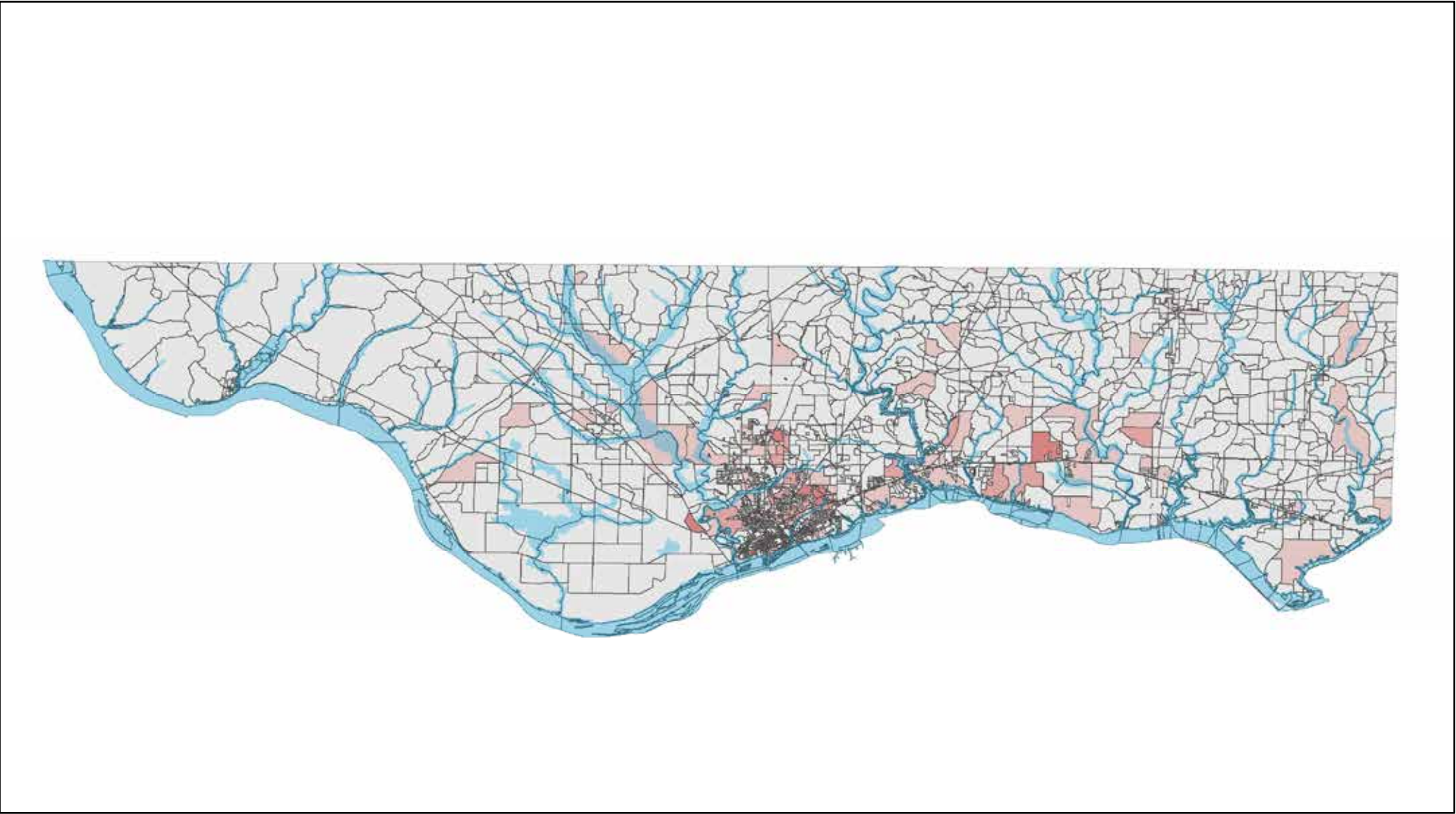
Map: *Lauderdale County 100 Year Flood Total Residential Dollar Exposure / Replacement Value Map*
(Map, 2015: FEMA HAZUS Data, Multi-Hazard Mitigation Planning Team)

Study Region: Lauderdale County
Scenario: 100 Year Flood Total Residential Dollar Exposure/Replacement Value (\$thous.)



Study Region: Lauderdale County
Scenario: 100 Year Flood Total Commercial Dollar Exposure/Replacement Value (\$thous.)

Map: Lauderdale County 100 Year Flood Total
Commercial Dollar Exposure / Replacement
Value Map
(Map, 2015: FEMA HAZUS Data, Multi-Hazard
Mitigation Planning Team)



Legend

- FEMA 100 year Flood Zones
100 Year Flood Zones
- 100 Year Flood Zones
- absv_invGBSExposureBldgGOccup
- 0.00 to 991.00
 - 991.00 to 4051.00
 - 4051.00 to 13064.00
 - 13064.00 to 40381.00
 - 40381.00 to 116448.00

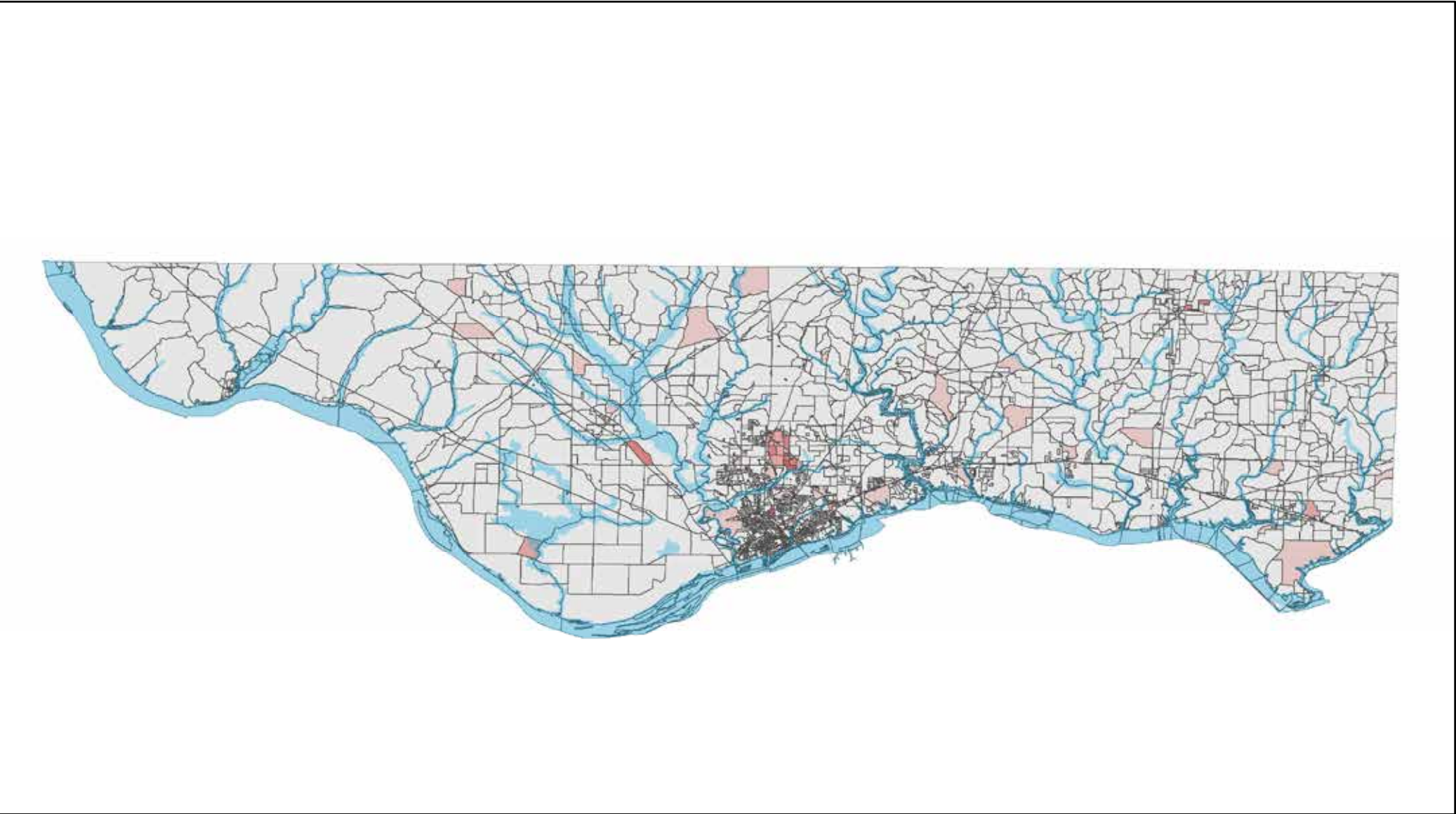
9.5 4.75 0 9.5 Miles



(c) 1997-2011 FEMA

Map: Lauderdale County 100 Year Flood Total Industrial Dollar Exposure / Replacement Value (Map, 2015: FEMA HAZUS Data, Multi-Hazard Mitigation Planning Team)

Study Region: Lauderdale County
Scenario: 100 Year Flood Total Industrial Dollar Exposure/Replacement Value (\$thous.)



Legend

FEMA 100 year Flood Zones

100 Year Flood Zones

100 Year Flood Zones

absv_InvGBSExposureBldgGOccup

0.00 to 461.00

461.00 to 2315.00

2315.00 to 5608.00

5608.00 to 15190.00

15190.00 to 42559.00



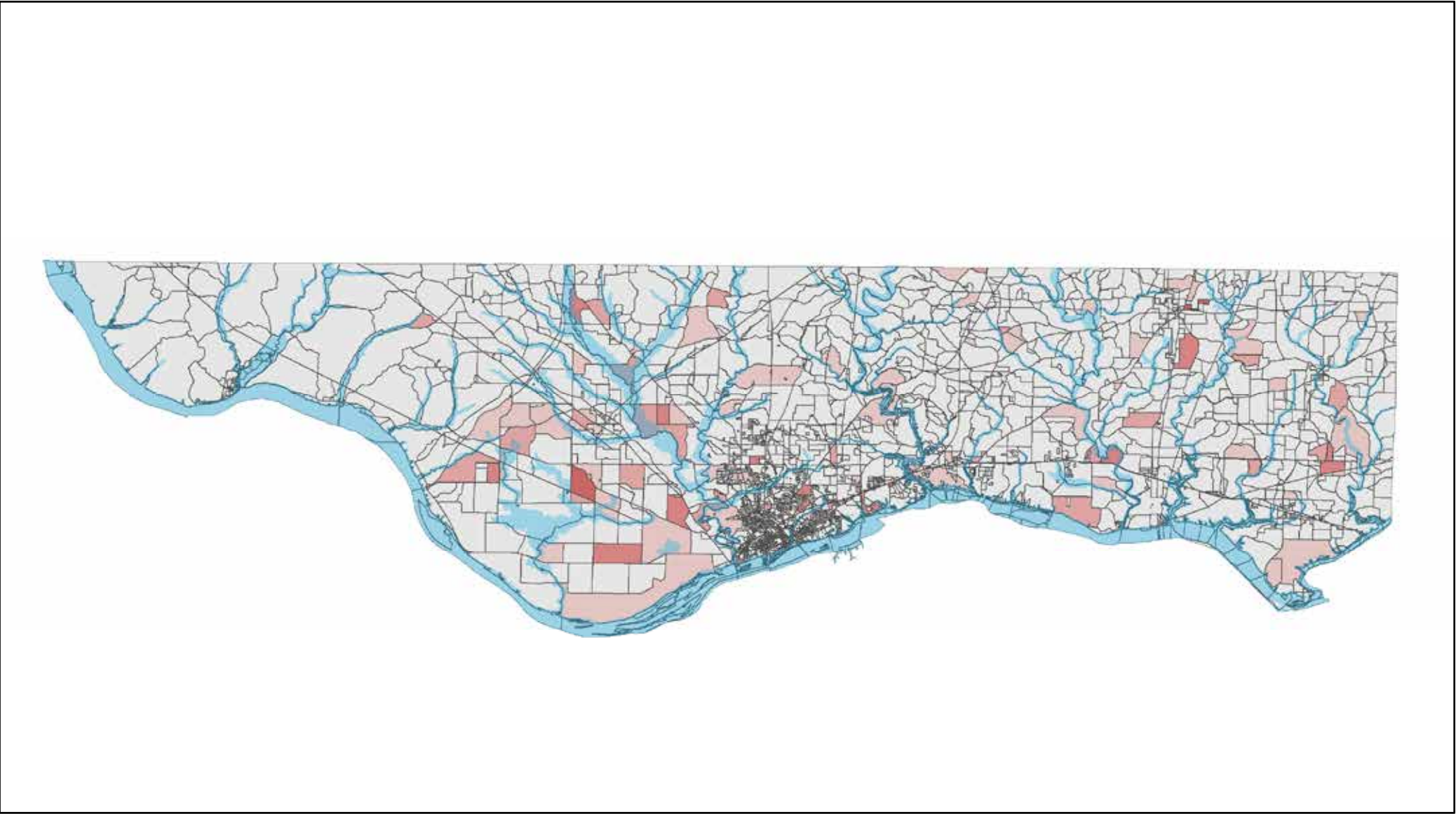
N
W E
S

HAZUS

(c) 1997-2011 FEMA

Study Region: Lauderdale County
Scenario: 100 Year Flood Total Agriculture Dollar Exposure/Replacement Value (\$thous.)

Map: Lauderdale County 100 Year Flood Total
Agriculture Dollar Exposure / Replacement
Value
(Map, 2015: Multi-Hazard Mitigation Planning
Team)



Legend

- FEMA 100 year Flood Zones
100 Year Flood Zones
- 100 Year Flood Zones
- absv_invGBSExposureBldgGOccup
- 0.00 to 38.00
 - 38.00 to 117.00
 - 117.00 to 228.00
 - 228.00 to 485.00
 - 485.00 to 821.00

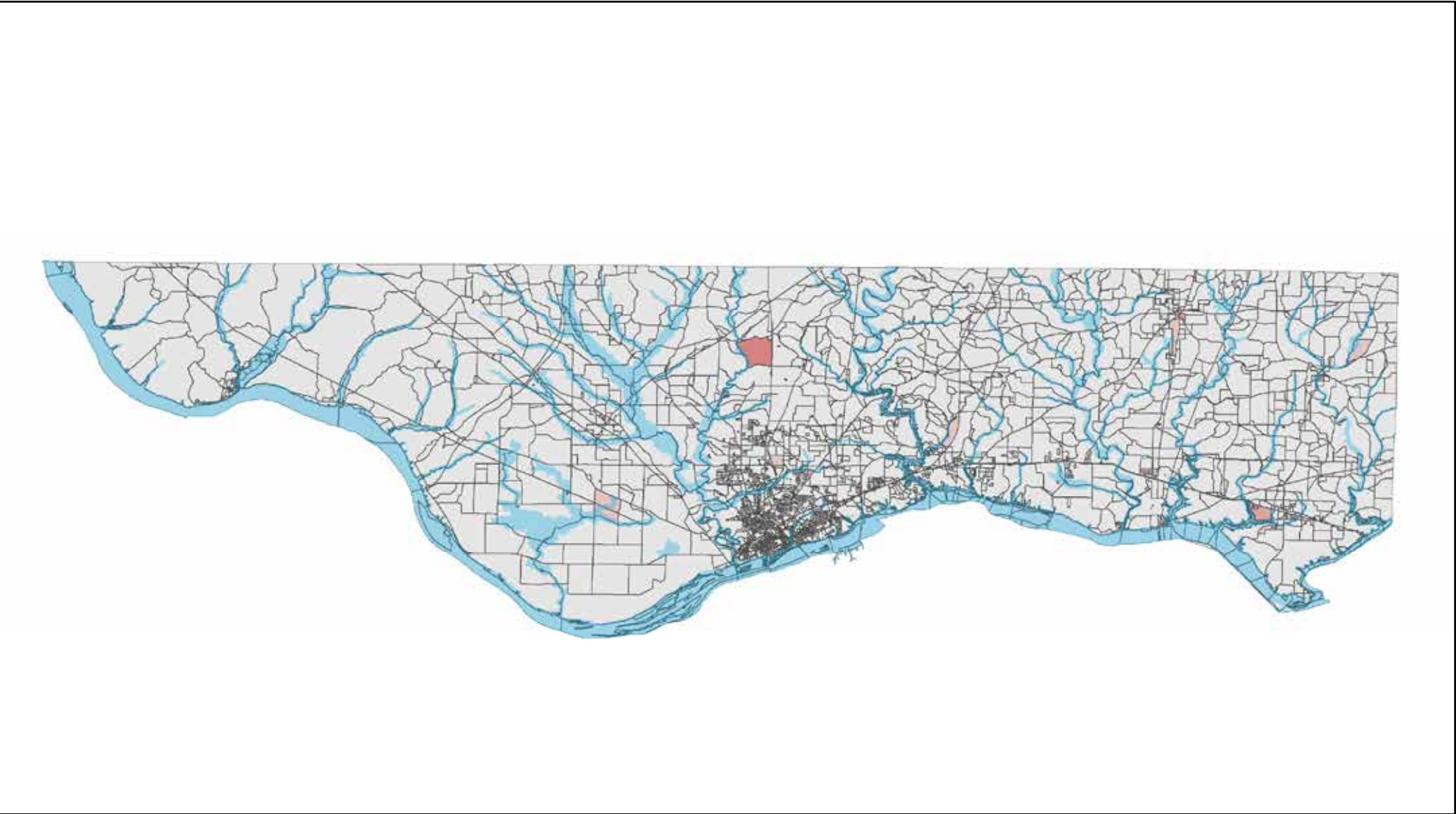
9.5 4.75 0 9.5 Miles



(c) 1997-2011 FEMA

Map: *Lauderdale County 100 Year Flood
Total Government Building Dollar Exposure /
Replacement Value*
(Map, 2015: Multi-Hazard Mitigation Planning
Team)

Study Region: Lauderdale County
Scenario: 100 Year Flood Total Government Building Dollar Exposure/Replacement Value (\$thous.)



Legend

- FEMA 100 year Flood Zones
100 Year Flood Zones
- 100 Year Flood Zones
- absv_InvGBSExposureBldgGOccup
- 0.00 to 174.00
 - 174.00 to 633.00
 - 633.00 to 1295.00
 - 1295.00 to 3762.00
 - 3762.00 to 7546.00

9.5 4.75 0 9.5 Miles

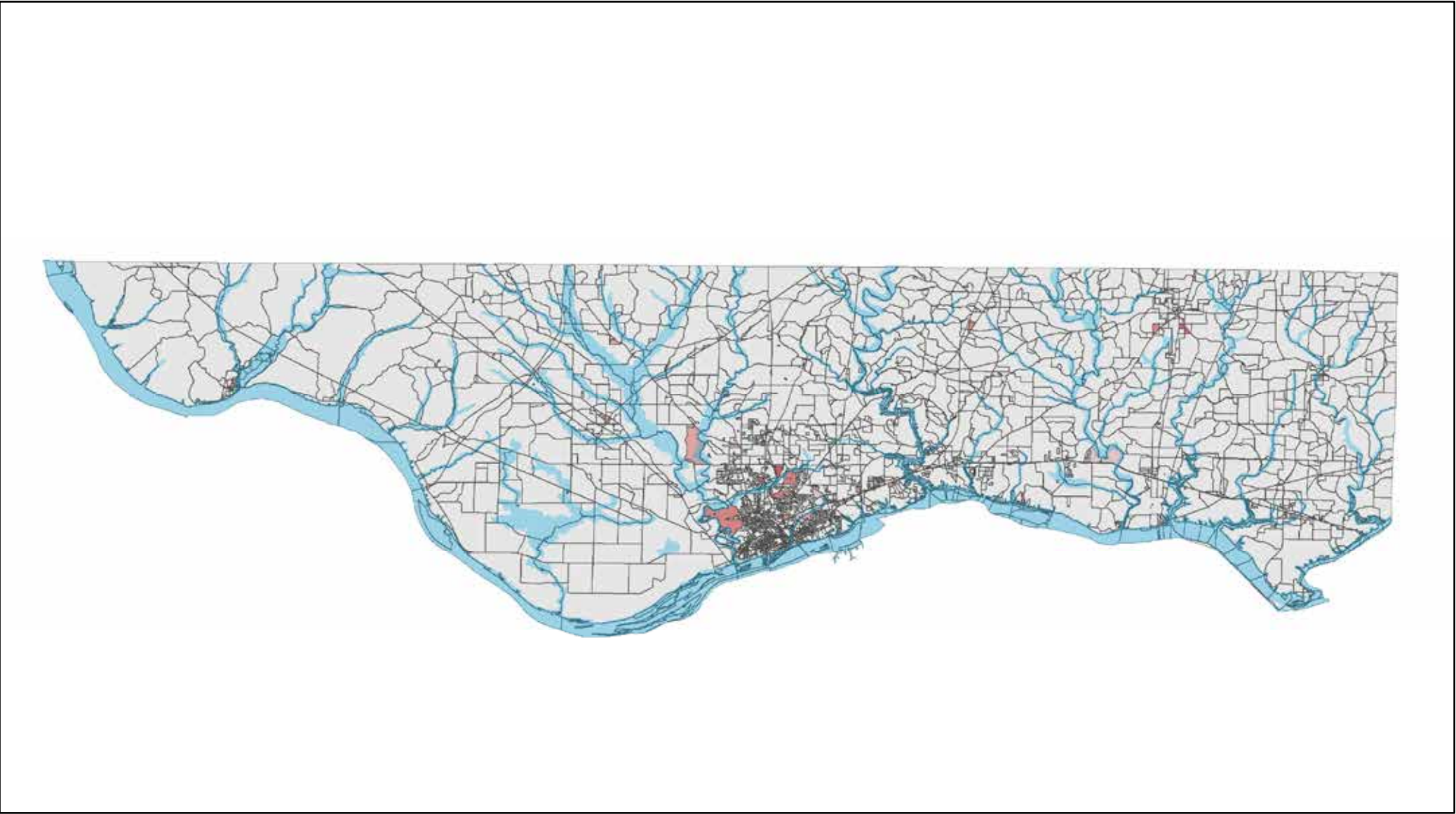


(c) 1997-2011 FEMA

Study Region: Lauderdale County

Scenario: 100 Year Flood Total Educational Building Dollar Exposure/Replacement Value (\$thous.)

Map: Lauderdale County 100 Year Flood
total Educational Building Dollar Exposure /
Replacement Value
(Map, 2015: FEMA HAZUS Data, Multi-Hazard
Mitigation Planning Team)



Legend

- FEMA 100 year Flood Zones
100 Year Flood Zones
- 100 Year Flood Zones
- absv_invGBSExposureBldgGOccup
- 0.00 to 268.00
 - 268.00 to 921.00
 - 921.00 to 1771.00
 - 1771.00 to 3444.00
 - 3444.00 to 14071.00

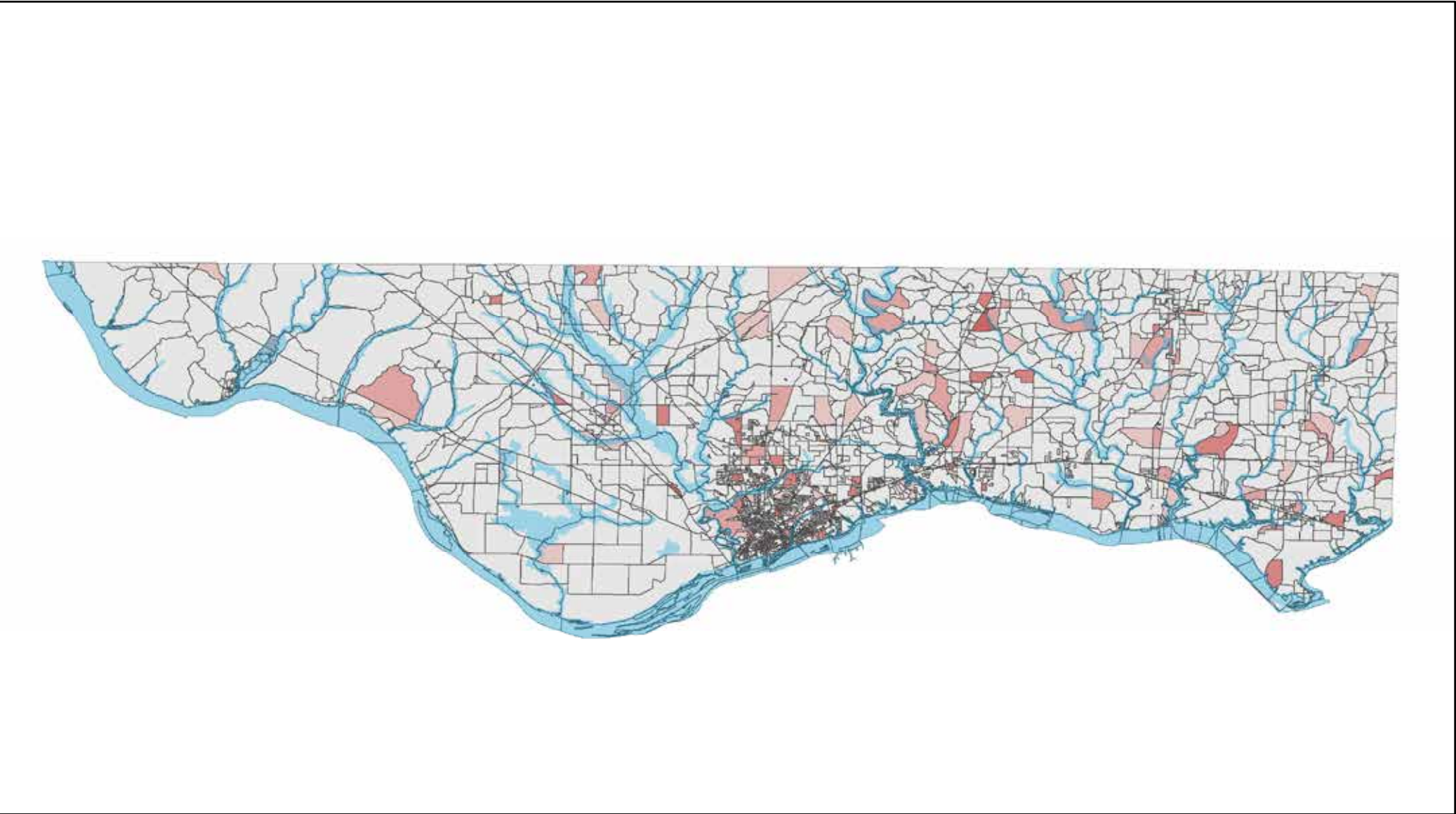
9.5 4.75 0 9.5 Miles



(c) 1997-2011 FEMA

Map: *Lauderdale County 100 Year Flood
Total Religious Building Dollar Exposure /
Replacement Value*
(Map, 2015: FEMA HAZUS Data, Multi-Hazard
Mitigation Planning Team)

Study Region: Lauderdale County
Scenario: 100 Year Flood Total Religious Building Dollar Exposure/Replacement Value (\$thous.)



Legend

FEMA 100 year Flood Zones
100 Year Flood Zones

100 Year Flood Zones

absv_InvGBSExposureBldgGOccup

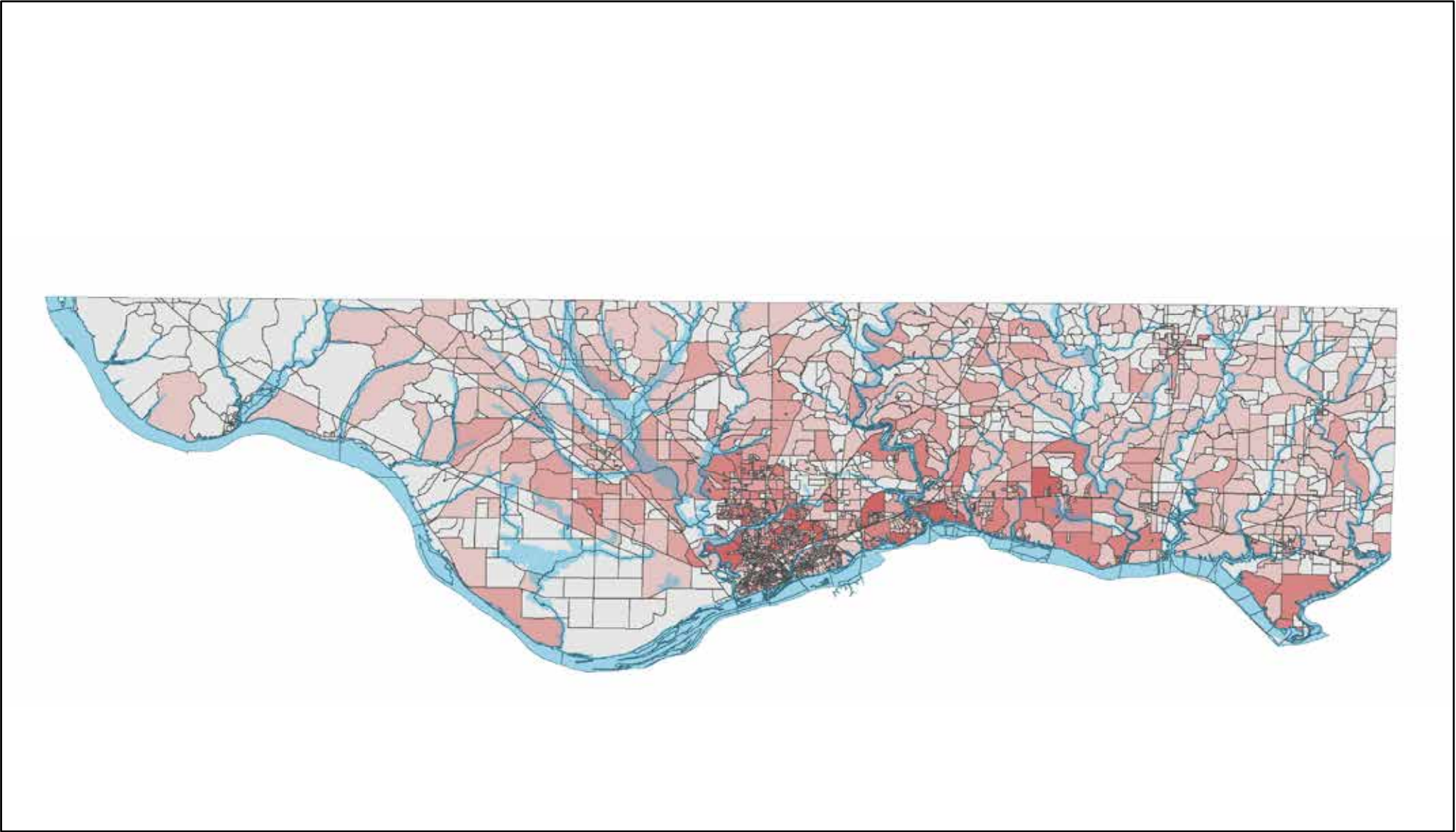
0.00 to 183.00
183.00 to 565.00
565.00 to 1065.00
1065.00 to 1735.00
1735.00 to 5373.00



(c) 1997-2011 FEMA

Study Region: Lauderdale County
Scenario: 100 Year Flood Total Dollar Exposure/Replacement Value (\$thous.)

Map: Lauderdale County 100 Year Flood Total Dollar Exposure / Replacement Value (Map, 2015: FEMA HAZUS Data, Multi-Hazard Mitigation Planning Team)



Legend

- FEMA 100 year Flood Zones
100 Year Flood Zones
- absv_InvGBSExposureBldgGOccup
- 0.00 to 2311.00
 - 2311.00 to 7374.00
 - 7374.00 to 16742.00
 - 16742.00 to 35742.00
 - 35742.00 to 116592.00

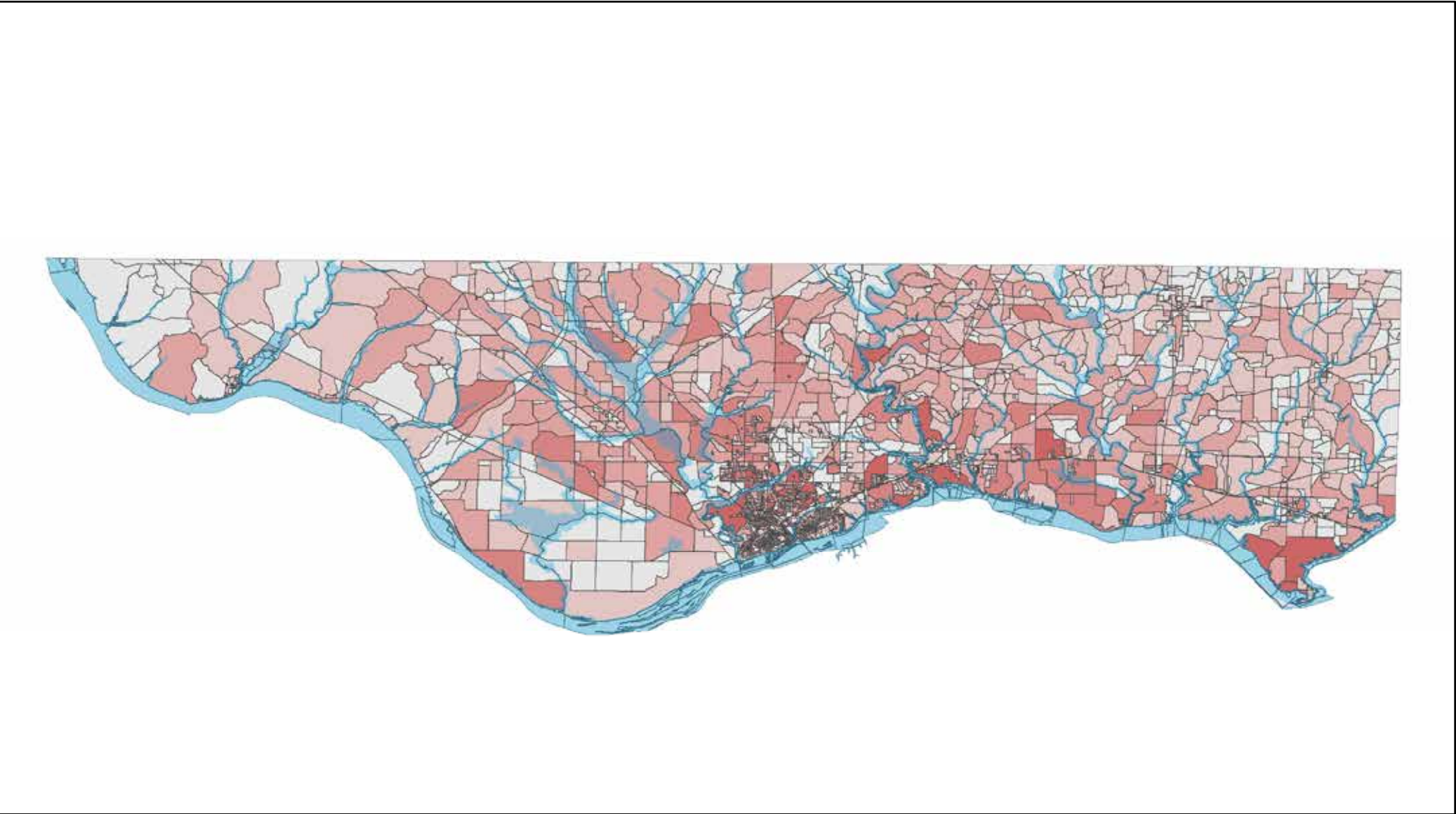
9.5 4.75 0 9.5 Miles



(c) 1997-2011 FEMA

Map: *Lauderdale County 100 Year Flood Total Residential Building Count*
(Map, 2015: FEMA HAZUS Data, Multi-Hazard Mitigation Planning Team)

Study Region: Lauderdale County
Scenario: 100 Year Flood Total Residential Building Count



Legend

FEMA 100 year Flood Zones
100 Year Flood Zones

100 Year Flood Zones

Residential

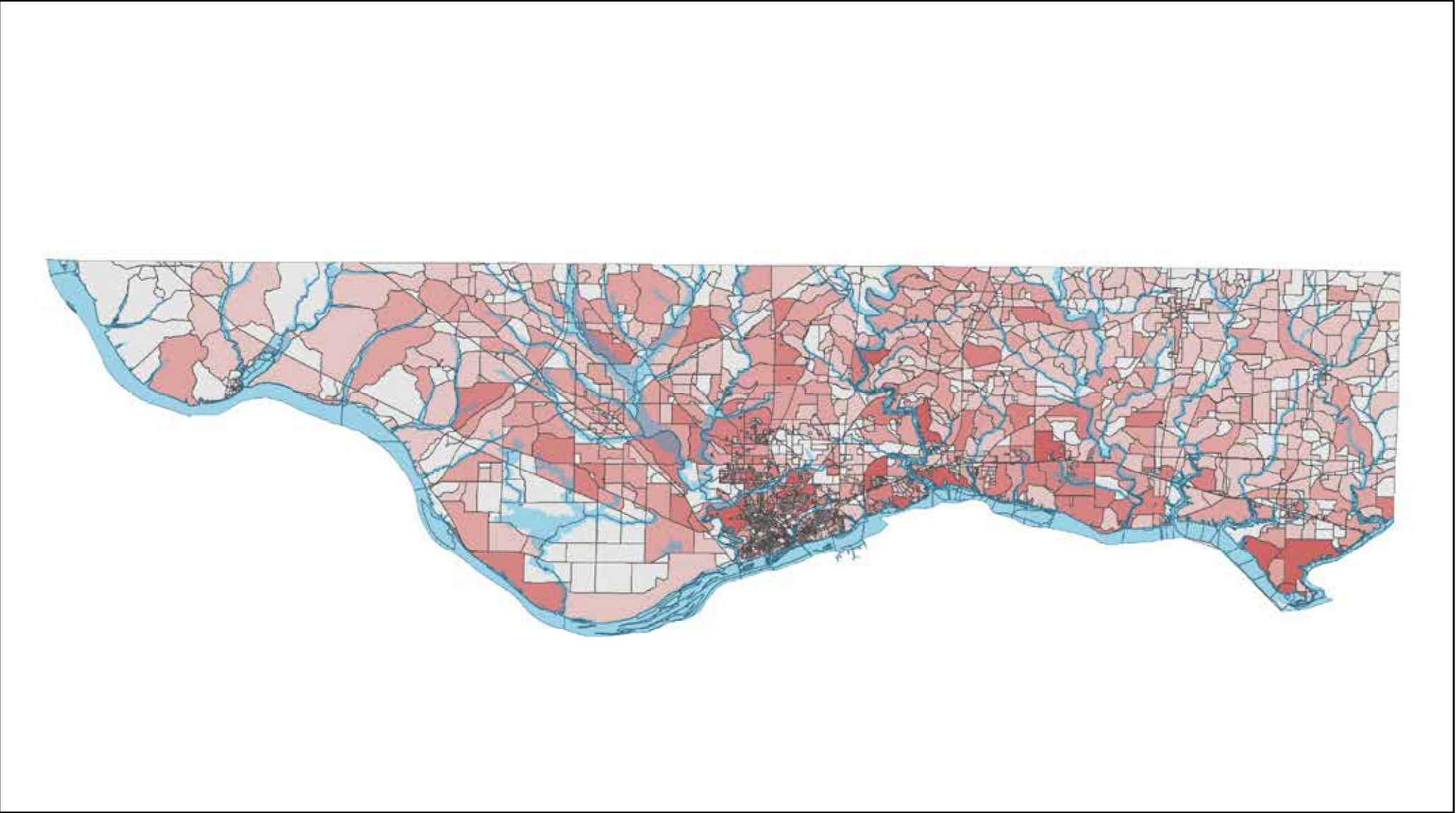
0.00 to 7.00
7.00 to 23.00
23.00 to 56.00
56.00 to 118.00
118.00 to 275.00



HAZUS
V
S
(c) 1997-2011 FEMA

Study Region: Lauderdale County
Scenario: 100 Year Flood Total Building Count

Map: Lauderdale County 100 Year Flood Total Building Count
(Map, 2015: FEMA HAZUS Data, Multi-Hazard Mitigation Planning Team)



Legend

FEMA 100 year Flood Zones
100 Year Flood Zones
100 Year Flood Zones

Total

0.00 to 8.00
8.00 to 25.00
25.00 to 59.00
59.00 to 124.00
124.00 to 289.00

9.5 4.75 0 9.5 Miles



(c) 1997-2011 FEMA

Left: 5.0 Magnitude Earthquake Estimated Economic Loss, Building Damage & Shelter Needs for Lauderdale County
(Charts, 2014: FEMA HAZUS Data, Multi-Hazard Mitigation Planning Team)

Top Right: 5.0 Magnitude Earthquake Estimated Casualties: Commute Time for Lauderdale County
(Charts, 2014: FEMA HAZUS Data, Multi-Hazard Mitigation Planning Team)

Bottom Right: 5.0 Magnitude Earthquake Scenario Maps
(Map, 2015: FEMA HAZUS Data, Multi-Hazard Mitigation Planning Team)

The estimated number of buildings damaged ranges between 1,000 and 7,000 with no casualties expected. Less than one household seeking shelter due to damage from a 5.0 magnitude earthquake is projected by the model. The tables below summarize the 5.0 probabilistic scenario and carry slightly different values of damage than are shown in the Direct Economic Losses map. The 5.0 Magnitude Earthquake Map indicates where potential economic losses might occur after a 5.0 magnitude earthquake event within the planning area.

