

Montgomery County Hazard Mitigation Plan



2015 Plan Update



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Prepared under the direction of the Hazard Mitigation Planning Committee, the Local Emergency Planning Committee, and the Montgomery City-County Emergency Management Agency by:



**236 Town Mart
Clanton, AL 35045
Office (205) 280-3027, Fax (205) 280-0543
www.leehelmsllc.com**

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Montgomery County Hazard Mitigation Plan

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Introduction

Montgomery County Hazard Mitigation Plan

The Montgomery County Hazard Mitigation Plan is a multi-jurisdictional, multi-hazard mitigation plan. This plan fulfills the requirements set forth by the Federal Disaster Mitigation Act of 2000 (DMA 2000). It meets all eligibility requirements set forth by the Federal Emergency Management Agency (FEMA) for grant assistance. To date, assistance is available from the following grant programs: the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance Program (FMA), and Pre-Disaster Mitigation Program (PDM). The Biggert-Waters Flood Insurance Reform Act of 2012 eliminated the Repetitive Flood Claims Grant Program (RFC) and Severe Repetitive Loss Program (SRL) and incorporated these elements into the FMA Program. The FMA Program now allows for up to 100% federal cost share for severe repetitive loss properties; 90% federal cost share for repetitive loss properties; and 75% federal cost share for repetitive loss properties.

This plan covers the entire county including all unincorporated areas, the City of Montgomery and Town of Pike Road.

On October 30, 2000, the United States Congress passed the Disaster Mitigation Act of 2000, also known as DMA2K. Among its other features, DMA2K established a requirement that in order to remain eligible for federal disaster assistance and grant funds, localities must develop and adopt hazard mitigation plans as a condition of receiving mitigation project grants under the Pre-Disaster Mitigation (PDM) Program and the Post-Disaster Hazard Mitigation Program (HMGP). On February 26, 2002 (updated October 1, 2002 and October 28, 2003), the Federal Emergency Management Agency (FEMA) published an Interim Final Rule (IFR) updated to the Final Rule (FR) on October 1, 2013 that provides the guidance and regulations under which such plans must be developed. The Final Rule (FR) provides detailed descriptions of both the planning process that localities are required to observe, as well as the contents of the plan that emerges.

Montgomery City-County will continue to comply with all applicable federal and state statutes and regulations related to hazard mitigation planning. In addition, Montgomery City-County will amend its plan whenever necessary to reflect changes in countywide hazard mitigation.

Authority

Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-228, as amended), Title 44 Code of Federal Regulations, as amended by Section 201 of the Disaster Mitigation Act of 2000 require that all state and local governments develop a Hazard Mitigation Plan as a condition of receiving federal disaster assistance.

Funding

Funding for this plan update was made available through the Hazard Mitigation Grant Program (HMGP). The grant's Period of Performance is November 18, 2013 through November 18, 2015. Montgomery City-County entered into an agreement with Lee Helms Associates L.L.C. (LHA) to update the 2010 plan that was revised by Lee Helms Associates, L. L. C. and expires on August 2, 2015.

Scope

The Montgomery City-County Hazard Mitigation Plan includes all incorporated and unincorporated areas in Montgomery City-County. The plan addresses all natural hazards identified by the Federal Emergency Management Agency. All hazards that may affect Montgomery City-County and its residents are identified. Hazard mitigation strategies are discussed in terms of goals, objectives and mitigation actions. Responsibility for implementation of strategies is discussed and possible funding sources are identified.

Purpose

"Mitigation is the cornerstone of emergency management. It's the ongoing effort to lessen the impact disasters have on people's lives and property through damage prevention and flood insurance" (<http://www.fema.gov/fima/>). The Montgomery City-County Hazard Mitigation Plan is an effort to identify mitigation strategies that address the hazards to which Montgomery City-County is the most vulnerable. This plan is only one of many means Montgomery City-County will take to achieve a safer, more hazard-resistant environment for its residents.

Section One: Planning Process

Plan Update Process

The hazard mitigation planning update process began in January of 2014 after the Montgomery City-County Emergency Management Agency was awarded a planning grant from the Alabama Emergency Management Agency (AEMA). The Montgomery City-County EMA received 75 percent funding from the Federal Emergency Management Agency (FEMA). The remaining 25 percent was provided locally through in-kind services. The 2015 plan update reflects the same basic structure as the 2010 plan.

The Montgomery City-County mitigation plan is the representation of the county's commitment to reduce risks from natural hazards. In doing this, the number, location, extent and probability of natural disasters occurring within the area were assessed. Previous 2010 plan information was provided to each jurisdiction/local government Hazard Mitigation Planning Committee members participating in the plan update. This information, which included updating of each jurisdiction's data tables, critical facilities and mitigation strategies, were the basis for the plan. Next, actions that would reduce the loss of life or property in the area were considered. In doing this, all jurisdictions, local governments, private-non-profits, first responders (police, fire and medical), neighboring counties, and the general public were invited and encouraged to participate. Jurisdictions, planning committee members, the public, and neighboring communities actively participated by attending meetings and/or providing input by phone, fax, email, postal mail and one-on-one contacts made by the EMA Director/Hazard Mitigation Planning Commission Chairman.

Continued Public Participation

The plan will be available for the public to view at the Montgomery City-County Emergency Operations Center, Montgomery City Hall and Pike Road Town Hall.

After the initial plan was completed in 2005, it was made available for ongoing public view and comment at the Montgomery City-County Emergency Operations Center, Montgomery City Hall and Pike Road Town Hall. Each local government was instructed that amendments or additions could be made to that plan at any time. Additional opportunities for comment were provided at annual meetings held by the Montgomery City-County EMA. No public participation was noted at these meetings.

In the future, the County EMA will strive to gain more public participation in the maintenance and updates of the county's hazard mitigation plan by encouraging Parent Teacher Organizations, Senior Citizens Clubs, Chamber of Commerce, Kiwanis Club, etc. by mail, telephone, and personal contacts. In addition, the County EMA will encourage the county and municipalities with websites and/or Facebook pages to place the 2015 plan on their site and offer the public a place to comment on the plan. Jurisdictions having Facebook pages are: City of Montgomery and the Town of Pike Road, Alabama. Jurisdictions having websites are: Montgomery County: www.mc-ala.org; City of Montgomery: www.montgomeryal.gov; and Town of Pike Road: www.pikeroad.us.

Hazard Mitigation Planning Committee

Before beginning the plan update process, LHA staff coordinated with Mr. Calvin Brown, Montgomery City-County EMA Director, to review the hazard mitigation planning committee. Replacements were made for those representatives of local governments that no longer serve as representatives. Mr. Brown, the Montgomery City-County EMA Director assumed the responsibility as Chairman of the Hazard Mitigation Planning Committee and also invited the Local Emergency Planning Committee (LEPC) to participate in the planning process. If a jurisdiction failed to attend a HMPC meeting, they were provided the information following the meeting and participated through one-on-one contacts, by telephone, and/or email.

The Hazard Mitigation Planning Committee (HMPC) consisted of the following members:

Montgomery City-County

Calvin Brown, Montgomery City-County EMA Director/HMPC Chairman (LEPC)

Cindy Fox, Montgomery City-County EMA Coordinator

Shaye Redden, Montgomery City-County EMA Clerk

Mark Barrett, Montgomery City-County EMA

Scott Kramer, Montgomery City-County Risk Management Director

Lee Helms, Lee Helms Associates, L. L. C./Consultant

Lou Ialacci, City-County IT

Kelly D. Gordon, Sr., Montgomery Fire Department, Assistant Fire Chief

Russell G. Collier, Montgomery Fire Department, District Fire Chief

Melinda Chandler, Communications Operations Manager

Derrick Cunningham, Chief Deputy, Montgomery County Sheriff's Office

City of Montgomery

Scott Miller, City Director of Leisure Services

Gail Gipson, Director of the City Maintenance Department

Scott Steward, Superintendent of the City Maintenance Department

James Ivey, Assistant Director of the City Maintenance Department

Donald Thomas, Assistant Director of the City Maintenance Department

Roger Orum, Superintendent of the City Maintenance Department

Chris Murphy, Montgomery City Public Safety Director

Robert Smith, City Planning Department, Planning Director

Betty Beville, City of Montgomery, Deputy Finance Director

Barry Crabb, City of Montgomery, Finance Director

Kitty Chamberlain, City Planner

Rob Spivery, Parks and Recreation Director

Kim Fehl, City Attorney

John Trevor, City Engineering Department, Engineer II

Lynda Wool, City Long Range Planner

Larry Fisher, Communications Director

Chris Conway, Public Works Director

Patrick Dunson, City Engineer

Town of Pike Road

Gordon Stone, Town of Pike Road Mayor

Liz Craig, Town Council Member

Brad Flowers, Town Engineer

Participation Guidelines

The Chairman of the Hazard Mitigation Planning Committee set forth a list of participation guidelines for the Hazard Mitigation Planning Committee:

1. At least one appointed representative from each participating local government should attend all committee meetings. In the event of extenuating circumstances, the local government may send a non-appointed representative. If a committee member cannot attend the meetings, he or she will be contacted in person, by phone, by email, or by mail in order to obtain the jurisdiction's participation in the plan revision. Committee members are also encouraged to attend neighboring communities' HMPC meetings and participate in their plan updates.
2. Each local government should submit requested information to Montgomery City-County EMA or LHA in a timely manner. Local governments should meet time frames and deadlines established by the committee. In the event of extenuating circumstances, the Hazard Mitigation Planning Committee Chairman may approve late submissions.
3. Committee members should fully cooperate with LHA and the Montgomery City-County EMA during the update and finalization of the Montgomery City-County Hazard Mitigation Plan by providing the best available information necessary to complete the plan.
4. Each participating jurisdiction must review mitigation strategies from the 2010 plan for which they were responsible and provide new actions they wish to pursue in the future. The local government must provide mitigation measures and the method used to prioritize the actions. The selected actions must identify the hazard(s) being mitigated.

Committee and Public Meeting Schedule and Participation

Each jurisdiction, public and private nonprofits, general public, and neighboring communities of Elmore (Eric Jones, EMA Director, 334-567-6451), Autauga (Ernie Baggett, EMA Director, 334-361-3758), Lowndes (David Butts, EMA Director, 334-548-2324), Crenshaw (Jessica Tomlin-Seabrook, EMA Director, 334-335-4538), Pike (Jeanna Barnes, EMA Director, 334-566-8272), Bullock (Roderick Clark, 334-850-7091), and Macon (Judy Kinebrew, 334-724-2626) in Alabama were invited and encouraged to participate in each of the committee meetings. In the event they were unable to attend the meetings they were provided meeting materials from the Montgomery City-County EMA or LHA prior to or immediately following the missed meeting. Meeting materials were completed and returned via mail, fax, email, or by scheduling an individual meeting with the Montgomery City-County EMA and/or LHA to be counted as an active participant in the planning process. Neighboring communities were invited by phone or email and encouraged to attend all committee meetings and provide input. None of these communities attended any of the meetings;

however during contacts made, all expressed their willingness to help in the event of a disaster. Public meeting notices were published in the Montgomery Advertiser at least seven days prior to the meeting date and included contact information for assistance. Attendees at the meetings were asked to group themselves by jurisdiction in order to review and complete meeting materials that required collaboration and provide other needed data. Some individuals participated with and contributed to more than one jurisdiction as deemed appropriate. A “Citizen Input on Hazard Mitigation Plan” form (see sample below) was available at all meetings for general public citizens to complete. Committee representatives were asked to take these forms and have their concerned citizens to complete. No forms were completed during the planning process.

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CITIZEN INPUT ON HAZARD MITIGATION PLANNING

Where in the county do you live (Which city or township?)	
What is your zip code at home?	
Do you work with Law Enforcement, Fire Service, Emergency Medical Services, Public Health, or Emergency Management? (Yes or No)	

Which of these emergency events have occurred at your home or in your neighborhood during the past ten years?

	EVENT	YES	NO
A	Brush or grass fire?		
B	Building fire?		
C	Severe thunderstorm?		
D	Tornado?		
E	Winter Weather?		
F	Terrorism?		
G	Drought?		
H	Hazardous material spill or release from pipelines, trucks, trains, or aircraft?		
I	Hazardous material spill or release from a facility?		
J	Power failure for more than two or three hours?		
K	Earthquake		

Did you have to leave your home because of any of these events?

If so, which ones? List by letter designation: _____

Did you lose time from work or school because of any of these events?

If so, which ones? List by letter designation: _____

Which of the following events are you concerned about in the next 12 months?

	EVENT	YES	NO
A	Brush or grass fire?		
B	Building fire?		
C	Severe thunderstorm?		
D	Tornado?		
E	Winter Weather?		
F	Terrorism?		
G	Drought?		
H	Hazardous material spill or release from pipelines, trucks, trains, or aircraft?		
I	Hazardous material spill or release from a facility?		
J	Power failure for more than two or three hours?		
K	Earthquake		

Of the concerns listed in question eight, please list the ones that you think are most likely to happen. List in priority by letter designation:

Of the concerns that you think are most likely to happen from question 9, which one do you think would affect most of the population of your County? _____

Of the concerns listed in question eight, please list the ones you think are least likely to happen. List by letter designation: _____

Do you own a NOAA weather radio? YES _____ NO _____

If yes, is it on right now? YES _____ NO _____

Are you familiar with the Emergency Alert System YES _____ NO _____

Do you have a device that can sound an alarm to alert you to emergencies? YES _____ NO _____

Can you receive emergency warning information on your pager, cell phone, or wireless messaging devices? YES__ NO__ If no, would you like to? YES__ NO__

Do you have a family emergency plan for events such as a home fire? YES _____ NO _____

Do you have a safe place for shelter in or around your home? YES _____ NO _____

Are there emergency plans at your place of employment? YES _____ NO _____

If you are willing to, please provide your name, address, and a telephone number so that the County Emergency Management or the community representative may contact you if further input is needed:

Name	
Mailing Address	
Contact Number	
E-Mail	
Questions?	



**Montgomery City/County
Hazard Mitigation Planning
Committee Meeting**



Dear Montgomery City/County Hazard Mitigation Planning Committee Member:

The Montgomery City/County Hazard Mitigation Planning Committee (HMPC) is in the process of revising the current Montgomery City/ County Hazard Mitigation Plan. The purpose of this meeting is to discuss the planning process, goals and objectives, and the importance of your participation in this process. You may bring additional representatives from your agency/department that you feel would benefit or contribute to the purpose of this meeting.

In order to comply with federal and state regulations involving funding that might be available to Montgomery City/County for natural hazards mitigation, Montgomery City/County will hold a planning meeting at **10 a.m. on Thursday, April 24, 2014**. The meeting will be held at the Montgomery City Council Chambers located at 103 North Perry Street in Montgomery.

Lee Helms Associates (LHA), L. L. C. will be conducting this meeting, as well as all other meetings regarding the update of the Montgomery City/County Hazard Mitigation Plan. LHA will ensure all federal and state requirements are met. The HMPC Meeting will not last longer than one hour. Your attendance and input is required in order for your department/agency/ municipality to be eligible to receive future funding for any mitigation projects within the next five years.

If you have any questions, please contact the LHA Office at 205-280-3027 or Lee at 1-888-390-0139. You can also email Renee Helms at renee@leehelmsllc.com or send a fax to 205-280-0543.

INITIAL MEETING AGENDA
2015 MONTGOMERY CITY / COUNTY HAZARD MITIGATION PLAN UPDATE
10 a.m. on Thursday, April 24, 2014
Montgomery City Council Chambers located at 103 North Perry Street in Montgomery

1. Introductions
 - Sign-in sheets – please print and make sure your email is on the form
2. Project Background
 - 2010 plan update was prepared by Lee Helms Associates, L. L.C. under the direction of the Montgomery City/County Emergency Management Agency and the Hazard Mitigation Planning Committee and adopted by:
 - Montgomery County – Unincorporated
 - Montgomery City – City
 - Pike Road – Town
 - 2015 plan update will be prepared by Lee Helms Associates, L. L. C. under the direction of the Hazard Mitigation Planning Committee and the Montgomery City/County Emergency Management Agency
3. Project Participation
 - Identify opportunities for public input into the 2015 plan update
 - Identify potential plan meeting participants that are not present today (municipalities, school boards, engineers, hospitals, surrounding county EMAs, fire departments, etc.)
 - Private Non Profits (PNPs) can serve as their own applicant
4. Project Schedule
 - 2010 plan update expires August 2, 2015
 - Period of Performance for the grant is November 18, 2013 – November 18, 2015
 - Goal date for draft plan to be submitted in order to be approved before current plan expires: Thursday, March 19, 2015
 - AEMA/Local Review = 30 days; Local response to a request for information (RFI) = 30 days; AEMA review of local response to RFI = 30 days; FEMA Review = 45 days (allowing 135 days at the least for plan approval)
 - There will be an initial, mid-term, and final meeting. Committee members will be made aware of the meetings via email unless other means is requested. Information may be sent to LHA by fax 205-280-0543 or email to renee@leehelmsllc.com. If you have any questions or need assistance, call LHA at 205-280-3027.
5. Project Tasks for this Meeting
 - All general public attendees are to complete the form titled: “Citizen Input on Hazard Mitigation Planning” and leave completed form with LHA representative
 - Local EMA Director is to complete Questionnaire #1 and return it to LHA
 - Local EMA Director is to provide LHA with a copy of the media release for this meeting
 - Update 2010 plan information – see handouts
 - Discuss in-kind contributions for local match to this planning grant
 - Set date and location for next meeting

Thursday, April 24, 2014 at 10 a.m.

Montgomery City Council Chambers, 103 North Perry Street, Montgomery

Montgomery City-County Hazard Mitigation Planning Meeting 1

The Chairman of the Hazard Mitigation Planning Committee, Mr. Calvin Brown, opened the meeting. Lee Helms Associates, L. L. C. reviewed the original plan with committee members and attendees and explained the update process. Attendees were given worksheets and other materials related to the agenda topics in order to review and provide data for the update. A total of 18 committee members or designees attended the meeting, along with 1 LHA representative. No members of the general public were in attendance.