5.0 Magnitude Earthquake Estimated Economic Loss (\$Billions) for Lauderdale County and Participating Jurisdictions		
Category	Description	Range
General Building Stock	Building Damage	00.0-0.2
	Building Contents	<0.1
	Business Interruption	<0.1
Infrastructure	Lifelines Damage	
TOTAL		0.10-0.30
Source: FEMA HAZUS-MHM-4 Data		

5.0 Magnitude Earthquake Estimated Building Damage(Thousands of Buildings) for Lauderdale County and Participating Jurisdictions				
Description	Residential	Commercial	Other	Total
Minor	1-6	<1.0	<1.0	1-7
Major	<1.0	<1.0	<1.0	<1.0
Total	1-7	<1.0	<1.0	1-7
Source: FEMA HAZUS-MHM-4 Data				

5.0 Magnitude Earthquake Estimated Shelter Needs for Lauderdale County and Participating Jurisdictions		
Type	Household	People
Displaced Households	<1.0	N/A
Public Shelter	N/A	N/A
Source: FEMA HAZUS-MHM-4 Data		

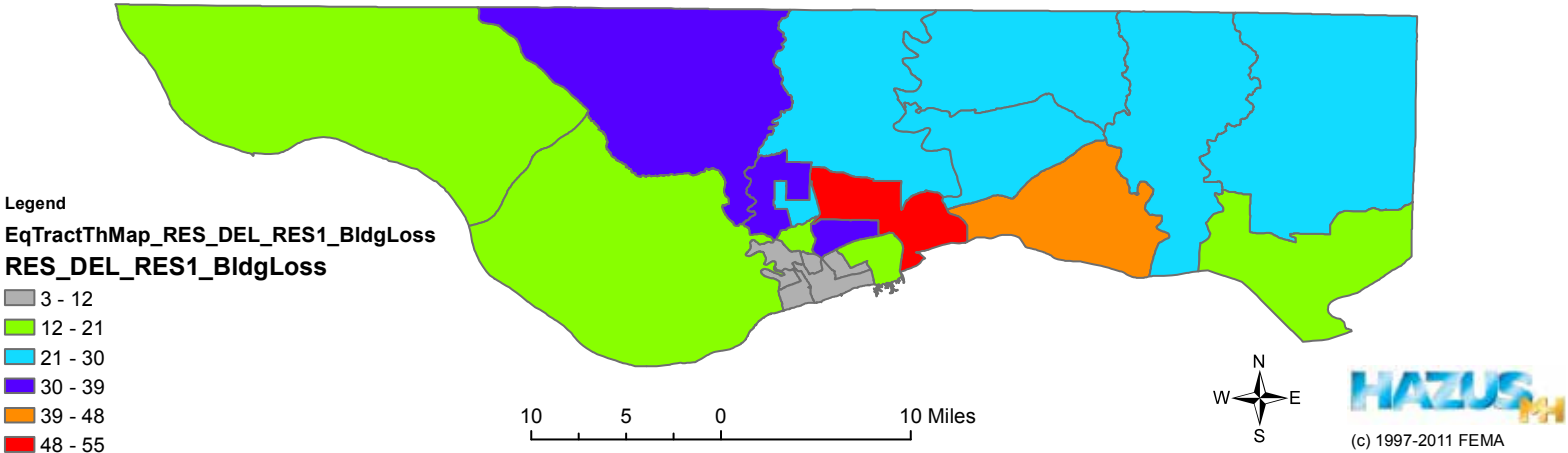
5.0 Magnitude Earthquake Estimated Casualties: Commute Time for Lauderdale County and Participating Jurisdictions		
Severity Level	Description	# Persons
Level 1	Medical Aid	N/A
Level 2	Hospital Care	N/A
Level 3	Life-Threatening	N/A

Level 4	Fatalities	N/A
Source: FEMA HAZUS-MHM-4 Data		

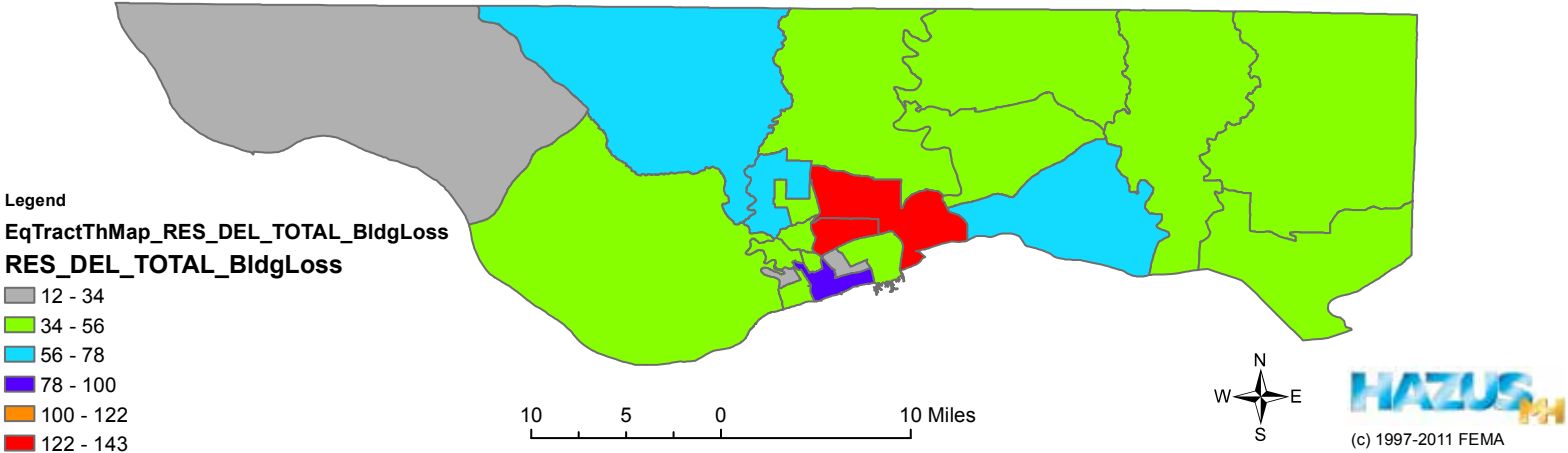
Estimated Loss for Magnitude Earthquake 6.5 Probabilistic Loss Estimates

According to the FEMA HAZUS software, a 6.5 magnitude earthquake would cause significant damage to structures and infrastructure within the planning area. HAZUS estimates between 0 to 50 fatalities with almost 1,200 people seeking medical assistance. The estimated economic losses reach into the billions as shown in the Estimated Economic Losses chart. In comparison to the 5.0

Scenario: 5.0 magnitude earthquake Direct Economic Loss, RES1 (\$thous.)



Scenario: 5.0 magnitude earthquake Direct Economic Loss, Total (\$thous.)



magnitude earthquake, the 6.5 earthquake is expected to cause significant damage within the heavily developed areas in and around the City of Florence. Preparing and implementing mitigation strategies for this magnitude of an earthquake should be considered to lessen the effects of this disaster. The most significant mitigation strategy for earthquakes is design and enforcement of local building codes. The tables below summarize the 6.5 probabilistic scenario and carry slightly different values of damage than are shown in the Direct Economic Losses map. The 6.5 Magnitude Earthquake Map indicates where potential economic losses might occur after a 6.5 magnitude earthquake event within the planning area.

6.5 Magnitude Earthquake Estimated Economic Loss (\$Billions) for Lauderdale County and Participating Jurisdictions		
Category	Description	Range
General Building Stock	Building Damage	0.50-2.00
	Building Contents	00.0-0.10
	Business Interruption	0.20-0.80
Infrastructure	Lifelines Damage	N/A
TOTAL		0.80-3.30
Source: FEMA HAZUS-MHM-4 Data		

6.5 Magnitude Earthquake Estimated Building Damage(Thousands of Buildings) for Lauderdale County and Participating Jurisdictions				
Description	Residential	Commercial	Other	Total
Minor	11-50	0-1	<1.0	11-50
Major	3-13	0-1	<1.0	4-16
Total	14-60	0-3	0-1	15-60
Source: FEMA HAZUS-MHM-4 Data				

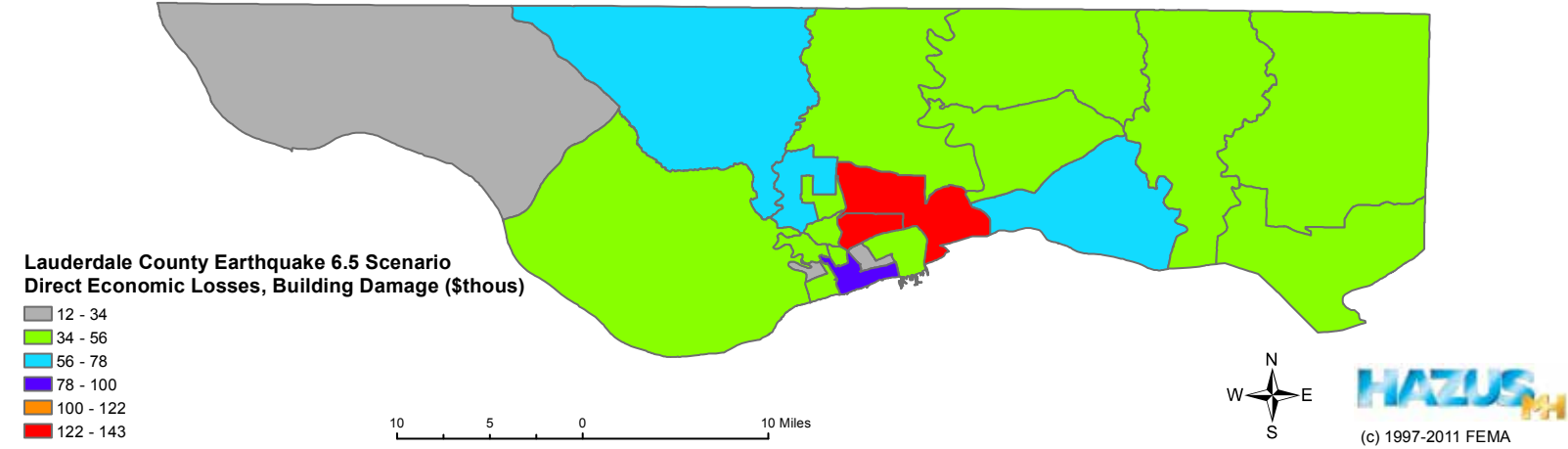
6.5 Magnitude Earthquake Estimated Shelter Needs for Lauderdale County and Participating Jurisdictions		
Type	Household	People
Displaced Households	1,100-4,000	N/A
Public Shelter	N/A	N/A
Source: FEMA HAZUS-MHM-4 Data		

6.5 Magnitude Earthquake Estimated Casualties: Commute Time for Lauderdale County and Participating Jurisdictions		
Severity Level	Description	# Persons
Level 1	Medical Aid	30-1,200
Level 2	Hospital Care	90-400
Level 3	Life-Threatening	0-50
Level 4	Fatalities	0-50
Source: FEMA HAZUS-MHM-4 Data		

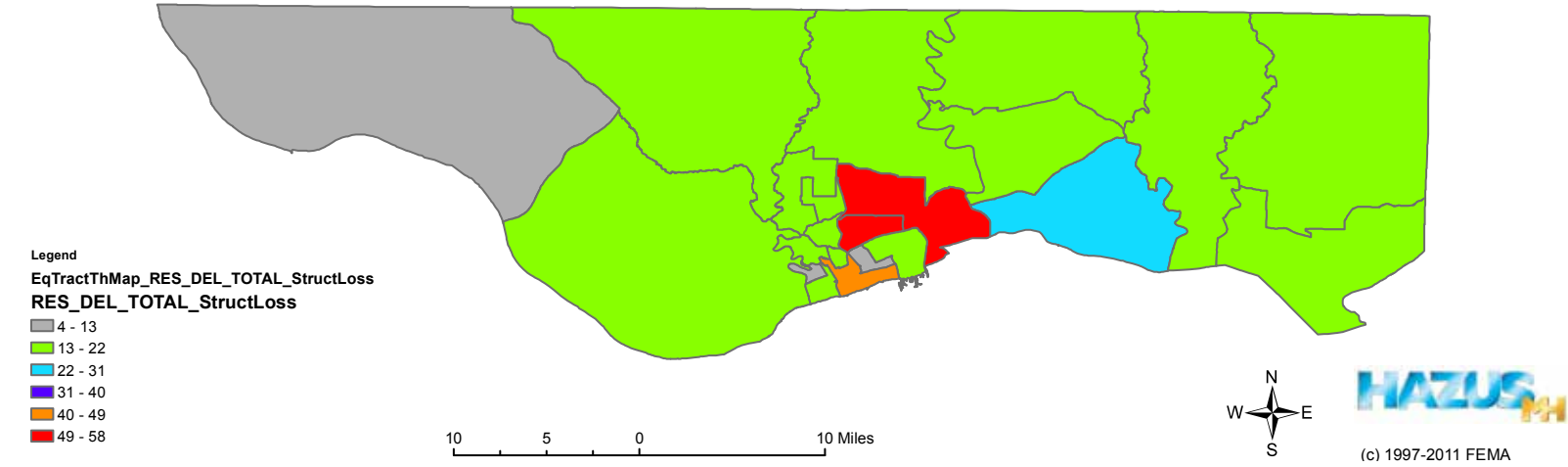
Bottom Left: 6.5 Magnitude Earthquake Scenario Maps (Map, 2015: FEMA HAZUS Data, Multi-Hazard Mitigation Planning Team)

Right: 6.5 Magnitude Earthquake Estimated Economic Loss, Building Damage, Shelter Needs & Casualties for Lauderdale County (Charts, 2014: FEMA HAZUS Data, Multi-Hazard Mitigation Planning Team)

Scenario: 6.5 magnitude earthquake



Scenario: 6.5 magnitude earthquake



Estimated Loss for Hurricanes

Historically, hurricanes lose strength when moving inland and are downgraded to a tropical storm by the time they reach Lauderdale County and damages are minimal and equivalent to a severe storm. However, Hurricane Katrina did have economic damages within the planning area and increased the community’s concern for future hurricanes and tropical storm events within the County.

FEMA HAZUS MH M-4 analysis was conducted on hurricane events for the planning area. Seven storm event periods were analyzed. Storm tracks for the 50, 100, 500 and 1000 year hurricane storms are shown below.

Left: Probabilistic Hurricane Economic Losses for
Lauderdale County
(Charts, 2014: FEMA HAZUS Data, Multi-Hazard
Mitigation Planning Team)

Top Middle: 50 Year Probalistic Hurricane
Storm Track
(Charts, 2014: FEMA HAZUS Data, Multi-Hazard
Mitigation Planning Team)

Top Right: 100 Year Probalistic Hurricane
Storm Track
(Charts, 2014: FEMA HAZUS Data, Multi-Hazard
Mitigation Planning Team)

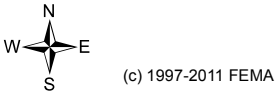
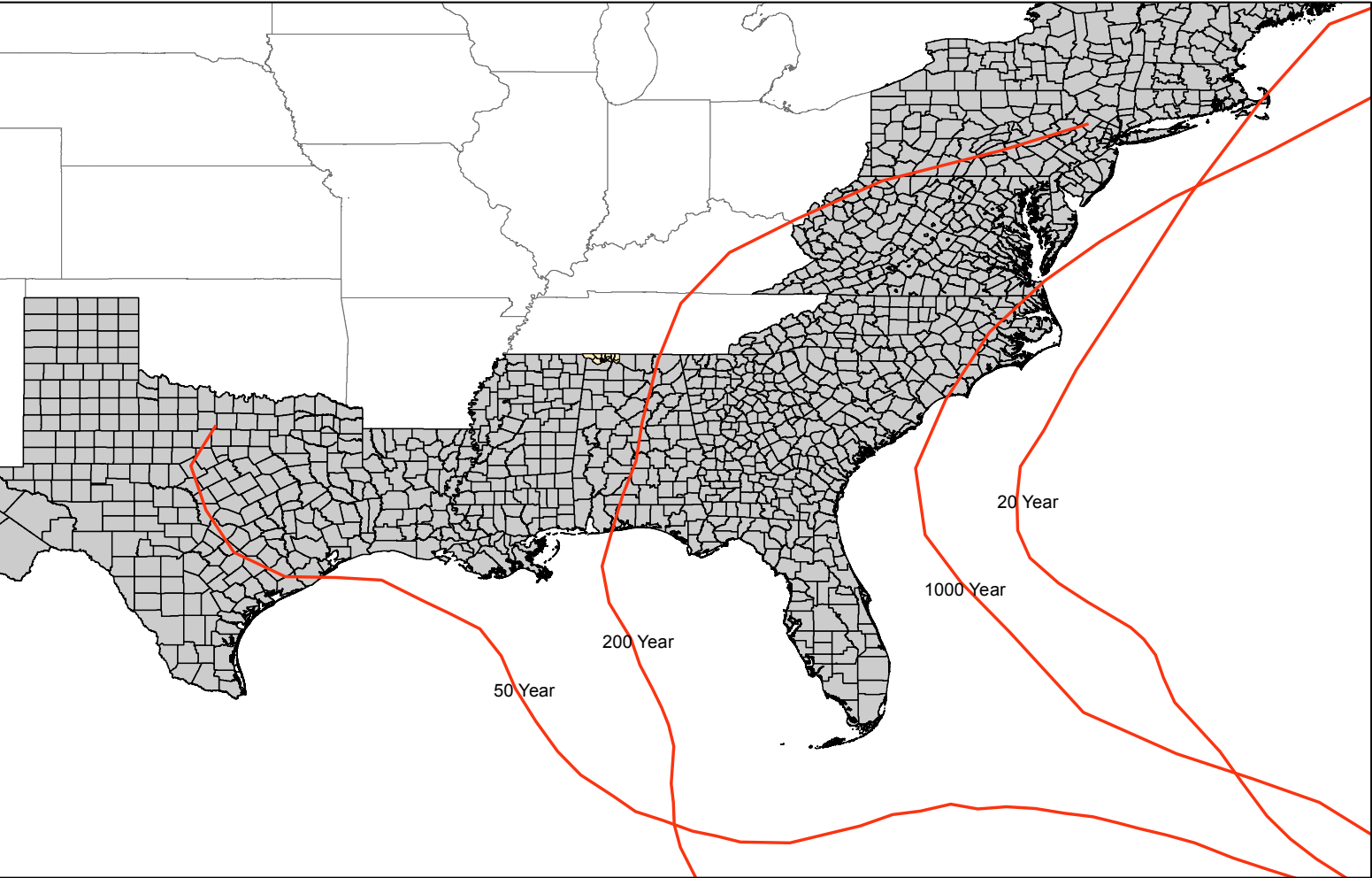
Bottom Middle: 500 Year Probalistic Hurricane
Storm Track
(Charts, 2014: FEMA HAZUS Data, Multi-Hazard
Mitigation Planning Team)

Bottom Right: 1000 Year Probalistic Hurricane
Storm Track
(Charts, 2014: FEMA HAZUS Data, Multi-Hazard
Mitigation Planning Team)

According to the HAZUS data, damages from the probabilistic scenarios began to occur during the 50 year storm and accelerated greatly from a 1000 year hurricane. The 50 year storm is projected to have approximately \$83,000.00 in damage. The 1000 year storm has a direct storm track through Lauderdale County and could cause devastating losses for an economic loss exceeding 31 million dollars. The Probabilistic Hurricane Economic Losses table below shows the expected economic damages from storms of different strength.

Probabilistic Hurricane Economic Losses for Lauderdale County and Participating Jurisdictions			
Hurricane Period	Total Economic Losses	Total Economic Losses of Buildings Damaged	Shelter Req's
10 Year Storm	0	0	0
20 Year Storm	0	0	0
50 Year Storm	\$83K	\$35K	0
100 Year Storm	\$24.809M	\$2.224M	0
200 Year Storm	\$7.245M	\$6.555M	0
500 Year Storm	\$18.075M	\$16.256M	0
1000 Year Storm	\$31.321M	\$26.656M	0
Source: FEMA HAZUS-MHM-4 Data			

Study Region: Lauderdale County
Scenario: 20 Year, 50 Year, 200 Year, and 1000 Year Projected Hurricane Tracks



RA.7 Analyzing Development Trends

Analyze Development Trends

With its 2013 population estimate of 92,796, Lauderdale County is the most populous county in northwest Alabama and contains the region’s largest city, Florence. The City of Florence is the hub of business, commercial, retail, employment, healthcare, and entertainment establishments in the county and makes up 43% of the county’s total population. There are large industrial employers in the county, however the highest density of residential and commercial structures are located within the City of Florence. Most of the western and northern parts of the county are rural farmland. Higher residential densities can be seen all along the Tennessee River all through the county where property is privately owned. The Tennessee Valley Authority (TVA) owns a lot of the riverfront property however, TVA has plans to sell portions of these lots to private entities in the future. Efforts should be made to ensure that only appropriate land uses are allowed in flood prone areas. The Population Distribution and Population Projection table to the right illustrates the population demographic of the planning area.

Lauderdale County has continued to experience increased growth over the past 13 years with a 0.4% growth allocation resulting in 4,830 new residents. The City of Florence, the Town of Rogersville, and the Town of St. Florian have also experienced growth over the past 13 years. Florence has grown by 3,795 individuals, Rogersville by 41 individuals, and St. Florian by 88 individuals. However, the other four jurisdictions have experienced population loss. The Growth Allocation by Jurisdiction table below illustrates these trends.

The land use and development patterns of Lauderdale County and its participating jurisdictions have followed their local adopted plans, regulations, and ordinances and have been consistent with desired growth goals and objectives. Efforts have been made to increase densities in already developed areas as opposed to undeveloped rural parts of the county. Growth and development patterns have followed existing infrastructure corridors and transportation routes and has generally been focused within incorporated places where public services and access are available. Efforts have been made by planning officials to execute site plan reviews to ensure proper land choices for new construction to avoid new floodplain properties and repetitive loss claims. Building codes have been enforced to ensure proper structure construction to withstand high winds. Better planning practices have been utilized to address storm water management mitigation strategies that affect flash flooding. The existing and future land use maps for the planning area on the following pages.

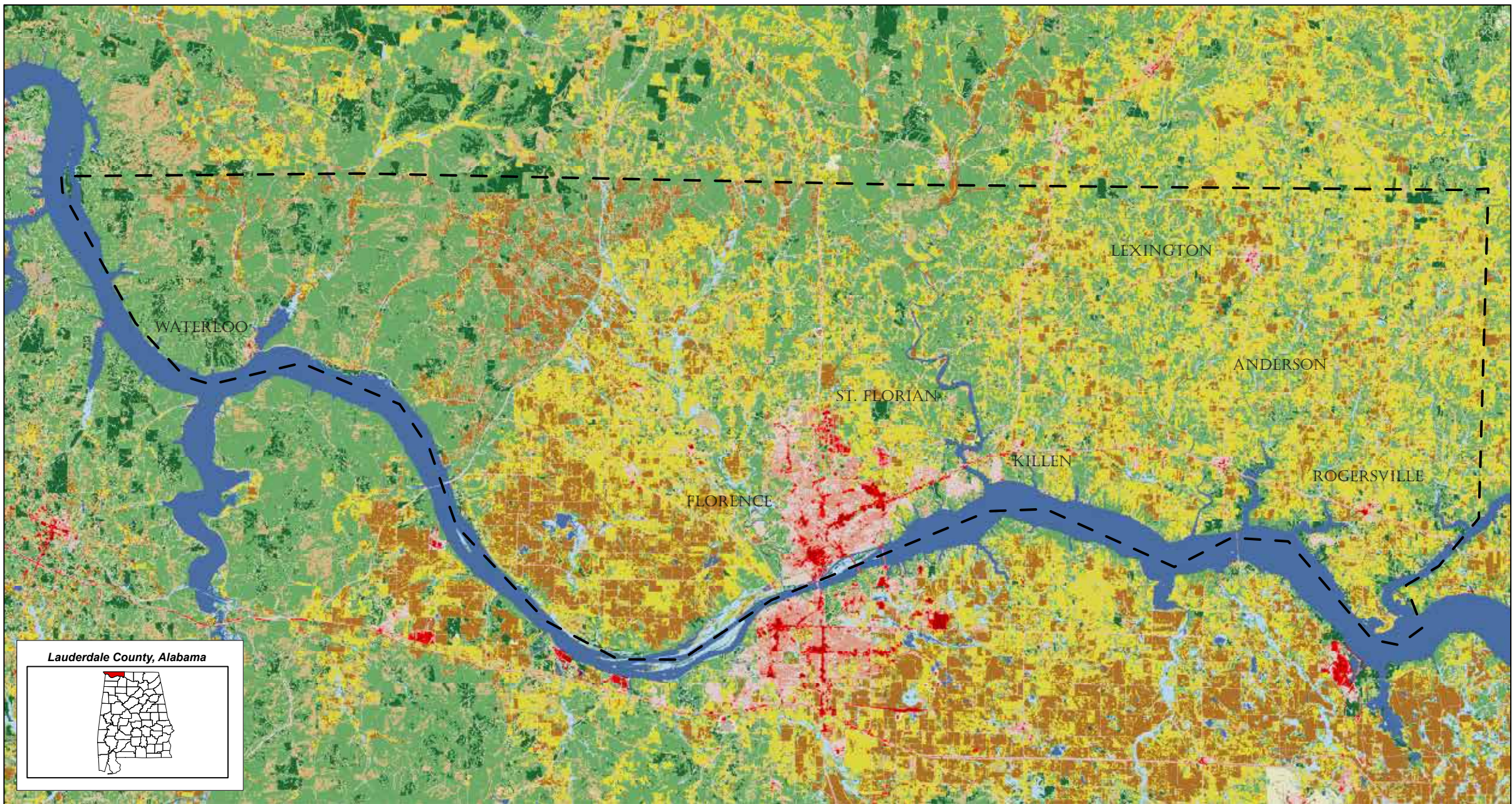
Population Distribution and Population Projection by Jurisdiction					
Jurisdiction	2012 Population Estimate	2013 Population Estimate	Average Annual % Change	2020 Projected Population	% of Total County Population
Lauderdale County	92,542	92,796	0.3%	94,749	100%
City of Florence	39,706	40,059	0.9%	42,586	43%
Town of Rogersville	1,248	1,240	-0.6%	1,184	1%
Town of Killen	991	988	-0.3%	954	1%
Town of Lexington	732	730	-0.3%	709	0.8%
Town of St. Florian	416	423	1.7%	479	0.5%
Town of Anderson	281	280	-0.4%	266	0.3%
Town of Waterloo	199	198	-0.5%	184	0.2%
Source: U.S. Census Data and Planning Team					

Growth Allocation by Jurisdiction					
Jurisdiction	2000 Census	2010 Census	2013 Population Estimate	2000-2013 Growth	Percent of Growth Allocation
Lauderdale County	87,966	92,709	92,796	4,830	0.4%
City of Florence	36,264	39,319	40,059	3,795	0.8%
Town of Rogersville	1,199	1,257	1,240	41	0.3%
Town of Killen	1,119	1,108	988	-131	-0.9%
Town of Lexington	840	735	730	-110	-1.0%
Town of St. Florian	335	413	423	88	2.0%
Town of Anderson	354	282	280	-74	-1.6%
Town of Waterloo	208	203	198	-10	-0.4%
Source: U.S. Census Data and Planning Team					

Top Right: Population Distribution & Population Projection by Jurisdiction (Chart, 2014: U.S. Census Data & Hazard Mitigation Planning Team)






Bottom Right: Growth Allocation by Jurisdiction (Chart, 2014: U.S. Census Data & Hazard Mitigation Planning Team)

Map: *Lauderdale County Land Use Land Cover Map*
(Map, 2015: Multi-Hazard Mitigation Planning Team)

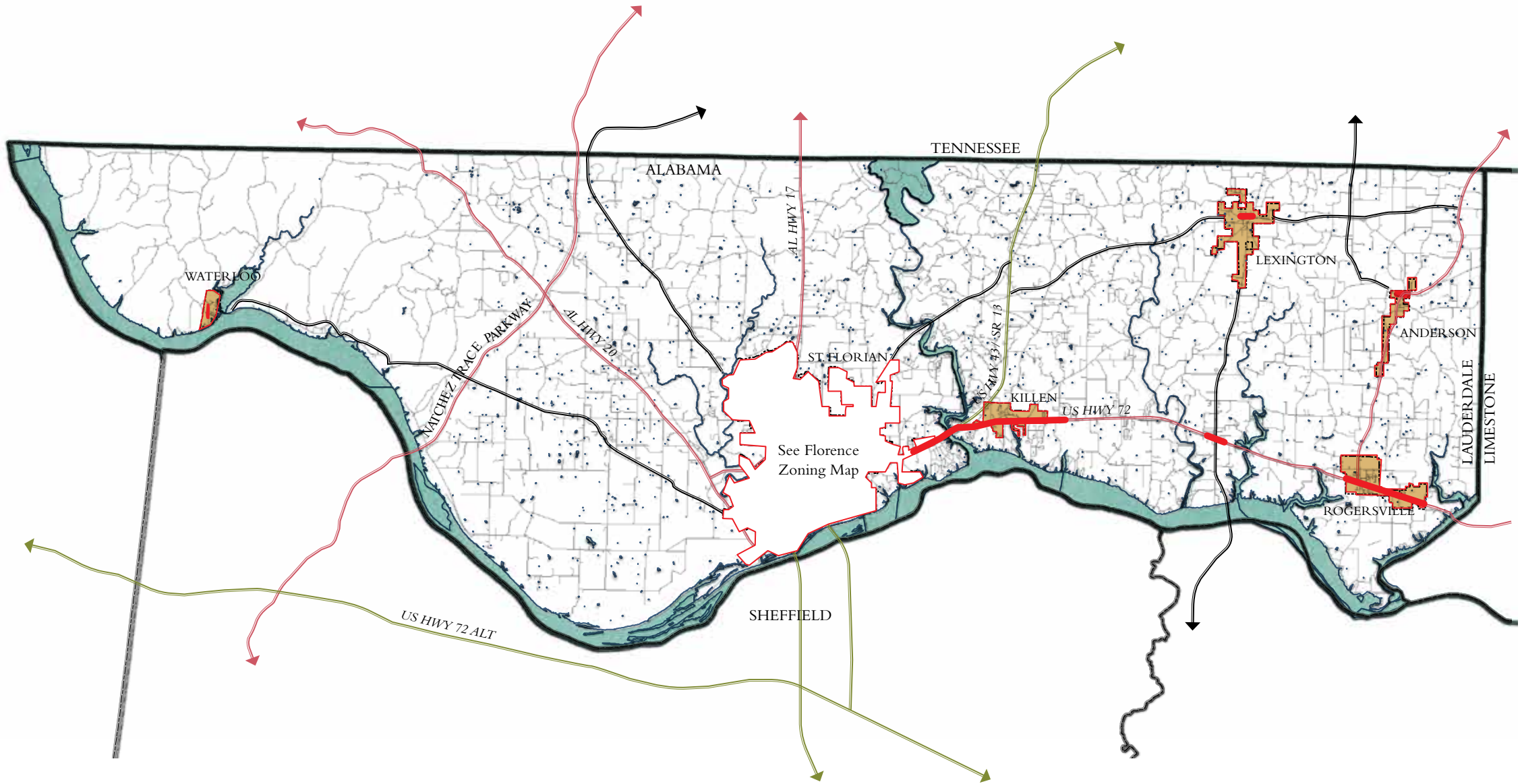


Land Use / Land Cover Map

LEGEND

 Barren Land	 Developed, Low Intensity	 Evergreen Forest	 Open Water
 Cultivated Crops	 Developed, Medium Intensity	 Hay / Pasture	 Perennial Snow / Ice
 Deciduous Forest	 Developed, Open Space	 Herbaceous	 Shrub / Scrub
 Developed, High Intensity	 Emergent Herbaceous Wetlands	 Mixed Forest	 Woody Wetlands

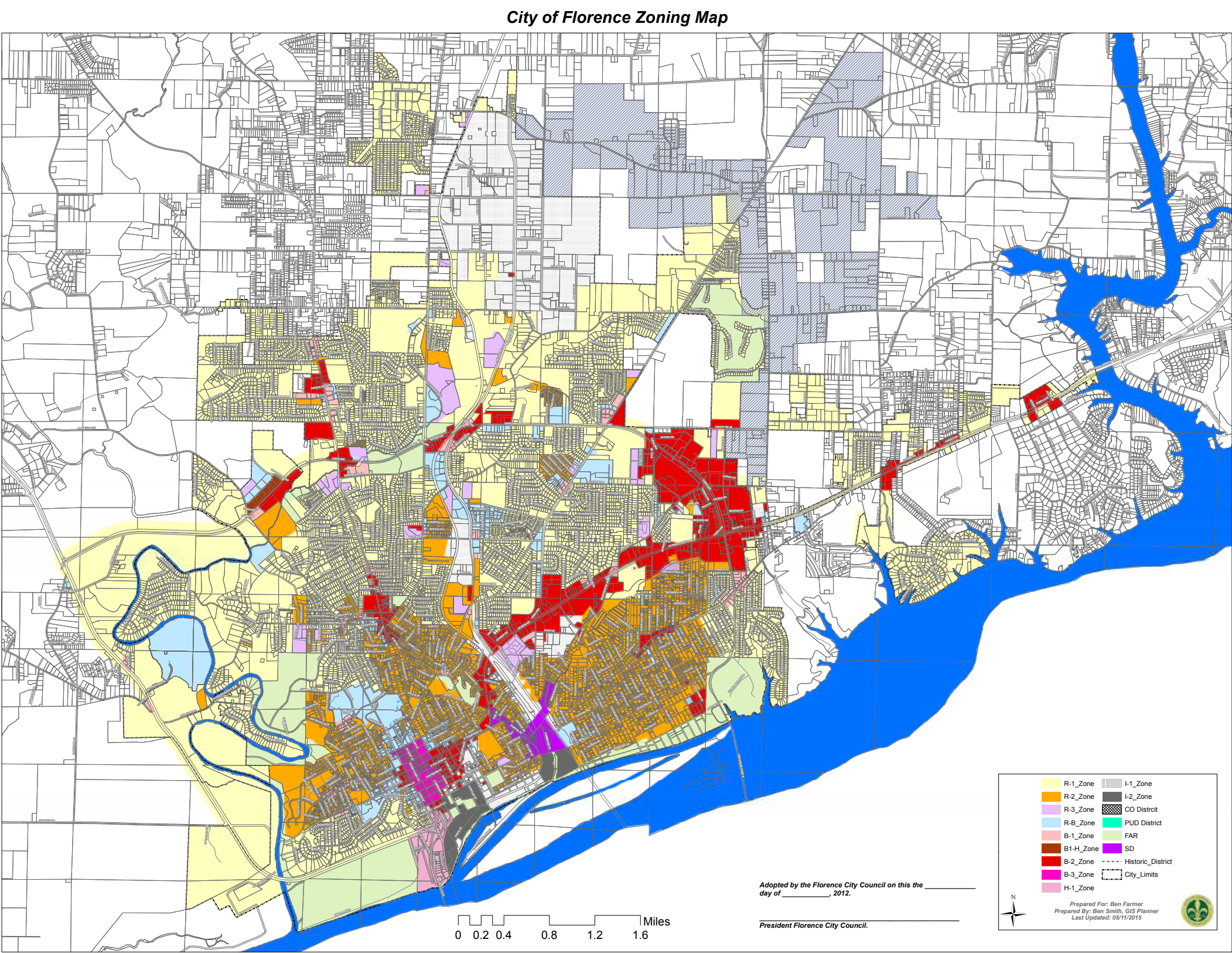
Map: Lauderdale County Land Use
Development Trends Map
(Map, 2015: Multi-Hazard Mitigation Planning
Team)



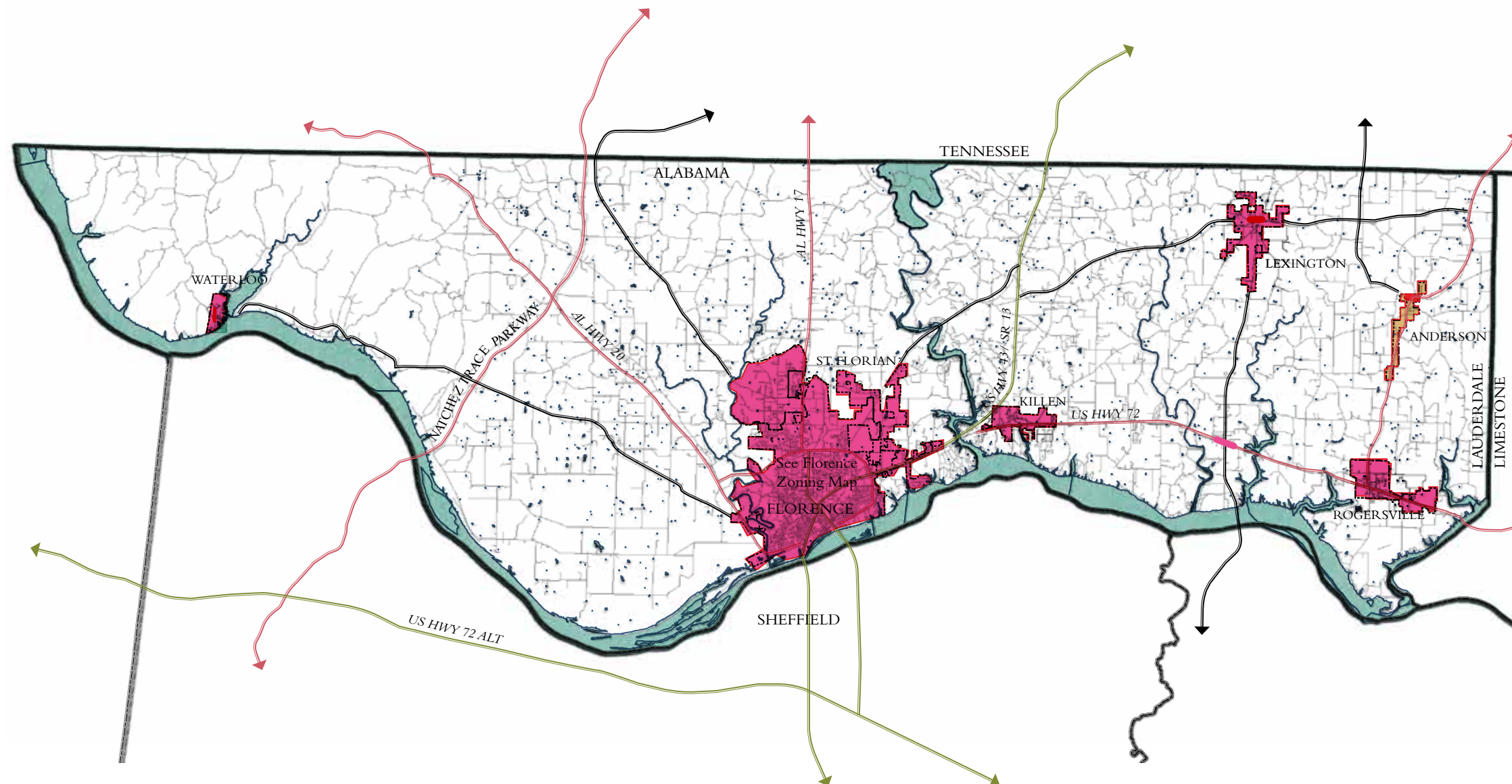
- LEGEND
- Residential Development
 - Commercial Development

Land Use Development Trends
Existing Development Patterns

Map: City of Florence Zoning Map
(Map, 2012: City of Florence)



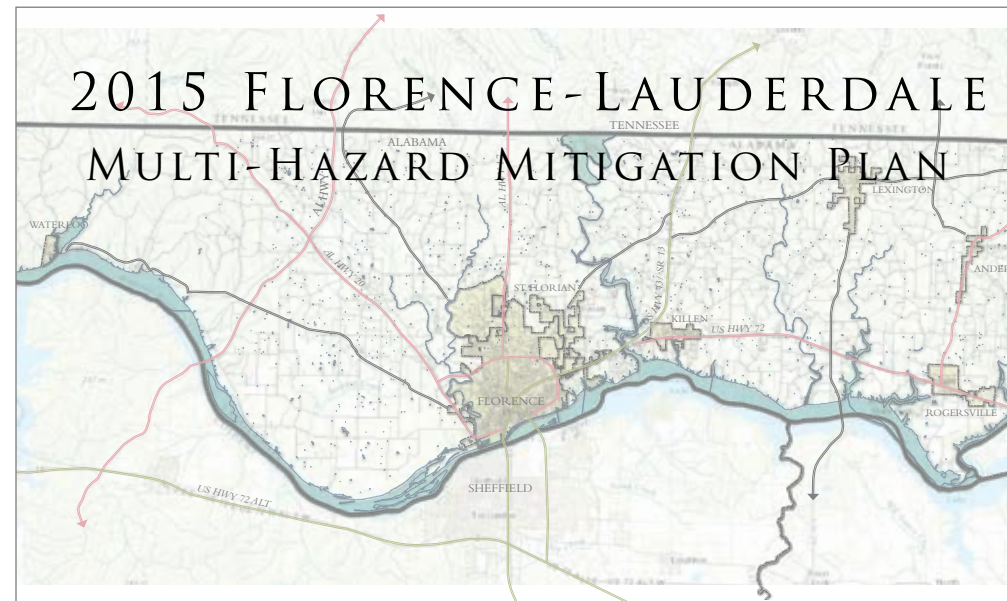
Map: Lauderdale County Future Land Use
Development Trends Map
(Map, 2015: Multi-Hazard Mitigation Planning
Team)



LEGEND

- Increased Density Area
- Commercial Development

Land Use Development Trends
Future Development Patterns



2015 FLORENCE-LAUDERDALE MULTI-HAZARD MITIGATION PLAN

Section
Mitigation Strategies

G

44 CFR § 201.6
Local Mitigation Plans:
Local Mitigation Plans
(c) Plan content. The plan shall include the following:

(3) A mitigation strategy that provides the jurisdiction’s blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

This section shall include:

(i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

(ii) A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction’s participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.

(iii) An action plan describing how the actions identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

(iv) For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

MITIGATION STRATEGIES

- MS.1 LOCAL HAZARD MITIGATION GOALS
- MS.2 IDENTIFICATION & ANALYSIS OF MITIGATION ACTIONS
- MS.3 NFIP IMPLEMENTATION STRATEGY
- MS.4 MITIGATION ACTION IMPLEMENTATION

This section describes the natural hazards mitigation strategy that serves as the jurisdiction’s action plan for reducing potential losses identified in the risk assessment section of this plan. The purpose of mitigation planning is to lessen a community’s vulnerability to the hardship and cost of disasters. A sustainable community is one in which the economic and social needs of people, businesses, critical facilities, and institutions coexist with the natural environment. Consistent and comprehensive mitigation planning will establish the region as a safe, healthy, and prosperous place to live, work, and play.

MS.1 Local Hazard Mitigation Goals

Description of Hazard Mitigation Goal Development

The mitigation strategy was developed by the Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Policy Committee based on the identified risk assessment. The strategy was developed through a collaborative group process that involved reviewing the 2010 plan’s mitigation strategies, evaluating the success of past goals and objectives associated with each risk to determine which needed to be continued and what new strategies should be added. The updated mitigation strategies were placed under mitigation action group categories and discussed further in regards to which jurisdictions they were appropriate for. The Committee used the following FEMA guidance to guide the development of their mitigation goals and objectives:

- From the FEMA guidance document, *Developing the Mitigation Plan* (2002):
- Goals are general guidelines that explain what you want to achieve. Goals are defined before considering how to accomplish them so that they are not dependent on the means of achievement. They are usually long-term, broad, policy-type statements.
 - Objectives define strategies or implementation steps to attain the identified goals and are specific and measurable.
 - Mitigation Actions are specific actions that help achieve goals and objectives.

Planning Jurisdictions Goals and Objectives

The goals and objectives of the planning team was to create a plan that provided direction for reducing hazard related losses in the Florence-Lauderdale County planning area. The mission of the Lauderdale County Mitigation Plan is to promote public policy designed to protect citizens, critical facilities, infrastructure, private property, and the environment from natural hazards. This can be achieved by implementing actions for risk reduction, lessening vulnerability through local regulations, increasing public awareness, and identifying activities that will guide the county, and its municipalities, towards building a safer, more sustainable community. The goals and objectives identified in this plan describe the direction that Lauderdale County and its agencies, organizations, municipalities, and citizens can take to accomplish successful hazard mitigation.

After the committee reviewed the 2010 Plan’s goals and objectives, it was decided that no changes would be made and that the same goals and objectives still applied to the planning area for the 2015 Plan Update. Therefore, the Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan’s goals and objectives are:

Protect Life & Property

- Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from natural hazards.
- Increase community awareness of and preparedness for natural hazards that the county is vulnerable to.
- Reduce losses and repetitive damages for chronic hazard events.
- Improve hazard assessment information to make recommendations for discouraging new development and encouraging preventative measures for existing development in areas vulnerable to natural hazards, especially those that are area specific.

Public Awareness

- Develop, implement, and expand current education and outreach programs to increase public awareness of the risks associated with natural hazards.
- Provide information on tools, partnership opportunities, and funding resources for municipalities and the community as a whole to assist in implementing mitigation activities.

Natural Systems

- Balance planning, natural resource management, and land use planning with natural hazard mitigation to protect life, property, and the environment.
- Preserve, rehabilitate, and enhance natural systems to serve as natural hazard mitigation functions.

Partnership & Information

- Strengthen communication and coordinate participation among and within public agencies, municipalities, citizens, non-profit organizations, business, and industry to gain a unified interest in plan implementation and maintenance.
- Encourage leadership within public and private sector organizations to prioritize and implement local, county, and regional hazard mitigation activities.

Emergency Services

- Establish policies to ensure mitigation projects for critical facilities, services, and infrastructure.
- Strengthen emergency operations by increasing collaboration and coordination among public agencies, municipalities, non-profit organizations, businesses, and industry.
- Coordinate and integrate natural hazard mitigation activities, where appropriate, with emergency operation plans and procedures.

Compatibility with the State of Alabama 2007 Plan Update

During the development of the 2015 Plan Update, the Committee reviewed the 2013 State of Alabama Hazard Mitigation Plan Update to ensure that local goals and objectives that were developed by the Committee were consistent and reflective of the state’s hazard plan’s vision and goals. The following are the 2013 State of Alabama Hazard Mitigation Plan’s goals:

1. Enhance the comprehensive statewide hazard mitigation system.
2. Reduce the State of Alabama’s vulnerability to hazards.
3. Reduce vulnerability of new and future development.
4. Foster public support and acceptance of hazard mitigation.
5. Expand and promote interagency hazard mitigation cooperation.

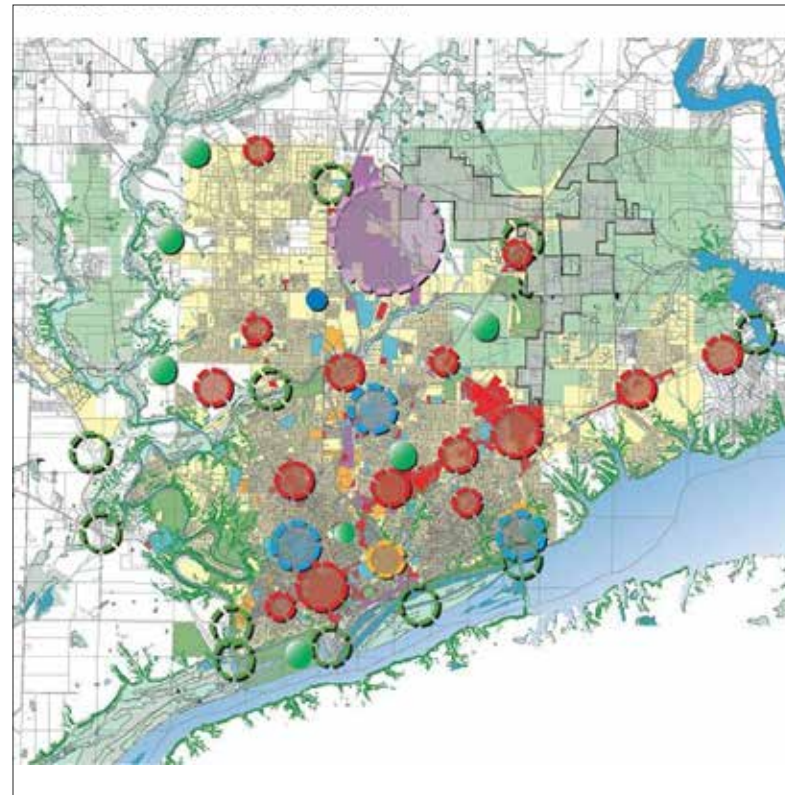
MS.2 Identification & Analysis of Mitigation Actions

The following sub-section contains the hazard mitigation strategies presented to the Policy Committee members, stakeholders, and citizens of the planning area. Survey respondents selected which mitigation strategies worked best for their jurisdiction. Each identified risk is listed with their proposed mitigation strategies. The mitigation strategies are organized into five categories:

- **Prevention** – are “government administrative or regulatory actions or processes that influence the way land and buildings are developed and built.”
- **Property Protection** – are actions “that involve the modification of existing buildings or infrastructure to protect them from hazard, or removal from hazard areas.”
- **Public Education & Awareness** – are “actions to inform and educate citizens, elected officials, and property owners about potential risks from hazards and potential ways to mitigate them.”
- **Natural Resource Protection** – are “actions that, in addition to minimizing hazard losses also preserve or restore the functions of natural systems.”
- **Structural Projects** – are “actions that involve the construction of structures to reduce the impact of a hazard.”

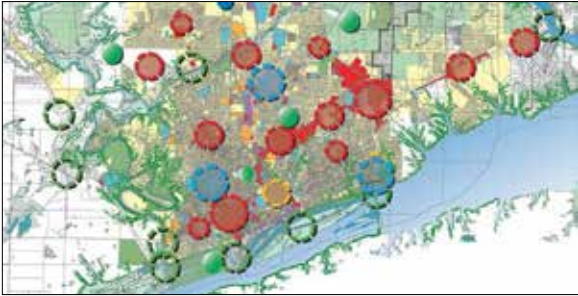
Each jurisdiction has defined the mitigation actions they will adopt and implement. Mitigation strategies listed in the previous 2010 Florence-Lauderdale Multi-Hazard Mitigation Plan that were not chosen by the jurisdictions are not listed in this section. Due to local differences in mitigating natural disasters, each jurisdiction selected mitigation strategies that it felt it had the capacity and political support to implement and that were relevant to the jurisdiction. The listed strategies were selected from each jurisdiction’s responses to the online hazard mitigation survey conducted in the Spring of 2015. Prioritization of mitigation strategies were based on need, quality of life issues, and political support, as was the recommendation of the Hazard Mitigation Committee. Priority ranking was determined high (annually or 1-3 years for completion), medium (2-4 years for completion), and low (5 or 3-5 years).

The hazard mitigation plan will be integrated into the listed mitigation actions found on pages G.4 through G.63. It is the intent of each participating jurisdiction to include these hazard mitigation strategies (tailored for each jurisdiction) into local planning practices. The mitigation measures will be administered, implemented, and funded through the local jurisdictions, the state and local EMA, and FEMA. The Policy Committee recognizes that in most instances, priority is relative to funding availability.

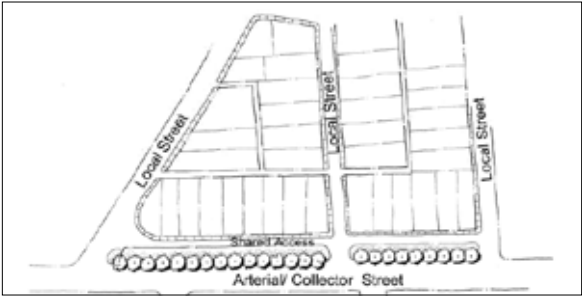




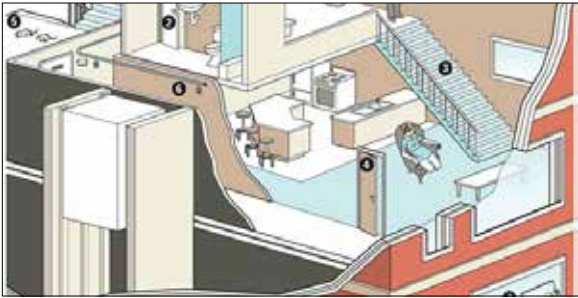
Earthquake Mitigation Actions - Prevention:



Comprehensive Planning -
Comprehensive planning sets forth goals and describes and illustrates a vision for the physical, social, and economic characteristics of the community in years ahead. The policies and guidelines intended to implement the vision are outlined in a Comprehensive Plan document that is required by state code for all incorporated places.



Subdivision Regulations -
A subdivision ordinance controls the division of a tract of land for building and development purposes. Subdivision regulations determine the layout and design standards that must be met by the proposed subdivision. These standards help to insure that future owners get safe neighborhoods and sound construction.



Building Codes and Construction Req's
A building code is a set of rules that specify the minimum acceptable level of safety for constructed objects. The main purpose of the building code is to protect public health, safety and general welfare as they relate to the construction and occupancy of buildings and structures. Building codes are enforced by jurisdictions and become local building construction laws.



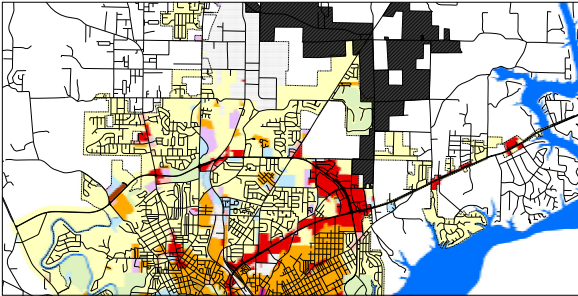
Safe Shelter Requirements -
Planning and development of safe shelters should take in depth analysis of community planning and development strategies for placement and function of the facility. In addition, the coordination of the facility with other facilities within the jurisdiction should be taken into account. Safe shelters “ensure the protection of people from dangerous incidents caused by tornadoes, severe storms, and hurricanes through special regulatory standards for safe rooms.



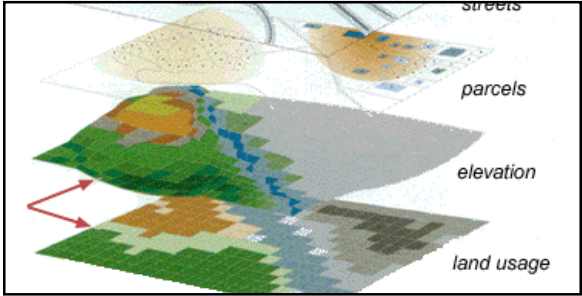
Capital Improvements Programs -
The capital improvement program (CIP) is a five to six year schedule of capital projects. Capital planning involves the purchase or construction, major repair, reconstruction, or replacement of capital items, such as bridges, buildings, utility systems, parks and landfills.



Critical Facilities Assessments -
Critical facility minimum standards should be set for Lauderdale County and the municipal jurisdictions. These standards should be drafted and approved by the policy committee for performing assessments of critical facilities including hospitals, schools, fire and police stations, emergency operation centers, special needs housing, etc. The assessments should address building and site vulnerabilities to hazards.



Land Use Development Regulations -
Land use or “zoning ordinance divides a local government’s jurisdiction into districts or zones. For each district or zone, the zoning ordinance can regulate land uses, density of development patterns and the amount of parking.” A zoning map usually accompanies the ordinance to identify the different districts and the properties for which it applies.



Geographic Information Systems -
Geographic information system (GIS) is a tool that connects databases to maps. It combines layers of information about where things are located with descriptive data about those things and their surroundings. Information such as where a point is located on a map, the length of a road, or the size of a parcel of property. This information can be stored in digital format in layers and used to generate detailed and exact maps of communities.

Earthquake Mitigation Actions -
Prevention (Continued):



Planning Studies -

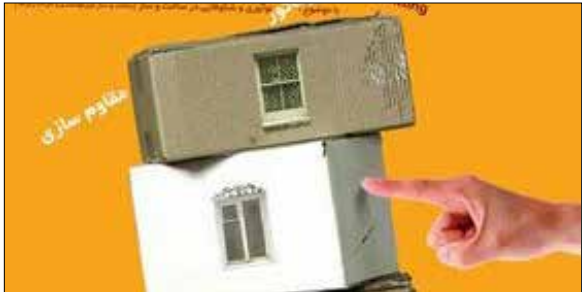
A plan is an adopted statement of policy, in the form of text, maps, and graphics, used to guide public and private actions that affect the future. A plan provides decision makers with the information they need to make informed decisions affecting the long-range social, economic, and physical growth of a community.



Mitigation Planning Technology Support -

Mitigation technologies come in a variety of forms that include warning sirens, flood warning systems, automatic icing indicators on critical bridges, telephone based flood warning system, 911 service back up site, and communication re-routing in emergency response.

Earthquake Mitigation Actions -
Property Protection:



Real Estate Flooding Acquisition and Building Relocations -

Establish a county and local jurisdiction program through the Florence-Lauderdale EMA that acquires recurring flood properties and other natural hazard areas that contain existing buildings. The buildings should then be demolished and the establishment of open space for recreation and wildlife should occur.



Flood Prone Building Proofing and Retrofitting -

Redesigning and modification of structures to allows a building to remain in the floodplain where necessary. Although long term plans should be to remove the building from the floodplain.



Critical Facilities Protection -

Redesigning and modification of existing critical facilities to protect them during a disaster so they may remain viable for disaster relief after the hazard has occurred. New structures should be sited in such a manner as to be away from high risk zones and designed and constructed for “maximum protection from all hazards.”



Freeboard Requirements for Building Elevations -

The freeboard is “ any additional height above a flood elevation on a building is called the freeboard. A community may use this elevation calculation to determine the required level of elevation for a structure’s lowest floor in accordance with floodplain management regulations.” Standard is the Base Flood Elevation (BFE) plus 1 foot of rise.





*Earthquake Mitigation Actions -
Property Protection (Continued):*



Emergency Power Generation -
Establishment of back up emergency power for critical facilities in order to maintain the electric power during an emergency situation involving loss of power during severe storms and other natural disasters.



Storm Shutter Programs and Installation -
Storm shutter programs provide protection of existing structures that may not meet modern standards for storm readiness.



Building Retrofit and New Construction of Shatter Resistant Glass Structures -
Retrofitting of existing buildings to safeguard against damages from identified natural hazards in the jurisdiction. As well as requiring shatter resistant glass in new construction involving critical facilities and public buildings.



*Earthquake Mitigation Actions -
Public Education & Awareness:*

Outreach Projects -
Identification of outreach and community projects that provide publicity and support in achieving hazard mitigation goals identified in the plan. Projects should be identified in each of the participating jurisdictions and promoted in achieving hazard mitigation goals and objectives.



Hazard Information Kiosk and Centers-
Promoting the Florence-Lauderdale Hazard Mitigation Policy Committee agenda throughout Lauderdale County. This can be done through providing lectures, speakers and information for county and municipal events that discuss existing mitigation and planning efforts within Lauderdale County.



School Age Education Programs -
Provide a methodology and curriculum to introduce students to mitigation strategies and land planning efforts within the planning jurisdiction. The program should be promoted by the Florence-Lauderdale Hazard Mitigation Policy Committee and developed in conjunction with school systems within the mitigation planning jurisdictions.



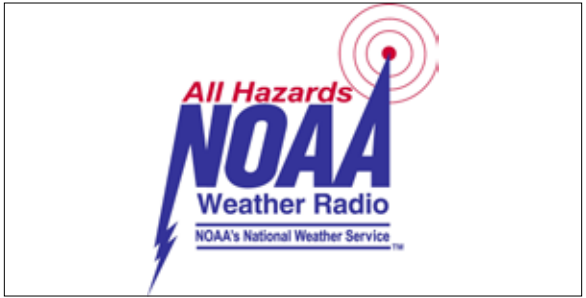
Adult and Community Education Programs
Mitigation and land use workshops can be conducted to inform individuals of different hazards within the planning jurisdictions and methods of mitigation those hazards.

Earthquake Mitigation Actions -
Public Education & Awareness (Continued):



Hazard Mitigation Plan and Pamphlet Distribution

Publish and distribute the adopted Florence-Lauderdale Hazard Mitigation Plan in full. In addition there should be distribution of specific mitigation efforts taking place within Lauderdale County and its municipal jurisdictions.



NOAA Weather Radio Programs -

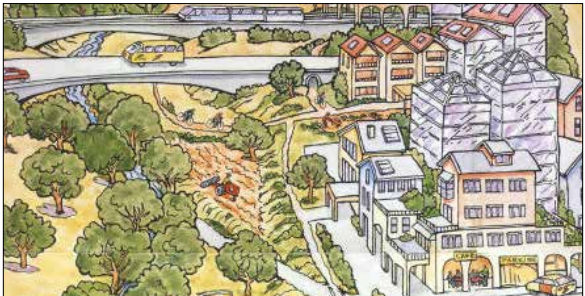
Promote the use of weather radios in critical facilities, institutions, businesses, and homes as a means for advance warning to implement mitigation measures and to increase public awareness of hazard risks.



Press and Media Mitigation Releases and Training Sessions -

Utilization of mass media outlets like newspapers, television, cable access, internet blogs, podcasts, video sharing, and online social networking to increase public awareness of hazard mitigation efforts.

Earthquake Mitigation Actions -
Natural Resource Protection:



Watershed Management -

Watershed management is “broadly defined as a suite of zoning and land-use management techniques applied to help align compatible land uses with resource quality.” The management style is based on basins, sub-basins, watersheds, sub-watersheds, and catchments.



Open Space Easements and Acquisition -

“The preservation of open space has been a major focus of land trusts and a number of government programs.” Some of these strategies include: Fee-Simple Acquisition, Land Trust, Land & Water Conversation Fund, State Programs, Conversation Easements on agricultural and woodland properties.



Press and Media Mitigation Releases and Training Sessions -

Informing media representatives about mitigation efforts allows for accurate information to be distributed on long term mitigation projects. This training begins with a sound understanding of the overall mitigation plan and the mitigation efforts underway within the community. Targeted representatives include newspapers, television reporters and radio correspondents.



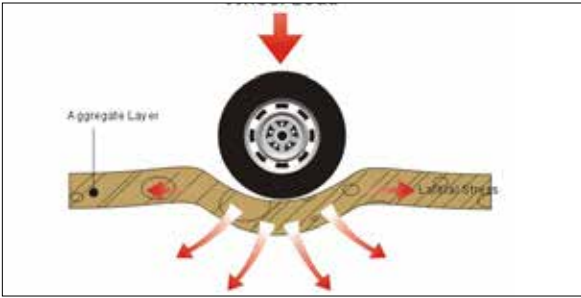


*Earthquake Mitigation Actions -
Structural Projects:*



Neighborhood and Community Safe Rooms

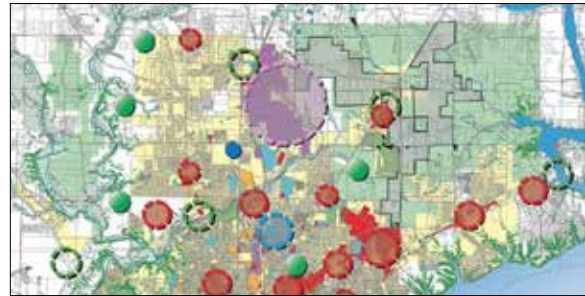
Neighborhood and community safe rooms are “freestanding, single purpose community storm shelters or safe rooms within buildings used for other purposes to provide temporary shelter from hurricanes, tornadoes, and severe storms.”



Ground Stabilization -

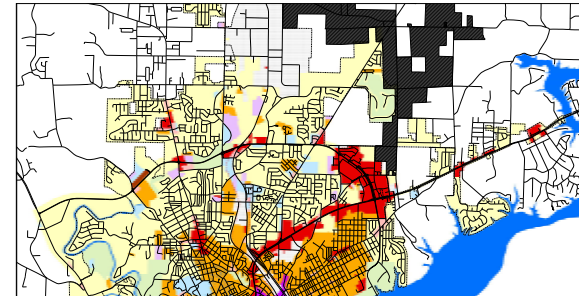
Ground stabilization techniques mitigate hazards of undesirable soils that are not good for road construction or development. These soils and their underlying geologic formations require stabilization techniques ranging from large stone placement, asphalt reclamation geotechnical pavers and concrete additives.

Dam & Levee Failure Mitigation Actions - Prevention:



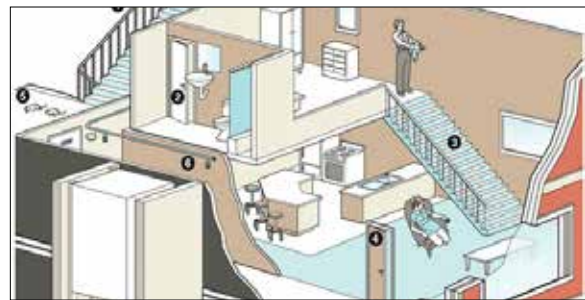
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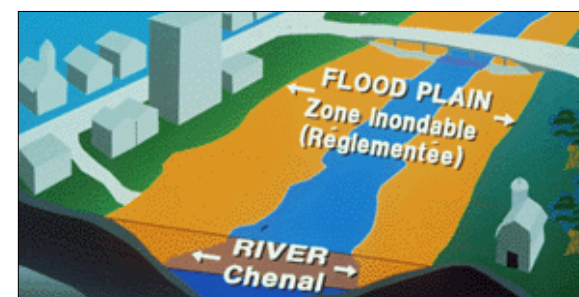
Subdivision Regulations –

A subdivision ordinance controls the division of a tract of land for building and development purposes. Subdivision regulations determine the layout and design standards that must be met by the proposed subdivision. These standards help to insure that future owners get safe neighborhoods and sound construction.



Capital Improvements Programs –

The capital improvement program (CIP) is a five to six year schedule of capital projects. Capital planning involves the purchase or construction, major repair, reconstruction, or replacement of capital items, such as bridges, buildings, utility systems, parks and landfills.



Flood Plain Management Programs –

Flood plain management begins with active participation in the National Flood Insurance Program (NFIP). “The mapping functions of the NFIP provide an effective basis for establishing floodplain management regulations through zoning, subdivision controls, and other measures within clearly defined areas. . .” Existing structures should be relocated or elevated above the floodplain.



Storm Water Management –

Storm water management is the methodology for drainage and flood controls based on natural systems, where runoff is retained or infiltrated at the source. The flow of the retained storm water is within a more naturalized channel and flood control is provided by protection and maintenance of floodplains.



Levee and Dam Management –

Dams either store water, control river flow or can be used to generate hydroelectric power. A levee is built to prevent river water from flowing into a floodplain or floodway. Levees and dams may suffer catastrophic failure if they are not maintained routinely and on a scheduled basis. Dam management puts in place practices for maintaining existing dams that are in the local jurisdictions control.



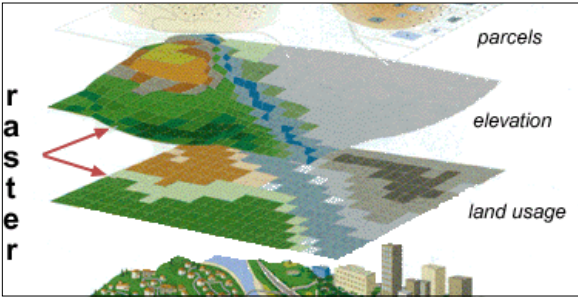
DAM / LEVEE FAILURE



Dam & Levee Failure Mitigation Actions - Prevention (Continued):



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Planning Studies –
A plan is an adopted statement of policy, in the form of text, maps, and graphics, used to guide public and private actions that affect the future. A plan provides decision makers with the information they need to make informed decisions affecting the long-range social, economic, and physical growth of a community.



Mitigation Planning Technology Support –
Mitigation technologies come in a variety of forms that include warning sirens, flood warning systems, automatic icing indicators on critical bridges, telephone based flood warning system, 911 service back up site, and communication re-routing in emergency response.

Dam & Levee Failure Mitigation Actions - Property Protection:



Critical Facilities Protection –
Redesigning and modification of existing critical facilities to protect them during a disaster so they may remain viable for disaster relief after the hazard has occurred. New structures should be sited in such a manner as to be away from high risk zones and designed and constructed for “maximum protection from all hazards.”



Freeboard Requirements for Building Elevations –
The freeboard is “any additional height above a flood elevation on a building is called the freeboard. A community may use this elevation calculation to determine the required level of elevation for a structure’s lowest floor in accordance with floodplain management regulations.” Standard is the Base Flood Elevation (BFE) plus 1 foot of rise.

*Dam & Levee Failure Mitigation Actions -
Public Education & Awareness:*



Outreach Projects –

Identification of outreach and community projects that provide publicity and support in achieving hazard mitigation goals identified in the plan. Projects should be identified in each of the participating jurisdictions and promoted in achieving hazard mitigation goals and objectives.



Hazard Mitigation Plan and Pamphlet Distribution –

Publish and distribute the adopted Florence-Lauderdale Hazard Mitigation Plan in full. In addition there should be distribution of specific mitigation efforts taking place within Lauderdale County and its municipal jurisdictions.



Hazard Information Kiosk and Centers–

Promoting the Florence-Lauderdale Hazard Mitigation Policy Committee agenda throughout Lauderdale County. This can be done through providing lectures, speakers and information for county and municipal events that discuss existing mitigation and planning efforts within Lauderdale County.



Press and Media Mitigation Releases and Training Sessions –

Utilization of mass media outlets like newspapers, television, cable access, internet blogs, podcasts, video sharing, and online social networking to increase public awareness of hazard mitigation efforts.



School Age Education Programs –

Provide a methodology and curriculum to introduce students to mitigation strategies and land planning efforts within the planning jurisdiction. The program should be promoted by the Florence- Lauderdale Hazard Mitigation Policy Committee and developed in conjunction with school systems within the mitigation planning jurisdictions.



Adult and Community Education Programs

Mitigation and land use workshops can be conducted to inform individuals of different hazards within the planning jurisdictions and methods of mitigation those hazards.



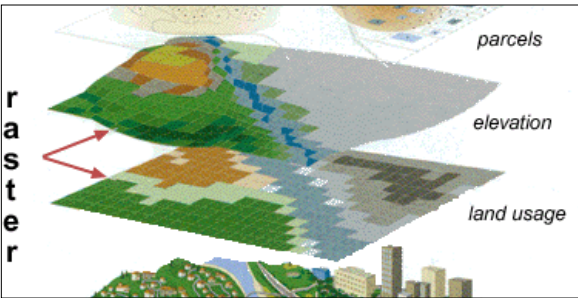
DAM / LEVEE FAILURE



*Dam & Levee Failure Mitigation Actions -
Natural Resource Protection:*



Watershed Management –
Watershed management is “broadly defined as a suite of zoning and land-use management techniques applied to help align compatible land uses with resource quality.” The management style is based on basins, sub-basins, watersheds, sub-watersheds, and catchments.



Press and Media Mitigation Releases and Training Sessions –
Informing media representatives about mitigation efforts allows for accurate information to be distributed on long term mitigation projects. This training begins with a sound understanding of the overall mitigation plan and the mitigation efforts underway within the community. Targeted representatives include newspapers, television reporters and radio correspondents.



Water Resource Conservation Programs –
Water resource programs “protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.” Water conservation is defined as “activities designed to reduce the demand for water, improve efficiency in use, and reduce losses and waste of water.”

*Dam & Levee Failure Mitigation Actions -
Structural Projects:*



Neighborhood and Community Safe Rooms
Neighborhood and community safe rooms are “freestanding, single purpose community storm shelters or safe rooms within buildings used for other purposes to provide temporary shelter from hurricanes, tornadoes, and severe storms.”

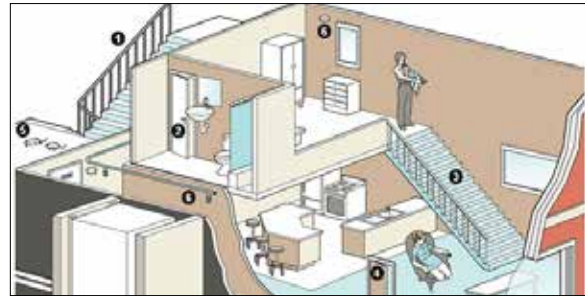


Dam Modifications –
Dam modifications allow for safe and effective operation of existing structures that contain large volumes of water within a reservoir. Modifications can enable the structure to function more efficiently as well as continue the life span of the dam itself.



Ground Stabilization –
Ground stabilization techniques mitigate hazards of undesirable soils that are not good for road construction or development. These soils and their underlying geologic formations require stabilization techniques ranging from large stone placement, asphalt reclamation geotechnical pavers and concrete additives.

Drought Mitigation Actions - Prevention:



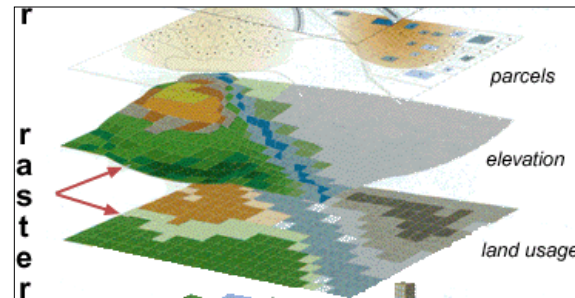
Building Codes and Construction Req's

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Capital Improvements Programs –

The capital improvement program (CIP) is a five to six year schedule of capital projects. Capital planning involves the purchase or construction, major repair, reconstruction, or replacement of capital items, such as bridges, buildings, utility systems, parks and landfills.

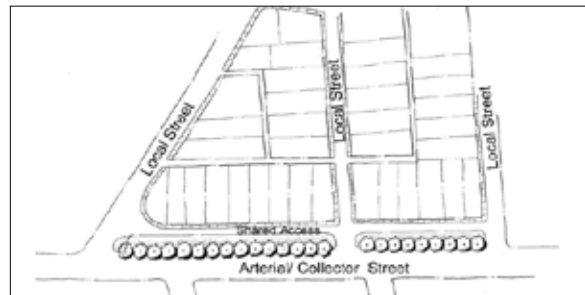


Critical Facilities Assessments –

Critical facility minimum standards should be set for Lauderdale County and the municipal jurisdictions. These standards should be drafted and approved by the policy committee for performing assessments of critical facilities including hospitals, schools, fire and police stations, emergency operation centers, special needs housing, etc. The assessments should address building and site vulnerabilities to hazards.

Geographic Information Systems –

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Subdivision Regulations –

A subdivision ordinance controls the division of a tract of land for building and development purposes. Subdivision regulations determine the layout and design standards that must be met by the proposed subdivision. These standards help to insure that future owners get safe neighborhoods and sound construction.



Planning Studies –

A plan is an adopted statement of policy, in the form of text, maps, and graphics, used to guide public and private actions that affect the future. A plan provides decision makers with the information they need to make informed decisions affecting the long-range social, economic, and physical growth of a community.



Safe Shelter Requirements –

Planning and development of safe shelters should take in depth analysis of community planning and development strategies for placement and function of the facility. In addition, the coordination of the facility with other facilities within the jurisdiction should be taken into account. Safe shelters “ensure the protection of people from dangerous incidents caused by tornadoes, severe storms, and hurricanes through special regulatory standards for safe rooms.



Mitigation Planning Technology Support –

Mitigation technologies come in a variety of forms that include warning sirens, flood warning systems, automatic icing indicators on critical bridges, telephone based flood warning system, 911 service back up site, and communication re-routing in emergency response.





*Drought Mitigation Actions -
Property Protection:*



Flood Prone Building Proofing and Retrofitting –

Redesigning and modification of structures to allows a building to remain in the floodplain where necessary. Although long term plans should be to remove the building from the floodplain.



Critical Facilities Protection –

Redesigning and modification of existing critical facilities to protect them during a disaster so they may remain viable for disaster relief after the hazard has occurred. New structures should be sited in such a manner as to be away from high-risk zones and designed and constructed for “maximum protection from all hazards.”



Building Retrofit and New Construction of Shatter Resistant Glass Structures –

Retrofitting of existing buildings to safeguard against damages from identified natural hazards in the jurisdiction. As well as requiring shatter resistant glass in new construction involving critical facilities and public buildings.

*Drought Mitigation Actions -
Public Education & Awareness:*



Outreach Projects –

Identification of outreach and community projects that provide publicity and support in achieving hazard mitigation goals identified in the plan. Projects should be identified in each of the participating jurisdictions and promoted in achieving hazard mitigation goals and objectives.



Hazard Information Kiosk and Centers–

Promoting the Florence-Lauderdale Hazard Mitigation Policy Committee agenda throughout Lauderdale County. This can be done through providing lectures, speakers and information for county and municipal events that discuss existing mitigation and planning efforts within Lauderdale County.



School Age Education Programs –

Provide a methodology and curriculum to introduce students to mitigation strategies and land planning efforts within the planning jurisdiction. The program should be promoted by the Florence-Lauderdale Hazard Mitigation Policy Committee and developed in conjunction with school systems within the mitigation planning jurisdictions.



Adult and Community Education Programs

Mitigation and land use workshops can be conducted to inform individuals of different hazards within the planning jurisdictions and methods of mitigation those hazards.

*Drought Mitigation Actions -
Public Education & Awareness (Continued):*



Hazard Mitigation Plan and Pamphlet Distribution

Publish and distribute the adopted Florence-Lauderdale Hazard Mitigation Plan in full. In addition there should be distribution of specific mitigation efforts taking place within Lauderdale County and its municipal jurisdictions.