- Calvin Brown, Montgomery City-County EMA, Director
- Chris Conway, Montgomery Public Works, Director
- Chris Murphy, City of Montgomery Public Safety, Director
- Cindy Fox, Montgomery City-County EMA, Coordinator
- Derrick Cunningham, Montgomery County Sheriff's Office, Chief Deputy
- Donald Thomas, City of Montgomery, Maintenance Superintendent
- Gail Gipson, City of Montgomery, Maintenance Director
- James Ivey, City of Montgomery, Maintenance Superintendent
- Kelly D. Gordon, Sr., Montgomery Fire Department, Assistant Fire Chief
- Lee Helms, Lee Helms Associates, Consultant
- Lou Ialacci, Montgomery City-County IT
- Mark Barrett, Montgomery City-County EMA, Planner
- Melinda Chandler, Communication Operations Manager
- Patrick Dunson, City of Montgomery, City Engineer
- Robert Smith, City of Montgomery, Planning Director
- Roger Orum, City of Montgomery, Maintenance Superintendent
- Russell G. Collier, Montgomery Fire Department, District Fire Chief
- Scott Kramer, Montgomery County, Risk Manager
- Shaye Redden, Montgomery City-County EMA, Clerk III

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MONTGOMERY CITY / COUNTY

Thursday, April 24, 2014 at 10 a.m. – Montgomery City Council Chambers, 103 North Perry Street in Montgomery
INITIAL HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Chris Corg	Agency: Public Works Job Title: Director	Phone: Fax:	
Patrick Denson	Agency: City of Mont. Job Title: City Engineer	Phone: Fax:	
Mark Barrett	Agency: EMA Job Title:	Phone: 241-2339 Fax:	mbarrett@montgomeryal.gov
Lou Iannucci	Agency: City/County IT Job Title:	Phone: 625-2924 Fax:	liannucci@montgomeryal.gov
Shaye Redden	Agency: EMA Job Title: Clerk III	Phone: 241-2339 Fax:	SRedden@montgomeryal.gov
Cindy Fox	Agency: EMA Job Title: Coordinator	Phone: 334-782-0218 Fax:	Cfox@montgomeryal.gov

Lee Helms

Lee Helms Assoc.
Consultant



205-280-3027

205-280-0543

lee@leehelmsllc.com

MONTGOMERY CITY / COUNTY

Thursday, April 24, 2014 at 10 a.m. – Montgomery City Council Chambers, 103 North Perry Street in Montgomery

INITIAL HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Kelly D. Gordon, Sr.	Agency: M.F.D. Job Title: Assistant Fire Chief	Phone: 625-2228 Fax:	kgordon@montgomeryal.gov
Russell G. Collier	Agency: MFD Job Title: District Fire Chief	Phone: 625-2469 Fax:	r.collier@montgomeryal.gov
JAMES IVEY	Agency: Maintenance - City Job Title: Superintendent	Phone: 241-2603 Fax: 8	J.Ivey@montgomeryal.gov
Donald Thomas	Agency: Maintenance - City Job Title: Superintendent	Phone: 241-2601 Fax:	DTThomas@montgomeryal.gov
Melinda Chandler	Agency: Communication Job Title: Ops Mgr	Phone: 240-4109 Fax:	mehandler@montgomeryal.gov
Robert Smith	Agency: City Planning Dept Job Title: Planning Director	Phone: 625-2218 Fax:	rsmith@montgomeryal.gov



MONTGOMERY CITY / COUNTY

Thursday, April 24, 2014 at 10 a.m. - Montgomery City Council Chambers, 103 North Perry Street in Montgomery

INITIAL HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Roger Drum	Agency: Maintenance Dept Job Title: Superintendent	Phone: 241-2644 Fax: 241-2937	r.drum@montgomeryal.gov
Paul Gipsen	Agency: Maint Dept Job Title: Director	Phone: 241-2995 Fax: 241-2937	ggipsen@montgomeryal.gov
Derrick Cunningham	Agency: MCSO Job Title: Chief Deputy	Phone: 832-1646 Fax: 832-7113	
Chris Murphy	Agency: MBPS Job Title: Director	Phone: 625-4440 Fax:	cmurphy@montgomeryal.gov
Scott Kramer	Agency: Montgomery County Council Job Title: Risk Manager	Phone: 832-1280 Fax: 832-2533	
Cheryl Brown	Agency: EMA Job Title:	Phone: 241-2339 Fax: 858-2580	cbrown@montgomeryal.gov



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**Montgomery City/County
Hazard Mitigation Planning
Committee Meeting**



Dear Montgomery City/County Hazard Mitigation Planning Committee Member:

The Montgomery City/County Hazard Mitigation Planning Committee (HMPC) is in the process of revising the current Montgomery City/ County Hazard Mitigation Plan. The purpose of this meeting is to review the updates to the Montgomery City-County Hazard Mitigation Plan. You may bring additional representatives from your agency/department that you feel would benefit or contribute to the purpose of this meeting.

In order to comply with federal and state regulations involving funding that might be available to Montgomery City/County for natural hazards mitigation, Montgomery City/County will hold a planning meeting at **10 a.m. on Tuesday, October 28, 2014**. The meeting will be held at the Montgomery City Council Chambers located at 103 North Perry Street in Montgomery.

Lee Helms Associates (LHA), L. L. C. will be conducting this meeting, as well as all other meetings regarding the update of the Montgomery City/County Hazard Mitigation Plan. LHA will ensure all federal and state requirements are met. The HMPC Meeting will not last longer than one hour. Your attendance and input is required in order for your department/agency/ municipality to be eligible to receive future funding for any mitigation projects within the next five years.

If you have any questions, please contact the LHA Office at 205-280-3027 or Lee at 1-888-390-0139. You can also email Renee Helms at renee@leehelmsllc.com or send a fax to 205-280-0543.

MID-TERM MEETING AGENDA
2015 MONTGOMERY COUNTY HAZARD MITIGATION PLAN UPDATE
Tuesday, October 28, 2014 @ 10 a.m.
Montgomery City Council Chambers, 103 North Perry Street in Montgomery

1. Introductions

- Sign-in sheets – please print and make sure your email is on the form.

2. Project Schedule Reminder

- 2010 plan update expires August 2, 2015
- Period of Performance for the grant is November 18, 2013 – November 18, 2015
- Goal date for draft plan to be submitted in order to be approved before current plan expires: Thursday, March 19, 2015
 - AEMA/Local Review = 30 days; Local response to a request for information (RFI) = 30 days; AEMA review of local response to RFI = 30 days; FEMA Review = 45 days (allowing 135 days at the least for plan approval)
- There will be an initial, mid-term, and final meeting. Committee members will be made aware of the meetings via email unless other means is requested. Information may be sent to LHA by fax 205-280-0543 or email to renee@leehelmsllc.com. If you have any questions or need assistance, call LHA at 205-280-3027.

3. Project Tasks for this Meeting

- All general public attendees are to complete the form titled: “Citizen Input on Hazard Mitigation Planning” and leave completed form with LHA representative
- Local EMA Director is to provide LHA with a copy of the media release for this meeting if applicable
- Update 2010 plan information – see handouts
- Discuss in-kind contributions for local match to this planning grant



Tuesday, October 28, 2014 at 10 a.m.

Montgomery City Council Chambers, 103 North Perry Street, Montgomery
Montgomery City-County Hazard Mitigation Planning Meeting 2

The Chairman of the Hazard Mitigation Planning Committee, Mr. Calvin Brown, opened the meeting. Lee Helms Associates, L. L. C. reminded the committee members and attendees of the project schedule. Attendees were given worksheets and other materials related to the agenda topics in order to review and provide data for the update. These worksheets were previously emailed to participants with instructions on what information needs updating. A total of 18 committee members or designees attended the meeting, along with one LHA representative. No member of the general public attended.

- Calvin Brown, Montgomery City-County EMA, Director
- Chris Conway, Montgomery Public Works, Director
- Chris Murphy, City of Montgomery Public Safety, Director
- Cindy Fox, Montgomery City-County EMA, Coordinator
- Derrick Cunningham, Montgomery County Sheriff's Office, Chief Deputy
- Donald Thomas, City of Montgomery, Maintenance Superintendent
- Gail Gipson, City of Montgomery, Maintenance Director
- James Ivey, City of Montgomery, Maintenance Superintendent
- Kelly D. Gordon, Sr., Montgomery Fire Department, Assistant Fire Chief
- Lee Helms, Lee Helms Associates, Consultant
- Lou Ialacci, Montgomery City-County IT
- Mark Barrett, Montgomery City-County EMA, Planner
- Melinda Chandler, Communication Operations Manager
- Patrick Dunson, City of Montgomery, City Engineer
- Robert Smith, City of Montgomery, Planning Director
- Roger Orum, City of Montgomery, Maintenance Superintendent

- Russell G. Collier, Montgomery Fire Department, District Fire Chief
- Scott Kramer, Montgomery County, Risk Manager
- Shaye Redden, Montgomery City-County EMA, Clerk III

DRAFT

MONTGOMERY CITY / COUNTY

Tuesday, October 28, 2014 at 10 a.m. – Montgomery City Council Chambers, 103 North Perry Street in Montgomery

MID-TERM HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Scott Miller	Agency: City Job Title: Dir. Leisure Services	Phone: 625-4731 Fax: 625-2301	smiller@montgomeryal.gov
SCOTT STEWARD	Agency: CITY Job Title: SUP MAINTENANCE DEPT	Phone: 354-6103 Fax:	SSteward@montgomeryal.gov
JAMES FUEY	Agency: CITY Job Title: ASS DIR MAINTENANCE DEPT	Phone: 850-3203 Fax:	JFUEY@montgomeryal.gov
DONALD THOMAS	Agency: CITY Job Title: ASS DIR MAINTENANCE DEPT	Phone: 850-3727 Fax:	DTHOMAS@montgomeryal.gov
Chris Murphy	Agency: MSPS Job Title: Director	Phone: 625-4440 Fax:	CMURPHY@montgomeryal.gov
Robert Smith	Agency: City Planning Job Title: Director	Phone: 625-2218 Fax:	rsmith@montgomeryal.gov



MONTGOMERY CITY / COUNTY

Tuesday, October 28, 2014 at 10 a.m. – Montgomery City Council Chambers, 103 North Perry Street in Montgomery

MID-TERM HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Betty Beville	Agency: City of Montg. Job Title: Deputy Finance Director	Phone: (334) 625-2428 Fax: (334) 625-4422	bbeville@montgomeryal.gov
Barry Crabb	Agency: City of Montgomery Job Title: Finance Director	Phone: (334) 625-2025 Fax: (334) 625-4422	bcraabb@montgomeryal.gov
Cindy Zap	Agency: EMA Job Title:	Phone: 241-2379 Fax:	
Scott Kramer	Agency: City/County Job Title: Risk Management Director	Phone: Fax:	
Kitty Chamberlain	Agency: City Job Title: planner	Phone: 625 2699 Fax:	kchamberlain@montgomeryal.gov
	Agency: Job Title:	Phone: Fax:	



MONTGOMERY CITY / COUNTY

Tuesday, October 28, 2014 at 10 a.m. – Montgomery City Council Chambers, 103 North Perry Street in Montgomery

MID-TERM HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Betty Beville	Agency: City of Montg. Job Title: Deputy Finance Director	Phone: (334) 625-2428 Fax: (334) 625-4422	bbeville@montgomeryal.gov
Barry Crabb	Agency: City of Montgomery Job Title: Finance Director	Phone: (334) 625-2025 Fax: (334) 625-4422	bcraabb@montgomeryal.gov
Cindy Zap	Agency: EMA Job Title:	Phone: 241-2379 Fax:	
Scott Kramer	Agency: City/County Job Title: Risk Management Director	Phone: Fax:	
Kitty Chamberlain	Agency: City Job Title: planner	Phone: 625 2699 Fax:	kchamberlain@montgomeryal.gov
	Agency: Job Title:	Phone: Fax:	



MONTGOMERY CITY / COUNTY

Tuesday, October 28, 2014 at 10 a.m. – Montgomery City Council Chambers, 103 North Perry Street in Montgomery

MID-TERM HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Rob Spivery	Agency: Parks + Rec Job Title: Director	Phone: 331-25-2300 Fax: 225-2301	rspivery@montgomeryal.gov
Kim Full	Agency: City Job Title: Atty	Phone: 625-2050 Fax: 625-2310	kfull@montgomeryal.gov
Shaye Redden	Agency: EMA Job Title: Clerk III	Phone: 241-2339 Fax:	sredden@montgomeryal.gov
Calvin Brown	Agency: EMA Job Title: Director	Phone: 241-2339 Fax:	cbrown@montgomeryal.gov
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	



MONTGOMERY CITY / COUNTY

Tuesday, October 28, 2014 at 10 a.m. – Montgomery City Council Chambers, 103 North Perry Street in Montgomery

MID-TERM HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
JOHN TREVOE	Agency: CITY ENGINEERING DEPT Job Title: ENGINEER II	Phone: 625-2927 Fax:	STREVE@MONTGOMERYAL.GOV
Lynola Wood	Agency: City Planning Job Title: Long Range Planner	Phone: 625-2066 Fax:	lwood@montgomeryal.gov
LARRY FISHER	Agency: Communications Job Title: DIR	Phone: 240-4111 Fax: 4109	fisher@montgomeryal.gov
Lee Helms	Agency: Lee Helms Associates Job Title: Owner / Consultant	Phone: 205-280-3027 Fax: 205-280-0543	lee@leehelmsllc.com
	Agency: Job Title:	Phone: Fax:	
	Agency: Job Title:	Phone: Fax:	



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A third HMPC meeting was held on June 17, 2015 at 103 North Perry Street in the Old City Council Chambers. This meeting was to review the draft plan and make any updates to the plan as needed prior to submitting draft plan to the Alabama EMA for their review.

Prior to approval and the jurisdictions adopting the plan by resolutions, a meeting will be held to provide the public an opportunity to comment on the plan.

DRAFT

Renee Helms

From: Renee Helms [renee@leehelmsllc.com]
Sent: Monday, June 08, 2015 3:27 PM
To: 'Barrett, Mark S.'; 'lialacci@montgomeryal.gov'; 'Redden, Shaye'; 'Fox, Cindy'; 'Gordon, Sr, Kelly'; 'Collier, Russell G.'; 'jivey@montgomeryal.gov'; 'dthomas@montgomeryal.gov'; 'mchandler@montgomeryal.gov'; 'rsmith@montgomeryal.gov'; 'rorum@montgomeryal.gov'; 'ggipson@montgomeryal.gov'; 'cmurphy@montgomeryal.gov'; 'cibrown@montgomeryal.gov'; 'smiller@montgomeryal.gov'; 'ssteward@montgomeryal.gov'; 'bbeville@montgomeryal.gov'; 'bcrabb@montgomeryal.gov'; 'kchamberlain@montgomeryal.gov'; 'rspivery@montgomeryal.gov'; 'Kfehl@montgomeryal.gov'; 'jtrevor@montgomeryal.gov'; 'lwool@montgomeryal.gov'; 'lfisher@montgomeryal.gov'; 'Liz S. Craig'
Cc: 'Rachel Beam'; 'Lee Helms'
Subject: Hazard Mitigation Planning Meeting
Attachments: PUBLIC MEETING announcement 6 8 2015.docx
Importance: High

Please see the attached announcement for a Hazard Mitigation Planning Meeting to be held on Wednesday, June 17, 2015.

Renee Helms, Manager
Lee Helms Associates, L. L. C.
236 Town Mart
Clanton, AL 35045
Office: 205-280-3027
Fax: 205-280-0543
Email: renee@leehelmsllc.com
Website: www.leehelmsllc.com



PUBLIC MEETING

The Montgomery City/County Emergency Management Agency is scheduling a public meeting on June 17, 2015 at 10 a.m. to update its Hazard Mitigation Plan. The meeting will take place in the Old City Council Chambers located at 103 North Perry Street. The public, private non-profits, municipalities, school boards, universities/colleges, water/sewer boards, hospitals, fire departments and elected officials are among those invited and encouraged to attend. Participation is required in order to apply for federal hazard mitigation grants in the future.

Renee Helms

From: Renee Helms [renee@leehelmsllc.com]
Sent: Monday, June 15, 2015 2:53 PM
To: 'markbarrett57@att.net'; 'lialacci@montgomeryal.gov'; 'jivey@montgomeryal.gov'; 'dthomas@montgomeryal.gov'; 'mchandler@montgomeryal.gov'; 'rsmith@montgomeryal.gov'; 'rorum@montgomeryal.gov'; 'ggipson@montgomeryal.gov'; 'cmurphy@montgomeryal.gov'; 'cibrown@montgomeryal.gov'; 'smiller@montgomeryal.gov'; 'ssteward@montgomeryal.gov'; 'bbeville@montgomeryal.gov'; 'bcrabb@montgomeryal.gov'; 'kchamberlain@montgomeryal.gov'; 'rspivery@montgomeryal.gov'; 'Kfehl@montgomeryal.gov'; 'jtrevor@montgomeryal.gov'; 'lwool@montgomeryal.gov'; 'lfisher@montgomeryal.gov'; 'bflowers@flowersandwhite.com'; 'Dunson, Patrick'; 'Redden, Shaye'; 'Fox, Cindy'; 'Gordon, Sr, Kelly'; 'Liz S. Craig'; 'Collier, Russell G.'
Cc: 'Rachel Beam'; 'Lee Helms'
Subject: Hazard Mitigation Planning Meeting REMINDER
Attachments: PUBLIC MEETING announcement 6 8 2015.docx
Importance: High

REMINDER:

Please see the attached announcement for a Hazard Mitigation Planning Meeting to be held on Wednesday, June 17, 2015.

Renee Helms, Manager
Lee Helms Associates, L. L. C.
236 Town Mart
Clanton, AL 35045
Office: 205-280-3027
Fax: 205-280-0543
Email: renee@leehelmsllc.com
Website: www.leehelmsllc.com



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Email or Phone

Password

Log In

☐ Keep me logged in

Forgot your password?



Safe Montgomery- Montgomery Department of Public Safety

21 hrs

The Montgomery City/County Emergency Management Agency is scheduling a public meeting on June 17 at 10 a.m. to update its Hazard Mitigation Plan. The meeting will take place in the Old City Council Chambers located at 103 North Perry Street. The public, private non-profits, municipalities, school boards, universities/colleges, water/sewer boards, hospitals, fire departments and elected officials are among those invited and encouraged to attend. Participation is required in order to apply for federal hazard mitigation grants in the future

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6/12/15

Hazard mitigation plan to be discussed

The Montgomery City/County Emergency Management Agency will hold a public meeting at 10 a.m. Wednesday to update its hazard mitigation plan. The meeting, coordinated by Lee Helms Associates LLC, will take place in the Old

City Council Chambers at 103 N. Perry St. The public, private nonprofits, municipalities, school boards, universities and colleges, water and sewer boards, hospitals, fire departments and elected officials are invited to attend. Participation is required to apply for hazard mitigation grants.