NOAA Weather Radio Programs –

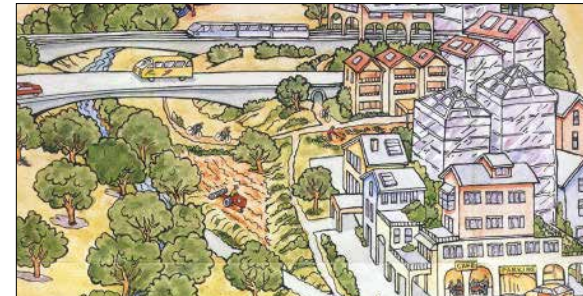
Promote the use of weather radios in critical facilities, institutions, businesses, and homes as a means for advance warning to implement mitigation measures and to increase public awareness of hazard risks.



Press and Media Mitigation Releases and Training Sessions –

Utilization of mass media outlets like newspapers, television, cable access, Internet blogs, podcasts, video sharing, and online social networking to increase public awareness of hazard mitigation efforts.

*Drought Mitigation Actions -
Natural Resource Protection:*



Watershed Management –

Watershed management is “broadly defined as a suite of zoning and land-use management techniques applied to help align compatible land uses with resource quality.” The management style is based on basins, sub-basins, watersheds, sub-watersheds, and catchments.



Urban Forestry Planning and Development Programs –

Development of urban forestry and neighborhood tree programs can be invaluable in storm water management and suppression of other storms including heat periods within urban neighborhoods.



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Water Resource Conservation Programs –

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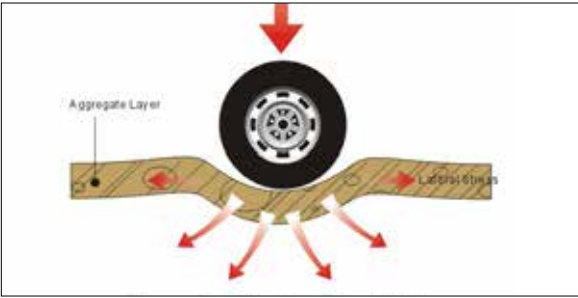


*Drought Mitigation Actions -
Structural Projects:*



Neighborhood and Community Safe Rooms

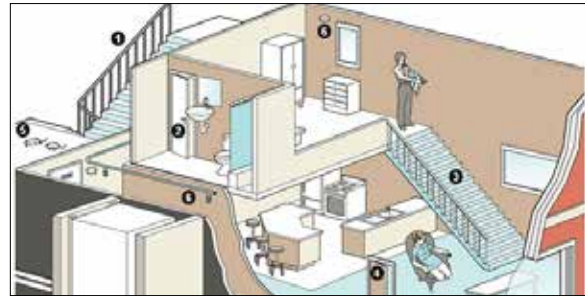
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Extreme Temperature Mitigation Actions - Prevention:



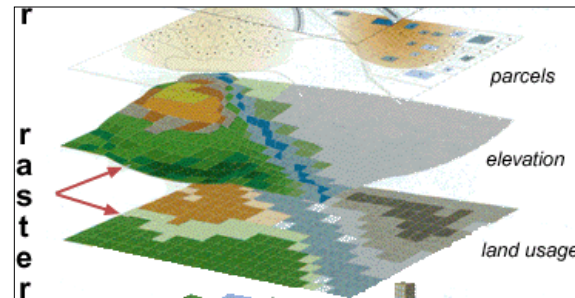
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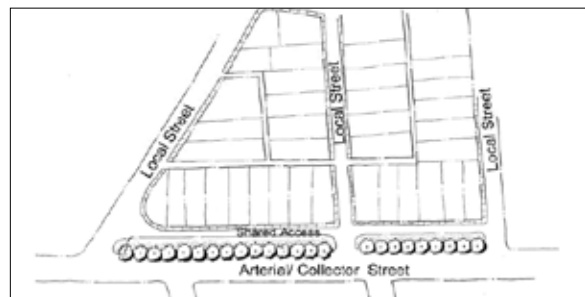


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EXTREME TEMPERATURES



*Extreme Temperature Mitigation Actions -
Property Protection:*



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Public Education & Awareness (Continued):*



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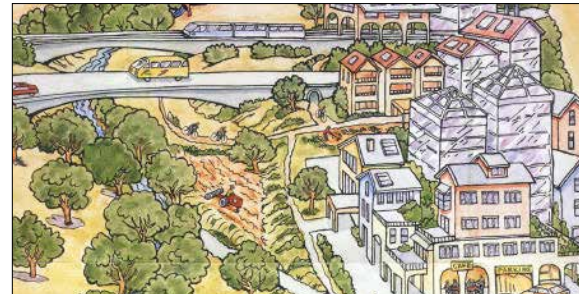
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EXTREME TEMPERATURES

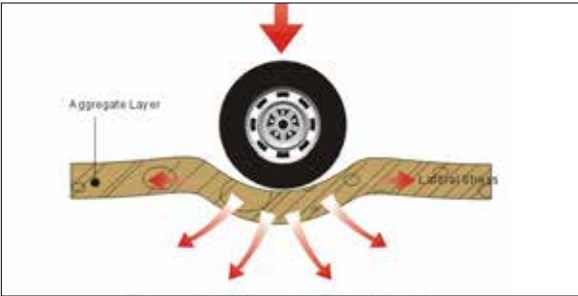


Extreme Temperature Mitigation Actions - Structural Projects:



Neighborhood and Community Safe Rooms –

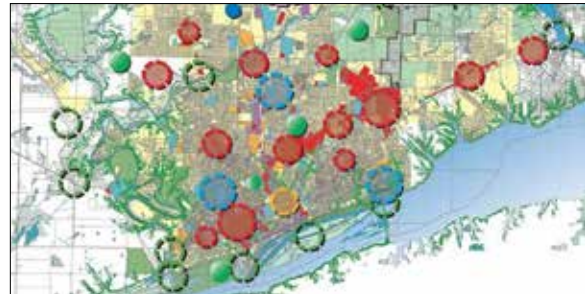
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*Flood Mitigation Actions -
Prevention:*



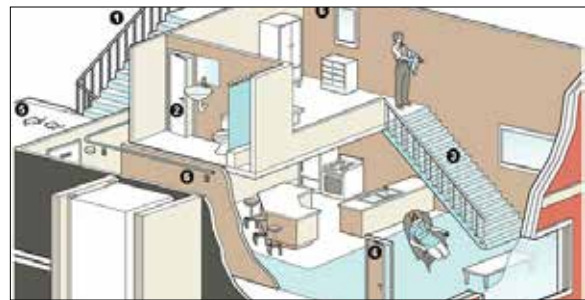
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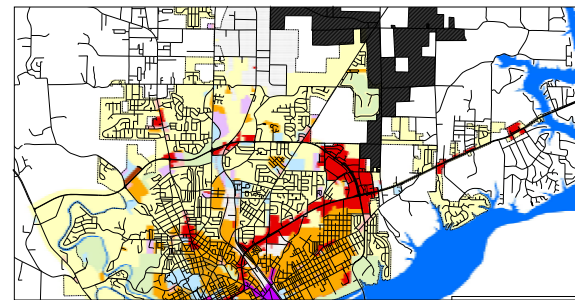
Storm Water Management –

Storm water management is the methodology for drainage and flood controls based on natural systems, where runoff is retained or infiltrated at the source. The flow of the retained storm water is within a more naturalized channel and flood control is provided by protection and maintenance of floodplains.



Building Codes and Construction Req's–

A building code is a set of rules that specify the minimum acceptable level of safety for constructed objects. The main purpose of the building code is to protect public health, safety and general welfare as they relate to the construction and occupancy of buildings and structures. Building codes are enforced by jurisdictions and become local building construction laws.



Land Use Development Regulations –

Land use or “zoning ordinance divides a local government’s jurisdiction into districts or zones. For each district or zone, the zoning ordinance can regulate land uses, density of development patterns and the amount of parking.” A zoning map usually accompanies the ordinance to identify the different districts and the properties for which it applies.



Capital Improvements Programs –

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Subdivision Regulations –

A subdivision ordinance controls the division of a tract of land for building and development purposes. Subdivision regulations determine the layout and design standards that must be met by the proposed subdivision. These standards help to insure that future owners get safe neighborhoods and sound construction.



Open Space Preservation –

The preservation of open space is a voluntary process involving a landowner who is donating or selling land to a government agency or a qualified private organization. “Open space broadly includes woodlands, fields, wetlands, stream banks, floodplains, and unique geologic formations.



Flood Plain Management Programs –

Flood plain management begins with active participation in the National Flood Insurance Program (NFIP). “The mapping functions of the NFIP provide an effective basis for establishing floodplain management regulations through zoning, subdivision controls, and other measures within clearly defined areas. . .” Existing structures should be relocated or elevated above the floodplain.



Flood Mitigation Actions -
Prevention (Continued):



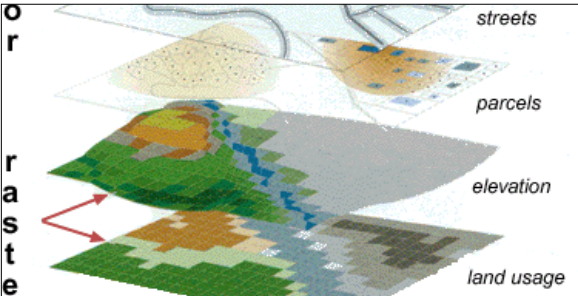
Levee and Dam Management –
Dams either store water, control river flow or can be used to generate hydroelectric power. A levee is built to prevent river water from flowing into a floodplain or floodway. Levees and dams may suffer catastrophic failure if they are not maintained routinely and on a scheduled basis. Dam management puts in place practices for maintaining existing dams that are in the local jurisdictions control.



Public Right-of-Way Maintenance Regulations –
Clarification of public right-of-way maintenance requirements through mapping and policy committee discussion increases awareness of responsibility. In addition, jurisdictions should enforce dumping and littering in the public right-of-way and encourage maintenance to be shared with adjoining property owners.



Critical Facilities Assessments –
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Geographic Information Systems –
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*Flood Mitigation Actions -
Property Protection:*



Real Estate Flooding Acquisition and Building Relocations –

Establish a county and local jurisdiction program through the Florence-Lauderdale EMA that acquires recurring flood properties and other natural hazard areas that contain existing buildings. The buildings should then be demolished and the establishment of open space for recreation and wildlife should occur.



Emergency Power Generation –

Establishment of back up emergency power for critical facilities in order to maintain the electric power during an emergency situation involving loss of power during severe storms and other natural disasters.



Flood Prone Building Proofing and Retrofitting –

Redesigning and modification of structures to allows a building to remain in the floodplain where necessary. Although long term plans should be to remove the building from the floodplain.



Separate Sewer System Collection and Protection

Sewer systems come in two major types of either combined with storm water collection or separate sewer system from storm water collection. A combined system is one in which both wastewater and storm water are conveyed through the same set of pipes. This combined type can overflow and often does during heavy rainfall and flooding. Separate systems tend to reduce untreated sewage from entering rivers and streams.



Critical Facilities Protection –

Redesigning and modification of existing critical facilities to protect them during a disaster so they may remain viable for disaster relief after the hazard has occurred. New structures should be sited in such a manner as to be away from high risk zones and designed and constructed for “maximum protection from all hazards.”



Storm Shutter Programs and Installation –

Storm shutter programs provide protection of existing structures that may not meet modern standards for storm readiness.



Free Board Requirements for Building Elevations –

The freeboard is “ any additional height above a flood elevation on a building is called the freeboard. A community may use this elevation calculation to determine the required level of elevation for a structure’s lowest floor in accordance with floodplain management regulations.” Standard is the Base Flood Elevation (BFE) plus 1 foot of rise.



Building Retrofit and New Construction of Shatter Resistant Glass Structures –

Retrofitting of existing buildings to safeguard against damages from identified natural hazards in the jurisdiction. As well as requiring shatter resistant glass in new construction involving critical facilities and public buildings.



*Flood Mitigation Actions -
Public Education & Awareness:*



Outreach Projects –
Identification of outreach and community projects that provide publicity and support in achieving hazard mitigation goals identified in the plan. Projects should be identified in each of the participating jurisdictions and promoted in achieving hazard mitigation goals and objectives.



Adult and Community Education Programs
Mitigation and land use workshops can be conducted to inform individuals of different hazards within the planning jurisdictions and methods of mitigation those hazards.



Real Estate Disclosure Requirements –
Encourage and or require the disclosure of flood plain locations within a real estate transaction. This includes the location of floodplains within the property being sold as well as adjoining properties.



Hazard Mitigation Plan and Pamphlet Distribution –
Publish and distribute the adopted Florence-Lauderdale Hazard Mitigation Plan in full. In addition there should be distribution of specific mitigation efforts taking place within Lauderdale County and its municipal jurisdictions.



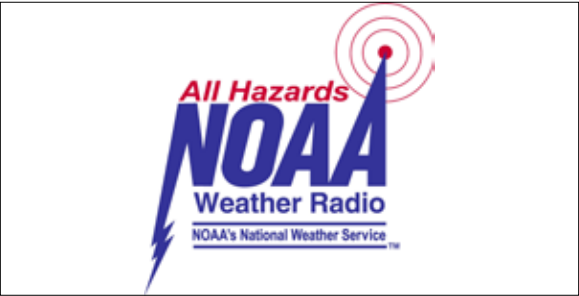
Hazard Information Kiosk and Centers-
Promoting the Florence-Lauderdale Hazard Mitigation Policy Committee agenda throughout Lauderdale County. This can be done through providing lectures, speakers and information for county and municipal events that discuss existing mitigation and planning efforts within Lauderdale County.



Flood Map Information Distribution –
Distribute to media and public a simplified flood map as a general information guide. The guide should discuss the importance of floodplains to local economies and the regional environment. Graphic material should be used to communicate this information.



School Age Education Programs –
Provide a methodology and curriculum to introduce students to mitigation strategies and land planning efforts within the planning jurisdiction. The program should be promoted by the Florence-Lauderdale Hazard Mitigation Policy Committee and developed in conjunction with school systems within the mitigation planning jurisdictions.



NOAA Weather Radio Programs –
Promote the use of weather radios in critical facilities, institutions, businesses, and homes as a means for advance warning to implement mitigation measures and to increase public awareness of hazard risks.

*Flood Mitigation Actions -
Public Education & Awareness (Continued):*



Press and Media Mitigation Releases and Training Sessions –

Utilization of mass media outlets like newspapers, television, cable access, internet blogs, podcasts, video sharing, and online social networking to increase public awareness of hazard mitigation efforts.

*Flood Mitigation Actions -
Natural Resource Protection:*



Sediment and Erosion Control –

“Erosion is any process by which sediment is entrained (eroded) and moved away from its original location by gradational agents, which include gravity, water, wind, ice, and humans.” The best approach is avoidance of the eroding area by identifying the area affected by the hazard and enforce plans not to develop such identified areas. Other options include using landscape architects to engineer the construction of the natural system.



Stream Corridor Restoration –

“A wide range of efforts fall under stream restoration, including cleaning local creeks, day lighting small urban creeks (taking them out of concrete culverts), and rebuilding entire river channels and restoring flow regimes” back to the water body. “ Restoration goals should respond to human needs and be realistic in terms of physical and ecological processes.”



Watershed Management –

Watershed management is “broadly defined as a suite of zoning and land-use management techniques applied to help align compatible land uses with resource quality.” The management style is based on basins, sub-basins, watersheds, sub-watersheds, and catchments.



Wetland Restoration and Wetland Preservation –

Wetlands provide wildlife habitat, serve as filters of groundwater, and aid in flood control. Restoration and preservation begins with the national wetlands inventory map. Section 404 of the federal clean water act requires permits from the Army Corps of Engineers when dredging or filling waters within the United States. Regulations now include wetlands.





*Flood Mitigation Actions -
Natural Resource Protection (Continued):*



Open Space Easements and Acquisition –
“The preservation of open space has been a major focus of land trusts and a number of government programs.” Some of these strategies include: Fee-Simple Acquisition, Land Trust, Land & Water Conversation Fund, State Programs, Conversation Easements on agricultural and woodland properties.”



Water Resource Conservation Programs –
Water resource programs “protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.” Water conversation is defined as “activities designed to reduce the demand for water, improve efficiency in use, and reduce losses and waste of water.”



River/Stream Corridor Restoration and Protection –
General principles are: “Recognize that ecological goals and economic development goals are mutually beneficial; protect and restore natural river features and functions; provide for public access, connections, and recreational uses.”



Urban Forestry Planning and Development Programs –
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*Flood Mitigation Actions -
Structural Projects:*



Storm Water Diversion Culverts –
Diversion culverts act as a constructed system to divert storm water away from undesirable areas. Diversion culverts simply move storm water into piped systems that can be day lighted into appropriate locations. However, improperly used culverts can create storm water systems that introduce increased volumes of water into rivers and streams thus causing erosion and sedimentation.



Dam Modifications –
Dam modifications allow for safe and effective operation of existing structures that contain large volumes of water within a reservoir. Modifications can enable the structure to function more efficiently as well as continue the life span of the dam itself.



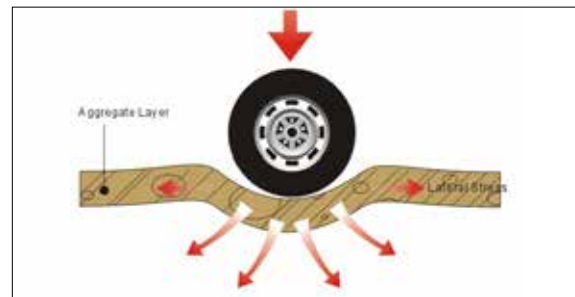
Storm Water Flood Walls –
Storm water flood walls divert storm water away from undesirable areas and into constructed via ducts and culverts.



Storm Sewer System Construction –
Storm sewer systems involve the “efficient conveyance of water from one point to another and the control of increased peak rates of runoff associated with land use alteration.” There are two approaches to storm water systems. The directly connected system involves “efficient collection of runoff at the source and then conveyance to a detention area.” The Natural Systems Approach works to mimic the natural conditions of a site.



Seawalls –
Seawalls prevent erosion of river and lake banks due to highly constructed environments. Seawalls allow for stabilized stream and river banks in situations where development is desired along shore lines.



Ground Stabilization –
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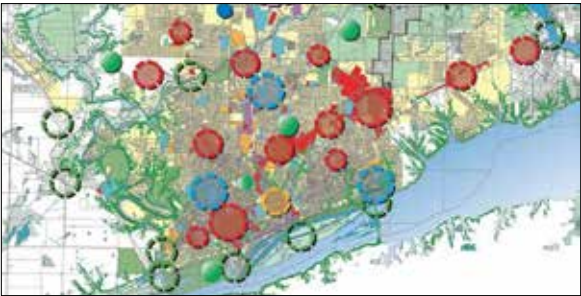


Reservoir Construction –
Construction of reservoirs and dams for flood control “where deemed cost effective and feasible” can assist in mitigating potential disasters. However, when creating the reservoir a man made technical hazard is created and must be maintained and evaluated on a consistent basis.

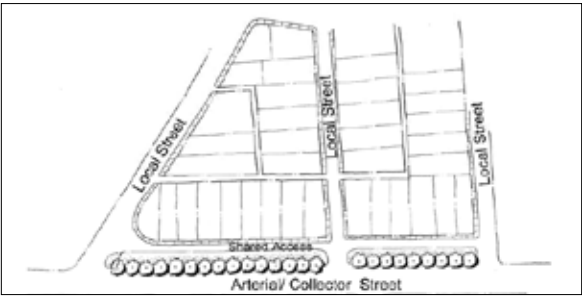




Hazardous Materials Mitigation Actions - Prevention:



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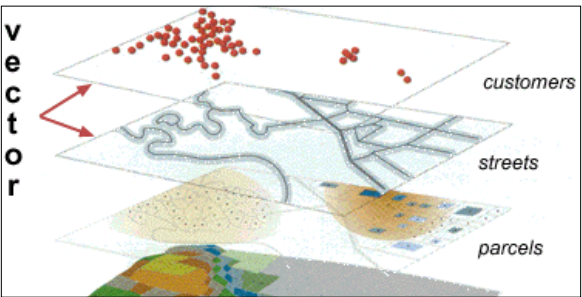
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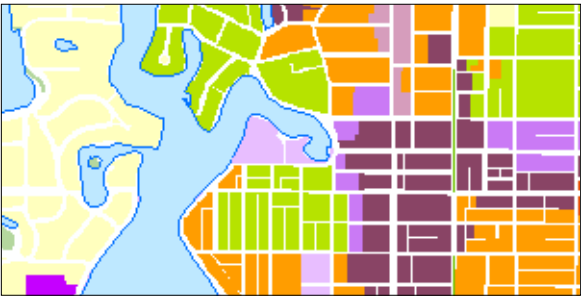
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*Hazardous Materials Mitigation Actions -
Prevention (Continued):*



Mitigation Planning Technology Support –

Mitigation technologies come in a variety of forms that include warning sirens, flood warning systems, automatic icing indicators on critical bridges, telephone based flood warning system, 911 service back up site, and communication re-routing in emergency response.

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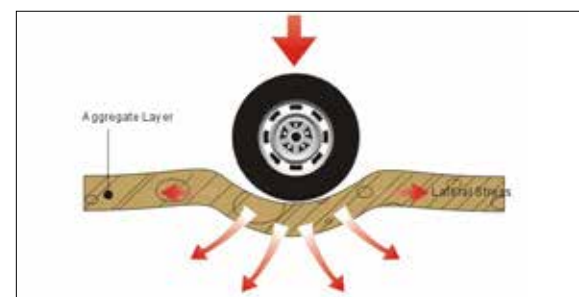
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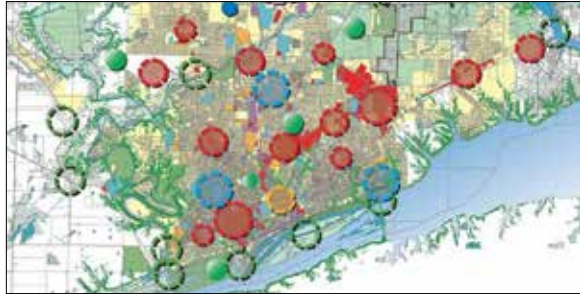
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HAZARDOUS MATERIALS

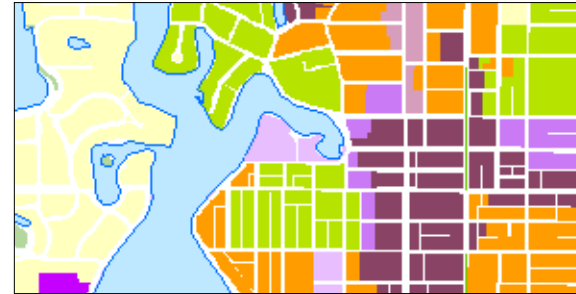


Hurricanes & Tropical Cyclones Mitigation Actions - Prevention:



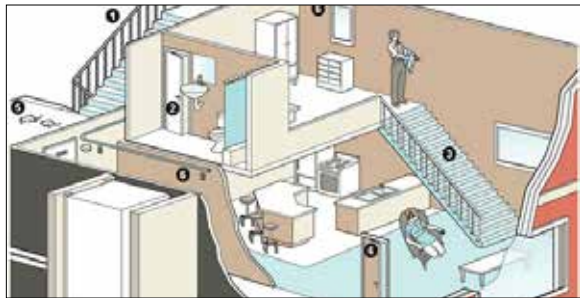
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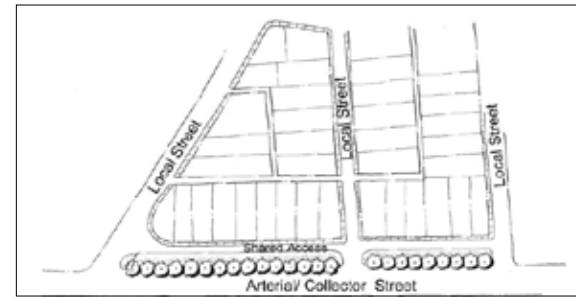
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Open Space Preservation –

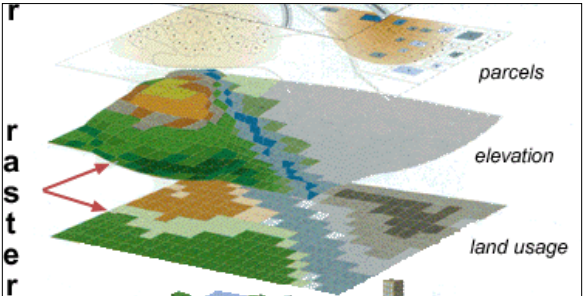
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Free Board Requirements for Building Elevations

The freeboard is “ any additional height above a flood elevation on a building is called the freeboard. A community may use this elevation calculation to determine the required level of elevation for a structure’s lowest floor in accordance with floodplain management regulations.” Standard is the Base Flood Elevation (BFE) plus 1 foot of rise.



HURRICANES &
TROPICAL CYCLONES



Hurricanes & Tropical Cyclones Mitigation Actions - Property Protection (Continued):



Emergency Power Generation –

Establishment of back up emergency power for critical facilities in order to maintain the electric power during an emergency situation involving loss of power during severe storms and other natural disasters.



Storm Shutter Programs and Installation –

Storm shutter programs provide protection of existing structures that may not meet modern standards for storm readiness.



Building Retrofit and New Construction of Shatter Resistant Glass Structures –

Retrofitting of existing buildings to safeguard against damages from identified natural hazards in the jurisdiction. As well as requiring shatter resistant glass in new construction involving critical facilities and public buildings.

Hurricanes & Tropical Cyclones Mitigation Actions - Public Education & Awareness:



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NOAA Weather Radio Programs –
“Promote the use of weather radios in critical facilities, institutions, businesses, and homes as a means for advance warning to implement mitigation measures and to increase public awareness of hazard risks.”



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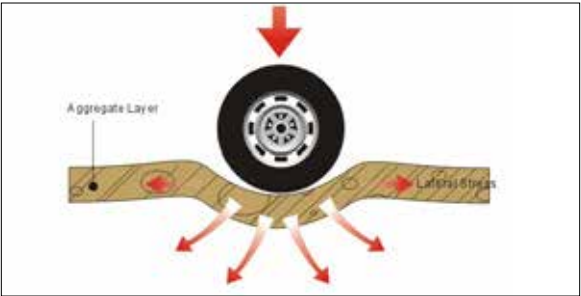


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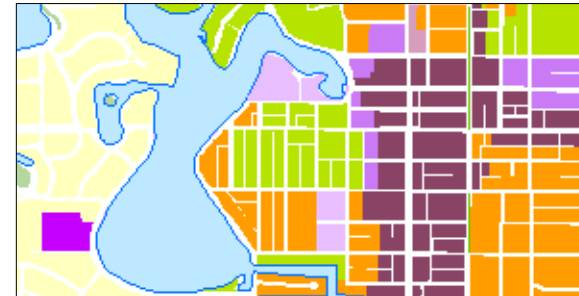
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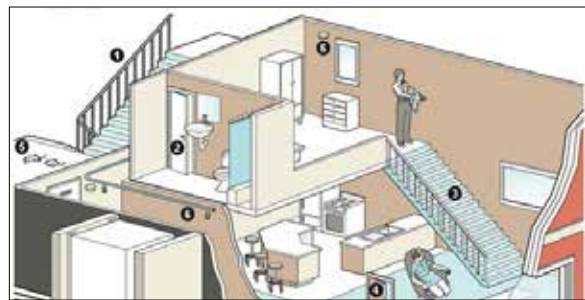
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Burn Permits –

Burn permits establish controls and guidelines that allow for the appropriate timing and safety of debris burning within the jurisdiction. Through an inexpensive permit the jurisdiction can safely guide citizens into the best times to burn debris and the best methods of doing so.



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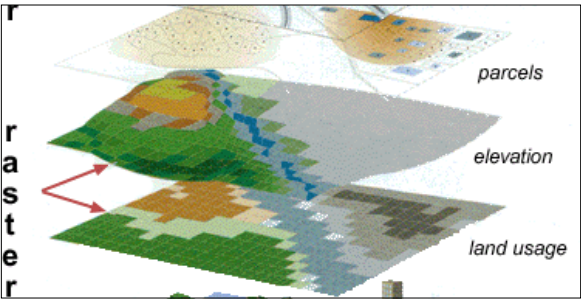
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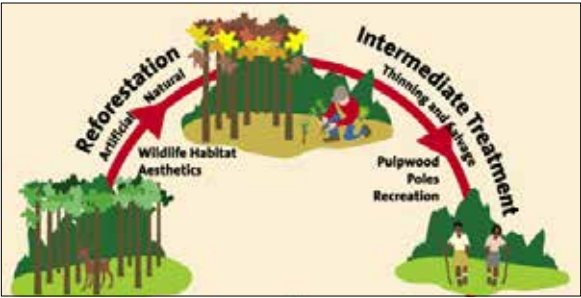
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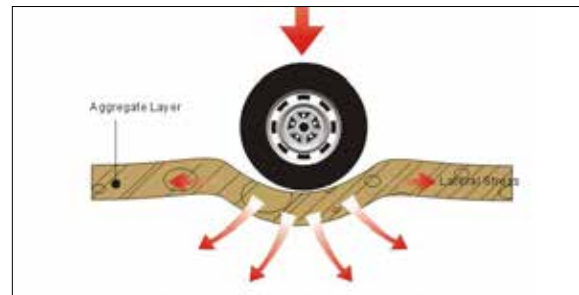
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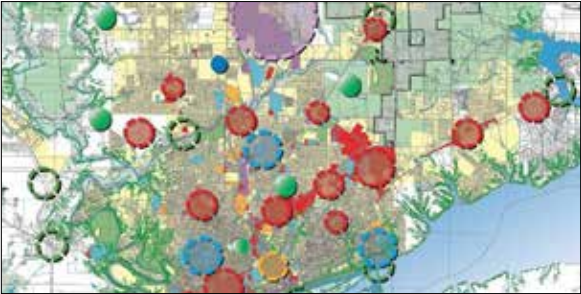
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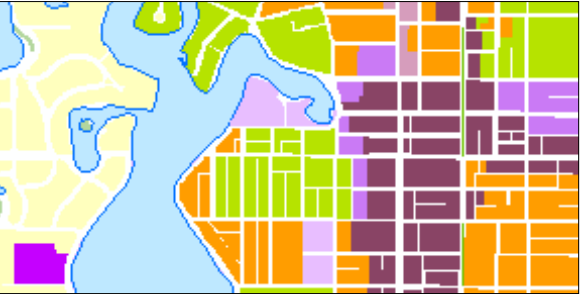




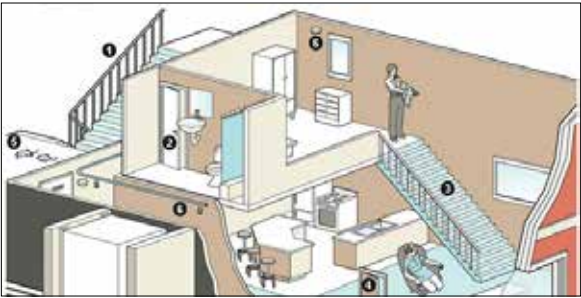
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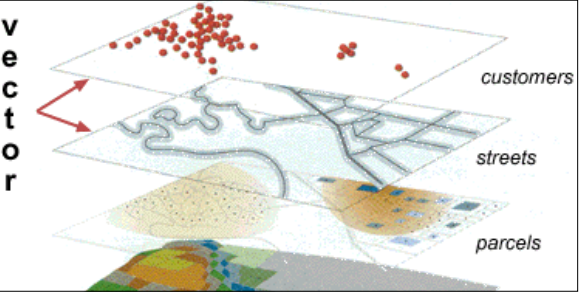
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Sinkhole Mitigation Actions - Natural Resource Protection:



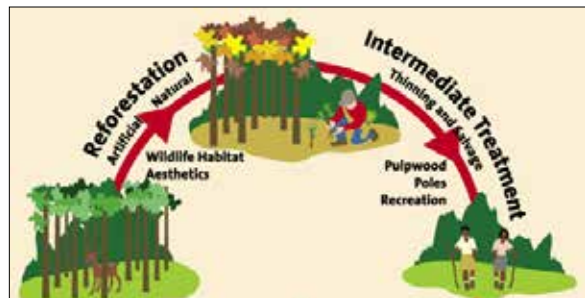
Watershed Management –

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Water Resource Conservation Programs –

Water resource programs “protect water quantity and quality through water conservation programs to mitigate the effects of droughts and assure uninterrupted potable water supplies.” Water conservation is defined as “activities designed to reduce the demand for water, improve efficiency in use, and reduce losses and waste of water.”



Forest and Vegetation Management –

Forest management focuses on best management practices (BMP) established for silviculture activities related to timber harvesting by each state. BMP include establishing defensible space in forested areas and wildfire fuel reduction etc . . .



Open Space Easement and Acquisition –

“The preservation of open space has been a major focus of land trusts and a number of government programs.” Some of these strategies include: Fee-Simple Acquisition, Land Trust, Land & Water Conversation Fund, State Programs, Conversation Easements on agricultural and woodland properties”.



Press and Media Mitigation Releases and Training Sessions –

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Structural Projects:*



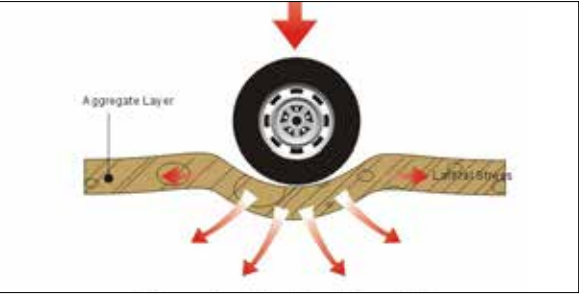
Neighborhood and Community Safe Rooms

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Storm Sewer System Construction –

Storm sewer systems involve the “efficient conveyance of water from one point to another and the control of increased peak rates of runoff associated with land use alteration.” There are two approaches to storm water systems. The directly connected system involves “efficient collection of runoff at the source and then conveyance to a detention area.” The Natural Systems Approach works to mimic the natural conditions of a site.



Ground Stabilization –

Ground stabilization techniques mitigate hazards of undesirable soils that are not good for road construction or development. These soils and their underlying geologic formations require stabilization techniques ranging from large stone placement, asphalt reclamation geotechnical pavers and concrete additives.

Severe Storm Mitigation Actions - Prevention:



Comprehensive Planning –

Comprehensive planning sets forth goals and describes and illustrates a vision for the physical, social, and economic characteristics of the community in years ahead. The policies and guidelines intended to implement the vision are outlined in a Comprehensive Plan document that is required by state code for all incorporated places.



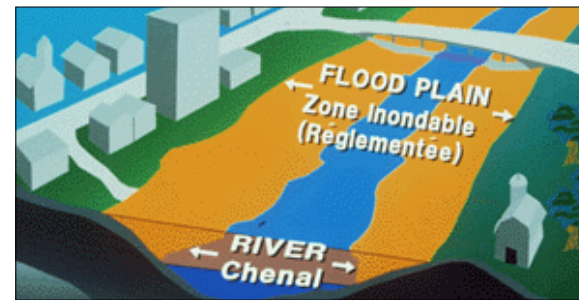
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Flood Plain Management Programs –

Flood plain management begins with active participation in the National Flood Insurance Program (NFIP). “The mapping functions of the NFIP provide an effective basis for establishing floodplain management regulations through zoning, subdivision controls, and other measures within clearly defined areas. . .” Existing structures should be relocated or elevated above the floodplain.



Capital Improvements Programs –

The capital improvement program (CIP) is a five to six year schedule of capital projects. Capital planning involves the purchase or construction, major repair, reconstruction, or replacement of capital items, such as bridges, buildings, utility systems, parks and landfills.



Safe Shelter Requirements –

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Storm Water Management –

Storm water management is the methodology for drainage and flood controls based on natural systems, where runoff is retained or infiltrated at the source. The flow of the retained storm water is within a more naturalized channel and flood control is provided by protection and maintenance of floodplains.



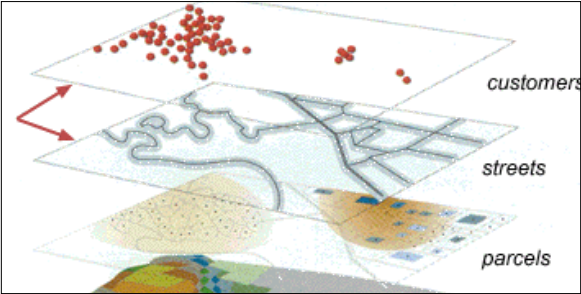
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Severe Storm Mitigation Actions -
Prevention (Continued):



Geographic Information Systems –
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Mitigation Planning Technology Support –
Mitigation technologies come in a variety of forms that include warning sirens, flood warning systems, automatic icing indicators on critical bridges, telephone based flood warning system, 911 service back up site, and communication re-routing in emergency response.

Severe Storm Mitigation Actions -
Property Protection:



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Redesigning and modification of structures to allows a building to remain in the floodplain where necessary. Although long term plans should be to remove the building from the floodplain.



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Redesigning and modification of existing critical facilities to protect them during a disaster so they may remain viable for disaster relief after the hazard has occurred. New structures should be sited in such a manner as to be away from high-risk zones and designed and constructed for “maximum protection from all hazards.”



Free Board Requirements for Building Elevations –
The freeboard is “ any additional height above a flood elevation on a building is called the freeboard. A community may use this elevation calculation to determine the required level of elevation for a structure’s lowest floor in accordance with floodplain management regulations.” Standard is the Base Flood Elevation (BFE) plus 1 foot of rise.

*Severe Storm Mitigation Actions -
Property Protection (Continued):*



Emergency Power Generation –

Establishment of back up emergency power for critical facilities in order to maintain the electric power during an emergency situation involving loss of power during severe storms and other natural disasters.



Storm Shutter Programs and Installation –

Storm shutter programs provide protection of existing structures that may not meet modern standards for storm readiness.



Building Retrofit and New Construction of Shatter Resistant Glass Structures –

Retrofitting of existing buildings to safeguard against damages from identified natural hazards in the jurisdiction. As well as requiring shatter resistant glass in new construction involving critical facilities and public buildings.

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Public Education & Awareness:*



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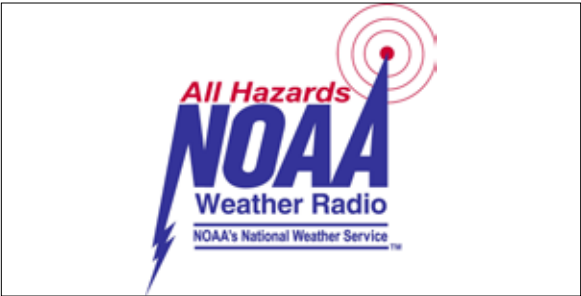




Severe Storm Mitigation Actions -
Public Education & Awareness (Continued):



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NOAA Weather Radio Programs –
“Promote the use of weather radios in critical facilities, institutions, businesses, and homes as a means for advance warning to implement mitigation measures and to increase public awareness of hazard risks.”



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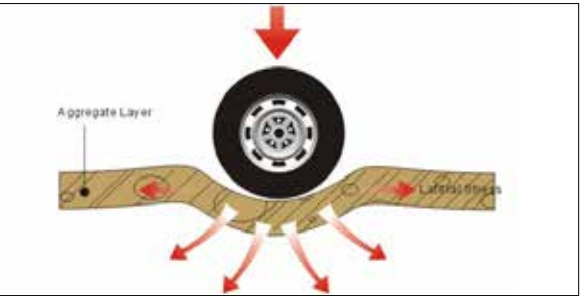


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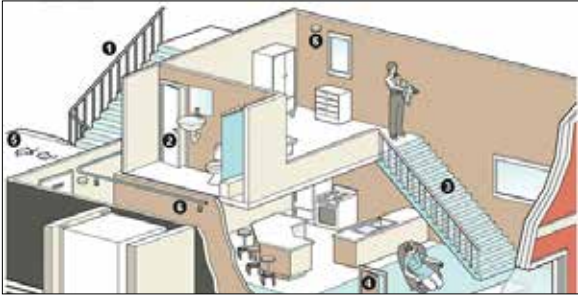
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SEVERE STORM



Tornado Mitigation Actions - Prevention:



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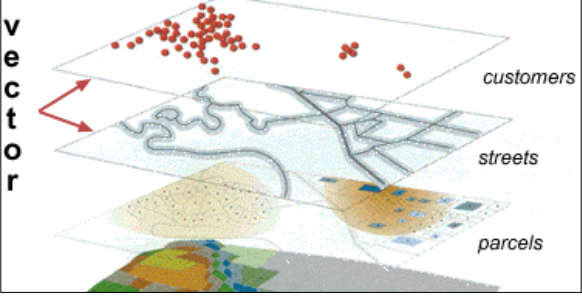
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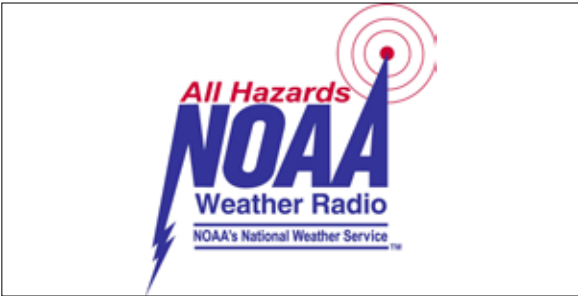




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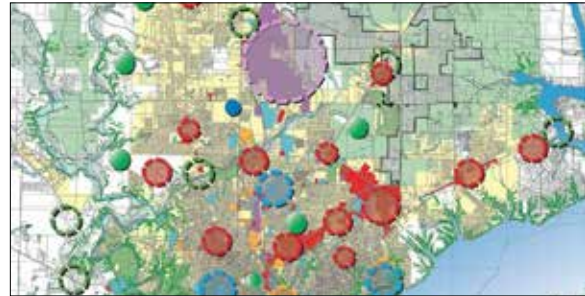
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Wildfire Mitigation Actions - Prevention:



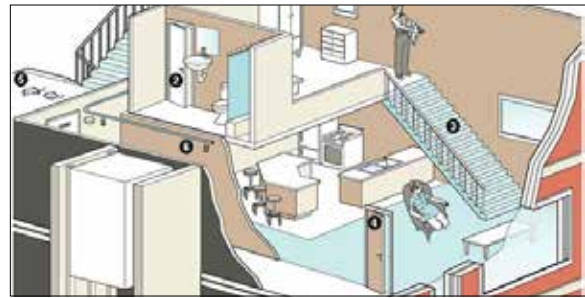
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Land Use Development Regulations –

Land use or “zoning ordinance divides a local government’s jurisdiction into districts or zones. For each district or zone, the zoning ordinance can regulate land uses, density of development patterns and the amount of parking.” A zoning map usually accompanies the ordinance to identify the different districts and the properties for which it applies.



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Burn Permits –

Burn permits establish controls and guidelines that allow for the appropriate timing and safety of debris burning within the jurisdiction. Through an expensive permit the jurisdiction can safely guide citizens into the best times to burn debris and the best methods of doing so.



Open Space Preservation –

The preservation of open space is a voluntary process involving a landowner who is donating or selling land to a government agency or a qualified private organization. “Open space broadly includes woodlands, fields, wetlands, stream banks, floodplains, and unique geologic formations.



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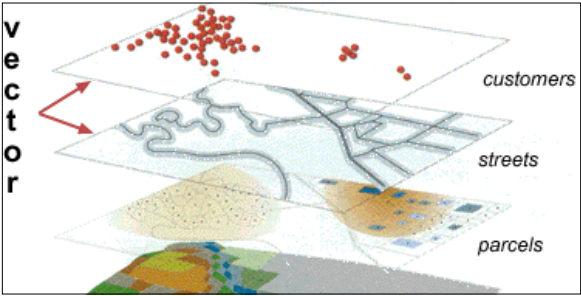




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Public Education & Awareness:*



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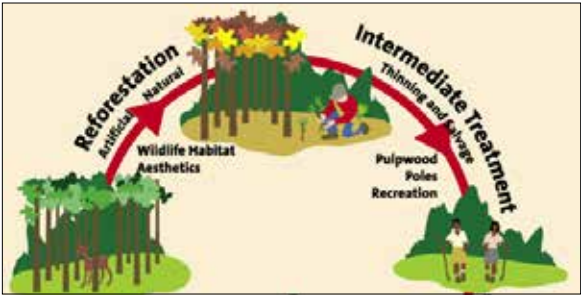
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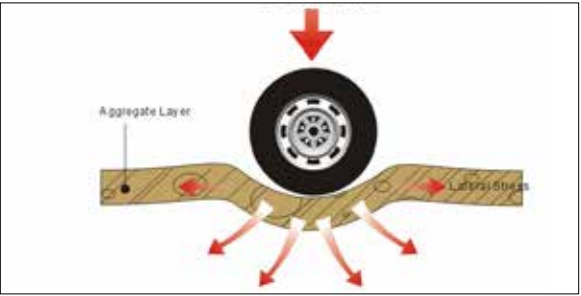


Urban Forestry Planning and Development Programs –
Development of urban forestry and neighborhood tree programs can be invaluable in storm water management and suppression of other storms including heat periods within urban neighborhoods.

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Winter Storm Mitigation Actions - Prevention:



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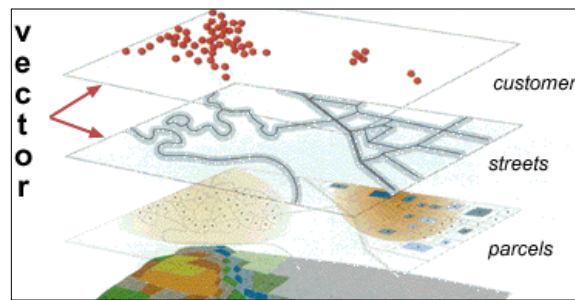
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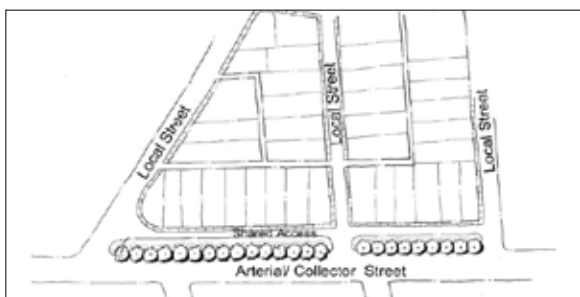
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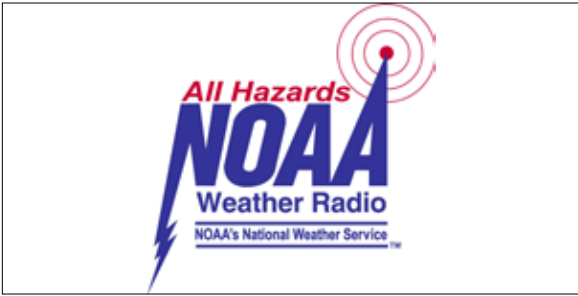




Winter Storm Mitigation Actions -
Public Education & Awareness (Continued):



Hazard Mitigation Plan and Pamphlet Distribution –
Publish and distribute the adopted Florence-Lauderdale Hazard Mitigation Plan in full. In addition there should be distribution of specific mitigation efforts taking place within Lauderdale County and its municipal jurisdictions.

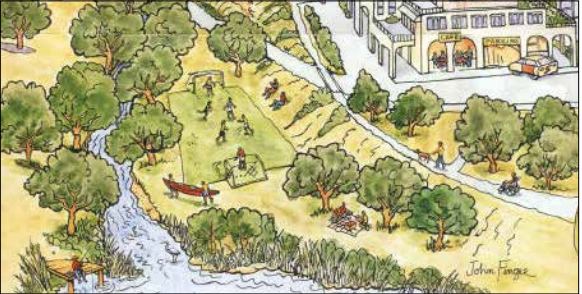


NOAA Weather Radio Programs –
“Promote the use of weather radios in critical facilities, institutions, businesses, and homes as a means for advance warning to implement mitigation measures and to increase public awareness of hazard risks.”



Press and Media Mitigation Releases and Training Sessions –
Utilization of mass media outlets like newspapers, television, cable access, Internet blogs, podcasts, video sharing, and online social networking to increase public awareness of hazard mitigation efforts.

Winter Storm Mitigation Actions -
Natural Resource Protection:



Watershed Management –
Watershed management is “broadly defined as a suite of zoning and land-use management techniques applied to help align compatible land uses with resource quality.” The management style is based on basins, sub-basins, watersheds, sub-watersheds, and catchments.

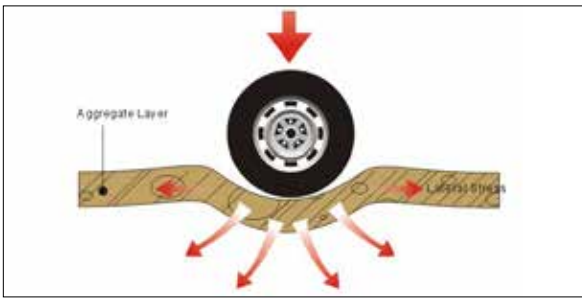


Press and Media Mitigation Releases and Training Sessions –
Informing media representatives about mitigation efforts allows for accurate information to be distributed on long-term mitigation projects. This training begins with a sound understanding of the overall mitigation plan and the mitigation efforts underway within the community. Targeted representatives include newspapers, television reporters and radio correspondents.

Winter Storm Mitigation Actions -
Natural Resource Protection:



Neighborhood and Community Safe Rooms
Neighborhood and community safe rooms are “freestanding, single purpose community storm shelters or safe rooms within buildings used for other purposes to provide temporary shelter from hurricanes, tornadoes, and severe storms.”



Ground Stabilization –
Ground stabilization techniques mitigate hazards of undesirable soils that are not good for road construction or development. These soils and their underlying geologic formations require stabilization techniques ranging from large stone placement, asphalt reclamation geotechnical pavers and concrete additives.



MS.3 NFIP Implementation Strategy

All of the jurisdictions within the planning area participate in the FEMA’s National Flood Insurance Program and are in good standing with program requirements and implementation. Digital Flood Insurance Rate Maps (FIRMS), last updated September 11, 2009, are available for all jurisdictions at FEMA’s Flood Map Service Center online.

All of the jurisdictions within the planning area have continued to enforce and maintain updated floodplain ordinances since entering the flood insurance program. The jurisdictions are implementing the following strategies for the NFIP program:

- Maintaining enforcement records of floodplain ordinances
- Educational assistance to local floodplain administrators
- Outreach and public education to construction managers and property owners about the floodplain management requirements
- Maintain and update FIRM data in the planning jurisdictions GIS data system Document and monitor flood event occurrence through local EMA
- Discussion and future planning to enter the Community Rating System (CRS) standards through the hazard mitigation planning process.
- Florence- Lauderdale EMA to maintain NFIP publications in support of local floodplain administrators within each participating jurisdiction.

NFIP Community Status for Lauderdale County Jurisdictions			
Community ID	Jurisdiction	Current Effective Map	Status
010323	Lauderdale County	9-11-09	Participating
010407	Anderson	9-11-09	Participating
010140	Florence	9-11-09	Participating
010338	Killen	9-11-09	Participating
010358	Lexington	1-19-10	Participating
010339	Rogersville	9-11-09	Participating
010505	St. Florian	9-11-09	Participating
010340	Waterloo	9-11-09	Participating
Source: http://www.fema.gov/cis/AL.html ; Community Status Source Book Report			

MS.4 Mitigation Action Implementation

The jurisdictions within the planning area are responsible for implementing the identified mitigation strategies for that jurisdiction. This responsibility is often shared with academic institutions, utility systems, and health care facilities. Policy Committee representatives from each of the incorporated jurisdictions, as well as Lauderdale County, have recommended mitigation strategies that they would like to pursue over the five year planning implementation period.

Each jurisdiction has defined the mitigation actions they will adopt and implement. Mitigation strategies listed in the previous 2010 Florence-Lauderdale Multi-Hazard Mitigation Plan that were not chosen by the jurisdictions are not listed in this section. Due to local differences in mitigating natural disasters, each jurisdiction selected mitigation strategies that it felt it had the capacity and political support to implement and that were relevant to the jurisdiction. The listed strategies were selected from each jurisdiction’s responses to the online hazard mitigation survey conducted in the Spring of 2015. Within each jurisdiction’s selected mitigation strategies, there are identified partners, priority ranking, lead responsibility designation, estimated cost, potential funding sources, and the hazards that may be mitigated. The implementation time line for each of the listed mitigation strategies is within the five-year planning period. Mitigation measures reference prior and future actions as well as on-going efforts. All references are for this planning period only.

LAUDERDALE COUNTY MITIGATION STRATEGIES - PREVENTION:



Comprehensive Planning
Partners: F-L EMA, AEMA, County Engineer, Co. Commissioners
Priority: Low
Lead Responsibility: County Engineer
Estimated Cost: \$80,000.00 to \$100,000.00
Funding Sources: AEMA, Local Match, ADECA, HMGP, Pre- Disaster Mitigation (PDM), Flood Mitigation Assistance (FMA)
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: County reviewed and continues preliminary discussion for a county comprehensive plan.
Status: Not completed; Ongoing
Future Actions: Continue to seek support for county wide planning through mitigation planning awareness. Expected timeframe for completion: 3-5 years



Building Codes & Construction Requirements
Partners: County Engineer, Co. Commissioners
Priority: Medium
Lead Responsibility: F-L EMA, County Engineer
Estimated Cost: No Additional Cost
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued efforts from last plan update.
Status: Completed; Ongoing
Future Actions: Evaluate existing codes being applied in Lauderdale County and review for additional action. Expected timeframe for completion: Ongoing, to be updated every three years



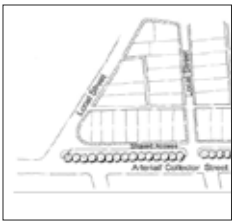
Capital Improvements Programs
Partners: County Engineer, County Commissioners, F-L EMA
Priority: High
Lead Responsibility: County Engineer
Estimated Cost: 5 Year Plan – approx. \$40 million
Funding Sources: County Commission, ALDOT, FHWA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued effort from last plan adopted.
Status: Completed; Ongoing
Future Actions: Continue capital improvement planning to include capital projects that are identified in the hazard mitigation planning process. Expected timeframe for completion: updated annually



Open Space Preservation
Partners: County Commission, AL Land Conservancy, Landowners, F-L EMA
Priority: Low
Lead Responsibility: County Commission
Estimated Cost: \$10,000.00 to \$20,000.00 per donation.
Funding Sources: AL Land Conservancy, Local Match, ALEMA, ADECA
Mitigating Hazards: Flooding, Hurricanes, Wildfires, Landslides, Sinkholes
Prior Actions: Continued effort from last plan adopted.
Status: Completed; Ongoing
Future Actions: Identify potential funding sources, partners and prioritize areas of needed open space within the county. Expected timeframe for completion: Updated every 5 years



Storm Water Management
Partners: ADEM, F-L EMA, AEMA, ADECA, County Eng.
Priority: Low
Lead Responsibility: County Engineer
Estimated Cost: Not determined at this time
Funding Sources: ADEM, Local Match, HMGP, PDM, ADECA
Mitigating Hazards: Stormwater Quality & Stream Health, Flooding, Severe Storms, Dam/Levee Failure
Prior Actions: Continued effort from last plan adopted.
Status: Not completed; Ongoing
Future Actions: F-L EMA evaluation of storm water management actions to be taken. Best management practices for storm water management implemented during site plan review of subdivision regulations. Expected timeframe for completion: 3-5 years



Subdivision Regulations
Partners: F-L EMA, County Engineer, County Commissioners
Priority: Low
Lead Responsibility: County Engineer
Estimated Cost: No Additional Cost
Funding Sources: ADECA, Local Match, PDM
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued effort from last plan adopted.
Status: Completed
Future Actions: Ongoing; Future update of current county subdivision regulations Expected timeframe for completion: updated every 5 years



Flood Plain Management Programs
Partners: F-L EMA, County Engineer, TVA, Co. Commission
Priority: High
Lead Responsibility: County Engineer
Estimated Cost: Not determined at this time
Funding Sources: ADECA, ADEM, PDM, AEMA
Mitigating Hazards: Prevention of repetitive loss of structures near the FEMA Flood Zone, Flooding, Severe Storms, Dam/Levee Failures
Prior Actions: Previous actions consist of NFIP local administration guidance and working with state NFIP coordinator.
Status: Completed
Future Actions: Evaluate methodologies for strengthening the NFIP program through flood plain management. Timeframe for completion: annually



Safe Shelter Site Planning
Partners: F-L EMA, County Engineer, County Commissioners, Incorporated Areas
Priority: Low
Lead Responsibility: F-L EMA
Estimated Cost: \$20,000.00 to \$50,000.00
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued effort from last plan adopted.
Status: Completed; Ongoing
Future Actions: Continue to identify funding sources and update existing needs assessment and site selection process for safe shelters in the county and incorporated areas. Expected timeframe for completion: 5 years





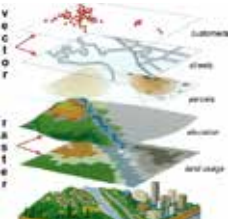
LAUDERDALE COUNTY MITIGATION STRATEGIES - PREVENTION (CONTINUED):



Public Right-of-Way Maintenance Regulations
Partners: County Engineer, County Commission, F-L EMA, ALDOT
Priority: High
Lead Responsibility: County Engineer, ALDOT
Estimated Cost: Not determined at this time
Funding Sources: FHWA, ALDOT, HMGP, PDM
Mitigating Hazards: Flooding
Prior Actions: Previous actions include ongoing maintenance.
Status: Completed; Ongoing
Future Actions: Continue to monitor and document needed right-of-way maintenance and sharing information to the correct and corresponding entities. Expected timeframe for completion: annually



Critical Facility Assessments
Partners: AEMA, F-L EMA, Co. Commission, Hospitals, School Districts.
Priority: High
Lead Responsibility: Not Determined
Estimated Cost: Not determined at this time.
Funding Sources: Not determined at this time.
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous action taken.
Status: Recommended action to be undertaken.
Future Actions: Establish critical facility minimum standards for Lauderdale County. The assessment should address building and site vulnerabilities to hazards. Expected timeframe for completion: annually



Geographic Information Systems
Partners: Tax Assessor, F-L EMA, County Engineer
Priority: Medium
Lead Responsibility: Tax Assessor
Estimated Cost: \$15,000.00 annually
Funding Sources: Local match, ADEM, ADECA
Mitigating Hazards: All hazards are mitigated.
Prior Actions: GIS data has been gathered through a collective agreement of participating jurisdictions.
Status: Completed; Ongoing
Future Actions: Ongoing data gathering that is added to the county wide GIS system. Expected timeframe for completion: 1-3 years



Planning & Land Use Studies
Partners: F-L EMA, County Engineer, Co. Commissioners
Priority: Low
Lead Responsibility: Depend on study type.
Estimated Cost: Undetermined
Funding Sources: ADECA, HUD, ALEMA, ADEM
Mitigating Hazards: All hazards are mitigated.
Prior Actions: 2010 Hazard Mitigation Plan
Status: Completed; Additional actions to be taken.
Future Actions: Identify needed plans and studies within the county such as the Hazard Mitigation Plan, watershed management plans, fire hydrant inventory, and flood prone roadways. Expected timeframe for completion: updated every 5 years



Mitigation Planning Technology Support
Partners: Co. Engineer, Co. Commission, Local jurisdictions, F-L EMA
Priority: High
Lead Responsibility: F-L EMA
Estimated Cost: Undetermined
Funding Sources: ALEMA, ADECA, ADEM, local match
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Implemented a telephone based warning system.
Status: Completed; Ongoing
Future Actions: Continue implementation of telephone based warning system as requested by local jurisdictions and update existing ones. Expected timeframe for completion: 1-3 years

LAUDERDALE COUNTY MITIGATION STRATEGIES - PROPERTY PROTECTION:



Property Protection:
Critical Facilities Protection
Partners: County Commissioners, F-L EMA, County Engineer
Priority: High
Lead Responsibility: County Engineer
Estimated Cost: Undetermined
Funding Sources: ALDOT, County Match, HMGP
Mitigating Hazards: All hazards are mitigated.
Prior Actions: Continued efforts from last plan update.
Status: Completed; Ongoing
Future Actions: Perform infrastructure assessments of public schools and universities for hazard retrofitting. Identify critical facilities that need additional retrofitting for mitigating identified natural disasters. Review bridges that are vulnerable to flood damage and complete infrastructure retrofitting for them. Expected timeframe for completion: annually



Emergency Power Generation
Partners: Co. Engineer, Co. Commission, Local jurisdictions, F-L EMA
Priority: High
Lead Responsibility: Not Determined
Estimated Cost: Undetermined
Funding Sources: HMGP, ALAEMA, PDM
Mitigating Hazards: All hazards may be mitigated
Prior Actions: Assisting entities with critical facilities in receiving power within the planning study area.
Status: Completed; Ongoing
Future Actions: Establish emergency generator power to all critical facilities that do not have emergency systems. Annual evaluation should document critical facility needs. Expected timeframe for completion: annually

LAUDERDALE COUNTY MITIGATION STRATEGIES - PUBLIC EDUCATION & AWARENESS:



Public Education and Awareness: Outreach Projects

Partners: F-L EMA, participating jurisdictions in the planning area.
Priority: High
Lead Responsibility: Florence-Lauderdale EMA
Estimated Cost: \$5,000.00 to \$7,000.00 annually
Funding Sources: AEMA, PDM, Local Funds
Mitigating Hazards: May assists in mitigating all hazards.
Prior Actions: No previous actions taken.
Status: Recommended action to be undertaken.
Future Actions: Select the greatest impacting hazard to the county and initiate an educational program to mitigate that hazard. Quantitative data indicates that floods are the most costly hazard in Lauderdale County and the region. Estimated timeframe for completion: 1 to 3 years



Real Estate Disclosure Requirements

Partners: NFIP Coordinator, Co. Engineer, AEMA, F-L EMA
Priority: Medium
Lead Responsibility: F-L EMA
Estimated Cost: Undetermined
Funding Sources: No additional cost.
Mitigating Hazards: Floods
Prior Actions: Assisting and encouraging jurisdictions to participate in the NFIP program.
Status: Completed; Ongoing with recommended actions to be undertaken.
Future Actions: Establish an annual education & awareness strategy that also discusses flood map information in Lauderdale County. Expected timeframe for completion: 3-5 years



School Age Education Programs

Partners: F-L EMA, ALEMA, PDM, School Districts, F-L EMA
Priority: Medium
Lead Responsibility: County School District
Estimated Cost: Not determined at this time.
Funding Sources: ADEM, ALEMA, PDM, ADECA
Mitigating Hazards: Mitigates all identified hazards.
Prior Actions: Implementation of hazard education programs in curricula.
Status: Completed; Ongoing
Future Actions: Develop annual strategies and prioritize hazards to be mitigated that need focus on public education and awareness. The Policy Committee indicated that floods are a very important hazard that can be mitigated through education and awareness over time. Expected timeframe for completion: 3-5 years



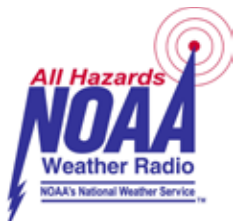
Adult & Community Education Programs

Partners: ALEMA, Co. Commissioners, Academic Institutions, F-L EMA
Priority: High
Lead Responsibility: Not Determined
Estimated Cost: \$5,000.00 annually
Funding Sources: ALEMA, Local Match
Mitigating Hazards: All hazards may be mitigated
Prior Actions: Previous actions include citizen & stakeholder hazard mitigation meetings and local workshops.
Status: Completed; Ongoing with additional recommended actions to be undertaken
Future Actions: Conduct public hazard mitigation education booths in conjunction with civic celebrations. Complete annual mitigation education awareness workshops that are interesting, fun and well attended. Expected timeframe for completion: 1-3 years



Hazard Mitigation Plan & Pamphlet Distribution

Partners: School Dist., Academic Institutions, Local Jurisdictions, F-L EMA
Priority: Low
Lead Responsibility: F-L EMA
Estimated Cost: \$3,000.00 annually
Funding Sources: HMGP, PDM, ADECA, Local Match
Mitigating Hazards: All hazards potentially mitigated.
Prior Actions: Distribution of the 2010 Hazard Mitigation Plan
Status: Completed
Future Actions: Develop a hazard mitigation pamphlet that covers the most common hazards within the county. This should be distributed based on population and be image driven to achieve the desired message. Expected timeframe for completion: 5 years



NOAA Weather Radio Programs

Partners: Critical Facility Entities, School Districts, Local Jurisdictions, County Commissioners, F-L EMA
Priority: High
Lead Responsibility: F-L EMA
Estimated Cost: Undetermined
Funding Sources: ALEMA, ADECA, ADEM, local match
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Ongoing weather radio use is actively promoted.
Status: Completed; Ongoing
Future Actions: Continue placement of NOAA weather radios within the community. Use local sponsorship to place radios in areas of consistent hazard danger. Placement should continue to focus on distribution to critical facilities as a priority. Expected timeframe for completion: 1-2 years



Press & Media Mitigation Releases

Partners: Co. Engineer, Co. Commission, local jurisdictions, F-L EMA
Priority: Medium
Lead Responsibility: F-L EMA
Estimated Cost: No additional cost.
Funding Sources: n/a
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Previous actions include ongoing briefings with local media outlets.
Status: Completed
Future Actions: Establish advertising or communication campaigns that are image driven and share methods for mitigating natural hazards within Lauderdale County. Expected timeframe for completion: 3-5 years



LAUDERDALE COUNTY MITIGATION STRATEGIES -
NATURAL RESOURCE PROTECTION:



Sediment & Erosion Control
Partners: County Engineer, County Commission, F-L EMA
Priority: High
Lead Responsibility: County Engineer
Estimated Cost: No additional Cost
Funding Sources: n/a
Mitigating Hazards: Flooding & Landslides
Prior Actions: Implementation through subdivision regulations and building codes.
Status: Completed; Ongoing
Future Actions: Clarify that additional erosion control methods should be put in place that go beyond the erosion caused by new construction. Expected timeframe for completion: 1-3 years



Open Space Easements & Acquisition
Partners: County Commission, Urban Forestry, Planning Dept., F-L EMA
Priority: Low
Lead Responsibility: County Commission
Estimated Cost: Undetermined
Funding Sources: Local and Regional Land Trusts
Mitigating Hazards: Flooding, Hurricanes, Wildfires, Landslides, Sinkholes
Prior Actions: Lauderdale County currently utilizes this mitigation strategy.
Status: Completed
Future Actions: Establish open space and passive recreation as a priority within the county as a hazard mitigation strategy. Expected timeframe for completion: 5 years



Press and Media Mitigation Training Releases and Training Sessions
Partners: Media Outlets, F-L EMA
Priority: Low
Lead Responsibility: County Engineer
Estimated Cost: Not determined at this time.
Funding Sources: PDM, ALEMA
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Scheduled media interview after hazard occurrence.
Status: Completed; Ongoing
Future Actions: Develop in conjunction with media entities a workshop program for staff to learn about mitigation efforts. Expected timeframe for completion: 3-5 years

LAUDERDALE COUNTY MITIGATION STRATEGIES - STRUCTURAL PROJECTS:



Storm Water Diversion Culverts
Partners: County Engineer, ALDOT
Priority: High
Lead Responsibility: Not Determined
Estimated Cost: Not determined at this time.
Funding Sources: Local Funds, ALDOT
Mitigating Hazards: Floods
Prior actions: Continued efforts from last plan update.
Status: Completed; Ongoing
Future Actions: Identify in conjunction with the county engineer specific sites for storm water diversion projects. Identification should take place in conjunction with community participants and local leadership. Expected timeframe for completion: 1-3 years



Retaining Walls
Partners: County Commission, County Engineer, F-L EMA
Priority: Low
Lead Responsibility: County Engineer
Estimated Cost: Not determined at this time.
Funding Sources: Local Funds
Mitigating Hazards: Landslides, Technical Hazards
Prior Actions: Ongoing efforts to construct any needed retaining walls along county rights-of-way continues.
Status: Completed; Ongoing
Future Actions: Continue to identify maintenance areas and needed retaining walls as they arise. Expected timeframe for completion: 5 years



Neighborhood & Community Safe Rooms
Partners: Co. Engineer, Co. Commission, Church & Community Centers.
Priority: High
Lead Responsibility: F-L EMA
Estimated Cost: Not determined at this time.
Funding Sources: ALEMA, PDM, ADECA, Local Funds
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Continued efforts from last plan update.
Status: Completed
Safe room applications for grant recipients available to residents from EMA; 16 known safe rooms and/or shelters exist throughout the county
Future Actions: Continue to support development of and seek funds for community safe rooms within Lauderdale County. Expected timeframe for completion: annually





TOWN OF ANDERSON
MITIGATION STRATEGIES -
PREVENTION:



Comprehensive Planning
Partners: F-L EMA, AEMA, NACOLG, Town Planning Commission, Town Council
Priority: Low
Lead Responsibility: Town Planning Commission
Estimated Cost: \$15,000.00 to \$25,0000.00
Funding Sources: Local Match, ADECA, PDM
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued effort from last plan update.
Status: Not completed.
Future Actions: Seek support for comprehensive planning for hazard mitigation in the Town of Anderson through community discussions. Evaluate political will and available funding sources. Estimated timeframe for completion: 3 to 5 years

Building Codes & Construction Requirements
Partners: County Engineer, Town Planning Commission, Town Council
Priority: Medium
Lead Responsibility: Town Planning Commission, Town Council
Estimated Cost: No Additional Cost
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous action.
Status: Completed; Ongoing
Future Actions: Evaluate local codes being applied in within municipal limits and review for additional action. Expected timeframe for completion: 3-5 years



Capital Improvements Programs
Partners: County Engineer, F-L EMA, Town Planning Commission, Town Council
Priority: Medium
Lead Responsibility: County Engineer
Estimated Cost: No Additional Cost.
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous action.
Status: Not completed.
Future Actions: Seek support for establishing a five year improvements plan to include capital projects that are identified in the hazard mitigation planning process. Estimated timeframe for completion: 3-5 years



Open Space Preservation
Partners: Town Planning Commission, Town Council ,AL Land Conservancy, Landowners, F-L EMA
Priority: Low
Lead Responsibility: Town Planning Commission, Town Council
Estimated Cost: \$10,000.00 to \$20,000.00 per donation
Funding Sources: AL Land Conservancy, Local Match, ALEMA, ADECA
Mitigating Hazards: Flooding, Hurricanes, Wildfires, Landslides, Sinkholes
Prior Actions: No previous effort
Status: Not completed.
Future Actions: Identify potential funding sources and partners and prioritize areas of needed open space within the jurisdiction. Estimated timeframe for completion: 3 to 5 years



Land Use Development Regulations
Partners: ADECA, HUD, NACOLG, Town Planning Commission, Town Council
Priority: Low
Lead Responsibility: Town Planning Commission, Town Council
Estimated Cost: No additional cost at this time.
Funding Sources: Local Match
Mitigating Hazards: Flooding, Hurricanes, Wildfires, Dam/Levee Failures, Technical Hazards
Prior Actions: No prior actions.
Status: Not completed.
Future Actions: The town should evaluate and implement their adopted development regulations. Estimated timeframe for completion: 3 to 5 years



Subdivision Regulations
Partners: Town Planning Commission, Town Council F-L EMA, County Engineer,
Priority: Low
Lead Responsibility: Town Planning Commission, Town Council
Estimated Cost: No Additional Cost.
Funding Sources: ADECA, Local Match, PDM
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous actions.
Status: Not completed.
Future Actions: The town should evaluate and implement their adopted subdivision regulations. Estimated timeframe for completion: 3 to 5 years



Flood Plain Management Programs
Partners: Town Planning Commission, Town Council, F-L EMA, County Engineer, TVA,
Priority: High
Lead Responsibility: Town Planning Commission, Town Council
Estimated Cost: Not determined at this time.
Funding Sources: ADECA, ADEM, PDM, AEMA
Mitigating Hazards: Flooding, Severe Storms, Dam/Levee Failures
Prior Actions: Previous actions consist of NFIP local administration guidance and working with state NFIP coordinator.
Status: Completed; Ongoing
Future Actions: Evaluate methodologies for strengthening the NFIP program through flood plain management. Expected timeframe for completion: annually



Burn Permits
Partners: Town Council ,County Sheriff's Dept., Local Fire Dept., Urban Forestry
Priority: High
Lead Responsibility: Town Council, County Sheriff's Dept., Local Fire Dept.
Estimated Cost: No Additional Cost
Funding Sources: n/a
Mitigating Hazards: Wildfires, Landslides
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Continue public awareness through public outreach programs. Estimated timeframe for completion: 1 to 3 years

TOWN OF ANDERSON
MITIGATION STRATEGIES -
PREVENTION (CONTINUED):



Safe Shelter Site Planning
Partners: F-L EMA, County Engineer, Mayor and Town Council
Priority: High
Lead Responsibility: Mayor & Council
Estimated Cost: \$8,000.00
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued efforts from previous plan update.
Status: Completed.
Future Actions: Evaluate a scope of work and funding sources to identify current safe shelters and future needs for safe shelters. Planning should identify appropriate sites for appropriately locating the safe shelter. Expected timeframe for completion: 1-3 years



Public Right-of-Way Maintenance Regulations
Partners: Mayor and Town Council, County Engineer, County Commission, F-L EMA, ALDOT
Priority: High
Lead Responsibility: Town Council, County Engineer, ALDOT
Estimated Cost: Not determined at this time.
Funding Sources: ALDOT, HMGP, PDM
Mitigating Hazards: Flooding
Prior Actions: No previous actions.
Status: Not completed.
Future Actions: Monitor and document needed right-of-way maintenance and sharing information to the correct and corresponding entities. Estimated timeframe for completion: 1 to 3 years



Mitigation Planning Technology Support
Partners: F-L EMA, FEMA, ALEMA, Mayor and Town Council
Priority: High
Lead Responsibility: Mayor and Council
Estimated Cost: Undetermined
Funding Sources: PDM, Local Funds, County Funds
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Continued efforts from last plan update.
Status: Completed; Ongoing
Future Actions: Continuing to oversee future installation of five additional warning sirens in the community of Anderson. Expected timeframe for completion: 1-3 years



Emergency Power Generation
Partners: Co. Engineer, F-L EMA, AEMA, ADECA, Mayor and Council
Priority: Medium
Lead Responsibility: Mayor & Council
Estimated Cost: Undetermined
Funding Sources: HMGP, ALEMA, PDM
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Continued effort from last plan update.
Status: Completed; Ongoing
Future Actions: Identify critical facilities in Anderson that do not have emergency power and pursue funds within the planning period to provide emergency power. Expected timeframe for completion: 3-5 years





TOWN OF ANDERSON
MITIGATION STRATEGIES -
NATURAL RESOURCE PROTECTION:



Wetland Restoration and Wetland Preservation
Partners: Town Council, F-L EMA, UNA, ADEM, EPA
Priority: Low
Lead Responsibility: Mayor & Council
Estimated Cost: Undetermined
Funding Sources: ADEM, EPA
Mitigating Hazards: Flooding
Prior Actions: No previous actions.
Status: Not completed.
Future Actions: Identify areas within the planning jurisdiction appropriate for wetland restoration and preservation. Estimated timeframe for completion: 3-5 years

TOWN OF ANDERSON
MITIGATION STRATEGIES -
STRUCTURAL PROJECTS:



Neighborhood & Community Safe Rooms
Partners: Mayor & Council, F-L EMA, Local Churches and Community Centers.
Priority: High
Lead Responsibility: F-L EMA, Town Council
Estimated Cost: Not determined at this time
Funding Sources: ALEMA, PDM, ADECA, Local Funds
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: No previous action taken.
Status: Not completed.
Future Actions: Identify any future needs for safe centers within the town and update existing safe centers. Attempt to use multi-use facilities that are occupied at other times than during storm periods. Estimated timeframe for completion: 1 to 3 years

CITY OF FLORENCE
MITIGATION STRATEGIES -
PREVENTION:



Comprehensive Planning
Partners: F-L EMA, AEMA, Utilities Department, ALDOT, Florence Port Authority, Univ of North Alabama (UNA)
Priority: Low
Lead Responsibility: Florence Planning Department
Estimated Cost: \$80,000.00 to \$120,000.00
Funding Sources: ADECA, PDM, Local Match, HUD
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: City of Florence completed an update to the comprehensive plan in 2007.
Status: Completed.
Future Actions: Continue implementation of the existing comprehensive plan while documenting needs for future updates. Expected timeframe for completion: update every 5 years



Building Codes & Construction Requirements
Partners: F-L EMA, Florence Planning Department
Priority: Medium
Lead Responsibility: Florence Building Department
Estimated Cost: No Additional Cost
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Yearly review and evaluation of updates.
Status: Completed.
Future Actions: Evaluate future needs to meet identified hazard risks and any identified mitigation strategies related to updating local building codes within the city. Expected timeframe for completion: 3-5 years



Capital Improvements Programs
Partners: Mayor/Council, City Engineer, Florence Planning, Parks and Recreation, General Fund Accounting
Priority: Medium
Lead Responsibility: Mayor/Council
Estimated Cost: No Additional Cost
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Previous actions include updating the five year capital improvements program.
Status: Completed.
Future Actions: Evaluate the existing capital improvements program for additions to complete identified hazard mitigation strategies within the city. Expected timeframe for completion: 3-5 years



Open Space Preservation
Partners: F-L EMA, AEMA, City Engineer, Parks and Recreation, Florence Planning Department
Priority: Low
Lead Responsibility: Parks and Recreation
Estimated Cost: Undetermined
Funding Sources: AEMA, Local Match, ADECA, HMGP, Pre-Disaster Mitigation (PDM), Flood Mitigation Ass. (FMA), AL Land Trusts
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued efforts to establish passive recreational facilities.
Status: Completed.
Future Actions: Update map and prioritize needed open space lands within the City of Florence. Once generalized areas have been identified there should be selection of potential properties and cost estimates assigned to each. Expected timeframe for completion: 5 years



Storm Water Management
Partners: F-L EMA, ADEM, AEMA, Florence Planning Dept. Florence Building Dept.
Priority: Low
Lead Responsibility: City Engineer
Estimated Cost: Not estimated
Funding Sources: AEMA, Local Match, ADECA, HMGP, Pre-Disaster Mitigation (PDM), Flood Mitigation Assistance. (FMA), ADEM
Mitigating Hazards: Flooding, Severe Storms, Dam/Levee Failures
Prior Actions: City has storm water management ordinance and permits in place.
Status: Completed
Future Actions: Seek contemporary methods to mitigate storm water runoff through constructed wetlands and road side containment methods. Expected timeframe for completion: 3-5 years



Land Use Development Regulations
Partners: ADECA, HUD, NACOLG, Florence Building Dept., City Engineer, Florence Planning Commission
Priority: Low
Lead Responsibility: Florence Planning Department
Estimated Cost: No additional cost at this time
Funding Sources: Local Match
Mitigating Hazards: Flooding, Hurricanes, Wildfires, Dam/Levee Failures, Technical Hazards
Prior Actions: Land use development regulations are in place for the City of Florence.
Status: Completed.
Future Actions: The city will continue to evaluate and implement the development regulations daily. Expected timeframe for completion: 3-5 years