Kym Klass

MONTGOMERY CITY / COUNTY

Wednesday, June 17, 2015 at 10 a.m. – Montgomery City Council Chambers, 103 North Perry Street in Montgomery
THIRD HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
LARRY J. Fisher	Agency: Dept. Emergency Communications Job Title: Director	Phone: 334-850-2003 Fax:	lfisher@montgomeryal.gov
KENNETH BOLLING	Agency: Montgomery Fire/Rescue Job Title: Asst Fire Chief - Training	Phone: 334-850-1173 Fax:	kbolling@montgomeryal.gov
MARK BARRETT	Agency: MONTG EMA Job Title: Exercise Coordinator	Phone: 334-241-2339 Fax:	mbarrett@montgomeryal.gov
Calvin Brown	Agency: Monty EMA Job Title: Director	Phone: 334-241-2339 Fax:	cbrown@montgomeryal.gov
Cindy Fox	Agency: Montgomery EMA Job Title:	Phone: 241-2339 Fax:	cfox@montgomeryal.gov
Russell G. Collier	Agency: Montgomery Fire Job Title: District Fire Chief	Phone: 334-625-2469 Fax:	r.collier@montgomeryal.gov



MONTGOMERY CITY / COUNTY

Wednesday, June 17, 2015 at 10 a.m. – Montgomery City Council Chambers, 103 North Perry Street in Montgomery
THIRD HAZARD-MITIGATION PLANNING MEETING SIGN-IN SHEET

(PLEASE PRINT CLEARLY)

NAME	AGENCY OR DEPARTMENT/ JOB TITLE	PHONE/ FAX	E-MAIL
Betty Beville	Agency: City of Montg. Job Title: Deputy Finance Director	Phone: 334-625-2428 Fax: 334-625-4422	bbeville@montgomeryal.org
Kelvin Miller	Agency: the M Job Title: General Manager	Phone: 334-240-4898 Fax: 334-262 73240-4683	kmiller@montgomerytransit.com
Brad Flowers	Agency: Pike Road Job Title: Engineer	Phone: 356-7600 Fax:	bflowers@flowersandwhite.com
Lynola Wool	Agency: City of Montg. Job Title: Planner	Phone: 334-625-2066 Fax:	lwool@montgomeryal.org
Barry Crabb	Agency: City of Montgomery Job Title: Finance Director	Phone: 334-625-2025 Fax:	bcrabb@montgomeryal.org
Robert Smith	Agency: City of Montgomery Job Title: Director of Planning	Phone: Fax:	

Lee Helms

LHA
Contractor



205.280.3027
205.280.0543

lee@leehelmsllc.com

Interagency and Intergovernmental Coordination

Interagency and intergovernmental coordination also played a vital part in the development of this plan. Each of the agencies listed below were contacted via mail, email, fax, or telephone requesting the best available data that they could contribute to the 2015 plan update. All information provided was beneficial in completing risk and vulnerability assessments.

Federal Agencies

- National Weather Service provided storm event data
- United States Geological Survey provided information on general geology, earthquakes, sinkholes, land subsidence, and landslides
- U.S. Army Corp of Engineers and HAZUS-MH 2.1 provided information on dams
- Federal Emergency Management Agency provided information throughout the plan, including the National Flood Insurance Program information
- U.S. Department of Transportation's Hazardous Material Information System provided event data
- U.S. Department of Agriculture – Census of Agriculture provided land value per acre
- HAZUS-MH 2.1 provided estimation information on potential damage, economic loss, and social impacts from natural disasters

State Agencies

- Alabama Emergency Management Agency provided hazard information throughout the plan
- Geological Survey of Alabama provided information on general geology, earthquakes, sinkholes, and landslides
- Alabama Department of Economic and Community Affairs provided the Alabama Drought Management Plan, National Flood Insurance Program information and FEMA flood map update information
- Forestry Commission provided information regarding wildfires

Regional Agencies

- Central Alabama Regional Planning Development Commission provided area planning and development and transportation planning information, as well as maps pertaining to plan information

Local Agencies

- Montgomery City-County Emergency Management Agency provided assistance in gathering data

Academia

- University of Alabama - Department of Geology

Integration with Existing Plans

Careful attention was taken when updating the plan so that it would not contradict or conflict with any existing local subdivision regulations, zoning ordinances, comprehensive plans, or standard building codes. **Table 1-1** provides a list of the existing plans by jurisdiction.

Wherever appropriate, the Central Alabama Regional Planning Development Commission's (CARPDC) economic development planning efforts have been integrated into this plan revision. Of possible interest to those viewing this plan, the CARPDC also provides Montgomery City-County with a Comprehensive Economic Development Strategy (CEDS), GIS Mapping, Rural Planning, Vegetative Risk Management Planning and Natural Resources Management Strategies.

Local planning mechanisms by jurisdictions are listed in **Table 1-1**. Hazard mitigation information and actions in this plan may be incorporated into these local planning mechanisms. The mitigation action tables for each jurisdiction identifies who is responsible for the actions, funding mechanisms and other resources available that will be pursued, prioritization of the actions, and completion dates for each action. During the past five years, the jurisdictions incorporated the previous hazard mitigation information into other planning mechanisms. Goals and objectives were considered in the City of Montgomery's, the Town of Pike Road's, and Montgomery County's comprehensive plan and implemented through the existing plans in these jurisdictions. Risks assessments, including hazard information and mapping, helped form the basis for emergency management program activities and plans. All three jurisdictions have comprehensive plans, strategic plans, growth management plans, capital improvement plans,

zoning ordinances, building codes, floodplain management plans, elevation certificates, drainage ordinances, emergency management plans, critical facilities maps, land use maps, hazard mitigation plans, and strategic national stockpile plans. Future growth and development will be planned away from high-risk locations.

In order to expand on and improve these existing policies and plans, each participating jurisdiction is committed to increasing hazard mitigation planning and action capability by being involved and incorporating, where appropriate, mitigation planning and actions into local planning initiatives and into public works and emergency management functions. While no specific actions are planned for the immediate future for any participating jurisdiction, the next comprehensive plan update may detail these actions further.

Plan Adoption

Montgomery County, the City of Montgomery, and the Town of Pike Road actively participated in the planning process. Representatives from each local government attended the meetings and provided information vital to the update of this plan. Upon completion of the plan, the Montgomery County Commission, the City of Montgomery, and the Town of Pike Road passed a formal resolution adopting the plan. By adopting this multi-jurisdictional hazard mitigation plan the listed participants will be eligible applicants for mitigation grant funds through the Pre-Disaster Mitigation Program, Hazard Mitigation Grant Program, and Flood Mitigation Assistance Program. Adopting Resolutions can be found in **Appendix I**.

Table 1-1: Montgomery's Existing Plans by Jurisdiction			
PLAN/ POLICY	CITY OF MONTGOMERY	COUNTY OF MONTGOMERY	PIKE ROAD
Comprehensive Plan	Y	Y	Y
Strategic Plan	Y	Y	Y
Growth Management Plan	Y	Y	Y
Capital Improvement Plan	Y	Y	Y
Zoning Ordinance	Y	Y	Y
Building Code	Y	Y	Y
Floodplain Management Plan	Y	Y	Y
Elevation Certificates	Y	Y	Y
Drainage Ordinance	Y	Y	Y
Emergency Management Plan	Y	Y	Y
Critical Facilities Map	Y	Y	Y
Existing Land Use Map	Y	Y	Y
State Plan	Y	Y	N
Hazard Mitigation	Y	Y	Y
Strategic National Stockpile Plan	Y	Y	Y
<i>Other</i>			
<i>Source: Participating Jurisdictions, 2015</i>			

Section Two: General Characteristics

Montgomery County is located close to the center of Alabama. Elmore, Autauga, Lowndes, Crenshaw, Pike, Bullock, and Macon Counties border Montgomery County. According to the 2010 Census, Montgomery County has 784.25 square miles of land area and approximately 15.66 square miles of water area. The county contains two municipalities: the City of Montgomery and the Town of Pike Road. See **Map 2-1: Montgomery County General Location and Population Density Map**. Montgomery County is governed by County Commissioners who are elected by citizens in their commission districts. An elected mayor and council serve each municipality.

Montgomery County has one primary commercial service airport, Montgomery Regional Airport located at Dannelly Field and one military airport at Maxwell Air Force Base. The major highways in Montgomery County are Interstate 65, Interstate 85, U. S. Highway 31, U. S. Highway 80, U. S. Highway 82, U. S. Highway 231, U. S. Highway 331, Alabama State Route 21, Alabama State Route 94, Alabama State Route 110, Alabama State Route 152, Alabama State Route 271, Alabama State Route 108, Alabama State Route 9, County Road 85, George Washington Road, McGehee Road, Bell Street, Clay Street, Highway 110 at Timberlane, Fox Chase Drive, Barnes Road, and Meriwether Road. The county is served by CSX Railroad. Utilities in Montgomery County include electricity, gas, water, sewer, and solid waste. Electrical service is provided by Alabama Power and gas is supplied by Alabama Gas Corporation and Southern Natural Gas Company. AT&T, Knology, and Charter Communications provide telecommunication services. Water and sewer service is provided by municipal or rural systems. Most unincorporated areas are serviced only by septic tanks. Sunflower Waste operates a solid waste collection program and inert landfill.

Adjacent to Montgomery County, Alabama is Elmore County to the north; Macon County to the northeast; Bullock County to the east; Pike County to the southeast; Crenshaw County to the south; Lowndes County to the southwest; and Autauga County to the west.

Growth Trends

Montgomery City-County's population declined during the years 1990-2013. All municipalities experienced losses in population, with the exception of the Town of Gordo. **Map 2-1:** Montgomery City-County General Location and Population Density Map depict the newest 2010 Census Tracts and population concentrations in Montgomery City-County. **Table 2-1** below shows the growth trends for the county and its municipalities compared to the State of Alabama.

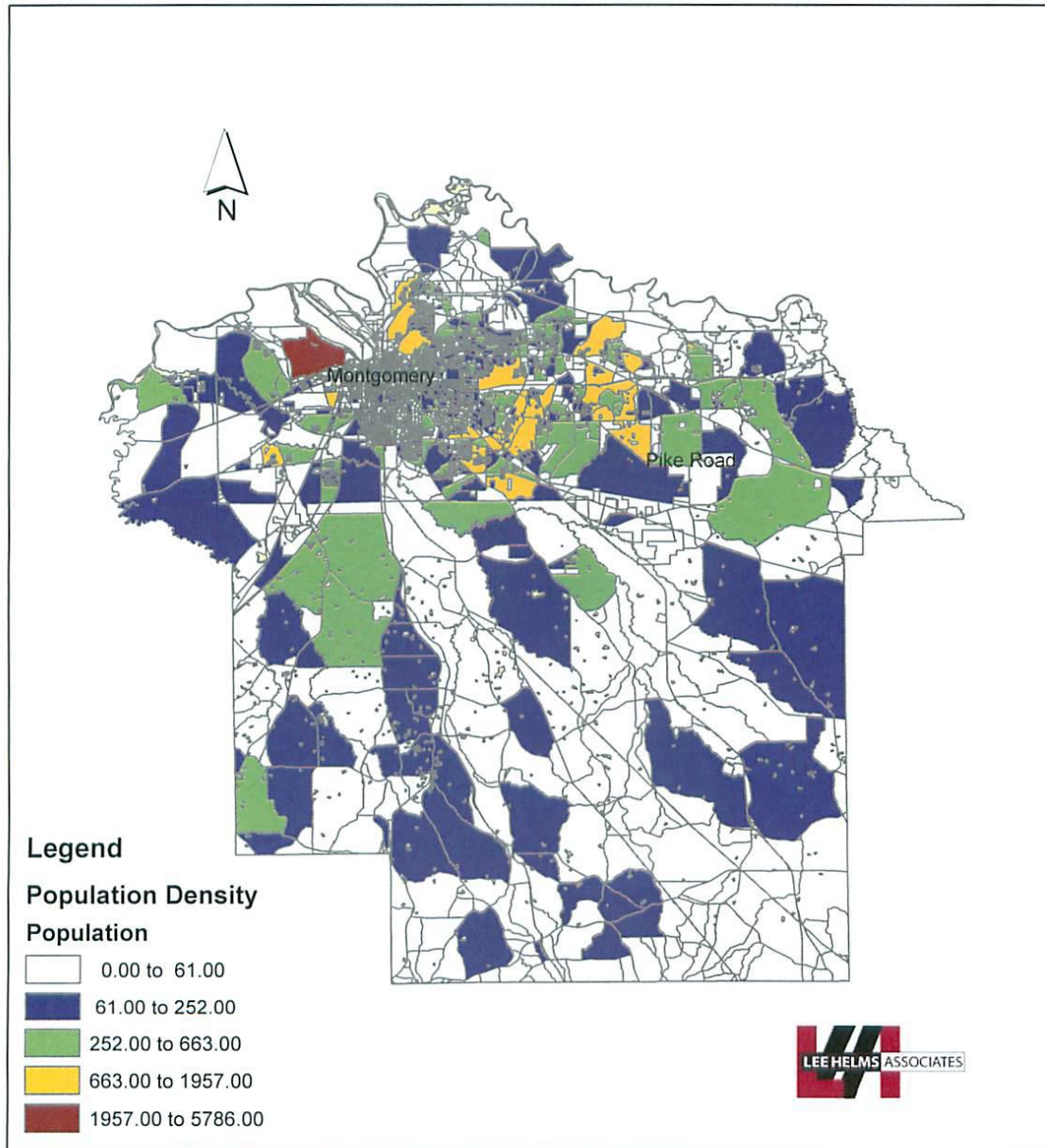
Table 2-1: Growth Trends 1990-2013

**Change
1990-2013**

	4/1/1990	4/1/2000	4/1/2010	1/1/2013	Number	Percent
City of Montgomery	191,948	201,936	205,764	201,332	9,384	5%
Town of Pike Road	2,092	3,870	5,406	7,506	5,414	300%
Montgomery County	209,124	223,514	229,363	226,659	17,535	8%
Alabama	4,041,281	4,447,032	4,779,736	4,841,486	800,205	20%

Source: 2010 U.S. Bureau of Census; Calculations by LHA, 2015

Map 2-1: Montgomery County General Location and Population Density Map



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General Geology

(Source: U. S. Department of the Interior/U. S. Geological Survey, 2015)

Geologic units in Montgomery County, Alabama include the following:

Selma Group; Cusseta Sand Member of the Ripley Formation (Cretaceous) *at surface, covers 0.3 % of this area* - Cusseta Sand Member of the Ripley Formation - (Selma Group), Cross-bedded, medium to coarse sand; glauconitic, fossiliferous fine sand; and dark-gray fossiliferous, micaceous, carbonaceous clay. The member occurs at the base of the Ripley Formation and extends from Georgia westward into Montgomery County where it merges with the Demopolis Chalk. Lithology: sand; clay or mud.

Selma Group; Ripley Formation (Cretaceous) *at surface, covers 0.3 % of this area* - Ripley Formation - (Selma Group), Light-gray to pale-olive massive, micaceous, glauconitic, fossiliferous fine sand; sandy calcareous clay; and thin indurated beds of fossiliferous sandstone. Lithology: sand; clay or mud; sandstone.

Selma Group; Prairie Bluff Chalk (Upper Cretaceous) *at surface, covers 0.3 % of this area* - Prairie Bluff Chalk - (Selma Group), Very light-gray to light-bluish-gray firm sandy, fossiliferous brittle chalk and grayish-black silty sandy calcareous glauconitic, fossiliferous clay; semi-indurated beds of sandy, clayey limestone are present in some exposures. The Prairie Bluff thins eastward from southwestern Lowndes County to northern Pike County where it interfingers with the Providence Sand. Lithology: carbonate; clay or mud; sand; silt; limestone.

Selma Group; Providence Sand (Cretaceous) *at surface, covers 0.3 % of this area* - Providence Sand - (Selma Group), Upper part consists of cross-bedded fine to coarse sand and white, dark-gray and pale-red-purple mottled clay containing lignite, sand, and kaolin; lower part consists of dark-gray laminated to thin-bedded silty clay and abundantly micaceous, carbonaceous, fossiliferous very fine to fine sand. Lithology: sand; clay or mud; silt; coal.

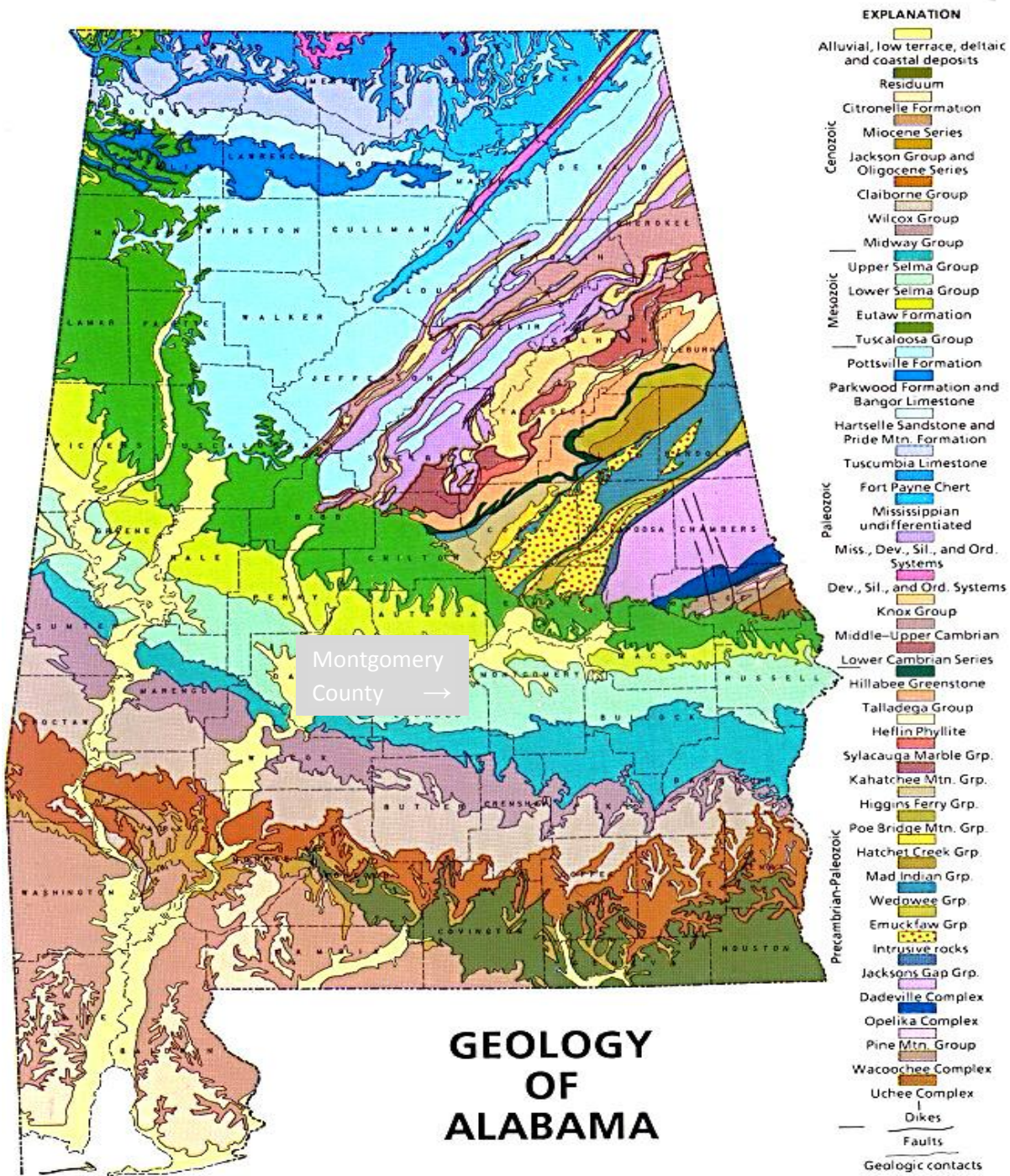
Selma Group; Mooreville Chalk (Cretaceous) *at surface, covers 0.3 % of this area* - Mooreville Chalk - (Selma Group), Yellowish-gray to olive-gray compact fossiliferous clayey chalk and chalky marl. The unconformable contact at the base is characterized by a bed of glauconitic, chalky sand containing phosphate pellets and molds of fossils. The Arcola Limestone Member at the top consists of two to four beds of light-gray brittle, dense,

fossiliferous limestone separated by beds of light-gray to pale-olive calcareous clay. Lithology: carbonate; mixed clastic/carbonate; sand; limestone; clay or mud.

Eutaw Formation (Cretaceous) *at surface, covers 0.3 % of this area* - Eutaw Formation - Light-greenish-gray to yellowish-gray cross-bedded, well-sorted, micaceous, fine to medium quartz sand that is fossiliferous and glauconitic in part and contains beds of greenish-gray micaceous, silty clay and medium-dark-gray carbonaceous clay. Light-gray glauconitic fossiliferous sand, thin beds of sandstone, and massive accumulations of fossil oyster shells occur locally in the upper part of the formation in Western AL (Tombigbee Sand Member). In eastern AL thin to thick-bedded accumulations of the fossil oyster *Ostrea cretacea* Morton occur throughout much of the formation. Lithology: sand; clay or mud; sandstone.

Selma Group; Demopolis Chalk (Cretaceous) *at surface, covers 0.3 % of this area* - Demopolis Chalk - (Selma Group), Light-gray to medium-light-gray compact, brittle chalk overlain by abundantly fossiliferous chalky marl, very clayey chalk, and calcareous clay (Bluffport Marl Member). In South-Central Montgomery County the Demopolis is split into two eastward extending tongues by a westward-extending tongue of the Cusseta Sand Member of the Ripley Formation. The lower tongue is pale-olive to yellowish-gray silty to finely sand, micaceous, fossiliferous chalk that eastward becomes more sandy and merges with the Cusseta in Central Bullock County. The upper tongue is yellowish-gray clayey, very finely sandy, micaceous chalk that merges with the Ripley in southeastern Montgomery County. Lithology: carbonate; clay or mud; sand.

Figure 2-1: Geology of Alabama
 (Source: University of AL – Geology Department)



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Section Three: Risk Assessment

The risk assessment process is necessary to identify those natural hazards that pose a threat to Montgomery County and its municipal jurisdictions. This process used information provided by members of the Montgomery City-County Hazard Mitigation Planning Committee to identify these hazards.

The county's Hazard Probability Assessment Summary is shown in **Table 3-1**. A zero denotes no data is available to determine the probability or affected area. Each jurisdiction has an individual hazard probability assessment shown in Section Five of the plan.

Table 3-2 shows the hazards that pose a threat to each jurisdiction. Each jurisdiction was responsible for identifying the hazards that pose a threat to their community. During the 2010 plan update and for subsequent plan updates, tsunami/volcano/ typhoon was removed from the plan based on committee consensus that the hazard(s) did not pose a threat to the county or its jurisdictions.

Table 3-3 provides the prioritized occurrence threat by jurisdiction based on past events. Occurrence prioritizations were based on the National Oceanic and Atmospheric Administration (NOAA)-National Climatic Data Center (NCDC) reports of occurrences. Hazards are prioritized highest to least threat designating the hazard with the highest threat of occurrence as number one.

Table 3-4 provides the mitigation actions prioritization by jurisdiction. Each jurisdiction was responsible for prioritizing their proposed mitigation actions for the next five years. The jurisdictions took into consideration the impacts of hazards they had experienced over the past five years, as well as the mitigation actions available to help protect their jurisdictions and citizens.

Tables 3-5 is the cornerstone for the hazard profiles that follow in this section. This table contains data from the NOAA NCDC for a defined ten-year study period of January 1, 2003 – December 31, 2013. The table shows events for all hazard types and provides the location, date, type, magnitude, deaths and injuries, dollar amounts for property and crop damages, and total damages.

As FEMA guidelines request that detailed event data be provided, the Hazard Mitigation Committee agreed upon the new ten-year study period as a means of establishing a corrected

historical reference that utilized verifiable sources.

Event locations in the table labeled as “countywide” refer to an event that affected the entire county, including all municipalities within. If there is an associated amount of damages, they are assumed to be countywide. Countywide events are also listed in each municipality’s event table in the individual Jurisdiction Assessment located in Section Five. There are events labeled for specific unincorporated areas of the county that were identified as affected. Such events will not be repeated in the individual jurisdiction tables since the location was site specific and did not affect an incorporated jurisdiction.

Some events provided by the NOAA/NCDC are reported as statewide occurrences. Hurricanes, droughts, and winter storms often have this type of far-reaching impact. In cases such as this, the event is shown as a countywide event that affected all municipalities. The county’s extent and probability of a hazard will be listed under each event description.

The extent of the hazard provides the range of magnitude or severity that could be experienced by the county if such an event occurred. The hazard is classified using terms of major, minor, and minimum based on the probability of future damage estimates providing information on the range of magnitude or severity the county can anticipate from potential hazardous events. A major ranking requires continuous action and participation from the entire community and has a 100% or greater chance of an annual occurrence. A minor ranking involves fewer people, effort, and area of community and has a 50% - 99% chance of an annual occurrence. A minimum ranking involves a small number of people and plans for a specific action and has a 49% or less chance of an annual occurrence.

Probability is the likelihood that events of particular severities will occur. The ability of scientists and engineers to calculate probability varies considerably depending on the hazard in question. In many areas, flood studies of various kinds can provide reasonably accurate estimates of how often water will reach particular places and elevations. On the other hand, tornadoes and earthquakes are nearly impossible to predict, except in the most general sense. The probability (frequency) of the various hazards is drawn from a combination of sources, expertise, and the NCDC Storm Event Database for Alabama.

For the 2015 plan update, the probability (%) that an identified hazard will occur on an annual basis was determined using the following formula:

Number of historical or reported events in a time period divided by the number of years the incidents occurred within = Probability of Future Annual Event Occurrences

Example: 13 Extreme Temperature events experienced divided by a 6 year period; $13 \div 6 = >100\%$

A similar formula was used to determine an estimate of the expected damages from each event:

Total amount of damages (in dollars) for each historical or reported event divided by the number of damage causing events within the time period = Estimate of expected future damages

Example: \$172,000 total reported hail damage from 2003-2013 with 21 of those being reported as damage causing; $\$172,000/21=\$8,190$

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Table 3-1: Montgomery County Hazard Probability of Future Occurrence			
Natural Hazards	Number of Occurrences Between 2003-2013	Probability of Future Occurrence	Area Affected
Thunderstorm	67	>100%	Countywide
Lightning	0	Unknown	Countywide
Hail	36	>100%	Countywide
Tornado	13	>100%	Countywide
Flood/Flash Flood	21	>100%	Countywide
Droughts/Extreme Heat	50	>100%	Countywide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	4	40%	Countywide
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	7	70%	Countywide
Sinkhole/Expansive Soil	1	Unknown	Countywide
Landslide	0	Unknown	Countywide
Earthquake	3	30%	Countywide
Dam/Levee Failure	0	Unknown	Countywide
Natural Hazard	Number of Occurrences Between 2010-2013	Probability of Future Occurrence	Area Affected
Wildfire (3-year study period)	75	>100%	Countywide
<i>Sources: NOAA NCDC Storm Events Database; Alabama Forestry Commission; Alabama Geological Survey; WSFA Channel 12; 2014</i>			
Methodology: Probability of Future Occurrences was expressed by dividing the total number of occurrences by the ten-year study period, with the exception of wildfire being a 3-year study period. Zero or unknown denotes no data available to determine the probability of future occurrence or areas affected.			

Table 3-2: Montgomery County Hazard Identification by Jurisdiction

Natural Hazards	CITY OF MONTGOMERY	TOWN OF PIKE ROAD	MONTGOMERY COUNTY
Thunderstorm	X	X	X
Lightning	X	X	X
Hail	X	X	X
Tornado	X	X	X
Flood/Flash Flood	X	X	X
Drought/Extreme Heat	X	X	X
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	X	X	X
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	X	X	X
Sinkhole/Expansive Soil	X	X	X
Landslide	X	X	X
Earthquake	X	X	X
Wildfire	X	X	X
Dam/Levee Failure	X	X	X

Source: Participating Jurisdictions 2015

**Table 3-3: Montgomery County
Prioritized Occurrence Threat by Jurisdiction Based on Past Events**

Natural Hazards	CITY OF MONTGOMERY	TOWN OF PIKE ROAD	MONTGOMERY COUNTY
Thunderstorm	3	5	2
Lightning	10	10	11
Hail	5	8	4
Tornado	10	10	6
Flood/Flash Flood	4	3	5
Drought/Extreme Heat	2	2	3
Winter Weather/ Frost Freeze/Heavy Snow/Ice Storm/ Winter Weather/ Extreme Cold	7	7	8
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	6	4	7
Sinkhole/Expansive Soil	9	9	10
Landslide	10	10	11
Earthquake	8	63	9
Wildfire (3-year study period)	1	4	1
Dam/Levee Failure	10	10	11

Sources: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey; WSFA Channel 12; 2014

Hazards are prioritized with the highest threat of occurrence assigned number one based on hazardous events that have occurred within each jurisdiction over the past ten years, with the exception of wildfires that were based on events that have occurred over three years. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same. These prioritized threats may or may not be the same as the mitigation actions prioritization.

**Table 3-4: Montgomery City-County
Mitigation Actions Prioritization**

Natural Hazards	CITY OF MONTGOMERY	TOWN OF PIKE ROAD	MONTGOMERY COUNTY
Thunderstorm	3	3	3
Lightning	4	4	4
Hail	4	4	4
Tornado	2	2	2
Flood/Flash Flood	1	1	1
Drought/Extreme Heat	4	4	4
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	4	2	4
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	3	4	3
Sinkhole/Expansive Soil	4	4	4
Landslide	4	4	4
Earthquake	4	4	4
Wildfire	4	4	4
Dam/Levee Failure	4	4	4

Source: Participating Jurisdictions, 2014

Hazards are prioritized by jurisdictions based on past hazard experiences, vulnerabilities, and available mitigation actions with the hazard having highest priority of mitigation assigned number one. The mitigation actions prioritization may or may not be the same as the prioritized occurrence threats.

TABLE 3-5: MONTGOMERY COUNTY HAZARD EVENTS

67 Thunderstorm Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
SNOWDOWN	MONTGOMERY CO.	AL	02/16/2003	00:30	CST	Thunderstorm Wind	55 kts. EG	0	0	8.00K	0.00K
SNOWDOWN	MONTGOMERY CO.	AL	04/07/2003	01:43	CST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
SNOWDOWN	MONTGOMERY CO.	AL	04/07/2003	02:20	CST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/07/2003	07:00	CST	Thunderstorm Wind	60 kts. EG	0	0	35.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/07/2004	22:54	CST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	07/16/2004	15:59	CST	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
PIKE ROAD	MONTGOMERY CO.	AL	11/24/2004	07:23	CST	Thunderstorm Wind	53 kts. EG	0	0	4.00K	0.00K
(MGM)MONTGOMERY ARPT	MONTGOMERY CO.	AL	03/27/2005	14:42	CST	Thunderstorm Wind	51 kts. EG	0	0	50.00K	0.00K
HOPE HULL	MONTGOMERY CO.	AL	04/21/2005	15:10	CST	Thunderstorm Wind	52 kts. EG	0	0	17.00K	0.00K
GRADY	MONTGOMERY CO.	AL	04/22/2005	18:25	CST	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
COUNTYWIDE	MONTGOMERY	AL	04/30/2005	06:07	CST	Thunderstorm	55 kts.	0	0	45.00K	0.00K

	CO.					Wind	EG				
MONTGOMERY	MONTGOMERY CO.	AL	05/29/2005	16:35	CST	Thunderstorm Wind	55 kts. EG	0	0	16.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	03/20/2006	19:10	CST	Thunderstorm Wind	52 kts. EG	0	0	50.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	01/05/2007	06:23	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	02/13/2007	19:00	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
PINEDALE	MONTGOMERY CO.	AL	03/01/2007	20:00	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
PIKE ROAD	MONTGOMERY CO.	AL	04/14/2007	15:28	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
GRADY	MONTGOMERY CO.	AL	06/18/2007	17:00	CST-6	Thunderstorm Wind	30 kts. EG	0	0	1.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	06/18/2007	17:55	CST-6	Thunderstorm Wind	30 kts. EG	0	0	1.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	06/30/2007	13:05	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
RAMER	MONTGOMERY CO.	AL	08/17/2007	20:10	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	08/25/2007	16:21	CST-6	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
MADISON	MONTGOMERY CO.	AL	02/06/2008	07:25	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K

CHISHOLM	MONTGOMERY CO.	AL	02/12/2008	18:55	CST-6	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
SPRAGUE	MONTGOMERY CO.	AL	02/26/2008	06:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	05/08/2008	18:35	CST-6	Thunderstorm Wind	87 kts. EG	0	0	500.00K	0.00K
PINEDALE	MONTGOMERY CO.	AL	06/11/2008	16:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
(MXF)MAXWELL AFB MNT	MONTGOMERY CO.	AL	06/29/2008	16:05	CST-6	Thunderstorm Wind	52 kts. MG	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	06/29/2008	16:07	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
FRIENDSHIP	MONTGOMERY CO.	AL	07/05/2008	16:20	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
MITYLENE	MONTGOMERY CO.	AL	02/18/2009	22:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
MITYLENE	MONTGOMERY CO.	AL	05/03/2009	14:10	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
MITYLENE	MONTGOMERY CO.	AL	05/03/2009	14:10	CST-6	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
PINEDALE	MONTGOMERY CO.	AL	05/03/2009	14:15	CST-6	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
PINEDALE	MONTGOMERY CO.	AL	06/14/2009	12:48	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K

MONTGOMERY	MONTGOMERY CO.	AL	06/28/2009	16:10	CST-6	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
(MXF)MAXWELL AFB MNT	MONTGOMERY CO.	AL	06/28/2009	16:30	CST-6	Thunderstorm Wind	45 kts. EG	0	0	0.50K	0.00K
MITYLENE	MONTGOMERY CO.	AL	05/20/2010	18:45	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
PINEDALE	MONTGOMERY CO.	AL	05/28/2010	16:15	CST-6	Thunderstorm Wind	40 kts. EG	0	0	1.00K	0.00K
MITYLENE	MONTGOMERY CO.	AL	06/14/2010	17:45	CST-6	Thunderstorm Wind	45 kts. EG	0	0	5.00K	0.00K
CHISHOLM	MONTGOMERY CO.	AL	06/19/2010	14:15	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
SNOWDOWN	MONTGOMERY CO.	AL	06/19/2010	14:30	CST-6	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
PINE LEVEL	MONTGOMERY CO.	AL	06/19/2010	15:00	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
MITYLENE	MONTGOMERY CO.	AL	04/04/2011	20:40	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
DEVENPORT	MONTGOMERY CO.	AL	04/15/2011	22:45	CST-6	Thunderstorm Wind	50 kts. MG	0	0	5.00K	0.00K
PINEDALE	MONTGOMERY CO.	AL	06/21/2011	19:38	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
MITYLENE	MONTGOMERY CO.	AL	07/14/2011	13:23	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K

PERRYS MILL	MONTGOMERY CO.	AL	07/14/2011	13:38	CST-6	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	08/08/2011	16:35	CST-6	Thunderstorm Wind	45 kts. EG	0	0	2.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	11/16/2011	11:01	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	11/16/2011	11:02	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
CHISHOLM	MONTGOMERY CO.	AL	11/16/2011	11:06	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
MITYLENE	MONTGOMERY CO.	AL	11/16/2011	11:10	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
(MGM)MONTGOMERY ARPT	MONTGOMERY CO.	AL	11/22/2011	16:58	CST-6	Thunderstorm Wind	40 kts. EG	0	0	5.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	01/08/2012	18:33	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
CHISHOLM	MONTGOMERY CO.	AL	03/30/2012	12:25	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	05/31/2012	15:18	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
DEVENPORT	MONTGOMERY CO.	AL	12/10/2012	13:22	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
MT MEIGS STATION	MONTGOMERY CO.	AL	12/10/2012	13:31	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K

PIKE ROAD	MONTGOMERY CO.	AL	12/20/2012	11:05	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
(MGM)MONTGOMERY ARPT	MONTGOMERY CO.	AL	12/25/2012	20:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RAMER	MONTGOMERY CO.	AL	12/25/2012	22:12	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LE GRAND	MONTGOMERY CO.	AL	04/11/2013	18:20	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
PINEDALE	MONTGOMERY CO.	AL	04/11/2013	18:28	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
SNOWDOWN	MONTGOMERY CO.	AL	06/28/2013	12:39	CST-6	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
SNOWDOWN	MONTGOMERY CO.	AL	07/23/2013	14:20	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	07/23/2013	14:50	CST-6	Thunderstorm Wind	65 kts. EG	0	0	0.00K	0.00K
Totals:								0	0	902.50K	0.00K

0 Lightning Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No lightning events occurred or were reported during 01/01/2003 thru 12/31/2013.