Subdivision Regulations
Partners: City Engineer, Florence Utilities, Florence Building Department, Florence Planning Department
Priority: Low
Lead Responsibility: City Engineer/Florence Planning Dept.
Estimated Cost: No additional cost
Funding Sources: Not applicable
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: The City of Florence has subdivision regulations in place and is implementing the existing comprehensive plan
Status: Completed
Future Actions: Continue to monitor the current subdivision regulations for potential updates and opportunities to mitigate identified hazard risks. Expected timeframe for completion: 3-5 years

Flood Plain Management Programs
Partners: F-L EMA, ADEM, TVA, Florence Port Authority, City Engineer
Priority: Low
Lead Responsibility: Florence Engineering Dept., Florence Building Dept.
Estimated Cost: \$20,000.00
Funding Sources: AEMA, Local Match, ADECA, HMGP, Pre-Disaster Mitigation (PDM), Flood Mitigation Ass. (FMA)
Mitigating Hazards: Flooding, Severe Storms, Dam/Levee Failures
Prior Actions: City of Florence currently relies on TVA and their storm water management program to implement flood plain management.
Status: Completed
Future Actions: Continue support for existing programs and identify two to three improvements that need to be made. Expected timeframe for completion: 5 years





CITY OF FLORENCE
MITIGATION STRATEGIES -
PREVENTION (CONTINUED):



Levee & Dam Management
Partners: F-L EMA, AEMA, TVA, City Engineer
Priority: Low
Lead Responsibility: City Engineer
Estimated Cost: No additional cost
Funding Sources: Not applicable
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Ongoing coordination with TVA and its dam management program. This includes coordinating road closing within the city with the department of transportation.
Status: Completed; Ongoing
Future Actions: Continue municipal coordination with TVA and F-L EMA. The city has no municipal dams or levees to manage within its jurisdiction. Expected timeframe for completion: 3-5 years



Burn Permits
Partners: Florence Police Dept., Florence Urban Forestry Dept., Florence Building Department
Priority: High
Lead Responsibility: Florence Building Department
Estimated Cost: No Additional Cost
Funding Sources: n/a
Mitigating Hazards: Wildfires, Landslides
Prior Actions: Burn permits are in place and enforced.
Status: Completed.
Future Actions: Continue public awareness through public outreach programs. Expected timeframe for completion: annually



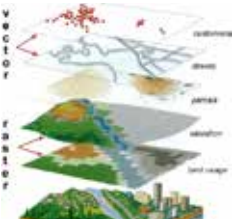
Safe Shelter Site Planning
Partners: F-L EMA, City Engineer, AEMA, ADECA, Florence Planning Dept.
Priority: High
Lead Responsibility: Florence-Lauderdale EMA
Estimated Cost: \$20,000.00 to \$35,000.00
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued efforts from last plan update.
Status: Completed; Ongoing
Future Actions: Initiate planning study for sectors within the city that are in need of safe shelters. Criteria for this study should be established that include use of existing or multifunctional structures like churches. Expected timeframe for completion: 1-3 years



Public Right-of-Way Maintenance Regulations
Partners: County Engineer, F-L EMA, ALDOT
Priority: High
Lead Responsibility: City Engineer, ALDOT
Estimated Cost: Not determined at this time
Funding Sources: ALDOT, HMGP, PDM, Local Match
Mitigating Hazards: Flooding
Prior Actions: Previous actions include ongoing maintenance.
Status: Completed; Ongoing
Future Actions: Continue to monitor and document needed right-of-way maintenance and sharing information to the correct entities. Expected timeframe for completion: 1-3 years



Critical Facility Assessments
Partners: F-L EMA, City Schools, Florence Planning Dept., Building Department.
Priority: Low
Lead Responsibility: City Engineer
Estimated Cost: Not determined at this time.
Funding Sources: Not determined at this time.
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous action taken.
Status: Completed; Ongoing
Future Actions: Establish critical facility minimum standards for the City of Florence and its school system. The assessment should address building and site vulnerabilities to hazards. Expected timeframe for completion: 3-5 years



Geographic Information Systems
Partners: Florence Planning Dept., F-L EMA, Jurisdictions
Priority: Medium
Lead Responsibility: Florence Planning Department
Estimated Cost: No additional cost.
Funding Sources: Not applicable
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: GIS data has been gathered through a collective agreement of participating jurisdictions.
Status: Completed
Future Actions: Completion of the current land use update for the City of Florence. Expected timeframe for completion: 3-5 years



Planning & Land Use Studies
Partners: F-L EMA, City Engineer, Municipal Departments
Priority: Low
Lead Responsibility: Florence Planning Department
Estimated Cost: Undetermined
Funding Sources: ADECA, HUD, ALEMA, ADEM, USDA
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Florence Comprehensive Plan, East Florence Plan, West Florence Plan
Status: Completed.
Future Actions: Evaluate plans for update to include hazard mitigation components. Identify two to three mitigation land use components to include in the next municipal planning document. Expected timeframe for completion: 3-5 years



Mitigation Planning Technology Support
Partners: F-L EMA, AEMA, FEMA, UNA
Priority: High
Lead Responsibility: F-L EMA
Estimated Cost: Undetermined
Funding Sources: ALEMA, ADECA, ADEM, local match
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Implemented telephone based warning system.
Status: Completed
Future Actions: Continue implementation of telephone based warning system as requested by communities and update existing ones. Evaluation of installing a telephone based warning system. Expected timeframe for completion: 1-3 years

CITY OF FLORENCE
MITIGATION STRATEGIES -
PROPERTY PROTECTION:



Real-Estate Flood Prone Property Acquisition
Partners: F-L EMA, Florence Planning Department, AEMA, ADECA
Priority: High
Lead Responsibility: City Engineer
Estimated Cost: Not determined
Funding Sources: AEMA, ADECA, HMGP, PDM, NFIP, Local Funds
Mitigating Hazards: Floods
Prior Actions: Property purchases have occurred in previous years.
Status: Completed; Ongoing
Future Actions: Continue public education and discussions with potential property owners in need of purchase. Specifically evaluate repetitive loss properties in the City of Florence. Expected timeframe for completion: 1-3 years

Flood Prone Building Proofing and Retrofitting
Partners: F-L EMA, Florence Planning Department, AEMA, ADECA
Priority: Low
Lead Responsibility: City Engineer
Estimated Cost: Not determined
Funding Sources: AEMA, ADECA, HMGP, PDM, NFIP, Local Funds
Mitigating Hazards: Floods
Prior Actions: No previous actions.
Status: Completed; Ongoing
Future Actions: Identify buildings in floodplain areas that cannot be moved in the near future but could benefit from redesign or modifications to lessen adverse impacts from flooding events. Expected timeframe for completion: 3-5 years



Critical Facilities Protection
Partners: F-L EMA, County Engineer, County Commissioners, Incorporated Areas
Priority: High
Lead Responsibility: City Engineer/Florence Building Department
Estimated Cost: Undetermined
Funding Sources: AEMA, ADECA, HMGP, PDM, FEMA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued efforts from last plan update.
Status: Completed; Ongoing
Future Actions: Target funding sources to complete redesign of critical facilities if identified in the critical facility analysis. Expected timeframe for completion: 3-5 years



Freeboard Requirements for Building Elevations
Partners: F-L EMA, Florence Planning Department, AEMA, ADECA
Priority: Low
Lead Responsibility: City Engineer
Estimated Cost: Not determined
Funding Sources: AEMA, ADECA, HMGP, PDM, NFIP, Local Funds
Mitigating Hazards: Floods
Prior Actions: No previous actions.
Status: Not completed.
Future Actions: Identify areas in floodplains where freeboard elevations might be applicable and determine if local guidelines and codes should be developed and enforced. Estimated time frame for completion: 3 to 5 years



Emergency Power Generation
Partners: F-L EMA, City Engineer, Building Department
Priority: High
Lead Responsibility: Florence Utilities Department
Estimated Cost: Undetermined
Funding Sources: Funding determined on a project by project basis.
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Ongoing emergency power generation efforts
Status: Completed
Future Actions: Clarify specific entities that need emergency power generation and document them. Then complete the power generation projects once funds have been identified. Expected timeframe for completion: 1-3 years



Separate Sewer System Collection & Protection
Partners: Florence Planning Department Areas
Priority: Low
Lead Responsibility: Florence Utility Department
Estimated Cost: Undetermined
Funding Sources: Determined upon project clarification.
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Evaluation and cost estimates have been reviewed for specific projects.
Status: Completed; Ongoing
Future Actions: Clarify time table and funding sources for completing separate sewer and storm water collection. Expected timeframe for completion: 5 years

Storm Shutter Programs and Installation
Partners: City Engineer
Priority: Low
Lead Responsibility: Building Department
Estimated Cost: Determined on project by project basis
Funding Sources: Undetermined
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous actions taken.
Status: Not completed
Future Actions: Determine what locations and building in the City would benefit from storm shutter installation and explore funding options for interested entities. Estimated timeframe for completion: 3 to 5 years



Installation of Shatter Resistant Glass and Building Retrofit
Partners: City Engineer
Priority: Low
Lead Responsibility: Building Department
Estimated Cost: Determined on project by project basis
Funding Sources: Undetermined
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued efforts from previous plan update.
Status: Not completed
Future Actions: Clarify that shatter resistant glass is required within municipal building codes within the city for all commercial properties. Evaluate further implementation of the requirement on a cost benefit analysis. Estimated timeframe for completion: 3 to 5 years





CITY OF FLORENCE
MITIGATION STRATEGIES -
PUBLIC EDUCATION & AWARENESS:



Public Education and Awareness:

Outreach Projects
Partners: F-L EMA, City Engineer, Florence Planning Department
Priority: High
Lead Responsibility: Florence-Lauderdale EMA
Estimated Cost: \$5,000.00 to \$7,000.00 annually
Funding Sources: AEMA, PDM, Local Funds
Mitigating Hazards: May assists in mitigating all hazards.
Prior Actions: Continued efforts from previous plan update.
Status: Completed
Future Actions: Select the greatest impacting hazard to the City of Florence and initiate an educational program to mitigate that hazard. Quantitative data indicates that floods are the most costly hazard in Florence and the region. Expected timeframe for completion: 1-3 years

Real-Estate Disclosure Requirements
Partners: F-L EMA, Local and regional legislative delegation, Municipal Attorney.
Priority: Low
Lead Responsibility: Mayor & Council
Estimated Cost: Not estimated
Funding Sources: n/a
Mitigating Hazards: Flooding
Prior Actions: Continued efforts from last plan update.
Status: Completed
Future Actions: Initiate discussions within the council to decide whether further real-estate disclosure is necessary to prevent repetitive loss properties from continued development. Expected timeframe for completion: 5 years



Hazard Information Kiosk and Centers
Partners: Florence Planning Dept., County Engineer, City Engineer, Commissioners, Mayor & Council
Priority: Low
Lead Responsibility: F-L EMA
Estimated Cost: Undetermined
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: May assists in mitigating all hazards.
Prior Actions: Continued efforts from last plan update.
Status: Not completed
Future Actions: Establish with department representatives the type and location for a hazard mitigation kiosk. The kiosk should be developed in a way to encourage interactive learning. Estimated timeframe for completion: 3 to 5 years

School Age Education Programs
Partners: F-L EMA, Mayor & Council
Priority: Medium
Lead Responsibility: Florence City Schools
Estimated Cost: \$10,000.0 to 15,000.00
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued efforts from last plan update.
Status: Completed
Future Actions: Clarify partners and scope of educational program to be implemented within the school system. FEMA should be able to recommend specific school age programs for the Florence School District. Expected timeframe for completion: 3-5 years

Adult & Community Education Programs
Partners: University of North Alabama, GED Programs, Mayor & Council
Priority: High
Lead Responsibility: F-L EMA
Estimated Cost: \$10,000.00 to \$15,000.00
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous actions taken.
Status: Completed
Future Actions: Educational program should be clarified for types of hazards to be discussed as well as method for reaching the desired audience. This program could come as a public service announcement with a second component of discussing hazards with to local civic clubs and groups. Expected timeframe for completion: 1-2 years



Hazard Mitigation Plan & Pamphlet Distribution
Partners: F-L EMA, AEMA, ADEM
Priority: High
Lead Responsibility: City Engineer
Estimated Cost: \$3,000.00 to \$5,000.00
Funding Sources: AEMA, ADECA, HMGP, PDM
Mitigating Hazards: Assists in mitigating hazards discussed.
Prior Actions: Publication of the 2010 Mitigation Plan.
Status: Completed
Future Actions: Clarify funding sources and specify hazard to be discussed in the pamphlet and its strategy for mitigating the specific hazard. This hazard can occur heavily within the city or be part of a broad county wide initiative with other jurisdictions. Expected timeframe for completion: 1-2 years

Flood Map Information Distribution
Partners: F-L EMA, Mayor & Council, FEMA, NFIP State Coordinator
Priority: High
Lead Responsibility: Florence Building Dept., Florence Engineering Dept.
Estimated Cost: Undetermined
Funding Sources: AEMA, ADECA, HUD
Mitigating Hazards: Floods
Prior Actions: Continued effort from previous plan update.
Status: Completed
Future Actions: Initiate discussion with NFIP Coordinator and AEMA to acquire current methods of distributing flood map information to the general public. These methods should be evaluated for use in the City of Florence and modified accordingly. Expected timeframe for completion: 1-2 years

NOAA Weather Radio Programs
Partners: F-L EMA, Mayor & Council
Priority: Low
Lead Responsibility: F-L EMA
Estimated Cost: Undetermined
Funding Sources: AEMA, FMA, PDM Local Non-Profits
Mitigating Hazards: Tornadoes, Flooding, Severe, Storms, Hurricanes, Winter Freezes, Earthquakes, Drought
Prior Actions: Distribution of weather radios to critical facilities.
Status: Completed
Future Actions: Develop NOAA weather radio public and private partners. Local companies can contribute to a fund to distribute NOAA weather radio's to low income and identified families and entities. Expected timeframe for completion: 3-5 years

CITY OF FLORENCE
MITIGATION STRATEGIES - PUBLIC
EDUCATION & AWARENESS (CONT'D):

CITY OF FLORENCE
MITIGATION STRATEGIES -
NATURAL RESOURCE PROTECTION:



Press & Media Mitigation Releases
Partners: F-L EMA, Mayor & Council, Municipal Departments
Priority: Low
Lead Responsibility: Florence City Clerk, Florence-Lauderdale EMA
Estimated Cost: No additional cost.
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued efforts from previous plan.
Status: Completed
Future Actions: Identify funding sources to complete an existing needs assessment and site selection process for safe shelters in the county and incorporated areas. Expected timeframe for completion: 3-5 years



Sediment & Erosion Control
Partners: Mayor & Council
Priority: High
Lead Responsibility: City Engineer
Estimated Cost: No additional Cost
Funding Sources: n/a
Mitigating Hazards: Flooding & Landslides
Prior Actions: Ordinance for Erosion Control and Sediments is in place.
Status: Completed
Future Actions: Clarify that additional erosion control methods should be put in place that go beyond the erosion caused by new construction. Expected timeframe for completion: 1-3 years



Stream / River Corridor Restoration
Partners: Mayor & Council, F-L EMA, Recreational Dept, Florence Planning Dept., Urban Forestry Dept.
Priority: Low
Lead Responsibility: City Engineer
Estimated Cost: Not determined at this time
Funding Sources: ADEM, AEMA, Local Funds, HUD, EPA
Mitigating Hazards: Flooding
Prior Actions: Municipal cleanup programs have occurred.
Status: Completed
Future Actions: Evaluation of current stream and tributary inventory for future restoration. Expected timeframe for completion: 3-5 years



Watershed Management Programs
Partners: F-L EMA, Mayor & Council, City Engineer, TVA
Priority: Low
Lead Responsibility: Undetermined
Estimated Cost: Undetermined
Funding Sources: TVA
Mitigating Hazards: Flooding, Severe Storms, Hurricanes, Sinkholes, Landslides, Drought, Technical Hazards
Prior Actions: See Comprehensive Planning Document
Status: Completed
Future Actions: Clarify need for expansion of local watershed management in Florence and potential for cooperating with a county wide initiative. Expected timeframe for completion: 3-5 years



Forest and Vegetation Management
Partners: Alabama Forest Commission (AFC), AL Cooperative Extension Service
Priority: Low
Lead Responsibility: City of Florence Planning Dept.
Estimated Cost: Not determined
Funding Sources: Not determined
Mitigating Hazards: Wildfires, Landslides, Sinkholes
Prior Actions: Ongoing support of the AFC
Status: Completed
Future Actions: Continue to develop and promote best management practices for forests in conjunction with the AFC. This information needs to be further disseminated to local landowners by extension service providers. Expected timeframe for completion: 3-5 years



Wetland Restoration and Preservation
Partners: Mayor & Council, City Engineer, Building Dep.
Priority: Low
Lead Responsibility: Florence Engineering Dept.
Estimated Cost: No additional cost
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: Flooding
Prior Actions: Ordinances protecting existing wetlands.
Status: Completed
Future Actions: Section 404 Permitting requires a permit from the Army Corps of Engineers when modifying a wetland area. Evaluation of existing wetlands within the city should be reevaluated and determined whether further action should be taken. Expected timeframe for completion: 3-5 years





CITY OF FLORENCE
MITIGATION STRATEGIES - NATURAL
RESOURCE PROTECTION (CONT'D):



Open Space Easements and Acquisition

Partners: Mayor & Council, Urban Forestry, Planning Dept.
Priority: Low
Lead Responsibility: Recreation Department
Estimated Cost: Undetermined
Funding Sources: Local and Regional Land Trusts
Mitigating Hazards: Flooding, Hurricanes, Wildfires, Landslides, Sinkholes
Prior Actions: Continued efforts from previous plan update.
Status: Completed
Future Actions: Establish open space and passive recreation as a priority within recreational planning as a hazard mitigation strategy. This strategy should be weighed against the available density requirements within the city. Expected timeframe for completion: 3-5 years



Urban Forestry Planning Programs

Partners: Mayor & Council, City Engineer, Utility Department, Planning Dept. Recreational Dept.
Priority: Medium
Lead Responsibility: Urban Forestry Department
Estimated Cost: Not determined at this time.
Funding Sources: need to be clarified
Mitigating Hazards: Flooding, Drought, Heat and Wildfires
Prior Actions: Ongoing urban forestry efforts include analysis and daily installation and maintenance programs.
Status: Completed
Future Actions: Clarification for future actions for mitigating specific natural hazards needs to be completed. Expected timeframe for completion: 3-5 years



Media Mitigation Training Sessions

Partners: City Engineer, Mayor & Council, Planning Department
Priority: High
Lead Responsibility: F-L EMA
Estimated Cost: No additional cost
Funding Sources: n/a
Mitigating Hazards: May mitigate all hazards.
Prior Actions: Continued efforts from last plan update.
Status: Not completed
Future Actions: Establish biannual training sessions for local and regional media to be briefed on hazard mitigation and natural disasters. Combining this event with other training sessions or adjacent EMA entities may be of benefit. Estimated timeframe for completion: 1 to 3 years



Water Resource Conservation Programs

Partners: TVA, National Resource Conservation Service (NRCS),
Priority: Low
Lead Responsibility: Florence-Lauderdale EMA, Florence Utilities
Estimated Cost: Not determined at this time.
Funding Sources: NRCS, EPA, ADEM, FEMA
Mitigating Hazards: Flooding, Drought, Heat, Wildfires, Dam/Levee Failure, Landslides, Sinkholes, Technical Hazards.
Prior Actions: Land use and land planning strategies.
Status: Completed
Future Actions: Host a roundtable discussion involving sustainable methods of development for the jurisdiction. This should include a breakout session on water resource protection headed by the NRCS. Expected timeframe for completion: 3-5 years

CITY OF FLORENCE
MITIGATION STRATEGIES -
STRUCTURAL PROJECTS:



Storm Water Flood Walls

Partners: Mayor & Council, F-L EMA, Florence Planning Department
Priority: Low
Lead Responsibility: Street Department/City Engineer
Estimated Cost: Not determined at this time
Funding Sources: Not determined use on an emergency basis.
Mitigating Hazards: Flooding
Prior Actions: Ongoing efforts to mitigate flooding have been underway.
Status: Not completed
Future Actions: Evaluate and identify specific areas that need storm water flood walls that will redirect storm water from undesirable areas until long term mitigation projects can be undertaken. Estimated timeframe for completion: 3 to 5 years



Storm Water Diversion Culverts

Partners: ALDOT, Mayor & Council
Priority: High
Lead Responsibility: Street Department
Estimated Cost: Not determined at this time.
Funding Sources: Local Match, ADEM, AEMA, FEMA
Mitigating Hazards: Flooding
Prior Actions: Continued efforts from previous plan update.
Status: Completed; Ongoing
Future Actions: Identify and document specific areas needing storm water diversion culverts and those that are in need of repair. Each should be mapped for planning purposes and placed in a long range implementation list. Expected timeframe for completion: 1-3 years

CITY OF FLORENCE
MITIGATION STRATEGIES -
STRUCTURAL PROJECTS (CONT'D):



Seawalls
Partners: Mayor & Council, F-L EMA, Planning Dept.
Priority: Low
Lead Responsibility: Street Department, City Engineer
Estimated Cost: Not determined at this time.
Funding Sources: Local, TVA
Mitigating Hazards: Flooding
Prior Actions: No previous actions.
Status: Completed
Future Actions: Identify and document specific areas needing seawalls. Each should be mapped for planning purposes and placed in a long range implementation list. Expected timeframe for completion: 3-5 years



Retaining Walls
Partners: Mayor & Council
Priority: Low
Lead Responsibility: City Engineer
Estimated Cost: Not determined at this time
Funding Sources: Local Funds
Mitigating Hazards: Landslides, Technical Hazards
Prior Actions: Ongoing efforts to construct any needed retaining walls along municipal rights-of-way continues.
Status: Completed
Future Actions: Continue to identify maintenance areas and needed retaining walls as they arise. Expected timeframe for completion: 3-5 years



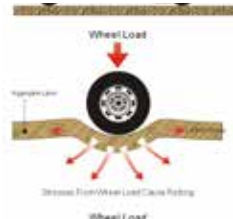
Neighborhood & Community Safe Rooms
Partners: Mayor & Council, F-L EMA, Local Churches and Community Centers.
Priority: High
Lead Responsibility: F-L EMA
Estimated Cost: Not determined at this time.
Funding Sources: ALEMA, PDM, ADECA, Local Funds
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Continued efforts from previous plan update.
Status: Completed
Future Actions: Clarify any future needs for additional safe centers within the city and update existing safe centers. Attempt to use multi-use facilities that are occupied at other times than during storm periods. Expected timeframe for completion: 1-3 years



Dam Modifications
Partners: TVA, F-L EMA, Planning Dept.
Priority: Low
Lead Responsibility: TVA
Estimated Cost: Not determined at this time.
Funding Sources: TVA
Mitigating Hazards: Flooding, Dam Levee Failure
Prior Actions: No previous actions.
Status: Completed
Future Actions: On-going communication and coordination with TVA of all significant dam modifications and changes to adjacent land use. Expected timeframe for completion: 3-5 years



Storm Sewer System Construction
Partners: Mayor & Council, City Engineer,
Priority: High
Lead Responsibility: Utility Department
Estimated Cost: Not determined at this time.
Funding Sources: ADECA, ADEM, PDM, AEMA
Mitigating Hazards: Flooding, Landslides, Sinkhole, Technical Hazards
Prior Actions: Ongoing improvements to the storm sewer system within the city.
Status: Completed
Future Actions: Evaluate current repetitive flood areas and determine whether storm sewer improvements will assist in reducing the flood damage. This should be evaluated in conjunction with real-estate purchase programs as a cost benefit analysis. Expected timeframe for completion: 1-3 years



Ground Stabilization
Partners: Mayor & Council, F-L EMA, Planning Dept.
Priority: Medium
Lead Responsibility: Street Department, City Engineer
Estimated Cost: Not determined at this time.
Funding Sources: Local,
Mitigating Hazards: Most all identified hazards.
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Identify areas within the planning area where soils are unstable and not favorable to new construction without utilizing soil stabilization methods prior to construction. Estimated timeframe for completion: 2 to 4 years



Reservoir Construction
Partners: TVA, F-L EMA, Planning Dept.
Priority: Low
Lead Responsibility: TVA, F-L EMA
Estimated Cost: Not determined at this time.
Funding Sources: Local, FEMA, TVA
Mitigating Hazards: Flooding
Prior Actions: No previous actions.
Status: Completed
Future Actions: Ongoing communication and coordination between partners to determine if reservoir construction is needed. Expected timeframe for completion: 3-5 years





TOWN OF KILLEN
MITIGATION STRATEGIES -
PREVENTION:



Comprehensive Planning
Partners: Mayor & Council, F-L EMA, NACOLG
Priority: Low
Lead Responsibility: Killen Planning Commission
Estimated Cost: \$15,000.00 to \$30,000.00
Funding Sources: Local Funds
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Completion of Killen Comprehensive Plan updated 2008.
Status: Completed
Future Actions: Ongoing implementation of current plan with evaluation for inclusion of identified hazard mitigation principles. Preparation for future planning updates in three to five years from prior plan completion date. Expected timeframe for completion: 3-5 years

Building Codes & Construction Requirements
Partners: Mayor & Council, F-L EMA
Priority: Medium
Lead Responsibility: Codes Enforcement, Town Hall
Estimated Cost: No Additional Cost
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Yearly review and evaluation of updates.
Status: Completed
Future Actions: Evaluate current building code for achieving identified mitigation strategies and identified risks within the risk assessment of this document. Expected timeframe for completion: 3 years



Capital Improvements Programs
Partners: Municipal Departments
Priority: Medium
Lead Responsibility: Mayor & Council
Estimated Cost: No Additional Cost
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous actions taken.
Status: Not completed
Future Actions: Evaluate the use of a capital improvements program within the planning period of this plan for the Town of Killen. Implementation should include funding for specific mitigation strategies for reducing overall risk in the community. Estimated timeframe for completion: 2 to 4 years



Subdivision Regulations
Partners: Local Developers, NACOLG, ADECA
Priority: Low
Lead Responsibility: Mayor & Council
Estimated Cost: No additional cost
Funding Sources: Not applicable
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Town currently uses subdivision regulations to reduce risk to citizens of the community.
Status: Completed
Future Actions: Evaluate the need for updates to the subdivision regulations in regards to the risk assessment and the updated comprehensive plan. Expected timeframe for completion: 3-5 years



Land Use Development Regulations
Partners: ADECA, NACOLG
Priority: Low
Lead Responsibility: Killen Planning Commission
Estimated Cost: No additional cost at this time
Funding Sources: Local Funds
Mitigating Hazards: Flooding, Hurricanes, Wildfires, Dam/Levee Failures, Technical Hazards
Prior Actions: The town currently uses land use development regulations.
Status: Completed
Future Actions: Evaluate the existing regulations for mitigating risk in relation to identified hazards within the town. Adopt any needed updates to the regulations. Expected timeframe for completion: 3-5 years



Flood Plain Management Programs
Partners: F-L EMA, ADEM, TVA, Mayor and Town Council, County Engineer
Priority: Low
Lead Responsibility: Killen Planning Commission, Mayor and Town Council
Estimated Cost: Undetermined
Funding Sources: AEMA, Local Match, ADECA, HMGP, Pre-Disaster Mitigation (PDM), Flood Mitigation Ass. (FMA)
Mitigating Hazards: Flooding, Severe Storms, Dam/Levee Failures
Prior Actions: Participation in the NFIP program with good standing.
Status: Completed
Future Actions: Continue support for NFIP program and implement program's goals and objectives. Expected timeframe for completion: 3-5 years



Burn Permits
Partners: Mayor and Town Council, Sheriff's Dept., Urban Forestry
Priority: High
Lead Responsibility: Mayor and Town Council
Estimated Cost: No Additional Cost
Funding Sources: n/a
Mitigating Hazards: Wildfires, Landslides
Prior Actions: No previous actions.
Status: completed
Future Actions: Continue public awareness through public outreach programs. Expected timeframe for completion: annually



Safe Shelter Site Planning
Partners: F-L EMA, AEMA, ADECA
Priority: High
Lead Responsibility: Mayor & Council
Estimated Cost: No additional cost
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Evaluated current shelters during mitigation planning efforts.
Status: Completed
Future Actions: Evaluate the need for additional shelters and analyze the appropriate site placement prior to seeking property. Expected timeframe for completion: 1-3 years

TOWN OF KILLEN
MITIGATION STRATEGIES -
PREVENTION (CONTINUED):



Public Right-of-Way Maintenance Regulations
Partners: Mayor and Town Council, County Engineer, F-L EMA, ALDOT
Priority: Medium
Lead Responsibility: Mayor and Town Council, County Engineer, ALDOT
Estimated Cost: Not determined at this time.
Funding Sources: ALDOT, HMGP, PDM, Local Match
Mitigating Hazards: Flooding
Prior Actions: No previous actions.
Status: Completed
Future Actions: Monitor and document needed right-of-way maintenance and sharing information to the correct entities. Expected timeframe for completion: 2-4 years



Planning & Land Use Studies
Partners: Mayor and Town Council, F-L EMA, County Engineer
Priority: Low
Lead Responsibility: Mayor and Town Council, Planning Commission
Estimated Cost: Undetermined
Funding Sources: ADECA, HUD, ALEMA, ADEM, USDA
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: The Town has conducted many planning studies over the past decade.
Status: Completed
Future Actions: Evaluate plans for update to include hazard mitigation components. Expected timeframe for completion: 3-5 years

TOWN OF KILLEN
MITIGATION STRATEGIES -
PROPERTY PROTECTION:



Real-Estate Flood Prone Property Acquisition
Partners: Mayor and Town Council, F-L EMA, AEMA, ADECA
Priority: Medium
Lead Responsibility: Mayor and Town Council, County Engineer
Estimated Cost: Not determined
Funding Sources: AEMA, ADECA, HMGP, PDM, NFIP, Local Funds
Mitigating Hazards: Floods
Prior Actions: No previous actions.
Status: Completed
Future Actions: Provide public education and discussions with potential property owners in need of purchase. Specifically evaluate repetitive loss properties in municipal limits. Expected timeframe for completion: 2-4 years



Real-Estate Disclosure Requirements
Partners: F-L EMA, Local and regional legislative delegation, Municipal Attorney.
Priority: Low
Lead Responsibility: Mayor & Council
Estimated Cost: Not estimated
Funding Sources: n/a
Mitigating Hazards: Floods
Prior Actions: Continued efforts from previous plan update.
Status: Completed
Future Actions: Initiate discussions within the council to decide whether further real-estate disclosure is necessary to prevent repetitive loss properties from continued development. Expected timeframe for completion: 3-5 years



Hazard Information Kiosk
Partners: Mayor & Council
Priority: Low
Lead Responsibility: F-L EMA
Estimated Cost: Undetermined
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: May assists in mitigating all hazards
Prior Actions: Continued efforts from last plan update.
Status: Not completed
Future Actions: Install an informative kiosk to promote hazard mitigation within the Town of Killen as well as within the county. Estimated timeframe for completion: 3 to 5 years





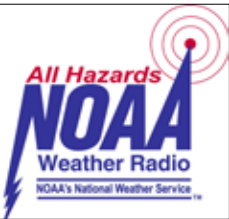
TOWN OF KILLEN
MITIGATION STRATEGIES - PUBLIC
EDUCATION & AWARENESS (CONT'D):



Hazard Mitigation Plan & Pamphlet Distribution
Partners: F-L EMA, AEMA, ADEM
Priority: High
Lead Responsibility: Planning Commission, County Engineer
Estimated Cost: \$3,000.00 to \$5,000.00
Funding Sources: AEMA, ADECA, HMGP, PDM
Mitigating Hazards: Assists in mitigating hazards discussed.
Prior Actions: Publication of the 2010 MHMP.
Status: Completed
Future Actions: Clarify funding sources and specify hazard to be discussed in the pamphlet and its strategy for mitigating the specific hazard. This hazard can occur heavily within the town or be part of a broad county wide initiative with other jurisdictions. Expected timeframe for completion: 1-2 years



Flood Map Information Distribution
Partners: F-L EMA, Mayor & Council, FEMA, NFIP State Coordinator
Priority: High
Lead Responsibility: Planning Commission, Town Council, County Engineer
Estimated Cost: Undetermined
Funding Sources: AEMA, ADECA, HUD
Mitigating Hazards: Floods
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Initiate discussion with NFIP Coordinator and AEMA to acquire current methods of distributing flood map information to the general public. These methods should be evaluated for use in the Town of Killen and modified accordingly. Estimated timeframe for completion: 1 to 3 years



NOAA Weather Radio Programs
Partners: F-L EMA
Priority: Low
Lead Responsibility: Mayor & Council
Estimated Cost: Undetermined
Funding Sources: AEMA, FMA, PDM Local Non-Profits
Mitigating Hazards: Tornadoes, Flooding, Severe, Storms, Hurricanes, Winter Freezes, Earthquakes, Drought
Prior Actions: Distribution of weather radios to critical facilities in Killen
Status: Completed
Future Actions: Develop NOAA weather radio public and private partners. Continue to distribute weather radios to local entities in need. Expected timeframe for completion: 3-5 years



Press & Media Mitigation Releases
Partners: F-L EMA, Mayor & Council, Municipal Departments
Priority: Low
Lead Responsibility: Mayor, Commission, and Council, Florence-Lauderdale EMA
Estimated Cost: No additional cost
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous actions taken.
Status: Not completed
Future Actions: Identify funding sources to complete an existing needs assessment and site selection process for safe shelters in the county and incorporated areas. Estimated timeframe for completion: 3 to 5 years

TOWN OF KILLEN
MITIGATION STRATEGIES -
NATURAL RESOURCE PROTECTION:



Stream / River Corridor Restoration
Partners: Mayor & Council, F-L EMA,
Priority: Low
Lead Responsibility: Planning Commission, Mayor and Council
Estimated Cost: Not determined at this time
Funding Sources: ADEM, AEMA, Local Funds, HUD, EPA
Mitigating Hazards: Flooding
Prior Actions: No previous actions have occurred.
Status: Not completed
Future Actions: Evaluation of current stream and tributary inventory for future restoration. Estimated timeframe for completion: 3 to 5 years



Watershed Management Programs
Partners: F-L EMA, Mayor & Council, County Engineer, TVA
Priority: Low
Lead Responsibility: Undetermined
Estimated Cost: Undetermined
Funding Sources: TVA
Mitigating Hazards: Flooding, Severe Storms, Hurricanes, Sinkholes, Landslides, Drought, Technical Hazards
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Clarify need for expansion of local watershed management in Killen and potential for cooperating with a county wide initiative. Estimated timeframe for completion: 3 to 5 years

TOWN OF KILLEN
MITIGATION STRATEGIES - NATURAL
RESOURCE PROTECTION (CONT'D):



Forest and Vegetation Management
Partners: Alabama Forest Commission (AFC), AL Cooperative Extension Service
Priority: Low
Lead Responsibility: Mayor and Council, Planning Commission
Estimated Cost: Not determined
Funding Sources: Not determined
Mitigating Hazards: Wildfires, Landslides, Sinkholes
Prior Actions: No previous action.
Status: Not completed
Future Actions: Develop and promote best management practices for forests in conjunction with the AFC. Estimated timeframe for completion: 3 to 5 years



Open Space Easements and Acquisition
Partners: Mayor & Council, Planning Commission
Priority: Low
Lead Responsibility: Planning Commission
Estimated Cost: Undetermined
Funding Sources: Local and Regional Land Trusts
Mitigating Hazards: Flooding, Hurricanes, Wildfires, Landslides, Sinkholes
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Establish open space and passive recreation as a priority within recreational planning as a hazard mitigation strategy. This strategy should be weighed against the available density requirements within the town. Estimated timeframe for completion: 3 to 5 years



Media Mitigation Training Sessions
Partners: Mayor & Council, F-L EMA
Priority: High
Lead Responsibility: F-L EMA
Estimated Cost: No additional cost
Funding Sources: n/a
Mitigating Hazards: May mitigate all hazards.
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Establish biannual training sessions for local media to be briefed on hazard mitigation and natural disasters. Combining this event with other training sessions or adjacent EMA entities may be of benefit. Estimated timeframe for completion: 1 to 3 years



Wetland Restoration and Preservation
Partners: Mayor & Council, ADEM
Priority: Low
Lead Responsibility: Mayor and Council, Planning Commission
Estimated Cost: No additional cost
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: Flooding
Prior Actions: Ordinances protecting existing wetlands.
Status: Completed
Future Actions: Section 404 Permitting requires a permit from the Army Corps of Engineers when modifying a wetland area. Evaluation of existing wetlands within the city should be reevaluated and determined whether further action should be taken. Expected timeframe for completion: 3-5 years



Urban Forestry Planning Programs
Partners: Mayor & Council, Planning Commission
Priority: Medium
Lead Responsibility: Planning Commission
Estimated Cost: Not determined at this time.
Funding Sources: Need to be clarified
Mitigating Hazards: Flooding, Drought, Heat and Wildfires
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Clarification for future actions for mitigating specific natural hazards needs to be completed. Estimated timeframe for completion: 2 to 4 years



Water Resource Conservation Programs
Partners: TVA, National Resource Conservation Service (NRCS),
Priority: Low
Lead Responsibility: Florence-Lauderdale EMA, Mayor and Council, Planning Commission
Estimated Cost: Not determined at this time.
Funding Sources: NRCS, EPA, ADEM, FEMA
Mitigating Hazards: Flooding, Drought, Heat, Wildfires, Dam/Levee Failure, Landslides, Sinkholes, Technical Hazards.
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Host a roundtable discussion involving sustainable methods of development for the jurisdiction. This should include discussion on water resource protection headed by the NRCS. Estimated timeframe for completion: 3 to 5 years





TOWN OF KILLEN
MITIGATION STRATEGIES -
STRUCTURAL PROJECTS:



Neighborhood & Community Safe Rooms
Partners: Mayor & Council, F-L EMA, Local Churches and Community Centers.
Priority: High
Lead Responsibility: F-L EMA
Estimated Cost: Not determined at this time.
Funding Sources: ALEMA, PDM, ADECA, Local Funds
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: No previous efforts.
Status: Completed
Future Actions: Clarify any future needs for additional safe centers within the town and update existing safe centers. Attempt to use multi-use facilities that are occupied at other times than during storm periods. Expected timeframe for completion: 1-3 years



Storm Sewer System Construction
Partners: Mayor & Council, County Engineer,
Priority: High
Lead Responsibility: Mayor and Town Council, Planning Commission
Estimated Cost: Not determined at this time.
Funding Sources: ADECA, ADEM, PDM, AEMA
Mitigating Hazards: Flooding, Landslides, Sinkhole, Technical Hazards
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Evaluate current repetitive flood areas and determine whether storm sewer improvements will assist in reducing the flood damage. This should be evaluated in conjunction with real-estate purchase programs as a cost benefit analysis. Estimated timeframe for completion: 1 to 3 years



Ground Stabilization
Partners: Mayor & Council, F-L EMA
Priority: Medium
Lead Responsibility: Mayor and Council, Planning Commission, County Engineer
Estimated Cost: Not determined at this time.
Funding Sources: Local
Mitigating Hazards: Most all identified hazards.
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Identify areas within the planning area where soils are unstable and not favorable to new construction without utilizing soil stabilization methods prior to construction. Estimated timeframe for completion: 2 to 4 years