36 Hail Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	I.Z.	Type	Mag	Dth	Inj	PrD	CrD
RAMER	MONTGOMERY CO.	AL	03/09/2003	08:05	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/07/2003	07:00	CST	Hail	1.00 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/25/2003	15:49	CST	Hail	2.75 in.	0	0	100.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/25/2003	17:01	CST	Hail	1.00 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/07/2004	22:54	CST	Hail	0.75 in.	0	0	0.00K	0.00K
GRADY	MONTGOMERY CO.	AL	03/26/2005	17:46	CST	Hail	0.75 in.	0	0	0.00K	0.00K
SNOWDOWN	MONTGOMERY CO.	AL	03/27/2005	00:47	CST	Hail	0.75 in.	0	0	0.00K	0.00K
(MGM)MONTGOMERY ARPT	MONTGOMERY CO.	AL	03/27/2005	14:42	CST	Hail	2.75 in.	0	0	70.00K	0.00K
PINTLALLA	MONTGOMERY CO.	AL	03/27/2005	15:26	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	03/27/2005	16:30	CST	Hail	0.88 in.	0	0	0.00K	0.00K
HOPE HULL	MONTGOMERY CO.	AL	03/30/2005	22:38	CST	Hail	1.75 in.	0	0	22.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	03/31/2005	00:15	CST	Hail	0.75 in.	0	0	0.00K	0.00K
(MGM)MONTGOMERY ARPT	MONTGOMERY CO.	AL	04/21/2005	14:55	CST	Hail	1.00 in.	0	0	1.00K	0.00K
PINTLALLA	MONTGOMERY CO.	AL	04/22/2005	15:18	CST	Hail	1.75 in.	0	0	7.00K	0.00K
GRADY	MONTGOMERY CO.	AL	04/22/2005	17:00	CST	Hail	1.00 in.	0	0	1.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/22/2005	18:08	CST	Hail	1.75 in.	0	0	11.00K	0.00K

MT MEIGS	MONTGOMERY CO.	AL	08/16/2005	15:28	CST	Hail	0.75 in.	0	0	0.00K	0.00K
PIKE ROAD	MONTGOMERY CO.	AL	12/28/2005	14:17	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/19/2006	21:42	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	09/28/2006	16:00	CST	Hail	0.88 in.	0	0	0.00K	0.00K
MT MEIGS	MONTGOMERY CO.	AL	09/28/2006	16:15	CST	Hail	0.75 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	02/13/2007	18:55	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
MITYLENE	MONTGOMERY CO.	AL	06/12/2007	13:26	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
DUBLIN	MONTGOMERY CO.	AL	07/05/2008	16:20	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
PINE LEVEL	MONTGOMERY CO.	AL	07/05/2008	16:30	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/05/2009	05:50	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
PINEDALE	MONTGOMERY CO.	AL	05/06/2009	12:07	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
HOPE HULL	MONTGOMERY CO.	AL	05/06/2009	12:09	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
MERRY	MONTGOMERY CO.	AL	05/06/2009	12:23	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
HOPE HULL	MONTGOMERY CO.	AL	06/02/2009	15:30	CST-6	Hail	0.88 in.	0	0	0.00K	0.00K
CAPITAL HGTS	MONTGOMERY CO.	AL	07/15/2010	16:50	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
GARTERS HILL	MONTGOMERY CO.	AL	06/11/2011	14:33	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	01/08/2012	18:34	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
CHISHOLM	MONTGOMERY CO.	AL	03/18/2013	16:45	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
RAMER	MONTGOMERY CO.	AL	03/23/2013	19:19	CST-6	Hail	0.75 in.	0	0	0.00K	0.00K
PINE LEVEL	MONTGOMERY CO.	AL	03/23/2013	19:30	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
Totals:								0	0	212.00K	0.00K

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13 Tornado Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
PINTLALLA	MONTGOMERY CO.	AL	07/01/2003	04:29	CST	Tornado	F0	0	0	35.00K	0.00K
SNOWDOWN	MONTGOMERY CO.	AL	09/16/2004	02:49	CST	Tornado	F0	0	0	3.00K	0.00K
CECIL	MONTGOMERY CO.	AL	11/24/2004	07:24	CST	Tornado	F0	0	0	45.00K	0.00K
CECIL	MONTGOMERY CO.	AL	07/06/2005	12:42	CST	Tornado	F0	0	0	22.00K	0.00K
CECIL	MONTGOMERY CO.	AL	08/29/2005	14:19	CST	Tornado	F0	0	0	120.00K	0.00K
FLETA	MONTGOMERY CO.	AL	11/15/2006	09:55	CST-6	Tornado	F1	0	0	150.00K	0.00K
PINEDALE	MONTGOMERY CO.	AL	11/15/2006	10:25	CST-6	Tornado	F2	0	6	500.00K	0.00K
DEVENPORT	MONTGOMERY CO.	AL	03/01/2007	14:55	CST-6	Tornado	EF0	0	2	650.00K	0.00K
PINEDALE	MONTGOMERY CO.	AL	04/10/2009	19:48	CST-6	Tornado	EF1	0	0	350.00K	0.00K
RAMER	MONTGOMERY CO.	AL	04/19/2009	19:10	CST-6	Tornado	EF0	0	0	12.00K	0.00K
PINE LEVEL	MONTGOMERY CO.	AL	04/19/2009	19:20	CST-6	Tornado	EF1	0	0	30.00K	0.00K
CHISHOLM	MONTGOMERY CO.	AL	11/16/2011	11:08	CST-6	Tornado	EF1	0	0	500.00K	0.00K
WAUGH	MONTGOMERY CO.	AL	12/25/2012	22:29	CST-6	Tornado	EF1	0	0	0.00K	0.00K
Totals:								0	8	2.417M	0.00K

21 Flood/Flash Flood Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/09/2003	07:30	CST	Flood		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/09/2003	08:30	CST	Flood		0	0	0.00K	0.00K

MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/22/2003	03:00	CST	Flood		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/01/2005	00:00	CST	Flood		0	0	7.00K	0.00K
PINEDALE	MONTGOMERY CO.	AL	12/22/2013	19:30	CST-6	Flood		0	0	0.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	04/07/2003	08:00	CST	Flash Flood		0	0	60.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	06/15/2003	15:00	CST	Flash Flood		0	0	30.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	07/01/2003	06:00	CST	Flash Flood		0	0	8.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	08/06/2003	05:30	CST	Flash Flood		0	0	22.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	03/27/2005	03:00	CST	Flash Flood		0	0	38.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	03/27/2005	16:00	CST	Flash Flood		0	0	75.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	03/31/2005	00:00	CST	Flash Flood		0	0	11.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	04/01/2005	07:00	CST	Flash Flood		0	0	11.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	07/06/2005	13:00	CST	Flash Flood		0	0	18.00K	0.00K
SPRAGUE	MONTGOMERY CO.	AL	08/12/2005	14:45	CST	Flash Flood		0	0	2.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	11/15/2006	12:03	CST-6	Flash Flood		0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	01/07/2007	16:45	CST-6	Flash Flood		0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	05/07/2009	07:00	CST-6	Flash Flood		1	0	1.800M	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	09/16/2009	13:00	CST-6	Flash Flood		0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	07/09/2013	15:30	CST-6	Flash Flood		0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	07/23/2013	14:25	CST-6	Flash Flood		0	0	0.00K	0.00K
Totals:								1	0	2.082M	0.00K

50 Drought/Extreme Heat Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/11/2006	07:00	CST	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/22/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K

MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/05/2008	06:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/21/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	10/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	11/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	03/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/05/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/10/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	06/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K

MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	03/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	06/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K

MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/01/2012	12:00	CST-6	Excessive Heat		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

4 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/12/2010	11:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/09/2011	20:00	CST-6	Ice Storm		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/15/2010	07:00	CST-6	Winter Weather		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

**7 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events –
01/01/2003 thru 12/31/2013 (4018 days)**

(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/10/2005	15:00	CST	Tropical Storm		0	1	200.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/29/2005	17:00	CST	Tropical Storm		0	0	175.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	10.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	3.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/16/2004	04:00	CST	High Wind	65 kts. EG	0	0	9.000M	50.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/02/2005	08:00	CST	Strong Wind	33 kts. MG	0	0	1.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/12/2005	02:00	CST	Strong Wind	40 kts. EG	0	0	1.00K	0.00K
Totals:								0	1	9.391M	0.00K

1 Sinkhole Event – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/U.S. Geological Survey)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
Hope Hull	MONTGOMERY	AL	03/18/2014			Sinkhole		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

No sinkhole events occurred or were reported during 01/01/2003 thru 12/31/2013.

0 Landslide Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/U.S. Geological Survey)

No landslide events occurred or were reported during 01/01/2003 thru 12/31/2013.

3 Earthquake Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: www.city-data.com)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
100.0 miles away from county center	MONTGOMERY	AL	11/07/2004	11:20	CST	Earthquake	4.4	0	0	0.00K	0.00K
73.0 miles away from county center	MONTGOMERY	AL	08/19/2004	23:51	CST	Earthquake	3.6	0	0	0.00K	0.00K
74.3 miles away from county center	MONTGOMERY	AL	05/09/2004	08:56	CST	Earthquake	3.3	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

No earthquake events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2003 thru 12/31/2013.

75 Wildfire Events – 2010 - 2013

(Source: Alabama Forestry Commission)

County	Total # of Fires	Average # of Fires	Total Acres Burned	Average Acres Burned	Average Fire Size in Acres
Montgomery	75	25	1,108.35	369.45	15

0 Dam/Levee Failure Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/Local Input)

No dam/levee failure events occurred or were reported during 01/01/2003 thru 12/31/2013.

Hazard Profiles

I. Thunderstorms

A thunderstorm is a convective cloud that often produces heavy rain, wind gusts, thunder, lightning, and hail. Montgomery County experiences many thunderstorms each year. The county is most susceptible to thunderstorms during the spring, summer, and late fall. Most of the damage caused by thunderstorms results from straight-line winds, lightning, flash flooding, and hail. Occasionally, thunderstorms will spawn tornados.

Primary effects from thunderstorms in Montgomery County would include:

1. High Winds, Straight-line Winds
2. Lightning
3. Flooding
4. Hail
5. Spawning Tornados

Hazardous results from significant thunderstorms in Montgomery County would include:

1. High winds can cause downed trees and electrical lines resulting in loss of power.
2. Severe storms are capable of producing intense lightning that poses many threats to people and infrastructure and can ignite fires.
3. Heavy rains can produce severe storm water run-off in developed areas and cause bodies of water to breach their banks.
4. Large hail can injure people and livestock and damage crops.
5. Severe thunderstorms can produce tornados that destroy anything in its path, resulting in loss of power, shelter, and potential loss of life.

Table 3-5 shows the historical occurrences of thunderstorms during the study period.

Each jurisdiction is at risk for thunderstorm events. Of the thunderstorms reported, one affected the entire county, 39 occurred in an unincorporated county area, and the remaining 27 affected only specific municipalities.

On May 8, 2008, a strong storm system and associated cold front swept through Central Alabama, causing numerous severe thunderstorms and isolated tornadoes. The area of damage began around the Rosemont Estates area of Montgomery and extended about seven miles

southeastward along US Highway 231. The most concentrated area of damage was near the Montgomery Mall, at the intersection of US-80 and US-231. In this area, wind speeds were estimated at near 100 mph. Damage included an automotive shop section within a small strip mall that was destroyed due to a collapsed wall, partially removed roofs from several units at an apartment complex, downed power poles, minor damage to an elementary school building, and several extensively damaged billboards. Elsewhere along the path, winds were estimated to be between 60 and 80 mph, and caused numerous trees to be snapped or uprooted, including at least 4 that fell onto homes. The area of damage was approximately 3 miles wide at its widest point. No injuries were reported. No injuries, deaths, or crop damages occurred. Property damages of \$500,000 resulted.

Montgomery County experienced 67 thunderstorm events in a 10 year period resulting in a greater than 100% (6.70) probability that a thunderstorm event will occur on an annual basis. The total amount of damages for the 67 thunderstorm events was \$902,500 with 48 thunderstorm events causing damage resulting in an estimated \$18,802 of expected annual damages from future events. The referenced thunderstorm event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Montgomery County due to a thunderstorm event; the ranking is minor to major.

II. Lightning

Lightning is a natural phenomenon associated with all thunderstorms but can occur in the absence of a storm. Lightning typically occurs as a by-product of a thunderstorm. Lightning is a giant spark of electricity in the atmosphere or between the atmosphere and the ground. In the initial stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground; however, when the differences in charges becomes too great, this insulating capacity of the air breaks down and there is a rapid discharge of electricity that we know as lightning. Lightning can occur between opposite charges within the thunderstorm cloud (Intra Cloud Lightning) or between opposite charges in the cloud and on the ground (Cloud-To-Ground Lightning). Cloud-to-ground lightning is divided two different types of flashes depending on the charge in the cloud where the lightning originates. Thunder is the sound made by a flash of lightning. As lightning passes through the air it heats the air quickly. This causes the air to expand rapidly and creates the sound wave we hear as thunder. Normally, you can hear thunder about 10 miles from a lightning strike. Since lightning can strike outward 10 miles from a thunderstorm, if you hear thunder, you are likely within striking distance from the storm. The months of June through September are the deadliest as far as lightning is concerned. In an average year, three people will be struck and killed by lightning in Alabama and at least six will be injured. (*Source: National Weather Service/Lightning Safety Accessed 11/16/14*). Each jurisdiction is equally at risk for lightning events. Lightning strikes can cause power outages, fires, electrocution, and disruptions to communication systems. The NOAA NCDC reported no lightning events during the ten-year study period of 2003-2013. Since no lightning events were reported, no property damages, crop damages, injuries, or deaths were reported as results of lightning events. **Table 3-5** shows the historical occurrences of lightning during the study period. Although the NOAA NCDC reported no lightning events during the ten-year study period of 2003-2013, the entire planning area of the county is equally at risk for a lightning event. While the State of Alabama experienced 11-20 deaths as a result of lightning strikes during 2003 – 2013, none of the deaths occurred in Montgomery County. Due to no county experiences, it is not possible to determine a more factual probability of lightning occurrences for the Montgomery County planning area.

The action of rising and descending air in a thunderstorm separates positive and negative

charges, with lightning the result of the buildup and discharge of energy between positive and negative charge areas.

Water and ice particles may also affect the distribution of the electrical charge. In only a few millionths of a second, the air near a lightning strike is heated to 50,000°F, a temperature hotter than the surface of the sun. Thunder is the result of the very rapid heating and cooling of air near the lightning that causes a shock wave.

The hazard posed by lightning is significantly underrated. High winds, rainfall, and a darkening cloud cover are the warning signs for possible cloud-to-ground lightning strikes. While many lightning casualties happen at the beginning of an approaching storm, more than half of lightning deaths occur after a thunderstorm has passed. The lightning threat diminishes after the last sound of thunder, but may persist for more than 30 minutes. When thunderstorms are in the area, but not overhead, the lightning threat can exist when skies are clear. Lightning has been known to strike more than 10 miles from the storm in an area with clear sky above.

According to the National Oceanic and Atmospheric Administration (NOAA), an average of 20 million cloud-to-ground flashes has been detected every year in the continental United States. About half of all flashes have more than one ground strike point, so at least 30 million points on the ground is struck on the average each year. In addition, there are roughly 5 to 10 times as many cloud-to-cloud flashes as there are to cloud-to-ground flashes (NOAA, July 7, 2003). During the years 2004-2013, Alabama experienced 11 deaths due to lightning (NOAA, December 18, 2014). The months of June through September are the deadliest as far as lightning is concerned. In an average year, three people will be struck and killed by lightning in Alabama and at least six will be injured. (*Source: NOAA, December 18, 2014*).

Cloud-to-ground lightning can kill or injure people by either direct or indirect means. The lightning current can branch off to strike a person from a tree, fence, pole, or other tall object. It is not known if all people are killed who are directly struck by the flash itself. In addition, electrical current may be conducted through the ground to a person after lightning strikes a nearby tree, antenna, or other tall object. The current also may travel through power lines, telephone lines, or plumbing pipes to a person who is in contact with an electric appliance, telephone, or plumbing fixture. Lightning may use similar processes to damage property or cause fires.

Montgomery County experienced 0 lightning events in a 10 year period resulting in a 0% (0.00) or unknown probability that a lightning event will occur on an annual basis. The total amount of damages for the 0 lightning events was \$0.00 with 0 lightning events causing damage resulting in an estimated \$0 or unknown amount of expected annual damages from future events. The extent/range of magnitude or severity that could be experienced by Montgomery City-County due to a lightning event is minimum to minor.

Primary effects from lightning in Montgomery County would include:

1. Power Outages
2. Wild Fires
3. Electrocution
4. Disruption of Communication Waves

Hazardous results from significant lightning in Montgomery County would include:

1. Power outages result in tremendous losses for food distributors and individuals due to loss of refrigeration as well as disruptions to routine business operations.
2. Fires destroy most everything it comes in contact with and also can be detrimental to the health of any living organism due to the massive smoke cloud it produces.
3. Electrocution of electronic device such as water and sewer pumps can cause disruption in service leading to unsanitary conditions and lack of potable water.
4. Disrupted communications from electrical storms can result in inability to communicate with other agencies, making preparation or recovery from a storm nearly impossible.

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III. Hail

Hail is frequently associated with severe thunderstorms. Hail is an outgrowth of severe thunderstorms and develops within a low-pressure front as warm air rises rapidly in to the upper atmosphere and is subsequently cooled, leading to the formation of ice crystals. These are bounced about by high-velocity updraft winds and accumulate into frozen droplets, falling as precipitation after developing enough weight (FEMA, 1997).

The National Weather Service (NWS) defines severe thunderstorms as those with downdraft winds in excess of 58 miles an hour and/or hail at least 3/4 inches in diameter. While only about 10 percent of thunderstorms are classified as severe, all thunderstorms are dangerous because they produce numerous dangerous conditions, including one or more of the following: hail, strong winds, lightning, tornadoes, and flash flooding (National Weather Service – Flagstaff). The size of hailstones varies and is related to the severity and size of the thunderstorm that produced it. The higher the temperatures at the Earth's surface, the greater the strength of the updrafts, and the greater the amount of time the hailstones are suspended, giving the hailstones more time to increase in size. Hailstones vary widely in size, as shown in **Table 3-6**. Note that penny size (3/4 inches in diameter) or larger hail is considered severe.

Table 3-6: Estimating Hail Size

Size	Inches in Diameter
Pea	¼ inch
Marble/mothball	½ inch
Dime/Penny	¾ inch
Nickel	7/8 inch
Quarter	1 inch
Ping-Pong Ball	1 ½ inch
Golf Ball	1 ¾ inch
Tennis Ball	2 ½ inch
Baseball	2 ¾ inch
Tea Cup	3 inches
Grapefruit	4 inches
Softball	4 ½ inches
<i>Source: NWS, January 10, 2003</i>	

Hailstorms occur most frequently during the late spring and early summer, when the jet stream moves northward across the Great Plains. During this period, extreme temperature changes occur from the surface up to the jet stream, resulting in the strong updrafts required for hail formation.

The NOAA NCDC reported 36 hail events during the ten-year study period of 2003-2013. An estimated \$212,000 in property damages resulted from these events. No crop damage, injuries, or deaths were reported during these hail events. **Table 3-5** shows the historical occurrences of hail events during the study period. Each jurisdiction is at risk for hail. Of the events reported, zero affected the entire county, 21 occurred in an unincorporated county area, and the remaining 15 affected only specific municipalities.

On April 25, 2003, a supercell storm system moved east southeast and crossed northern Montgomery County. A swath of hail fell from northern Montgomery to near Mathews. Hail was reported up to baseball size (2.75 inches) along the path. A three story building along Interstate 85 received minor roof damage. A few trees were also blown down. No injuries, deaths, or crop damages occurred. Property damages of \$100,000 resulted.

On March 27, 2005, a supercell thunderstorm moved across Montgomery County and affected the Montgomery metropolitan area. Numerous reports of funnel clouds were received but no tornadoes were confirmed in the county. The storm produced a swath of hail through the area and many vehicles were damaged. The largest observed hail was baseball size (2.75 inches). The most concentrated wind damage occurred just south of Vaughan Road along Ray Thorington Road. Thirteen large power poles were broken and knocked over. Elsewhere along the path, a few trees were blown down. No injuries, deaths, or crop damages occurred. Property damages of \$70,000 resulted.

Montgomery County experienced 36 hail events in a 10 year period resulting in a greater than 100% (3.60) probability that a hail event will occur on an annual basis. The total amount of damages for the 36 hail events was \$212,000 with 7 hail events causing damage resulting in an estimated \$30,286 of expected annual damages from future events. The referenced hail event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Montgomery County due to a hail event; the ranking is minor to major.

Primary Effects from Hail in Montgomery County would include:

1. Property Damage
2. Crop Damage
3. Communication equipment damage
4. Livestock loss and injury

Hazardous results from significant Hail in Montgomery County would include:

1. Any size hail can damage exposed real and personal property. Hail is a major problem for car dealerships, as the unprotected lots of cars receive major damage.
2. Heavy hail is capable of destroying entire crop yields. Farmers of above ground crops are especially concerned with hail as it is extremely detrimental to the crop.
3. Communication equipment, such as receivers, is susceptible to large hail. These instruments can be seriously damaged or destroyed by large hail.
4. Large hail is a danger to livestock of all sorts and is a threat farmers must consider. Hundreds of thousands of dollars are invested in these animals which may be injured or killed in a hailstorm.

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IV. Tornadoes

Tornadoes are rotating columns of air extending downward to the ground with recorded winds in excess of 300 miles per hour. Most tornadoes last less than 30 minutes, but can exist for more than an hour. In Alabama the typical tornado season extends from March through early June, with April and June being peak months for tornado activity. Additionally, Alabama experiences a secondary tornado season from November through December. **Figure 3-1** shows the general paths of tornadoes across the United States.

Figure 3-2 shows the FEMA designated wind zones in the United States. Montgomery County is located in Zone IV which warrants profiling. Zone IV has witnessed a higher frequency of tornadoes than any other zone. Zone IV has also witnessed some of the deadliest tornadoes in history.

A total of 13 tornadoes occurred in Montgomery County according to NOAA NCDC during 2003 - 2013. An estimated \$2,417,000 in property damages, 8 injuries, and no crop damage or deaths occurred as a result of the reported tornadoes.

Each jurisdiction has been affected by tornado activity in the past. The location of Montgomery City-County in Wind Zone IV, past occurrences of tornadoes, and the potential for future occurrences to cause damage, death, and injuries leaves Montgomery City-County vulnerable to and at risk for tornadoes.

On November 15, 2006, a strong storm system brought severe weather and heavy rainfall to much of Central Alabama. Montgomery experienced an EF2 tornado, 6.84 miles in length and 250 yards in width. The Montgomery tornado touched down approximately 1.4 miles southwest of the Shakespeare Festival, and tracked northeastward across the Woodmere and Beauvoir Lakes Subdivisions. The tornado then crossed Interstate 85 at Bell Road and continued northeastward to the Atlanta Highway, just west of Taylor Road. Numerous trees were snapped off or downed along the path with minor roof damage to numerous homes. Near the Atlanta Highway, the tornado crossed the A.U.M. ball field complex and struck the Montgomery Postal Processing and Distribution Center and Post Office. The main doors of the post office were blown in and portions of the roof were lifted off to the north. Numerous trees were snapped off at ground level on the south and west sides of the building. A tractor trailer was completely turned around and moved 30 yards and flipped over. Other postal vehicles and cars in the parking lot

were moved or received significant damage. Just to the north, the tornado produced major damage to the Fun Zone Skating Rink. This was a large metal building structure which was nearly totally destroyed. Several vehicles were tossed around and significantly damaged or crushed by debris from the building. As the tornado crossed the Atlanta Highway, several metal power poles were either significantly bent or downed. At the Saddleback Ridge Apartment Complex, at least two apartment buildings lost their roofs and portions of the second floor. The tornado continued another 2.25 miles northeastward, ending in a field just south of Wares Ferry Road. Six people suffered minor injuries. No deaths or crop damages occurred. Property damages of \$500,000 resulted.

On March 1, 2007, a powerful spring storm system brought an outbreak of tornadoes, damaging winds, and large hail to Central Alabama. Montgomery experienced an EF0 tornado, 21.42 miles in length and 600 yards in width. After crossing into Montgomery County, the Lowndes County tornado continued to move northeastward, affecting the Davenport, Fleta, Ada, and Sprague Communities, as well as the Ridgeland Farm subdivision. The tornado eventually lifted just east of US Highway 231 near the Carters Hill community. Two injuries occurred when an automobile was thrown off the road over 300 feet. In all at least 39 homes suffered varying degrees of damage. Three of the homes were completely destroyed. At least 23 out-buildings or barns were damaged. Five large chicken houses were completely obliterated near the Davenport community. One high voltage power transmission line was totally destroyed. Fourteen grain silos were destroyed. Four of the grain silos were picked up and thrown up to one half of a mile away from where they were anchored. At least 10 automobiles were significantly damaged. Hundreds of trees were snapped off or uprooted along the damage path. Two injuries and no deaths or crop damages occurred. Property damages of \$650,000 resulted.

Montgomery City-County experienced 13 tornado events in a 10 year period resulting in a greater than 100% (1.30) probability that a tornado event will occur on an annual basis. The total amount of damages for the 13 tornado events was \$2,417,000 with 12 tornado events causing damage resulting in an estimated \$201,417 of expected annual damages from future events. The referenced tornado event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Montgomery County due to a tornado event; the ranking is

major.

Primary effects from Tornadoes in Montgomery City-County would include:

1. Loss of life
2. Property damage
3. Infrastructure destruction and damage
4. Sanitation and water delivery interruption

Hazardous results from significant Tornadoes in Montgomery City-County would include:

1. Collapse of structures can leave people homeless.
2. Roadways may become blocked by debris. Damage may destroy automobiles, creating additional hardships to individuals and families and business operations.
3. High wind speeds associated with a tornado can destroy anything in its path. Power poles topple, communication receivers are destroyed, and water sanitation and treatment plants are offline.
4. Due to destruction, sanitation crews are unable to remove massive amounts of waste, and water delivery is disrupted. This can lead to an increase in disease-carrying insects and lack of potable water.

Figure 3-1: Generalized Tornado Paths

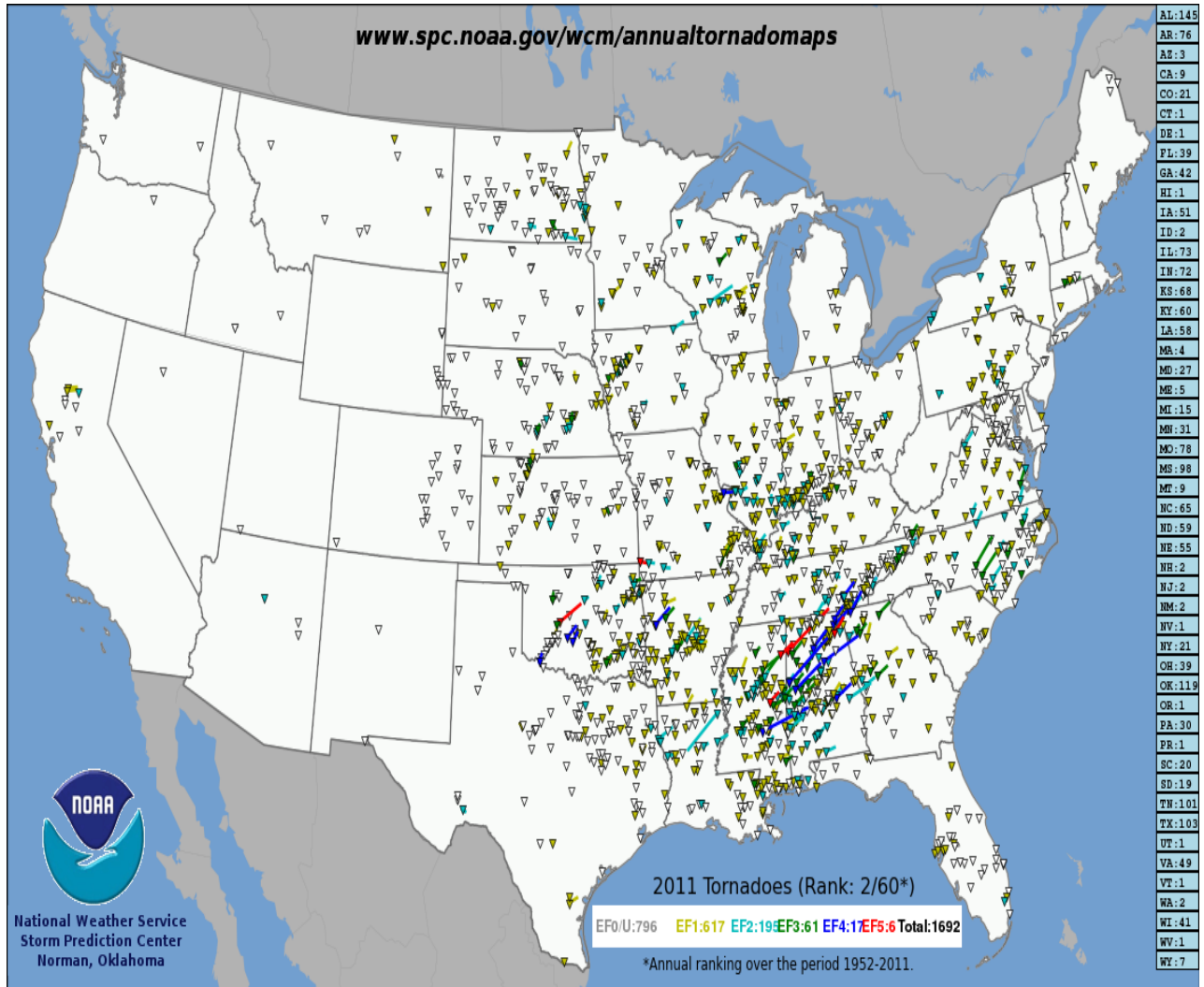


Figure 3-2: Wind Zones in the United States

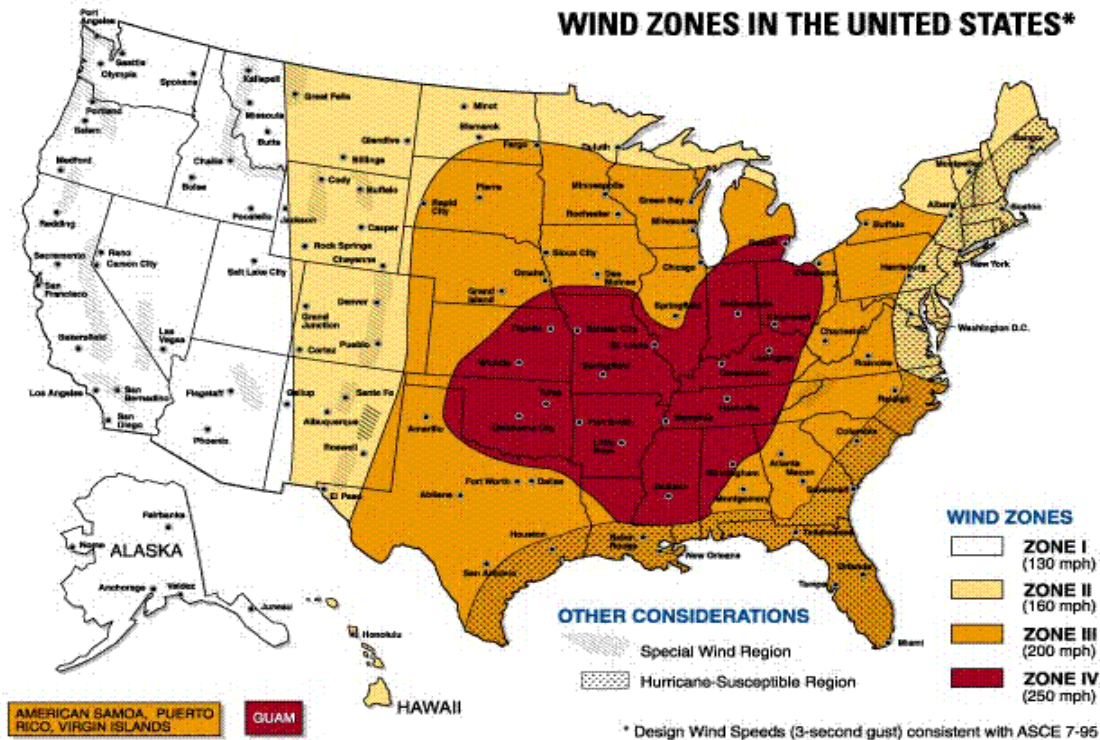


Figure 1.2 Wind zones in the United States
Source: www.fema.gov, 2015

Tornados are now measured using the new Enhanced Fujita Tornado Scale by examining the damage caused by the tornado after it passes over man-made structures and vegetation. The new scale was put into use in February of 2007. Due to the study period of the plan, 2003-2013, events shown in **Table 3-5** express the magnitude of tornados using the original Fujita scale and the enhanced Fujita scale. Below is a table comparing the estimated winds in the original F-scale and the operational EF-scale that is currently in use by the National Weather Service, as well as damage descriptions of each category. Like the original Fujita scale, there are six categories from zero to five that represent damage in increasing degrees. The new scale incorporates the use of 28 Damage Indicators and 8 Degrees of Damage to assign a rating. Montgomery County experienced 5 F0s, 2 EF0s, 1 F1, 4 EF1s, and 1 EF2 during 2003-2013.

Table 3-7: Fujita Tornado Scales

Fujita Tornado Scale

Category	Wind Speed	Description of Damage
F0	40-72 mph	Light damage. Some damage to chimneys; break branches off trees; push over shallow-rooted trees; damage to sign boards.
F1	73-112 mph	Moderate damage. The lower limit is the beginning of hurricane speed. Roof surfaces peeled off; mobile homes pushed off foundations or overturned; moving autos pushed off roads.
F2	113-157 mph	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.
F3	158-206 mph	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; cars lifted off ground and thrown.
F4	207-260 mph	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
F5	261-318 mph	Incredible damage. Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100-yards; trees debarked.

Enhanced Fujita Tornado Scale

Category	Wind Speed	Description of Damage
EF0	65-85 mph	Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF1	86-110 mph	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111-135 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.
EF3	136-165 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.
EF4	166-200 mph	Devastating damage. Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF5	>200 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. So far only one EF5 tornado has been recorded since the Enhanced Fujita Scale was introduced on February 1, 2007.

Source: NOAA, NWS, Storm Prediction Center, 2007.

V. Floods/Flash Floods

There are three types of flooding that affect Montgomery County: (1) general flooding, (2) storm water runoff, and (3) flash flooding. General flooding occurs in areas where development has encroached into flood-prone areas. Storm water runoff causes flooding in areas that have inadequate drainage systems. Flash flooding is caused when a large amount of rain falls within a short period of time. **Table 3-5** shows severe flooding events in Montgomery County recorded by NOAA NCDC. Between 2003 and 2013 there were 16 occurrences of flash flooding and 5 floods in the county. Damages from these events totaled \$2,082,000 in property damages, no crop damage, one death, and no injuries.

Flash floods involve a rapid rise in water level, high velocity, and large amounts of debris, which can lead to significant damage that includes the tearing out of trees, undermining of buildings and bridges, and scouring new channels. The intensity of flash flooding is a function of the intensity and duration of rainfall, steepness of the watershed, stream gradients, watershed vegetation, natural and artificial flood storage areas, and configuration of the streambed and floodplain. Dam failure and ice jams may also lead to flash flooding.

Dam-break floods may occur due to structural failures (e.g., progressive erosion), overtopping or breach from flooding, or earthquakes. Dam failures are potentially the worst flood events. Dam safety has been an ongoing hazard mitigation issue in the State of Alabama for the past decade, especially for small dams that are privately owned and poorly maintained. No state law currently exists to regulate any private dams or the construction of new private dams, nor do private dams require federal licenses or inspections. There have been several attempts in the State of Alabama to pass legislation that would require inspection of dams on bodies of water over 50 acre-feet or dams higher than 25 feet. Enactment has been hampered by the opposition of agricultural interest groups and insurance companies. Approximately 1,700 privately owned dams would fit into the category proposed by the law.

According to *HAZUS MH 2.1*, Montgomery City-County has 97 High Density Polyethylene (HPDE - Earth) Dams, including one high hazard dam (J. H. Duggar) located along a tributary of Pintlalla Creek. No historical records are available of dam/levee failures in Montgomery County. When a dam fails, a large quantity of water is suddenly released

downstream, destroying anything in its path. The area impacted by the water emitted by dam failure would encounter the same risks as those in a flood zone during periods of flooding. The area directly affected by the water released during a dam failure is not county wide.

The probability of future occurrences of dam/levee failure events cannot be characterized on a countywide basis because of the lack of information available. The qualitative probability is rated low because the overall area affected is low and impacts are localized. This rating is intended only for general comparison to other hazards that are being considered.