Reservoir Construction
Partners: TVA, F-L EMA, Mayor and Council
Priority: Low
Lead Responsibility: Mayor and Council, Planning Commission, TVA, F-L EMA
Estimated Cost: Not determined at this time.
Funding Sources: Local, FEMA, TVA
Mitigating Hazards: Flooding
Prior Actions: No previous actions.
Status: Not completed
Future Actions: On-going communication and coordination between partners to determine if reservoir construction is needed. Estimated timeframe for completion: 3 to 5 years

TOWN OF LEXINGTON
MITIGATION STRATEGIES -
PREVENTION:



Comprehensive Planning
Partners: Mayor & Council, F-L EMA, NACOLG
Priority: Low
Lead Responsibility: Mayor & Council
Estimated Cost: \$15,000.00 to \$30,000.00
Funding Sources: Local Funds
Mitigating Hazards: Assists in mitigating all hazards
Prior Actions: Continued efforts from previous plan update.
Status: Not completed
Future Actions: Continue to implement the comprehensive plan developed and adopted by the planning commission. Estimated timeframe for completion: 3 to 5 years



Flood Plain Management Programs
Partners: F-L EMA, ADEM, TVA, County Engineer
Priority: Low
Lead Responsibility: Mayor & Council
Estimated Cost: Not determined
Funding Sources: AEMA, Local Match, ADECA, HMGP, Pre-Disaster Mitigation (PDM), Flood Mitigation Ass. (FMA)
Mitigating Hazards: Flooding, Severe Storms, Dam/Levee Failures
Prior Actions: Participates in the NFIP and is in good standing.
Status: Completed
Future Actions: Continued participation and implementation of NFIP policies and objectives. Expected timeframe for completion: 3-5 years



Safe Shelter Site Planning
Partners: F-L EMA, AEMA, ADECA
Priority: High
Lead Responsibility: Mayor & Council
Estimated Cost: \$3,000.00 to \$5,000.00
Funding Sources: Local Funds, AEMA, FEMA, ADECA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Evaluated current shelters during mitigation planning efforts.
Status: Completed
Future Actions: Continue to evaluate the need for additional shelters and analyze the appropriate site placement prior to seeking property. Expected timeframe for completion: 1-3 years



Public Right-of-Way Maintenance Regulations
Partners: County Engineer, County Commission, F-L EMA, ALDOT
Priority: High
Lead Responsibility: Mayor & Council
Estimated Cost: Not determined at this time.
Funding Sources: ALDOT, HMGP, PDM
Mitigating Hazards: Flooding
Prior Actions: Previous actions include ongoing maintenance.
Status: Completed
Future Actions: Continue to monitor and document needed right-of-way maintenance and sharing information to the correct and corresponding entities. Expected timeframe for completion: 1-3 years



Mitigation Planning Technology Support
Partners: Mayor & Council, AEMA, FEMA,
Priority: High
Lead Responsibility: F-L EMA
Estimated Cost: Undetermined
Funding Sources: ALEMA, ADECA, ADEM, local match
Mitigating Hazards: All hazards may be mitigated
Prior Actions: Town of Lexington continues to work with the county EMA to implement mitigation technologies.
Status: Completed; Ongoing
Future Actions: Continue implementation of warning sirens as identified and update existing ones. Evaluate the need for installing a telephone based warning system. Expected timeframe for completion: 1-3 years





TOWN OF LEXINGTON
MITIGATION STRATEGIES -
PROPERTY PROTECTION:



Emergency Power Generation
Partners: F-L EMA
Priority: Low
Lead Responsibility: Mayor & Council
Estimated Cost: Undetermined
Funding Sources: Funding determined on a project by project basis
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Ongoing emergency power generation efforts in conjunction with the county EMA.
Status: Completed
Future Actions: Evaluate further emergency power generation needs within the town in conjunction with the County EMA. Expected timeframe for completion: 3-5 years

TOWN OF LEXINGTON
MITIGATION STRATEGIES -
PUBLIC EDUCATION & AWARENESS:



Hazard Information Kiosk
Partners: Mayor & Council
Priority: Low
Lead Responsibility: F-L EMA
Estimated Cost: Undetermined
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: May assists in mitigating all hazards.
Prior Actions: Continued efforts from previous plan update.
Status: Not completed
Future Actions: In conjunction with the F-L EMA there should be a kiosk type and location selected to promote hazard mitigation within the Town of Lexington. In addition, the town supports all outreach and media development projects. Estimated timeframe for completion: 3 to 5 years

TOWN OF LEXINGTON
MITIGATION STRATEGIES -
STRUCTURAL PROJECTS:



Neighborhood & Community Safe Rooms
Partners: F-L EMA, Local Churches and Community Centers.
Priority: High
Lead Responsibility: Mayor & Council
Estimated Cost: Not determined at this time.
Funding Sources: ALEMA, PDM, ADECA, Local Funds
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Continued efforts from previous plan update.
Status: Completed
Future Actions: Clarify any future needs for additional safe centers within the city and update existing safe center facilities. Attempt to use multi-use facilities that are occupied at other times than only during storm periods. Expected timeframe for completion: 1-3 years



Storm Water Flood Walls
Partners: F-L EMA, County Engineer
Priority: Low
Lead Responsibility: Mayor & Council
Estimated Cost: Not determined at this time.
Funding Sources: Undetermined, case-by-case basis.
Mitigating Hazards: Flooding
Prior Actions: Ongoing efforts to mitigate flooding have been underway.
Status: Not completed
Future Actions: Evaluate and identify specific areas that need storm water floodwalls that will redirect storm water from undesirable areas until long-term mitigation projects can be undertaken. Estimated timeframe for completion: 3 to 5 years

TOWN OF ROGERSVILLE
MITIGATION STRATEGIES -
PREVENTION:



Comprehensive Planning
Partners: F-L EMA, AEMA, NACOLG
Priority: Low
Lead Responsibility: Mayor and Council
Estimated Cost: \$15,000.00 to \$25,0000.00
Funding Sources: Local Match, ADECA, PDM
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Existing land use regulations and zoning map have been implemented.
Status: Not completed
Future Actions: Seek support for continued comprehensive plan implementation in the Town of Rogersville through community discussions. Evaluate political will and available funding sources. Estimated timeframe for completion: 3 to 5 years



Flood Plain Management Programs
Partners: F-L EMA, County Engineer, TVA,
Priority: High
Lead Responsibility: Mayor & Council
Estimated Cost: Not determined at this time.
Funding Sources: ADECA, ADEM, PDM, AEMA
Mitigating Hazards: Flooding, Severe Storms
Prior Actions: Continued efforts from previous plan and implementation of NFIP policies.
Status: Completed
Future Actions: Evaluate regional support for a watershed management plan with supporting ordinances from each jurisdiction in the planning study area. Expected timeframe for completion: 1-3 years



Safe Shelter Site Planning
Partners: F-L EMA, County Engineer, NACOLG
Priority: High
Lead Responsibility: Mayor & Council
Estimated Cost: \$8,000.00
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Continued efforts from previous plan update.
Status: Completed
Future Actions: Evaluate a scope of work and funding sources to identify current safe shelters and future needs for safe shelters. Planning should identify appropriate sites for locating safe shelters that are multi-use facilities. Expected timeframe for completion: 1-3 years



Mitigation Planning Technology Support
Partners: F-L EMA, FEMA, ALEMA
Priority: High
Lead Responsibility: Mayor and Council
Estimated Cost: Undetermined
Funding Sources: PDM, Local Funds, County Funds
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Previously installed five warning sirens within the geographical area of Rogersville
Status: Completed.
Future Actions: Continuing to oversee future installation of additional warning sirens in the community. Expected timeframe for completion: 1-3 years

TOWN OF ROGERSVILLE
MITIGATION STRATEGIES -
PROPERTY PROTECTION:



Emergency Power Generation
Partners: Co. Engineer, F-L EMA, AEMA, ADECA
Priority: Medium
Lead Responsibility: Mayor & Council
Estimated Cost: Undetermined
Funding Sources: HMGP, ALEMA, PDM
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: No previous actions taken.
Status: Not completed
Future Actions: Identify critical facilities in Rogersville that do not have emergency power and pursue funds within the planning period to provide emergency power. Estimated timeframe for completion: 2 to 4 years





TOWN OF ROGERSVILLE
MITIGATION STRATEGIES -
PUBLIC EDUCATION & AWARENESS:



Hazard Information Kiosk
Partners: F-L EMA, AEMA
Priority: High
Lead Responsibility: Mayor & Council
Estimated Cost: Undetermined
Funding Sources: F-L EMA, ALEMA, PDM
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Public meetings on the existing hazard mitigation plan.
Status: Not completed
Future Actions: Establish opportunities for a portable EMA kiosk to be placed at events within the Town of Rogersville. The town will support all methods of public awareness for hazard mitigation and natural disasters such as outreach projects and media training. Estimated timeframe for completion: 1 to 3 years



School Age Education Programs
Partners: F-L EMA, ALEMA, PDM, County School System
Priority: Medium
Lead Responsibility: Mayor & Council
Estimated Cost: Not determined at this time.
Funding Sources: ADEM, ALEMA, PDM, ADECA
Mitigating Hazards: Mitigates all identified hazards.
Prior Actions: Continued efforts from previous plan update to seek opportunities to foster school age education programs.
Status: Completed
Future Actions: Identify opportunities to have speakers and displays about hazard mitigation priorities within local schools. Expected timeframe for completion: 2-4 years



Adult & Community Education Programs
Partners: ALEMA, Co. Commissioners, Academic Institutions
Priority: High
Lead Responsibility: Mayor & Council
Estimated Cost: \$500.00 (combine with F-L EMA)
Funding Sources: ALEMA, Local Match
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Previous actions include citizen & stakeholder hazard mitigation meetings and local workshops.
Status: Completed
Future Actions: Conduct public workshops that involve citizens and municipal leaders of the Town of Rogersville. Expected timeframe for completion: 1-3 years



Neighborhood & Community Safe Rooms
Partners: F-L EMA, Local Churches and Community Centers.
Priority: High
Lead Responsibility: Mayor & Council
Estimated Cost: Not determined at this time
Funding Sources: ALEMA, PDM, ADECA, Local Funds
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Reviewed and applied for shelter design and construction.
Status: Completed
Future Actions: Clarify any future needs for additional safe centers within the town and update existing safe center facilities. Attempt to use multi-use facilities that are occupied at other times than only during storm periods. Expected timeframe for completion: 1-3 years

TOWN OF ST. FLORIAN
MITIGATION STRATEGIES -
PREVENTION:



Comprehensive Planning
Partners: Mayor & Council, F-L EMA, NACOLG
Priority: Low
Lead Responsibility: St Florian Planning Commission
Estimated Cost: \$15,000.00 to \$30,000.00
Funding Sources: Local Funds, ADECA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Completed Sketch Plan Implementing Comprehensive Plan; consider plan update.
Status: Completed
Future Actions: Ongoing implementation of current plan with evaluation for inclusion of identified hazard mitigation principles. Preparation for future planning updates in three to five years from prior plan completion date. Expected timeframe for completion: 3-5 years



Building Codes & Construction Requirements
Partners: Mayor & Council, F-L EMA
Priority: Medium
Lead Responsibility: Planning Commission, Mayor and Council, County Engineer
Estimated Cost: No Additional Cost
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Yearly review and evaluation of updates.
Status: Completed
Future Actions: Evaluate current building code for achieving identified mitigation strategies and identified risks within the risk assessment of this document. Expected timeframe for completion: 2-4 years



Storm Water Management
Partners: F-L EMA, ADEM, AEMA, Mayor and Council
Priority: Low
Lead Responsibility: Planning Commission, Mayor and Council
Estimated Cost: Not estimated
Funding Sources: AEMA, Local Match, ADECA, HMGP, Pre-Disaster Mitigation (PDM), Flood Mitigation Assistance. (FMA), ADEM
Mitigating Hazards: Flooding, Severe Storms, Dam/Levee Failures
Prior Actions: Town has subdivision ordinance in place that could be updated to reflect any storm water management practices.
Status: Completed with additional recommendations
Future Actions: Seek contemporary methods to mitigate storm water runoff through best management practices. Expected timeframe for completion: 3-5 years



Land Use Development Regulations
Partners: ADECA, NACOLG
Priority: Low
Lead Responsibility: St. Florian Planning Commission
Estimated Cost: No additional cost at this time
Funding Sources: Local Funds
Mitigating Hazards: Flooding, Hurricanes, Wildfires, Dam/Levee Failures, Technical Hazards
Prior Actions: The town currently uses land use development regulations.
Status: Completed
Future Actions: Evaluate the existing regulations for mitigating risk in relation to identified hazards within the town. Adopt any needed updates to the regulations. Expected timeframe for completion: 3-5 years



Subdivision Regulations
Partners: Local Developers, NACOLG, ADECA
Priority: Low
Lead Responsibility: Mayor & Council
Estimated Cost: No additional cost
Funding Sources: Not applicable
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Town currently uses subdivision regulations to reduce risk to citizens of the community.
Status: Completed
Future Actions: Evaluate the need for updates to the subdivision regulations in regards to the risk assessment and the updated comprehensive plan. Expected timeframe for completion: 3-5 years



Flood Plain Management Programs
Partners: F-L EMA, ADEM, TVA, Mayor and Town Council, County Engineer
Priority: Low
Lead Responsibility: Planning Commission, Mayor and Town Council
Estimated Cost: Undetermined
Funding Sources: AEMA, Local Match, ADECA, HMGP, Pre-Disaster Mitigation (PDM), Flood Mitigation Ass. (FMA)
Mitigating Hazards: Flooding, Severe Storms, Dam/Levee Failures
Prior Actions: Participation in the NFIP program with good standing.
Status: Completed
Future Actions: Continue support for NFIP program and implement program's goals and objectives. Expected timeframe for completion: 3-5 years

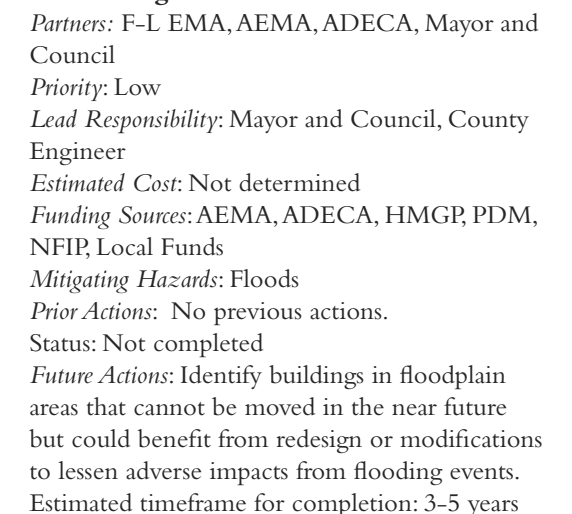
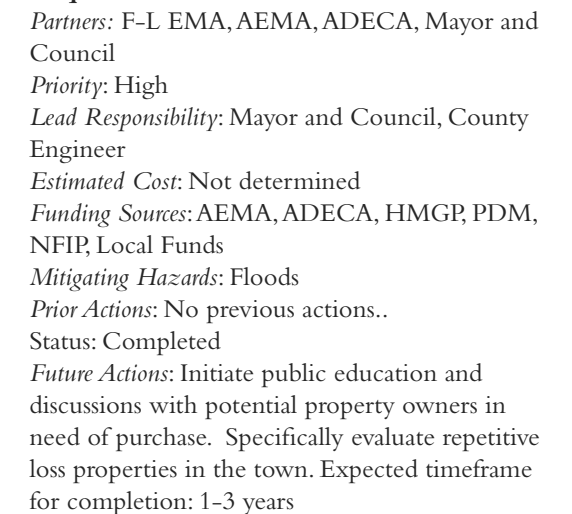
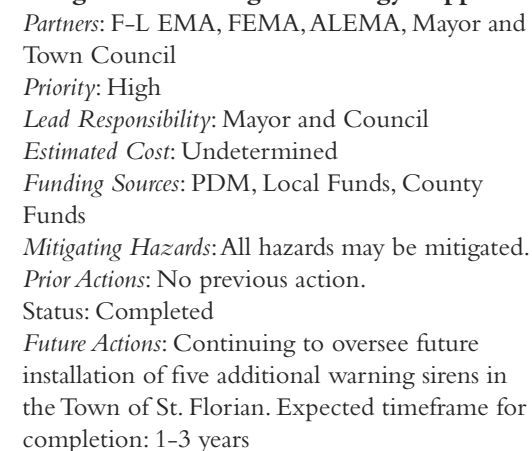
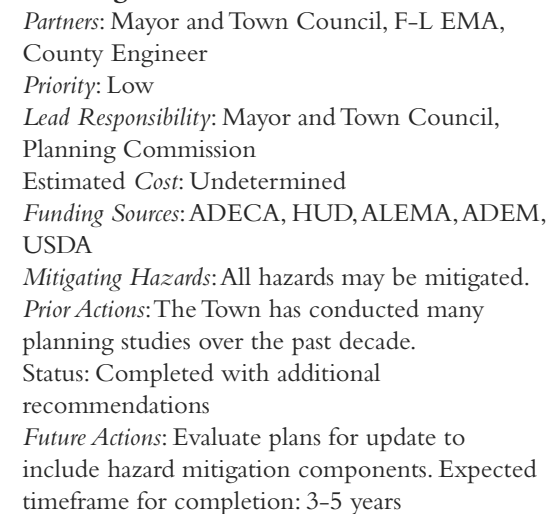
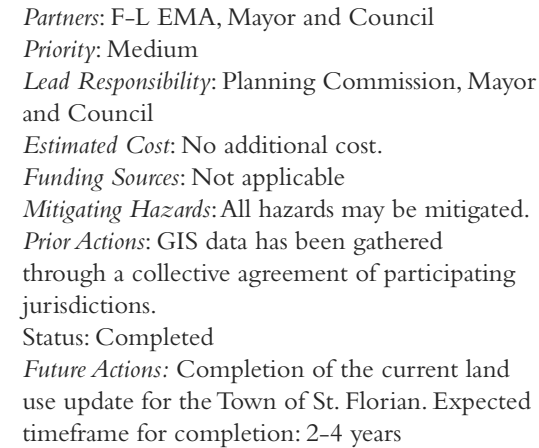
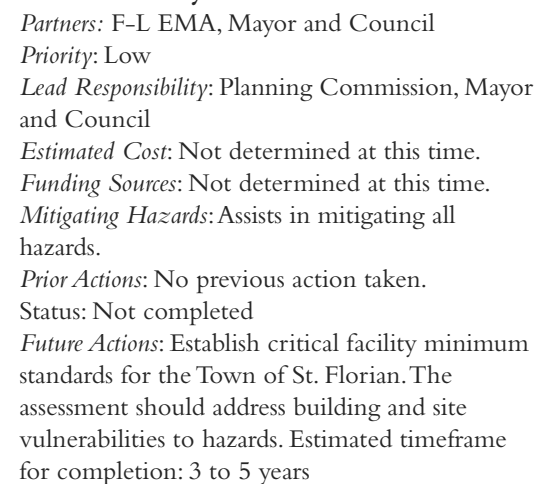
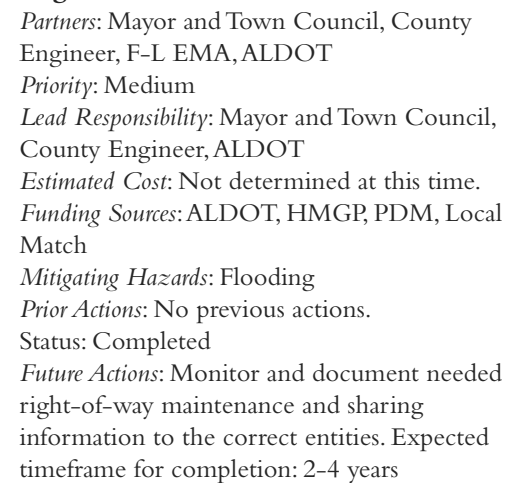


Burn Permits
Partners: Mayor and Town Council, Sheriff's Dept., Urban Forestry
Priority: High
Lead Responsibility: Mayor and Town Council
Estimated Cost: No Additional Cost
Funding Sources: n/a
Mitigating Hazards: Wildfires, Landslides
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Continue public awareness through public outreach programs. Estimated timeframe for completion: 1 to 3 years



Safe Shelter Site Planning
Partners: F-L EMA, AEMA, ADECA
Priority: High
Lead Responsibility: Mayor & Council
Estimated Cost: No additional cost
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Evaluated current shelters during mitigation planning efforts.
Status: Completed
Future Actions: Evaluate the need for additional shelters and analyze the appropriate site placement prior to seeking property. Expected timeframe for completion: 3-5 years





TOWN OF ST. FLORIAN
MITIGATION STRATEGIES -
PROPERTY PROTECTION:



Critical Facilities Protection
Partners: F-L EMA, County Engineer, Mayor and Council
Priority: High
Lead Responsibility: Mayor and Council, Planning Commission, County Engineer
Estimated Cost: Undetermined
Funding Sources: AEMA, ADECA, HMGP, PDM, FEMA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous action, Status: Completed
Future Actions: Target funding sources to complete redesign of critical facilities if identified in the critical facility analysis. Expected timeframe for completion: 1-3 years



Emergency Power Generation
Partners: F-L EMA, County Engineer, Mayor and Council
Priority: High
Lead Responsibility: Mayor and Council
Estimated Cost: Undetermined
Funding Sources: Funding determined on a project by project basis.
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Ongoing emergency power generation efforts. Status: Completed
Future Actions: Clarify specific entities that need emergency power generation and document them. Then complete the power generation projects once funds have been identified. Expected timeframe for completion: 1-3 years



Separate Sewer System Collection & Protection
Partners: Mayor and Council
Priority: Low
Lead Responsibility: Mayor and Council
Estimated Cost: Undetermined
Funding Sources: Determined upon project clarification.
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous action. Status: Not completed
Future Actions: Assess funding sources for completing separate sewer and storm water collection. Estimated timeframe for completion: 3 to 5 years



Storm Shutter Programs and Installation
Partners: Mayor and Council
Priority: Low
Lead Responsibility: Planning Commission, Mayor and Council
Estimated Cost: Determined on project by project basis
Funding Sources: Undetermined
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous actions taken. Status: Not completed
Future Actions: Determine what locations and building in the town would benefit from storm shutter installation and explore funding options for interested entities. Estimated timeframe for completion: 3 to 5 years



Installation of Shatter Resistant Glass and Building Retrofit
Partners: Mayor and Council
Priority: Low
Lead Responsibility: Planning Commission, Mayor and Council
Estimated Cost: Determined on project by project basis.
Funding Sources: Undetermined
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous actions. Status: Not completed
Future Actions: Clarify that shatter resistant glass is required within municipal building codes within the town for all commercial properties. Evaluate further implementation of the requirement on a cost benefit analysis. Estimated timeframe for completion: 3 to 5 years

TOWN OF ST. FLORIAN
MITIGATION STRATEGIES -
PUBLIC EDUCATION & AWARENESS:



Outreach Projects
Partners: F-L EMA, Mayor and Council
Priority: High
Lead Responsibility: F-L EMA, Mayor and Council
Estimated Cost: Undetermined
Funding Sources: AEMA, PDM, Local Funds
Mitigating Hazards: May assists in mitigating all hazards.
Prior Actions: No previous actions. Status: Not completed
Future Actions: Select the greatest impacting hazard to the town and initiate an educational program to mitigate that hazard. Quantitative data indicates that floods are the most costly hazard in St. Florian and the region. Estimated timeframe for completion: 1 to 3 years



Real-Estate Disclosure Requirements
Partners: F-L EMA, Local and regional legislative delegation, Municipal Attorney.
Priority: Low
Lead Responsibility: Mayor & Council
Estimated Cost: Not estimated
Funding Sources: n/a
Mitigating Hazards: Flooding
Prior Actions: No previous action. Status: Completed
Future Actions: Initiate discussions within the council to decide whether further real-estate disclosure is necessary to prevent repetitive loss properties from continued development. Expected timeframe for completion: 3-5 years





TOWN OF ST. FLORIAN
MITIGATION STRATEGIES - PUBLIC
EDUCATION & AWARENESS (CONT'D):



Hazard Information Kiosk and Centers
Partners: Mayor and Council, County Engineer, F-L EMA
Priority: Low
Lead Responsibility: F-L EMA, Mayor and Council
Estimated Cost: Undetermined
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: May assists in mitigating all hazards.
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Establish with department representatives the type and location for a hazard mitigation kiosk. The kiosk should be developed in a way to encourage interactive learning. Estimated timeframe for completion: 3 to 5 years



School Age Education Programs
Partners: F-L EMA, Mayor & Council
Priority: Medium
Lead Responsibility: County Schools, F-L EMA
Estimated Cost: \$10,000.0 to 15,000.00
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous action.
Status: Not completed
Future Actions: Clarify partners and scope of educational program to be implemented within the school system. FEMA should be able to recommend specific school age programs for the Lauderdale County School District. Estimated timeframe for completion: 2 to 4 years



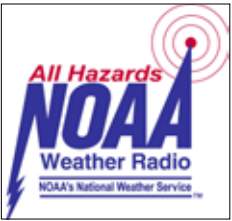
Adult & Community Education Programs
Partners: Mayor & Council, F-L EMA
Priority: High
Lead Responsibility: F-L EMA, Mayor and Council
Estimated Cost: \$10,000.00 to \$15,000.00
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous actions taken.
Status: Not completed
Future Actions: Educational program should be clarified for types of hazards to be discussed as well as method for reaching the desired audience. This program could come as a public service announcement with a second component of discussing hazards with to local civic clubs and groups. Estimated timeframe for completion: 1 to 3 years



Hazard Mitigation Plan & Pamphlet Distribution
Partners: F-L EMA, AEMA, ADEM, Mayor and Council
Priority: High
Lead Responsibility: Mayor and Council, F-L EMA
Estimated Cost: \$3,000.00 to \$5,000.00
Funding Sources: AEMA, ADECA, HMGP, PDM
Mitigating Hazards: Assists in mitigating hazards discussed.
Prior Actions: Publication of the 2010 Mitigation Plan.
Status: Completed
Future Actions: Clarify funding sources and specify hazard to be discussed in the pamphlet and its strategy for mitigating the specific hazard. This hazard can occur heavily within the city or be part of a broad county wide initiative with other jurisdictions. Expected timeframe for completion: 1-3 years



Flood Map Information Distribution
Partners: F-L EMA, Mayor & Council, FEMA, NFIP State Coordinator
Priority: High
Lead Responsibility: Mayor and Council, County Engineer
Estimated Cost: Undetermined
Funding Sources: AEMA, ADECA, HUD
Mitigating Hazards: Floods
Prior Actions: No previous action.
Status: Not completed
Future Actions: Initiate discussion with NFIP Coordinator and AEMA to acquire current methods of distributing flood map information to the general public. These methods should be evaluated for use in the Town of St. Florian and modified accordingly. Estimated timeframe for completion: 1 to 3 years



NOAA Weather Radio Programs
Partners: F-L EMA, Mayor & Council
Priority: Low
Lead Responsibility: F-L EMA
Estimated Cost: Undetermined
Funding Sources: AEMA, FMA, PDM Local Non-Profits
Mitigating Hazards: Tornadoes, Flooding, Severe, Storms, Hurricanes, Winter Freezes, Earthquakes, Drought
Prior Actions: Distribution of weather radios to critical facilities.
Status: Completed
Future Actions: Develop NOAA weather radio public and private partners. Local companies can contribute to a fund to distribute NOAA weather radio's to low income and identified families and entities. Expected timeframe for completion: 3-5 years



Press & Media Mitigation Releases
Partners: F-L EMA, Mayor & Council
Priority: Low
Lead Responsibility: Council and Mayor, Florence-Lauderdale EMA
Estimated Cost: No additional cost.
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Identify funding sources to complete an existing needs assessment and site selection process for safe shelters in the county and incorporated areas. Estimated timeframe for completion: 3 to 5 years

TOWN OF ST. FLORIAN
MITIGATION STRATEGIES -
NATURAL RESOURCE PROTECTION:



Sediment & Erosion Control
Partners: Mayor & Council
Priority: High
Lead Responsibility: Planning Commission, County Engineer
Estimated Cost: No additional Cost
Funding Sources: n/a
Mitigating Hazards: Flooding & Landslides
Prior Actions: Subdivision Ordinance in place.
Status: Completed
Future Actions: Clarify that additional erosion control methods should be put in place that go beyond the erosion caused by new construction. Expected timeframe for completion: 1-3 years



Stream / River Corridor Restoration
Partners: Mayor & Council, F-L EMA, Urban Forestry
Priority: Low
Lead Responsibility: Planning Commission, Mayor and Council, County Engineer
Estimated Cost: Not determined at this time
Funding Sources: ADEM, AEMA, Local Funds, HUD, EPA
Mitigating Hazards: Flooding
Prior Actions: Municipal cleanup programs have occurred.
Status: Completed with additional recommendations
Future Actions: Evaluation of current stream and tributary inventory for future restoration. Expected timeframe for completion: 3-5 years



Watershed Management Programs
Partners: F-L EMA, Mayor & Council, County Engineer, TVA
Priority: Low
Lead Responsibility: Undetermined
Estimated Cost: Undetermined
Funding Sources: TVA
Mitigating Hazards: Flooding, Severe Storms, Hurricanes, Sinkholes, Landslides, Drought, Technical Hazards
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Clarify need for expansion of local watershed management in St. Florian and potential for cooperating with a county wide initiative. Estimated timeframe for completion: 3 to 5 years



Forest and Vegetation Management
Partners: Alabama Forest Commission (AFC), AL Cooperative Extension Service
Priority: Low
Lead Responsibility: Mayor and Council, Planning Commission
Estimated Cost: Not determined
Funding Sources: Not determined
Mitigating Hazards: Wildfires, Landslides, Sinkholes
Prior Actions: Ongoing support of the AFC
Status: Completed
Future Actions: Continue to develop and promote best management practices for forests in conjunction with the AFC. This information needs to be further disseminated to local landowners by extension service providers. Expected timeframe for completion: 3-5 years



Wetland Restoration and Preservation
Partners: Mayor & Council, County Engineer
Priority: Low
Lead Responsibility: Mayor and Council, Planning Commission
Estimated Cost: No additional cost
Funding Sources: AEMA, ADECA, HMGP, PDM, FMA
Mitigating Hazards: Flooding
Prior Actions: No previous action.
Status: Completed
Future Actions: Section 404 Permitting requires a permit from the Army Corps of Engineers when modifying a wetland area. Evaluation of existing wetlands within the city should be reevaluated and determined whether further action should be taken. Expected timeframe for completion: 3-5 years



Open Space Easements and Acquisition
Partners: Mayor & Council, Urban Forestry
Priority: Low
Lead Responsibility: Planning Commission, Mayor and Council
Estimated Cost: Undetermined
Funding Sources: Local and Regional Land Trusts
Mitigating Hazards: Flooding, Hurricanes, Wildfires, Landslides, Sinkholes
Prior Actions: No previous action.
Status: Not completed
Future Actions: Establish open space and passive recreation as a priority within recreational planning as a hazard mitigation strategy. This strategy should be weighed against the available density requirements within the town. Estimated timeframe for completion: 3 to 5 years



Urban Forestry Planning Programs
Partners: Mayor & Council, County Engineer
Priority: Medium
Lead Responsibility: Planning Commission, Mayor and Council
Estimated Cost: Not determined at this time.
Funding Sources: Need to be clarified
Mitigating Hazards: Flooding, Drought, Heat and Wildfires
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Clarification for future actions for mitigating specific natural hazards needs to be completed. Estimated timeframe for completion: 2 to 4 years



Media Mitigation Training Sessions
Partners: County Engineer, Mayor & Council, Planning Department
Priority: High
Lead Responsibility: F-L EMA, Mayor and Council
Estimated Cost: No additional cost
Funding Sources: n/a
Mitigating Hazards: May mitigate all hazards.
Prior Actions: No previous action.
Status: Not completed
Future Actions: Establish biannual training sessions for local and regional media to be briefed on hazard mitigation and natural disasters. Combining this event with other training sessions or adjacent EMA entities may be of benefit. Estimated timeframe for completion: 1 to 3 years





TOWN OF ST. FLORIAN
MITIGATION STRATEGIES - NATURAL
RESOURCE PROTECTION (CONT'D):



Water Resource Conservation Programs
Partners: Mayor and Council,TVA, National Resource Conservation Service (NRCS),
Priority: Low
Lead Responsibility: Florence-Lauderdale EMA, Mayor and Council
Estimated Cost: Not determined at this time.
Funding Sources: NRCS, EPA, ADEM, FEMA
Mitigating Hazards: Flooding, Drought, Heat, Wildfires, Dam/Levee Failure, Landslides, Sinkholes, Technical Hazards.
Prior Actions: Land use and land planning strategies.
Status: Completed with additional recommendations
Future Actions: Host a roundtable discussion involving sustainable methods of development for the jurisdiction. This should include discussion on water resource protection headed by the NRCS. Expected timeframe for completion: 3-5 years



Storm Water Flood Walls
Partners: Mayor & Council, F-L EMA
Priority: Low
Lead Responsibility: Mayor and Council, Planning Commission
Estimated Cost: Not determined at this time
Funding Sources: Not determined use on an emergency basis.
Mitigating Hazards: Flooding
Prior Actions: No previous action
Status: Not completed
Future Actions: Evaluate and identify specific areas that need storm water flood walls that will redirect storm water from undesirable areas until long term mitigation projects can be undertaken. Estimated timeframe for completion: 3 to 5 years



Storm Water Diversion Culverts
Partners: ALDOT, Mayor & Council
Priority: High
Lead Responsibility: County Engineer, Mayor and Council
Estimated Cost: Not determined at this time.
Funding Sources: Local Match, ADEM, AEMA, FEMA
Mitigating Hazards: Flooding
Prior Actions: Continued efforts from previous plan update.
Status: Completed
Future Actions: Identify and document specific areas needing storm water diversion culverts and those that are in need of repair. Each should be mapped for planning purposes and placed in a long range implementation list. Expected timeframe for completion: 1-3 years



Seawalls
Partners: Mayor & Council, F-L EMA
Priority: Low
Lead Responsibility: Mayor and Council, County Engineer
Estimated Cost: Not determined at this time.
Funding Sources: Local, TVA
Mitigating Hazards: Flooding
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Identify and document specific areas needing seawalls. Each should be mapped for planning purposes and placed in a long range implementation list. Estimated timeframe for completion: 3 to 5 years



Retaining Walls
Partners: Mayor & Council
Priority: Low
Lead Responsibility: County Engineer, Mayor and Council
Estimated Cost: Not determined at this time
Funding Sources: Local Funds
Mitigating Hazards: Landslides, Technical Hazards
Prior Actions: No previous action.
Status: Not completed
Future Actions: Continue to identify maintenance areas and needed retaining walls as they arise. Estimated timeframe for completion: 3 to 5 years

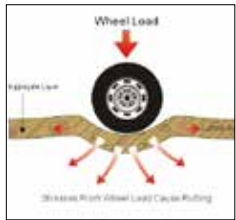


Neighborhood & Community Safe Rooms
Partners: Mayor & Council, F-L EMA, Local Churches and Community Centers.
Priority: High
Lead Responsibility: F-L EMA, Mayor and Council, Planning Commission
Estimated Cost: Not determined at this time.
Funding Sources: ALEMA, PDM, ADECA, Local Funds
Mitigating Hazards: All hazards may be mitigated.
Prior Actions: Continued efforts from previous plan update.
Status: Completed
Future Actions: Clarify any future needs for additional safe centers within the town and update existing safe centers. Attempt to use multi-use facilities that are occupied at other times than during storm periods. Expected timeframe for completion: 1-3 years

TOWN OF ST. FLORIAN
MITIGATION STRATEGIES -
STRUCTURAL PROJECTS (CONT'D):



Storm Sewer System Construction
Partners: Mayor & Council, County Engineer,
Priority: High
Lead Responsibility: Mayor and Council
Estimated Cost: Not determined at this time.
Funding Sources: ADECA, ADEM, PDM, AEMA
Mitigating Hazards: Flooding, Landslides, Sinkhole, Technical Hazards
Prior Actions: No previous action.
Status: Not completed
Future Actions: Evaluate current repetitive flood areas and determine whether storm sewer improvements will assist in reducing the flood damage. This should be evaluated in conjunction with real-estate purchase programs as a cost benefit analysis. Estimated timeframe for completion: 1 to 3 years



Ground Stabilization
Partners: Mayor & Council, F-L EMA
Priority: Medium
Lead Responsibility: Mayor and Council, County Engineer
Estimated Cost: Not determined at this time.
Funding Sources: Local,
Mitigating Hazards: Most all identified hazards.
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Identify areas within the planning area where soils are unstable and not favorable to new construction without utilizing soil stabilization methods prior to construction. Estimated timeframe for completion: 2 to 4 years



Reservoir Construction
Partners: TVA, F-L EMA, Mayor and Council
Priority: Low
Lead Responsibility: TVA, F-L EMA, Mayor and Council, Planning Commission
Estimated Cost: Not determined at this time.
Funding Sources: Local, FEMA, TVA
Mitigating Hazards: Flooding
Prior Actions: No previous actions.
Status: Not completed
Future Actions: Ongoing communication and coordination between partners to determine if reservoir construction is needed. Estimated timeframe for completion: 3 to 5 years





TOWN OF WATERLOO
MITIGATION STRATEGIES -
PREVENTION:



Comprehensive Planning
Partners: F-L EMA, NACOLG
Priority: Low
Lead Responsibility: Mayor & Council
Estimated Cost: \$15,000.00 to \$30,000.00
Funding Sources: Local Funds
Mitigating Hazards: Assists in mitigating all hazards
Prior Actions: Continued efforts from previous plan update.
Status: Not completed
Future Actions: Implement Town of Waterloo Comprehensive Plan, by Planning Commission action, to direct future growth and economic development. Estimated timeframe for completion: 3 to 5 years



Building Codes & Construction Requirements
Partners: Mayor & Council, F-L EMA
Priority: Medium
Lead Responsibility: Waterloo Planning Commission, Mayor and Council, County Engineer
Estimated Cost: No Additional Cost
Funding Sources: n/a
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: No previous action.
Status: Completed
Future Actions: Evaluate current building code for achieving identified mitigation strategies and identified risks within the risk assessment of this document. Expected timeframe for completion: 2-4 years



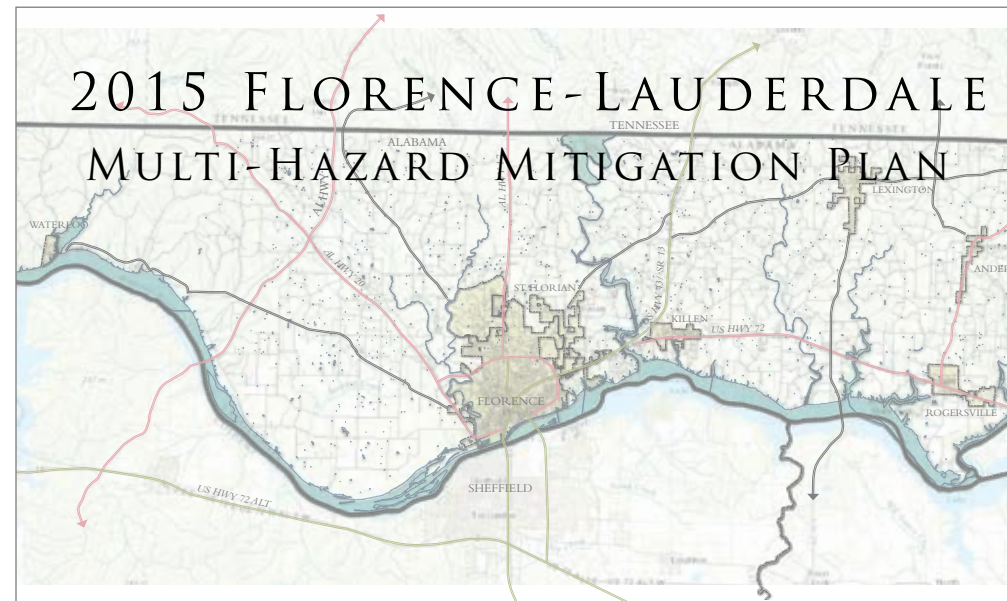
Land Use Development Regulations
Partners: ADECA, NACOLG
Priority: Low
Lead Responsibility: Waterloo Planning Commission
Estimated Cost: No additional cost at this time
Funding Sources: Local Funds
Mitigating Hazards: Flooding, Hurricanes, Wildfires, Dam/Levee Failures, Technical Hazards
Prior Actions: The town currently uses land use development regulations.
Status: Completed
Future Actions: Evaluate the existing regulations for mitigating risk in relation to identified hazards within the town. Adopt any needed updates to the regulations. Expected timeframe for completion: 3-5 years



Subdivision Regulations
Partners: Local Developers, NACOLG, ADECA
Priority: Low
Lead Responsibility: Planning Commission, Mayor and Council
Estimated Cost: No additional cost
Funding Sources: Not applicable
Mitigating Hazards: Assists in mitigating all hazards.
Prior Actions: Town currently uses subdivision regulations to reduce risk to citizens of the community.
Status: Completed
Future Actions: Evaluate the need for updates to the subdivision regulations in regards to the risk assessment and the updated comprehensive plan. Expected timeframe for completion: 3-5 years



Flood Plain Management Programs
Partners: F-L EMA, ADEM, TVA, Mayor and Town Council, County Engineer
Priority: Low
Lead Responsibility: Planning Commission, Mayor and Town Council
Estimated Cost: Undetermined
Funding Sources: AEMA, Local Match, ADECA, HMGP, Pre-Disaster Mitigation (PDM), Flood Mitigation Ass. (FMA)
Mitigating Hazards: Flooding, Severe Storms, Dam/Levee Failures
Prior Actions: Participation in the NFIP program with good standing.
Status: Completed
Future Actions: Continue support for NFIP program and implement program's goals and objectives. Expected timeframe for completion: 3-5 years



44 CFR § 201.6 Local Mitigation Plans: Local Mitigation Plans
(c) Plan content. The plan shall include the following:
(4) A plan maintenance process that includes:
(i) A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.
(ii) A process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.
(iii) Discussion on how the community will continue public participation in the plan maintenance process.