Local drainage floods may occur outside of recognized drainage channels or delineated flood plains for a variety of reasons, including concentrated local precipitation, a lack of infiltration, inadequate facilities for drainage and storm water conveyance, and/or increased surface runoff. Such events often occur in flat areas, particularly during winter and spring in areas with frozen ground, and also in urbanized areas with large impermeable surfaces. High groundwater flooding is a seasonal occurrence in some areas, but may occur in other areas after prolonged periods of above-average precipitation.

Floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. Flood studies use historical records to determine the probability of occurrence for different extents of flooding. The probability of occurrence is expressed in percentages as the chance of a flood of a specific extent occurring in any given year. It is also often referred to as the “100-year flood” since its probability of occurrence suggests it should only occur once every 100 years. This expression is, however, merely a simple and general way to express the statistical likelihood of a flood; actual recurrence periods are variable from place to place. Smaller floods occur more often than larger (deeper and more widespread) floods. Thus, a “10-year” flood has a greater likelihood of occurring than a “100-year” flood. **Table 3-8** shows a range of flood recurrence intervals and their probabilities of occurrence.

Table 3-8: Flood Probability Terms	
Flood Recurrence Intervals	Percent Chance of Annual Occurrence
10-Year	10.0%
50-Year	2.0%
100-Year	1.0%
500-Year	0.2%
<i>(Source: FEMA, 2014)</i>	

On April 1, 2005, a flood event resulted in local rainfall amounts of 8 to 10 inches occurred over the lower portions of the Alabama River basin below Selma. These rains produced mostly minor flooding on the lower Tallapoosa and Black Warrior Rivers, as well as on the Tombigbee, Cahaba, Sucarnoochee and Alabama Rivers. Most of the flooding was minor, overflowing mostly farmlands and woodlands along these mainstems. However, moderate flooding occurred from around Selma downstream due to the locally heavy inflow that occurred from the very heavy (8 to 10 inches) localized rainfall in these areas. No injuries, deaths, or crop damages occurred or were reported from this event. Property damages of \$7,000 resulted.

On May 7, 2009, the City of Montgomery experienced extensive flash flooding due to a period of very heavy rainfall. An estimated 10+ inches of rain fell in portions of Montgomery County in about a six hour time frame. The downtown area, including the capitol district, was hit especially hard. At least three feet of water flowed into the basement of the Statehouse Building, and state legislators temporarily moved to backup chambers in the Old Capitol. Numerous streets downtown were closed, and numerous cars became stranded in the high water. One 67 year old man drowned when his car was swept away by flood waters in Montgomery. No injuries or crop damages occurred or were reported from this event. One death and property damages of \$1.8 million were reported.

Montgomery County experienced 21 flood/flash flood events in a 10 year period resulting in a greater than 100% (2.10) probability that a flood/flash flood event will occur on an annual basis. The total amount of damages for the 21 flood/flash flood events was \$2,082,000 with 12

flood/flash flood events causing damage resulting in an estimated \$173,500 of expected annual damages from future events. The referenced flood/flash flood event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Montgomery County due to a flood/flash flood event; the ranking is minor to major.

Primary Effects from Floods in Montgomery County would include:

1. Loss of life
2. Property damage
3. Crop damage
4. Dam and levee failure

Hazardous results from significant flood in Montgomery County would include:

1. Rising water levels can quickly sweep people along in its path.
2. Rapidly moving water destroys anything in its path and also leaves hazardous mold and breed insects.
3. Periods of standing water kill inadaptible plants, and flowing water removes sediment and nutrients from the soil.
4. Breached dams and levees allow water to flood into the surrounding floodplain resulting in destruction of crops and property.

Dam failures may result from one or more the following:

1. Prolonged periods of rainfall and flooding (the cause of most failures)
2. Inadequate spillway capacity which causes excess overtopping flows
3. Internal erosion erosions due to embankment or foundation leakage or piping
4. Improper maintenance
5. Improper design
6. Negligent operation
7. Failure of upstream dams
8. Landslides into reservoirs
9. High winds
10. Earthquakes

Flood Assessment Tools

Programs

Montgomery County participates in the *National Flood Insurance Program (NFIP)*. The *NFIP* allows property owners to purchase federally sponsored flood insurance. The *NFIP* maps communities in order to establish Flood Risk Zones or Special Flood Hazards Areas. These hazard areas are then mapped on the *Flood Insurance Rate Maps (FIRMS)*. *FIRMS* are used to assess the risks of floods and aid in proper floodplain management. An update of the flood maps of Montgomery County was completed in January of 2015. Currently the county and its jurisdictions are considered participants in the NFIP. The National Flood Insurance Program (NFIP) requires local participation. **Table 3-9** shows the current NFIP status of each jurisdiction.

Flood Mitigation Assistance Program (FMA) - This program now allows for additional cost share flexibility: up to 100% federal cost share for severe repetitive loss properties; up to 90% federal costs share for repetitive loss properties; and 75% federal cost share for NFIP insured properties.

The Repetitive Flood Claims (RFC) and Severe Repetitive Loss (SRL) Grant Programs were eliminated by the Biggert-Waters Flood Insurance Reform Act of 2012. Elements of these flood grant programs have been incorporated into FMA.

Regulations

The *National Pollutant Discharge Elimination System (NPDES)* requires cities to obtain a NPDES permit for the discharge of wastewater/storm water. This program will address residential and commercial land uses, illicit discharges and improper disposal, industrial facilities, and construction sites.

Additionally, Montgomery County and each jurisdiction have various plans and regulatory tools in place to aid in hazard mitigation as shown earlier in the plan in **Table 1-1**.

Table 3-9: Montgomery County National Flood Insurance Program Status by Jurisdiction						
CID	Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Eff. Map Date	Sanction Date	Tribal
010278#	Montgomery County	01/17/75	01/06/82	01/07/15	01/06/82	No
010174#	City of Montgomery	06/28/74	01/20/82	01/07/15	01/20/82	No
010433#	Town of Pike Road	01/17/75	01/06/82	01/07/15	08/04/03	No
<i>Source: FEMA Community Status Book Report as of May 6, 2015</i>						

Severe Repetitive Loss Properties and Repetitive Loss Properties

FEMA defines repetitive loss properties as those having two or more claims of \$1,000 or more in the past 10-year period. FEMA defines severe repetitive loss properties as those properties claiming at least four claims over \$5,000, which amount to more than \$20,000 total; or properties with two claim payments cumulatively greater than the market value of the building – both of which must take place within a 10-year period and not less than 10 days apart.

There are no Severe Repetitive Loss or Repetitive Loss properties in Montgomery County at this time. The flood prone areas in Montgomery County are indicated in **Figure 5-1**, **Figure 5-2** and **Figure 5-3**.

VI. Drought/Extreme Heat

Drought occurs when there is a deficiency of precipitation over an extended period of time. Climatic factors, such as high temperature, high winds, and low relative humidity, can contribute to the severity of a drought. No society is immune to the social, economic, and environmental impacts of a drought. There are two primary types of drought: meteorological and hydrological droughts. These events can result in agricultural and socioeconomic droughts.

Meteorological droughts are defined as the degree of dryness as compared to the normal precipitation for the area over the duration of the dry season. This type of drought is specific to a given region since atmospheric conditions and precipitation vary from one region to the next.

Hydrological droughts are associated with the effects of precipitation deficiencies on surface or groundwater supplies. Hydrological droughts do not occur as often as meteorological or agricultural droughts. It takes longer for precipitation deficiencies to show up in soil moisture, stream flow, groundwater levels, and reservoir levels. Hydrological droughts have an immediate impact on crop production, but reservoirs may not be affected for several months. Climate, changes in land use, land degradation, and the construction of dams can have adverse effects on the hydrological system especially in drought conditions.

Agricultural droughts occur when the moisture in the soil no longer meets the needs of the crops.

Socioeconomic droughts occur when physical water shortage begins to affect people and their quality of life.

A drought's severity depends on numerous factors, including duration, intensity, and geographic extent as well as regional water supply demands by humans and vegetation. Due to its multidimensional nature, drought is difficult to define in exact terms and also poses difficulties in terms of comprehensive risk assessments.

Drought differs from other natural hazards in three ways. First, the onset and end of a drought are difficult to determine due to the slow accumulation and lingering of effects of an event after its apparent end. Second, the lack of an exact and universally accepted definition adds to the confusion of its existence and severity. Third, in contrast with other natural hazards, the impact of drought is less obvious and may be spread over a larger geographic area. These

characteristics have hindered the preparation of drought contingency or mitigation plans by many governments.

Droughts may cause a shortage of water for human and industrial consumption, hydroelectric power, recreation, and navigation. Water quality may also decline and the number and severity of wildfires may increase. Severe droughts may result in the loss of agricultural crops and forest products, undernourished wildlife and livestock, lower land values, and higher unemployment.

Extreme summer heat is the combination of very high temperatures and exceptionally humid conditions. If such conditions persist for an extended period of time, it is called a heat wave (FEMA, 1997). Heat stress can be indexed by combining the effects of temperature and humidity, as shown in **Table 3-10**. The index estimates the relationship between dry bulb temperatures (at different humidity) and the skin's resistance to heat and moisture transfer - the higher the temperature or humidity, the higher the apparent temperature.

In addition to affecting people, severe heat places significant stress on plants and animals. The effects of severe heat on agricultural products, such as cotton, may include reduced yields and even loss of crops (Brown and Zeiher, 1997). Similarly, cows may become overheated, leading to reduced milk production and other problems. (Garcia, September 2002).

Drought is a natural event that, unlike floods or tornadoes, does not occur in a violent burst but gradually happens; furthermore, the duration and extent of drought conditions are unknown because rainfall is unpredictable in amount, duration and location. Drought events can potentially affect the entire county.

The Draft Alabama Drought Management Plan (DMP), developed by the Alabama Department of Economic and Community Affairs – Office of Water Resources (ADECA-OWR), defines drought in terms of several indices that describe the relative amounts of surface water flow, groundwater levels, and recent precipitation as compared to localized norms. Because drought is defined in relative terms, it can be stated that all areas of the county are susceptible to drought.

The National Weather Service uses two indexes to categorize drought. The most accurate index of short-term drought is the Crop Moisture Index (CMI). This index is effective in determining short-term dryness or wetness affecting agriculture. The most accurate index of

long-term drought is the Palmer Index (PI). It has become the semi-official index of drought.

During the past ten years, Montgomery City-County experienced D2 Severe to D3 Extreme Drought in 2006, D1 Moderate to D4 Exceptional Drought in 2007, and D1 Moderate to D4 Exceptional Drought in 2008, D3 Extreme Drought to D4 Exceptional Drought in 2010, D2 Severe to D4 Exceptional Drought in 2011, D2 Severe to D3 Extreme Drought in 2012, and D2 Severe in 2013. No deaths, injuries, property or crop damages were reported. The categories of drought are defined as follows (*Source <http://droughtmonitor.unl.edu> Accessed 11/16/14:*

Abnormally Dry (D0) - Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered. **Moderate Drought (D1)** - Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested. **Severe Drought (D2)** - Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed. **Extreme Drought (D3)** - Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions. **Exceptional Drought (D4)** - Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies.

Montgomery County experienced 50 drought/extreme heat events in a 10 year period resulting in a greater than 100% (5.00) probability that a drought/extreme heat event will occur on an annual basis. The total amount of damages for the 50 drought/extreme heat events was \$0 with no drought/extreme heat events causing damage resulting in an estimated \$0 or unknown of expected annual damages from future events. The referenced drought event(s) are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Montgomery County due to a drought event; the ranking is minimum to minor.

Primary effects from Drought and Excessive Heat in Montgomery County would include:

1. Crop and other agricultural damage
2. Water supply shortage - water wells, creeks, rivers, and lakes dry up
3. Increase vulnerability to forest fires and sinkholes
4. Heat exhaustion; heat stroke; heat syncope; and heat cramps

Hazardous results from significant Drought and Excessive Heat in Montgomery County would include:

1. Agricultural damage from drought will result in economic losses of crops and livestock.
2. A water supply shortage will result in the necessity for water to be trucked into the area, damage to the sewer system and lack of hydroelectric power.
3. Forest fires can devastate vast acreages and burn homes and businesses.
4. Heat exhaustion can be debilitating and result in a hospital stay. Heat stroke can cause death.
5. Energy prices will inflate due to loss of hydro-power

Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks are defined as extreme heat. Humid or muggy conditions occur when a “dome” of high atmospheric pressure traps hazy, damp air near the ground. The combination of high temperatures and humid conditions increase the level of discomfort and the potential for danger to humans. A sibling to the heat wave is the drought. Droughts occur when a long period passes without any substantial rainfall. A heat wave combined with a drought is a very dangerous situation.

The human risks associated with extreme heat include heatstroke, heat exhaustion, heat syncope, heat cramps. A description of each of these conditions follows:

- Heatstroke is considered a medical emergency and is often fatal. It exists when rectal temperature rises above 105°F as a result of environmental temperatures. Patients may be delirious, stuporous, or comatose. The death to care ratio in reported cases averages about 15%.
- Heat Exhaustion is much less severe than heatstroke. The body temperature may be normal or slightly elevated. A person suffering from heat exhaustion may complain of dizziness, weakness or fatigue. The primary cause of heat exhaustion is fluid and electrolyte imbalance. The normalization of fluids will typically alleviate the situation.
- Heat Syncope is typically associated with exercise by people who are not acclimated to exercise. The symptom is a sudden loss of consciousness. Consciousness returns

promptly when the person lies down. The cause is primarily associated with circulatory instability as a result of heat. The condition typically causes little or no harm to the individual.

- Heat Cramps are typically a problem for individuals who exercise outdoors but are unaccustomed to heat. Similar to heat exhaustion it is thought to be a result of a mild imbalance of fluids and electrolytes.

In 1979 R. G. Steadman, a meteorologist, developed the heat index, which is a relationship between dry bulb temperatures (at different humidity) and the skin's resistance to heat and moisture transfer. Utilizing Steadman's heat index, the following table was developed to show the risk associated with ranges in apparent temperature or heat index.

Table 3-10: Heat Index/Heat Disorders

Danger Category	Heat Disorder	Apparent Temperature (°F)
IV Extreme Danger	Heatstroke or sunstroke imminent.	>130
III Danger	Sunstroke, heat cramps, or heat exhaustion likely, heat stroke possible with prolonged exposure and physical activity.	105-130
II Extreme Caution	Sunstroke, heat cramps, and heat exhaustion possible with prolonged exposure and physical activity.	90-105
I Caution	Fatigue possible with prolonged exposure and physical activity.	80-90

(Source: National Weather Service, 2014)

Droughts and heat waves have a county-wide impact. The future incidence of drought is highly unpredictable, conditions may be localized or widespread, and not much historical data is available making it difficult to determine the future probability of drought conditions with any accuracy. The qualitative probability rating for drought is high.

Table 3-5 reflects that the NOAA NCDC reported 50 instances of drought for Montgomery County from 2003-2013. No crop or property damages were reported. There was one report of an extreme heat event occurring on July 1, 2012. With a high of 100 degrees and dew points in the 70s, the heat index rose to 111 degrees.

VII. Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold

Montgomery County is vulnerable to extreme winter weather conditions such as extreme cold temperatures, snow, and ice. **Table 3-5** shows the winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events that have affected Montgomery County from 2003 - 2013.

The most common impacts of severe winter weather are power failure due to downed power lines and traffic hazards. Winter storm occurrences tend to be very disruptive to transportation and commerce as the county and its citizens are unaccustomed to them. Trees, cars, roads, and other surfaces develop a coating or glaze of ice, making even small accumulations of ice extremely hazardous to motorists and pedestrians. The most prevalent impacts of heavy accumulations of ice are slippery roads and walkways that lead to vehicle and pedestrian accidents; collapsed roofs from fallen trees and limbs and heavy ice and snow loads; and fallen trees, telephone poles and lines, electrical wires, and communication towers. As a result of severe ice storms, telecommunications and power can be disrupted for days. Also many homes and buildings, especially in rural areas, lack proper insulation or heating, leading to risk of hypothermia. Extremely cold temperatures accompanied by strong winds can result in wind chills that cause bodily injury such as frostbite and death.

On February 12, 2010, a heavy snow event resulted in an average of 2 to 3 inches of snow fell across the whole of Montgomery County. The highest amount, 4 inches, was observed in the Ramer Community. Many bridges and other elevated surfaces became icy and hazardous. On AL-110, near the Pike Road Community, a vehicle lost control and slid into a pond, killing a 4-year-old and a 2-year-old passenger (both indirect), and injuring (indirect) the mother that was driving. One injury, two deaths, and no crop or property damages were reported.

On January 9, 2011, an ice storm event resulted in ice accumulations over one quarter inch on elevated roadways and bridges. No deaths, injuries, crop or property damages were reported.

On December 15, 2010, a winter weather event resulted in a period of freezing rain creating a light glaze of ice on area bridges and numerous vehicle accidents. A fatality occurred (indirect) along Interstate 65 when a vehicle bypassed slowed traffic and struck an EMS worker.

The EMS worker was responding to a vehicle accident with injuries (indirect) caused by icy spots on the roadway. One death, one injury, and no crop or property damages occurred.

On January 24, 2003, an extreme cold/wind chill event resulted in the coldest temperatures in 7 years occurred across much of North and Central Alabama and lasted for about two days. Early morning temperatures ranged from 2 to 10 degrees. The coldest temperatures were measured in outlying areas. Although no new records were established, these temperatures were very cold for the Deep South. Many area residents reported frozen and broken water pipes as a result of the extended cold. Several lawn sprinkler systems also froze and broke making many areas very icy. No injuries, deaths, crop, or property damages occurred.

Montgomery County experienced 4 winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events in a 10 year period resulting in a 40% (.40) probability that a winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather event will occur on an annual basis. The total amount of damages for the 4 winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events was \$0 with no winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events causing damage resulting in an estimated \$0 or unknown amount of expected annual damages from future events. The referenced winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather events are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Montgomery County due to a winter storm/extreme cold/frost freeze/heavy snow/ice storm/winter weather event; the ranking is minor to major.

Primary effects from winter storms in Montgomery County would include:

1. Injury and damage from downed trees and utility lines due to the snow and ice load
2. Widespread impassable roads and bridges
3. Disruption of services and response capabilities
4. Crop and other agricultural damage

Hazardous results from winter storms in Montgomery County would include:

1. Loss of power, communications, and fires are common results of severe winter storms. Widespread power outages close down businesses and impact hospitals,

nursing homes, and adult and child care facilities serving special needs populations.