PLAN MAINTENANCE

PM.1	PLAN MONITORING & IMPLEMENTATION
PM.2	ACTIVE PLANNING & MITIGATION INCORPORATION
PM.3	MULTI-JURISDICTIONAL PUBLIC INVOLVEMENT

PM.1 Plan Monitoring & Implementation

This section outlines the continuous cycle for monitoring, evaluating and updating the Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan. It also outlines the process for incorporating mitigation strategies into other planning activities and methods for continuing public involvement. This process ensures an active and relevant hazard mitigation planning process.

The Policy Committee will oversee plan maintenance during the five-year framework. The Florence-Lauderdale EMA staff will continue to serve as the plan facilitator. The Florence-Lauderdale EMA is responsible for hosting quarterly scheduled meetings, assigning specific project tasks for implementing mitigation strategies and for monitoring and updating the mitigation efforts put forth by the policy committee members. The local EMA also serves as the Policy Committee’s liaison to entities assigned implementation responsibilities. Additional Policy Committee members may be nominated by the Florence- Lauderdale EMA Director and then approved by the entire committee

- With adoption of this plan, the Policy Committee, along with all participating jurisdictions and agencies, and led by the Florence-Lauderdale EMA, agree to:
- Policy Committee members will be contacted thirty days in advance for meeting notification. If unable to attend a meeting, committee members will be contacted by phone calls and personal visits necessary.
 - In the event of an unexpected disaster emergency, the mitigation plan will be updated to include measures to address the event. Updates are the responsibility of the Florence-Lauderdale EMA.
 - A list of active and completed mitigation projects will be reviewed at each meeting.

- Previous implemented mitigation actions will be evaluated for effectiveness.
- Any modifications and changes in land use patterns and new development trends will be addressed at the meeting and then updated in the planning document.
- Modifications to the risk assessment and/or the risk vulnerability will be identified and updated in the plan.
- Future mitigation activities should be discussed and any new projects will be adopted and signed by resolution by the policy committee.

The Florence-Lauderdale EMA will schedule policy committee meetings at a time and location convenient for its members. In the event that the quarterly reviews require modifications to the plan, the Policy Committee will oversee and approve all revisions to the planning document. The Policy Committee will then submit all revisions for adoption by each participating jurisdiction. A copy of the plan revisions will be posted on the EMA website as well as distributed to all participating jurisdictions for insertion into their mitigation document.

At the end of the five-year planning cycle, the Policy Committee will oversee the update to the plan. This update must follow the local mitigation plan guidelines as defined in this document and within the Code of Federal Regulations. The updated document will then be submitted for review and approval by the AEMA and FEMA.

PM.2 Active Planning & Mitigation Incorporation

The Florence-Lauderdale Multi-Jurisdictional Hazard Mitigation Plan is adopted as a separate but equal document to the Lauderdale County Emergency Operations Plan. This plan is administered through the local EMA. Upon approval by AEMA and FEMA, the plan will be adopted by each of the participating jurisdictions within the planning study area. This plan supplements the Lauderdale County Emergency Operations Plan as well as the Lauderdale County Transportation Plan for Hazardous Incident Response. Each governmental entity is responsible for implementing the identified mitigation strategies identified in the previous section. Implementation will be based on community priorities, available funding, staff capabilities and technical expertise.

Since the adoption of the 2010 Florence-Lauderdale Multi-Hazard Mitigation Plan, several storm shelters and warning notification sirens have been installed in jurisdictions within Lauderdale County. See the tables to the right for more information on these installations.

Storm Shelters Installed between 2010-2015	
Jurisdiction	# of Shelters
Lauderdale County	23
Town of Anderson	1
City of Florence	46
Town of Killen	21
Town of Lexington	6
Town of Rogersville	10
Town of Waterloo	5
TOTAL	112

Source: Hazard Mitigation Planning Team

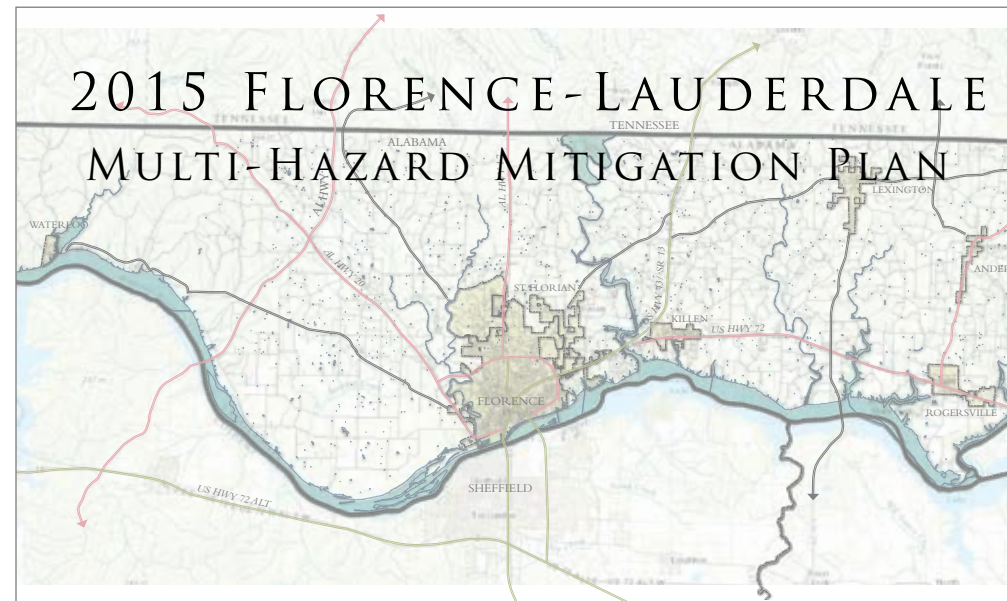
Warning Sirens Installed between 2010-2015	
Jurisdiction	# of Shelters
Lauderdale County	13
City of Florence	1
Town of Rogersville	2
TOTAL	16

Source: Hazard Mitigation Planning Team

Additionally, several other local government agencies have completed mitigation strategies for Florence-Lauderdale. The Florence-Lauderdale Planning Department adopted new subdivision regulations in 2012 which include stormwater regulations, sidewalk requirements, and increased landscaping requirements that decrease runoff and impervious surfaces in both residential and commercial developments. The Florence Water Department installed two new emergency generators in the Summer of 2010 at the Wilson Lake Drinking Water Plant – one at the river intake and one at the treatment plant. The water department also updated the Wastewater Treatment Plant’s Risk Management Plan in 2013, and updated both drinking water plants’ Risk Management Plans in 2014. The Florence Fire Rescue also added the following backup generators: (1) at Fire Station #1 (March 2013), (1) at Fire Station #3 (April 2012), and (1) at Fire Station #5 (September 2012).

PM.3 Multi-Jurisdictional Public Involvement

Ongoing public participation, review, and comment are a critical part of maintaining an effective and useful hazard mitigation plan. To ensure the success of the plan, there will be ongoing public outreach and comment periods within the five-year planning cycle. A hard copy of the plan will be available at appropriate entities as well as via individual request and on the web. Public meetings will be held when significant modifications to the plan are required or requested by the Policy Committee.



Section
Appendices

I


STAKEHOLDER MEETING - 6-23-14
ELGIN FIRE DEPARTMENT

Florence - Lauderdale
Emergency Management Agency Stake Holder Meeting Dates

Stake Holder Involvement meetings are being held throughout Lauderdale County in order to involve citizens, leadership, agencies, industry and non-profits in the identification of natural, technical and human made hazards. In addition, your input is needed in determining the best method for mitigating local hazards in your community. All meetings are held at 6:00 p.m.

Stake Holder Meeting Date & Location:

- Elgin Fire Department: 6-23-14
- Waterloo Senior Center: 6-24-14
- Florence Municipal Auditorium: 6-25-14



FARMER | MORGAN, L.L.C.
P.O. BOX 626
HUNTSVILLE, ALABAMA 35804

PLANNING • DESIGN • CONSTRUCTION

Florence- Lauderdale Hazard Mitigation Planning Stakeholder Meeting
June 23, 2014
6:00 p.m. – 7:15 p.m.

Meeting called by Florence-Lauderdale EMA

Attendees: Citizens and Stakeholders with Lauderdale County and local government jurisdictions
Please read: The 2010 Multi-Jurisdictional Hazard Mitigation Plan
Please bring: N/A

6:00 p.m. – 6:05 p.m. Introduction & Review of Role of the Policy Committee.
Welcome: Jesse Davis, F-L EMA
Farmer | Morgan, LLC: Elgin Fire Department
*Review of hazard Mitigation Policy Committee Role
*Previously identified hazards in the community 2010
* Hazard identification worksheet
*Priority of hazard mitigation issues

6:05 p.m. –6:20 p.m. Review of Florence-Lauderdale Multi-Hazard Mitigation Planning
Farmer | Morgan, LLC: Elgin Fire Department
*Components and requirements of plan update

6:20 p.m. – 6:50 p.m. Review of Planning Components for the 2010 Plan
Farmer | Morgan, LLC /All Participants: Elgin Fire Department
*Tables and chapters included in the 2010 plan
* Additional critical facilities within Lauderdale County

6:50 p.m. – 7:15 p.m. Schedule of Plan Development and Citizen Input Meetings
Farmer | Morgan, LLC / All Participants: Elgin Fire Department
*Review of public input meeting locations and times

Additional Instructions:
Identified hazards include: Dam/Levee Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hailstorm, Hurricane, Land Subsidence (sink hole), Severe Winter Storm Freeze, Tornado, Severe Storm, Wildfire, Windstorms and Manmade Hazards.

NASHVILLE • HUNTSVILLE • PINEVILLE

FLORENCE-LAUDERDALE MULTI-HAZARD MITIGATION PLAN

STAKEHOLDER HAZARD IDENTIFICATION

NAME OF JURISDICTION: _____

NAME OF RESPONDENT: _____

Hazard Type	Possible	Most Likely
Avalanche		
Dam/Levee Failure		
Drought		
Earthquake		
Expansive Soils		
Extreme Heat		
Flood		
Hailstorm		
Hurricane		
Land Subsidence		
Severe Winter Storm Freeze		
Tornado/Severe Storm		
Wildfire		
Windstorm		
Other		
Other		
Other		
Other		

Florence-Lauderdale Multi-Hazard Mitigation Stakeholder Meeting Elgin, AL			
6/23/2014			
Name	Entity/Agency	Phone	E-Mail
Benjamin Farmer	Farmer-Morgan, LLC	334-444-2843	bfarmer@farmer-morgan.com
Jesse Davis	Florence-Lauderdale EMA	256-710-4583	j.davis@floracounty.org
Joel Glover	Elgin Fire	256-349-9457	
Ray Wryle	Elgin Fire	256-710-7311	kwcinunas@prodigy.net
Wynne Davis	Elgin Fire	256-356-7494	
Melba Davis	Elgin Fire	256-886-3119	bigpapak418@yahoo.com

FLORENCE-LAUDERDALE MULTI-HAZARD MITIGATION PLAN

STAKEHOLDER CRITICAL FACILITIES

PLEASE FILL OUT AND FAX TO:
480-393-5718 OR EMAIL TO BFARMER@FARMERMORGAN.COM

NAME OF JURISDICTION: _____

NAME OF RESPONDENT: _____

Name of Building	Location	Estimated Cost	Building Function

This is a notice of Public Hearing for input into the Florence-Lauderdale Multi-Hazard Mitigation Plan for Lauderdale County. This plan is required by the Disaster Mitigation Act of 2000. The plan includes the identification of natural hazards, the probability of occurrence, the potential impact both economically and/or the potential for the loss of life, the methods to eliminate or reduce the impact, and methods to warn and respond to the incidents. The plan addresses the following natural hazards: flooding, severe storms, tornadoes, winter storms, wildfires, earthquakes, landslides, drought, and dam/levee failure. The public may provide input on June 23, 2014, between the hours of 6:00 to 8:00 p.m. at the Elgin Fire Department Community Room.


STAKEHOLDER MEETING - 6-25-14
FLORENCE MUNICIPAL AUDITORIUM

Florence - Lauderdale
Emergency Management Agency Stake Holder Meeting Dates

Stake Holder Involvement meetings are being held throughout Lauderdale County in order to involve citizens, leadership, agencies, industry and non-profits in the identification of natural, technical and human made hazards. In addition, your input is needed in determining the best method for mitigating local hazards in your community. All meetings are held at 6:00 p.m.

Stake Holder Meeting Date & Location:

- Elgin Fire Department: 6-23-14
- Waterloo Senior Center: 6-24-14
- Florence Municipal Auditorium: 6-25-14



FARMER | MORGAN, L.L.C.
P.O. BOX 626
HUNTSVILLE, ALABAMA 35804

PLANNING • DESIGN • CONSTRUCTION

Florence- Lauderdale Hazard Mitigation Planning Stakeholder Meeting
June 25, 2014
6:00 p.m. – 7:15 p.m.

Meeting called by Florence-Lauderdale EMA

Attendees: Citizens and Stakeholders with Lauderdale County and local government jurisdictions
Please read: The 2010 Multi-Jurisdictional Hazard Mitigation Plan
Please bring: N/A

6:00 p.m. – 6:05 p.m.

Introduction & Review of Role of the Policy Committee.
Welcome: Jesse Davis, F-L EMA
Farmer | Morgan, LLC:
*Review of hazard Mitigation Policy Committee Role
*Previously identified hazards in the community 2010
* Hazard identification worksheet
*Priority of hazard mitigation issues

Broadway Recreation Center

6:05 p.m. –6:20 p.m.

Review of Florence-Lauderdale Multi-Hazard Mitigation Planning
Farmer | Morgan, LLC:
*Components and requirements of plan update

Broadway Recreation Center

6:20 p.m. – 6:50 p.m.

Review of Planning Components for the 2010 Plan
Farmer | Morgan, LLC /All Participants:
*Tables and chapters included in the 2010 plan
* Additional critical facilities within Lauderdale County

Broadway Recreation Center

6:50 p.m. – 7:15 p.m.

Schedule of Plan Development and Citizen Input Meetings
Farmer | Morgan, LLC / All Participants:
*Review of public input meeting locations and times

Broadway Recreation Center

Additional Instructions:
Identified hazards include: Dam/Levee Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hailstorm, Hurricane, Land Subsidence (sink hole), Severe Winter Storm Freeze, Tornado, Severe Storm, Wildfire, Windstorms and Manmade Hazards.

NASHVILLE

HUNTSVILLE

PIKEVILLE

FLORENCE-LAUDERDALE MULTI-HAZARD MITIGATION PLAN
STAKEHOLDER HAZARD IDENTIFICATION

NAME OF JURISDICTION: _____

NAME OF RESPONDENT: _____

Hazard Type	Possible	Most Likely
Avalanche		
Dam/Levee Failure		
Drought		
Earthquake		
Expansive Soils		
Extreme Heat		
Flood		
Hailstorm		
Hurricane		
Land Subsidence		
Severe Winter Storm Freeze		
Tornado/Severe Storm		
Wildfire		
Windstorm		
Other		
Other		
Other		
Other		

Florence-Lauderdale Multi-Hazard Mitigation Stakeholder Meeting, Florence, AL			
6/25/2014			
Name	Entity/Agency	Phone	E-Mail
Brianne B. Farmer	Farmer- Morgan, LLC	334-444-2893	bfarmer@farmermorgan.com
Rhonda McLarty	Rebs & Rec.	256-760-6418	rhonda@florencelors.com
Linkey Balentine		256-443-1652	linkey1987@aol.com
Molly Hughes		256-443-2780	mhughes@uia.edu
Grace Anne Coburn		256-762-1639	gacoburn@uia.edu
Tina Hair	Flo Lauderdale EMA	256-762-8551	thair@florencelors.com
Jesse Davis	Flo Lauderdale EMA	256-760-6363	jdavis@florencelors.com

FLORENCE-LAUDERDALE MULTI-HAZARD MITIGATION PLAN
STAKEHOLDER CRITICAL FACILITIES
PLEASE FILL OUT AND FAX TO:
480-393-5718 OR EMAIL TO BFARMER@FARMERMORGAN.COM

NAME OF JURISDICTION: _____

NAME OF RESPONDENT: _____

Name of Building	Location	Estimated Cost	Building Function

POLICY COMMITTEE MEETINGS - 6-18-14 & 7-17-14
FLORENCE-LAUDERDALE EMA BOARD ROOM

[illegible]

FLORENCE-LAUDERDALE MULTI-HAZARD MITIGATION PLAN

STAKEHOLDER HAZARD IDENTIFICATION

NAME OF JURISDICTION:_____

NAME OF RESPONDENT: _____

Hazard Type	Possible	Most Likely
Avalanche		
Dam/Levee Failure		
Drought		
Earthquake		
Expansive Soils		
Extreme Heat		
Flood		
Hailstorm		
Hurricane		
Land Subsidence		
Severe Winter Storm Freeze		
Tornado/Severe Storm		
Wildfire		
Windstorm		
Other		
Other		
Other		
Other		

FLORENCE-LAUDERDALE MULTI-HAZARD MITIGATION PLAN

STAKEHOLDER CRITICAL FACILITIES

PLEASE FILL OUT AND FAX TO:
480-393-5718 OR EMAIL TO BFARMER@FARMERMORGAN.COM

NAME OF JURISDICTION: _____

NAME OF RESPONDENT: _____

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Images: Multi-Hazard Mitigation Stakeholder Meeting PowerPoint Presentation Slides (Presentation, 2014: Multi-Hazard Mitigation Planning Team)



Agenda

- Introduction of Policy Committee Members & The Planning Team
- Role of the Policy Committee
- Working Lunch
- Basis for Hazard Mitigation Planning
- Review of Florence-Lauderdale Multi-Hazard Mitigation Planning (F-LMHMP) Components & Requirements
- Review of the 2010 Multi-Hazard Mitigation Plan
- Hazard Mitigation Survey & Questionnaire
- Additional Critical Facilities within Lauderdale County
- Schedule of Policy and Citizen Input Meetings

Introduction of Policy Committee & Planning Team

Basis for Hazard Mitigation Planning

- Robert T. Stafford Disaster Relief and Emergency Assistance Act, Title 44 Code of Federal Regulations (CFR)
- What is Natural Hazard & Man Made Hazard Mitigation
- Sources for Mitigation Information

Robert T. Stafford Disaster Relief and Emergency Assistance Act, Title 44 Code of Federal Regulations (CFR)

The Robert T. Stafford Disaster Relief and Emergency Assistance Act, Title 44 CFR, requires that all states and local governments evaluate and mitigate all natural hazards as a condition of receiving Federal disaster assistance. **FEMA will not provide any assistance to any entities that do not have an approved Natural Hazard Mitigation Plan.**

What is Natural Hazard & Man Made Hazard Mitigation

Natural Hazard Mitigation Planning is the process of reducing or eliminating the loss of life and property damage resulting from natural hazards such as floods, tornadoes, earthquakes and other events. Man Made Hazard Mitigation is the process of reducing or eliminating the loss of life and property damage resulting from man made hazards.

Four Phases of Mitigation Planning

- Organization of Resources
- Assessing the Risks
- Developing a Mitigation Plan
- Implementation and Monitoring of the Plan

Sources for Successful Mitigation

From the beginning, a community should focus on the resources needed for a successful mitigation planning process. Identification and organization of interested members of the community, in conjunction with those with technical expertise, is critical to the success of the plan. The information gathered by the sources and the planning team will provide the tools necessary for a comprehensive plan.

Role of the F-L MHMPL Policy Committee

The policy committee is composed of local government leadership or their representative. A local government is defined "as any county, municipality, public authority, school district, special district" 44 CFR §201.2

The policy committee is to guide the planning, development and implementation of the F-L Multi-Hazard Mitigation Plan.

Images: Multi-Hazard Mitigation Stakeholder Meeting PowerPoint Presentation Slides (Presentation, 2014: Multi-Hazard Mitigation Planning Team)

Plan Update Requirements

- A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within the five (5) years in order to continue to be eligible for mitigation project grant funding. 44 CFR §201.6(d)(3)

Development & the Policy Committee

- The policy committee should guide the content and identification of potential and actual hazards. This includes identifying existing structures in hazardous areas, which include new development, redeveloped areas or structures located in annexed areas.
- Potential impacts of future land development, including areas that may be annexed in the future.

Project Grant Funds Affected by the Plan

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Severe Repetitive Loss (SRL)

Implementation & the Policy Committee

- The policy committee should oversee the implementation of the plans goals to reduce long-term vulnerabilities to the identified hazards.
- This includes potential impacts of future land development, including areas that may be annexed in the future.
- Establishing & enforcing safety issues as well as structural inspections.

Table of Contents for the Florence-Lauderdale Multi-Hazard Mitigation Plan

- Executive Summary
- Chapter 1, Introduction
- Chapter 2, Prerequisites
- Chapter 3, Community Profile
- Chapter 4, Planning Process
- Chapter 5, Risk Assessment
- Chapter 6, Mitigation Strategy
- Chapter 7, Plan Maintenance & Updates
- Appendices

Planning & the Policy Committee

- The policy committee should guide the planning process and the appropriate public and governmental involvement in order to develop and then achieve the plan.
- The policy committee should assist the planning team in development of the plans meeting schedule, public involvement and adoption by resolution of each jurisdiction.

Implementation of the Plan Can Include

- Comprehensive Planning & Smart Growth
- Land Use Planning by Ordinance
- Five Year Capital Improvement Plans for Schools and Municipalities
- Subdivision Regulations
- Flood Plain Management Program
- Active Participation in the NFIP
- Public Right-Of-Way Maintenance Regulations
- Critical Facilities Assessments
- Update & Maintain GIS Systems
- Annually Inspect Public Buildings, Dams, and Bridges for Structural Safety

Executive Summary

- This chapter summarizes the entire document and the planning process, public involvement as well as the overall risks from natural and manmade hazards.

2014 Multi-Hazard Plan Components

The following components are required by FEMA as identified in the Local Multi-Hazard Mitigation Planning Guidance and the Local Mitigation Plan regulation found at 44 CFR Part 201.

Images: Multi-Hazard Mitigation Stakeholder Meeting PowerPoint Presentation Slides (Presentation, 2014: Multi-Hazard Mitigation Planning Team)

Introduction

- Background
- Authority for Planning
- Funding for Development of Plan
- Eligibility of FEMA Hazard Mitigation Assistance Grants
- Florence-Lauderdale Multi-Hazard Mitigation Plan 2010 Review
- 2015 Florence-Lauderdale Multi-Hazard Mitigation Plan

Prerequisites

- Federal Prerequisites
- Plan Approval Required for Mitigation Grant Eligibility
- Multi-Jurisdictional Participation
- Mult-Jurisdictional Plan Adoption

Community Profiles

- Federal Advisory Guidance for Community Profiles
- Geographic Setting & History
- Government
- Demographics
- Economy
- Utilities
- Media
- Transportation
- Climate

Planning Process

- Federal Requirements for the Planning Process
- Summary of Plan Updates
- Opportunities for Public Comment on the Plan
- Opportunities for Involvement in the Planning Process
- Review & Incorporation of Applicable Plans & Documents
- How the Plan Was Developed
- Who Was Involved in the Planning Process
- How the Public Was Involved in the Planning Process
- The Plan Review and Update Process

Risk Assessment

- Federal Requirements for the Risk Assessment
- Identify & Prioritize Natural Hazards
- Identify & Prioritize Man Made Hazards
- Profile/Description of Each Hazard and its Elements
- Assessing Vulnerability: Overview
- Assessing Vulnerability: Identifying Structures
- Assessing Vulnerability: Addressing Repetitive Loss Properties
- Assessing Vulnerability: Estimating Potential Losses
- Assessing Vulnerability: Analyzing Development Trends
- NFIP & Repetitive Flood Damaged Properties
- Strategy for Community and Municipal Compliance with NFIP
- Integration of Community Rating System (CRS) in the Hazard Plan

Mitigation Strategy

- Federal Requirements for the Mitigation Strategy
- Summary of Plan Updates
- Goals for Hazard Mitigation
- Identification and Analysis of Mitigation Actions & Projects
- Participation & Compliance with the NFIP
- Implementation of Mitigation Actions
- Multi-Jurisdictional Community Mitigation Action Programs

Plan Maintenance & Updates

- Federal Requirements for the Plan Maintenance & Updates
- Summary of Plan Updates
- Monitoring, Evaluating and Updating the Mitigation Plan
- Incorporation of the Mitigation Plan into Other Planning Mechanisms
- Continuing Public Participation in the Plan Maintenance Process

Appendices

- Federal Requirements for Local Mitigation Plans
- Community Mitigation Capabilities
- 2015 Plan Implementation Status
- HMPC Hazard Identification and Ratings
- Hazard Profiles
- Alternative Mitigation Measures
- Committee Meeting Documentation
- Community Involvement Documentation
- Multi-Jurisdictional Participation Activities
- Adopting Resolutions

Types of Natural Hazards

- | | |
|-------------------------|-------------------------|
| · Atmospheric Hazards | · Human Made Hazards |
| · Geologic Hazards | · Technological Hazards |
| · Hydrologic Hazards | |
| · Seismic Hazards | |
| · Other Natural Hazards | |

Images: Multi-Hazard Mitigation Stakeholder Meeting PowerPoint Presentation Slides (Presentation, 2014: Multi-Hazard Mitigation Planning Team)

Atmospheric Hazards

- Tropical Cyclones
- Thunderstorms and Lightening
- Tornadoes
- Windstorms
- Hailstorms
- Snow Avalanches
- Severe Winter Storms
- Extreme Summer Weather

Geologic Hazards

- Landslides
- Land Subsidence
- Expansive Soils

Hydrologic Hazards

- Floods
- Storm Surges
- Coastal Erosion
- Droughts

Seismic Hazards

- Earthquakes
- Tsunami Events

Other Natural Hazards

- Volcanic Hazards
- Wildfire Hazards

Human Made Hazards

- Explosion
- Chemical
- Biological
- Radiological
- Hazardous Material Release

Technological Hazards

- Dam Failure
- Fire
- Hazardous Materials
- Nuclear Accidents



Mitigation Strategies

Multi-hazard mitigation strategies must account for a broad range of hazards. Major goals and objectives of multi-hazard mitigation strategies are to: protect structures, people, and ecological systems from hazard risks; manage land use and growth so as to guide development to safe locations; plan public expenditures to reinforce hazard mitigation goals; and provide public information on hazard locations, mitigation techniques and evacuation routes.

Images: Multi-Hazard Mitigation Stakeholder Meeting PowerPoint Presentation Slides
(Presentation, 2014: Multi-Hazard Mitigation Planning Team

How Do We Mitigate Our Local Hazards

Mitigation Strategies Continued 3 of 4

- Manage land use and growth for safe development practices.
- Use future land-use plans and growth management programs to guide growth to safe locations.
- Incorporate hazard mitigation standards in development and building regulations.
- Plan public expenditures to reinforce mitigation goals.

Review of the 2010 Multi-Hazard Mitigation Plan

- Components of the 2010 Plan
- Risk Assessment of the 2010 Plan

Mitigation Strategies 1 of 4

- Protect structures from hazards risks.
- Strengthen and configure buildings to resist hazards impact.
- Relocate or elevate buildings in hazards areas.
- Protect people from hazards risks.
- Provide safe havens and evacuation routes for at-risk populations

Mitigation Strategies Continued 4 of 4

- Design and locate infrastructure to be resilient to multi-hazards.
- Acquire hazard areas land for public open space.
- Provide public information on multi-hazard mitigation.
- Disseminate hazards maps and guidance on mitigation techniques.
- Publicize evacuation routes and shelter locations.

2010 Plan Components

- General Review of the 2010 Planning Document

Mitigation Strategies Continued 2 of 4

- Design buildings and public spaces in accordance with security standards.
- Protect ecological systems from hazards risks.
- Conserve protective environmental features (e.g. vegetation, slopes).
- Protect food and water supplies from hazard threats.

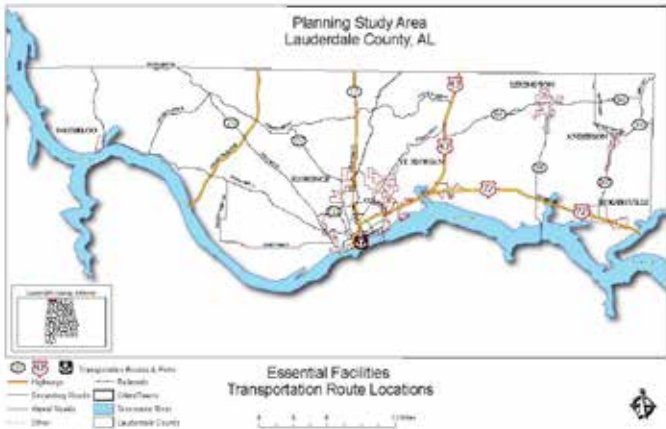
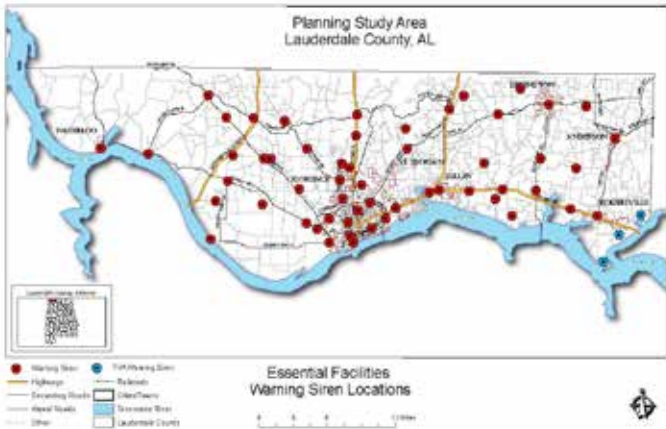
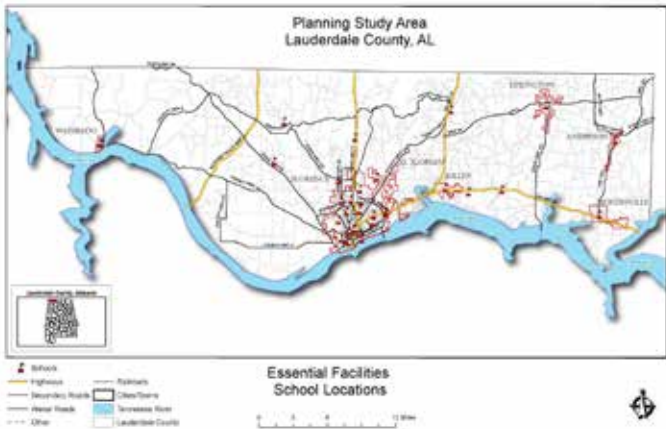
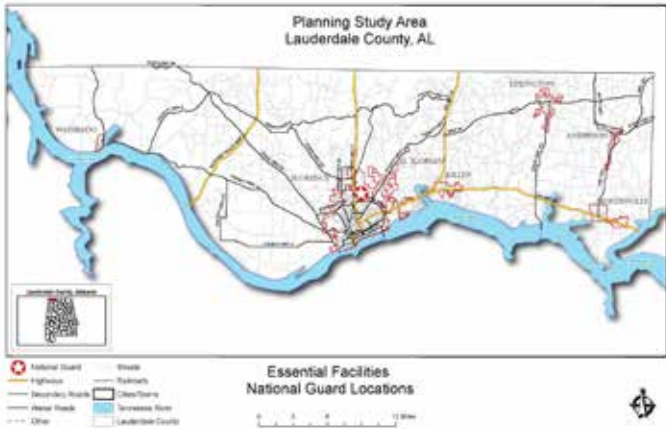
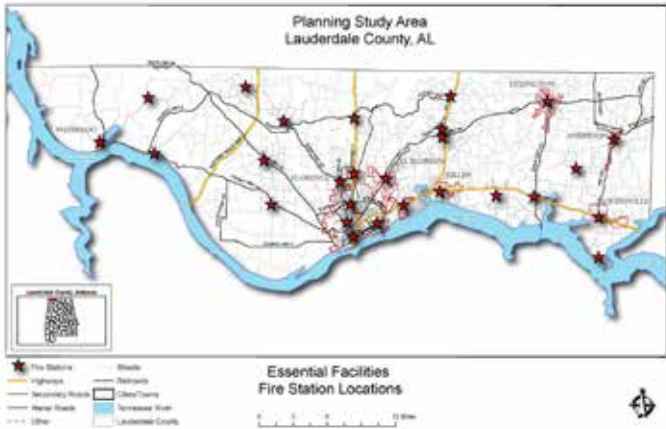
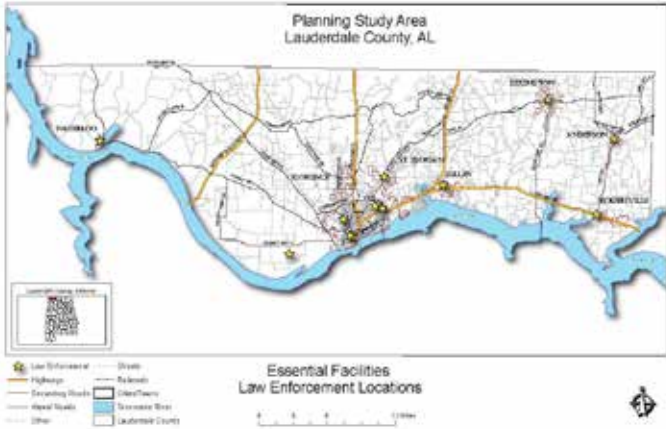
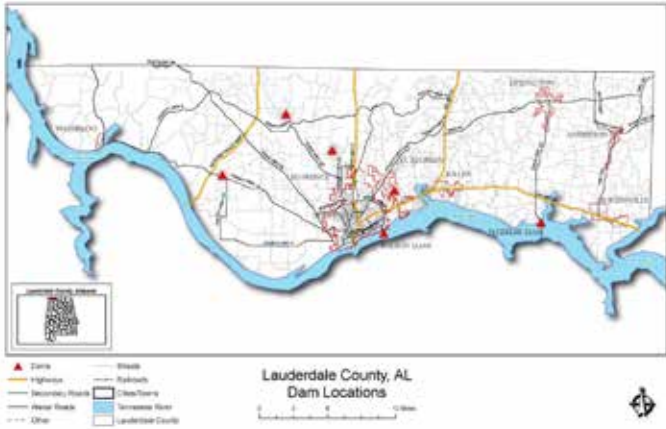
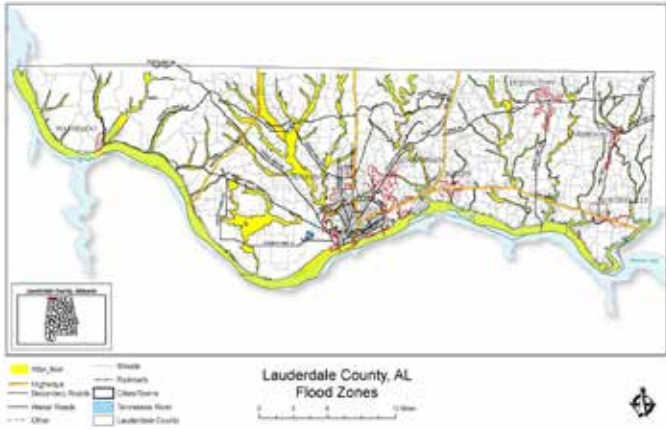
Compatibility of Mitigation Techniques

The compatibility of mitigation techniques must be assessed in light of local area and site conditions. Experience from past disasters can shed light on the effects of local conditions on potential effectiveness of various multi-hazards mitigation strategies.

Risk Assessment of the 2010 Plan

- Lauderdale County Flood Zones
- Lauderdale County Dams
- Essential Facilities: Law Enforcement Facilities
- Essential Facilities: Fire Stations
- Essential Facilities: National Guard
- Essential Facilities: Hospitals and Medical
- Lauderdale County Schools
- Lauderdale County Warning Signs
- Transportation Facilities
- Hazardous Materials Locations

Images: Multi-Hazard Mitigation Stakeholder Meeting PowerPoint Presentation Slides (Presentation, 2014: Multi-Hazard Mitigation Planning Team)



Images: Multi-Hazard Mitigation Stakeholder Meeting PowerPoint Presentation Slides
(Presentation, 2014: Multi-Hazard Mitigation Planning Team



Hazard Mitigation Survey & Questionnaire

- Review of Possible Hazards & Hazards Survey

Additional Critical Facilities in Lauderdale County

- Review Handout for Florence-Lauderdale County Critical Facilities

Policy and Public Involvement Schedule

- June 18, 2014 Policy Committee Meets, 11:00 a.m.
- June 23, 2014 Elgin Area Public Involvement Meeting, 6:00 p.m.
- June 24, 2014 Waterloo Area Public Involvement Meeting, 6:00 p.m.
- June 25, 2014 Florence Area Public Involvement Meeting, 6:00 p.m.
- August 4, 2014 Policy Committee Meeting No. 2, 11:00 a.m.
- August 11, 2014 Receive final mitigation strategies sheet
- September 16, 2014 Draft Plan sent to Policy Committee by email.
- September 23, 2014 Policy Committee Meeting No. 3, 11:00 a.m.
- October 7, 2014 Citizen & Stakeholder distribution of draft plan to local gov.