2. Loss of transportation ability will affect emergency response, recovery and supply of food and materials.
3. Numerous vehicle accidents in a winter storm can stretch thin the resources of fire rescue and law enforcement.
4. Stranded motorists and the homeless can create a food and housing shortage within the community.
5. The widespread nature of winter storms usually creates a strain on police, fire and medical providers due to the volume of calls for service.

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VIII. Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind

Hurricane season in the northern Atlantic Ocean, which affects the United States, begins on June 1 and ends on November 31. These months accompany warmer sea surface temperatures which is a required element to produce the necessary environment for tropical cyclone/hurricane development.

According to data from the National Oceanic and Atmospheric Administration's National Hurricane Center, there are three classification levels of storms based on wind speed. The first, a tropical depression, is "an organized system of clouds and thunderstorms with a defined surface cyclonic closed circulation and maximum sustained winds of 38 mph or less." A tropical storm is the second level and is described as "an organized system of strong thunderstorms with a defined surface circulation and maximum sustained winds of 39-73 mph." A "hurricane," which is the third classification level, is "an intense tropical weather system of strong thunderstorms with a well-defined surface circulation and maximum sustained winds of 74 mph or higher." Individual hurricanes vary in intensity and are categorized using the Saffir-Simpson Hurricane Scale.

NOAA measures wind speeds for thunderstorm/wind and hurricane events in knots (kts) while the Saffir-Simpson scale, shown later in the Hurricane profile, measures wind speed in miles per hour. Both knots and miles per hour is a speed measured by a number of units of distance covered in certain amount of time. Here is how knots compare to MPH:

- 1 knot = 1 nautical mile per hour = 6076.12 feet per hour
- 1 MPH = 1 mile per hour = 5280 feet per hour

To convert knots into miles per hour, multiply the number of knots by 1.151.

Saffir-Simpson Hurricane Wind Scale

Once a tropical storm reaches the level of a hurricane, it is then classified by the storm's intensity. Intensity levels, or categories, are used to assign a number (e.g., Category 1) to a hurricane based on the storm's intensity at the current time. The Saffir-Simpson Hurricane Wind Scale, **Table 3-11**, is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. With the scale

in place, people within the hurricane's tract can better estimate the type of damage they should expect (i.e., wind, storm surge, and/or flooding impacts) due to the intensity of the oncoming hurricane.

Table 3-11: Saffir-Simpson Hurricane Wind 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: National Hurricane Center – NOAA, 2014)

Threats Related to Hurricanes

Hurricanes impact regions in a variety of ways. The intensity of the storm, the speed of the winds, whether the storm moves through a region quickly or whether it stalls over one area all are variables toward the physical damage the storm will cause. Storm surges, high winds, and heavy rains are the three primary elements of hurricanes, while tornados and inland flooding are

potential secondary elements caused in the wake of the storm. Montgomery County is not directly affected by storm surges; therefore, no additional analysis will be completed on the topic.

On July 10-11, 2005, numerous trees and power lines were knocked down as Tropical Storm Dennis moved across Montgomery County. One person was injured when a tree fell on his/her vehicle. No deaths or crop damages occurred. Property damages of \$200,000 resulted from this event.

On August 29-30, 2005, numerous trees and power lines were damaged as Tropical Storm Katrina affected the area. Power outages were widespread. Numerous structures, homes, and vehicles were damaged. No injuries, deaths, or crop damages occurred. Property damages of \$175,000 resulted from this event.

On August 23-25, 2008, Tropical Depression Fay brought high winds, heavy rain, and numerous tornadoes to the Montgomery County area. No injuries, deaths, or crop damages occurred. Property damages of \$10,000 resulted.

On November 9-11, 2009, Tropical Depression Ida brought very heavy rain and gusty winds to a large portion of Central Alabama. Montgomery had 2.33 inches of rain reported. Sustained winds around Central Alabama maxed out between 20 and 30 mph, with peak wind gusts generally between 30 and 40 mph. These winds blew down a few trees around the area, especially shallow rooted trees where the saturated soil likely played a significant role. No injuries, deaths, or crop damages occurred. Property damages of \$3,000 resulted from this event.

On September 16, 2004, a high wind event resulted in hundreds of trees and power lines being snapped off or blown down during Ivan. At least 3,300 homes sustained varying degrees of wind damage. Power was not fully restored for at least a week. Maximum wind gusts were estimated around 75 miles an hour. Three women in Montgomery were killed due to carbon monoxide poisoning after Ivan. The women had a generator running in their home because the power was out of service. Three deaths and no injuries were reported. Property damages of \$9 million and crop damages of \$50,000 were reported.

Two strong wind events occurred in April of 2005: one on April 2, 2005 resulted in 38 miles per hour wind and one on April 12, 2005 resulted in 47 miles per hour wind. Both events resulted in \$1,000 property damages (each event) and no deaths, injuries, or crop damages.

Montgomery County experienced 7 hurricane/tropical storm/tropical depression/high

wind/strong wind events in a 10 year period resulting in a 70% (.70) probability that a hurricane/tropical storm/tropical depression/high wind/strong wind event will occur on an annual basis. The total amount of damages for the 7 hurricane/tropical storm/tropical depression/high wind/strong wind events was \$9,391,000 with 7 hurricane/tropical storm/tropical depression/high wind/strong wind events causing damage resulting in an estimated \$1,341,571 of expected annual damages from future events. The referenced hurricane/tropical storm/tropical depression/high wind/strong wind events are the ones that resulted in the most damages, deaths, and injuries during the past ten year period and serves as the extent/range of magnitude or severity that could be experienced by Montgomery County due to a hurricane/tropical storm/tropical depression/high wind/strong wind event; the ranking is minor to major.

Primary Effects of Hurricanes:

1. Wind
 - a. Secondary cause of deaths related to hurricanes
 - b. Continue causing destruction as storm travels miles inland
 - c. Able to completely destroy towns and structures that fall within storm path
 - d. Winds near perimeter of eye of storm are strongest and most intense
 - e. Oftentimes produce tornados
2. Heavy Rains
 - a. Rain levels during hurricanes can easily exceed 15 to 20 inches
 - b. Cause flooding beyond coastal regions

Secondary Effects of Hurricanes:

1. Tornados
 - a. Usually found in right-front quadrant of storm or embedded in rain bands
 - b. Some hurricanes capable of producing multiple twisters
 - c. Usually not accompanied by hail or numerous lightning strikes
 - d. Tornado production can occur for days after the hurricane makes landfall
 - e. Can develop at any time of the day or night during landfall of a hurricane
2. Inland Flooding
 - a. Statistically responsible for greatest number of fatalities over last 30 years
 - b. Stronger storms not necessarily cause of most flooding; weaker storms that

move slowly across the landscape can deposit large amounts of rain, causing significant flooding

Montgomery County is at a low risk for a direct hit by a hurricane due to its position several miles inland from the Alabama coastline. Although Montgomery County does not feel the effects of storm surges, other effects including heavy rain, flooding, winds, and tornados often have significant impacts on Montgomery County.

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IX. Sinkhole/Expansive Soil

Sinkholes

Naturally occurring Sinkholes occur where soluble limestone, carbonate rock, salt beds, or rocks can be dissolved by groundwater circulating through them. As the rock dissolves, spaces and caverns develop underground. The land usually stays intact until the underground spaces become too large to support the ground at the surface. When the ground loses its support it will collapse, forming a sinkhole. Sinkholes can be small or so extreme they consume an automobile or a house. The most damage from sinkholes tends to occur in Florida, Texas, Alabama, Missouri, Kentucky, Tennessee, and Pennsylvania.

The 2010 plan update stated landslides/land subsidence/sinkholes posed a low threat to Montgomery County as there were no reports of sinkholes from any source. According to the Geological Survey of Alabama's sinkhole data, Montgomery County has experienced sinkholes; however, the sinkhole density in Montgomery County is low. During the study years for this plan update, one sinkhole occurred in Hope Hull, Alabama as reported on WSFA Channel 12 NBC television in Montgomery, Alabama. **Figure 3-3** shows the sinkhole in the Lagos Del Sol neighborhood in Hope Hull just off U. S. Highway 31 near the Alabama Hyundai Motor Manufacturing Plant. **Figure 3-4** shows sinkholes and sinkhole density in Montgomery County.

In March of 2014, the sinkhole was the size of a few coolers as described by the Montgomery County Administrator, Donny Mims. By April of 2014 the sinkhole had increased in size to five feet deep and more than six feet wide showing evidence of failed corrugated metal piping. The county attempted to remedy the situation for three years; however, issues involving private property complicated the progress. The sinkhole increased so in size that the county had no choice but to step in as it involved the health and welfare of residents. David Reed, an architect with Goodwyn, Mills and Cawood is leading the charge to keep dangerous storm water underground. The Montgomery County Commission agreed to a \$5,000 hydrology study and \$28,000 in emergency funds to repair the pipe and fill the hole; however, they are depending on a community block grant to fund the estimated \$600,000 project to replace the entire infrastructure. Prior to the grant availability in 2016, blighted properties must be torn down and yards cut back.

FIGURE 3-3: Sinkhole in the Lagos Del Sol Neighborhood in Hope Hull



Montgomery County experienced 1 sinkhole in a 10 year period resulting in a 10% probability that a sinkhole event will occur on an annual basis. The total amount of damages for the sinkhole event is unknown, as well as the expected annual damages from future events. The ranking is minimum to minor.

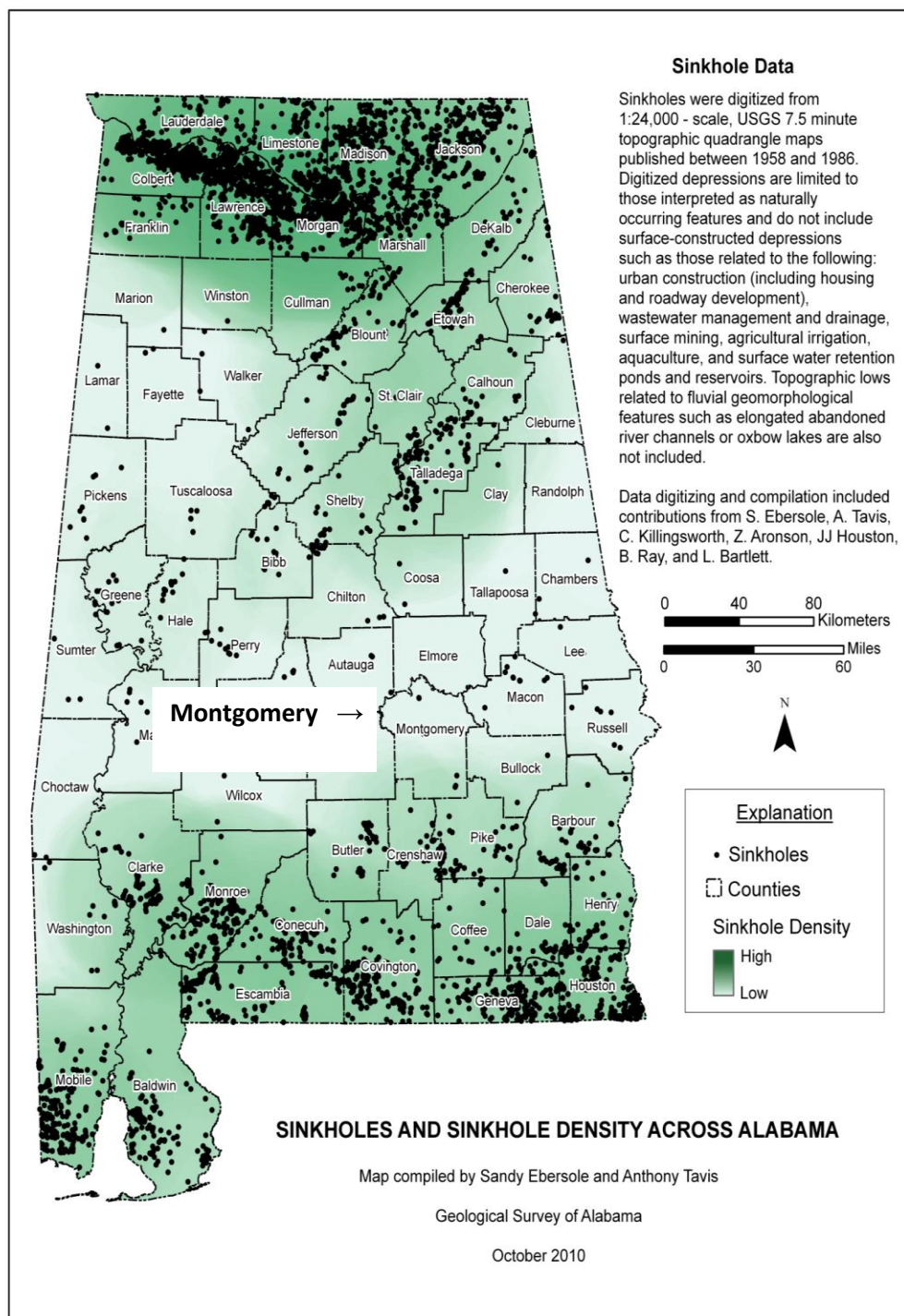
Expansive Soils

Expansive soils are soils that swell when they come in contact with water. The presence of clay is generally the cause of such behavior. **Figure 3-5** shows the general soil areas for the state. Montgomery County has Coastal Plains, Major Flood Plains and Terraces, and Prairies. There were no expansive soils reported from NOAA or local sources during the time frame covered by the plan. Though these soils have shrink-swell potential, the committee does not feel a profile is necessary.

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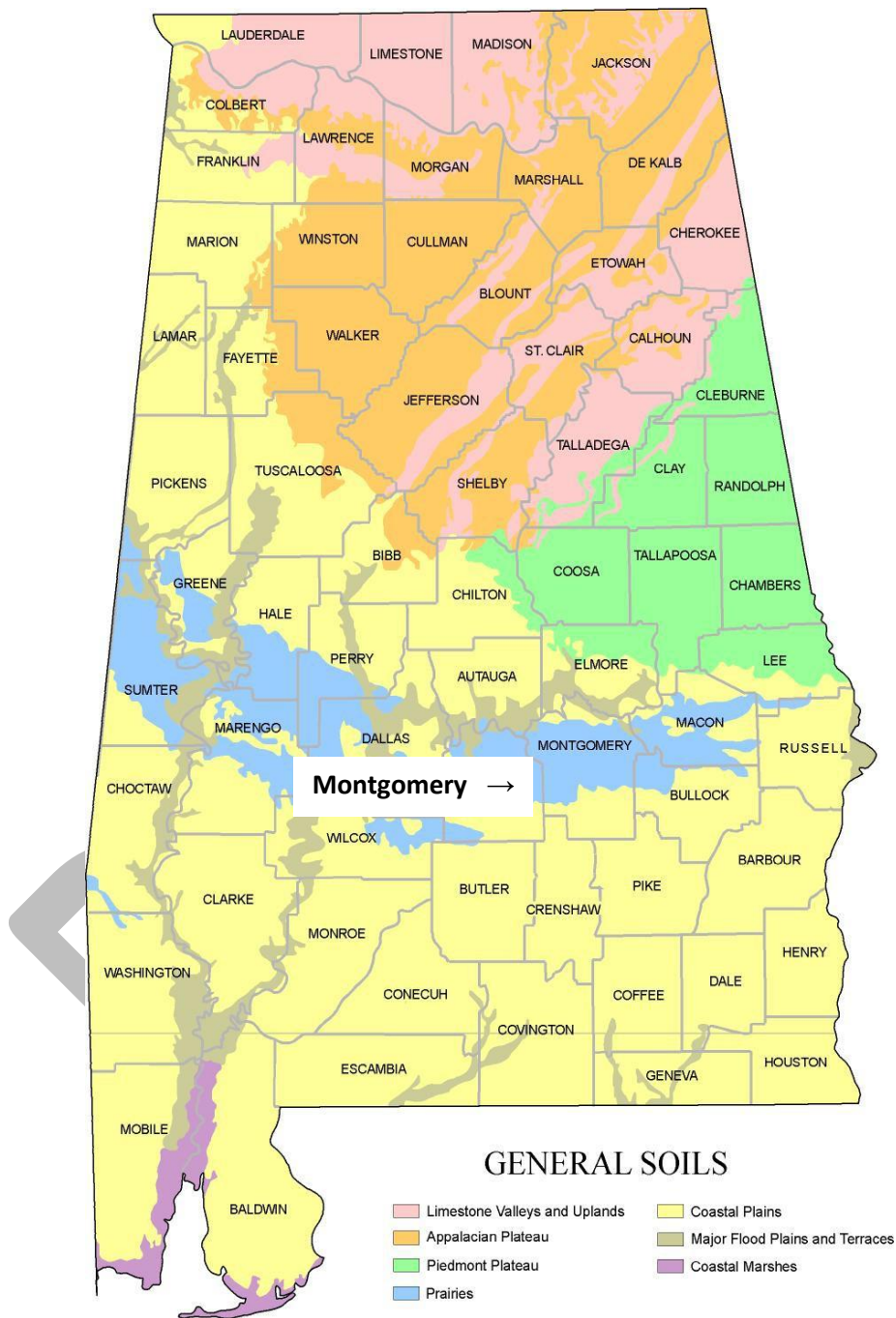
Figure 3-4



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Figure 3-5: General Soils of Alabama



Source: Cartographic Research Lab, University of Alabama, 2014

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X. Landslide

A landslide is defined by the United States Geological Survey as the movement of rock, debris, or earth down a slope. Various natural and man-induced triggers can cause a landslide. Naturally induced landslides occur as a result of weakened rock composition, heavy rain, changes in groundwater levels, and seismic activity. Geologic formations in a given area are key factors when determining landslide susceptibility. The three underlying geologic formations present within the region are the Coker, Gordo, and Tuscaloosa groups. These groups are classified as having low to moderate susceptibility to slope failure. A 1982 study performed by Karen F. Rheams of the United States Geological Survey indicated 23 landslides had occurred in the county but all of these were man-induced events attributed to roadway construction. **Figure 3-6** shows the landslide incidence and susceptibility and indicates that Montgomery County is at a low risk of incidence. Crystalline rocks and well-cemented sandstones are placed in the highest rock strength unit, weakly cemented sandstones in an intermediate unit, and shale, claystone, pre-existing landslides and unconsolidated surficial units in the weakest unit. There were no Montgomery County landslides reported from GSA or local sources during the time frame covered by this plan; therefore, plan information remains the same as in the 2010 update.

Primary effects from landslide in Montgomery County would include:

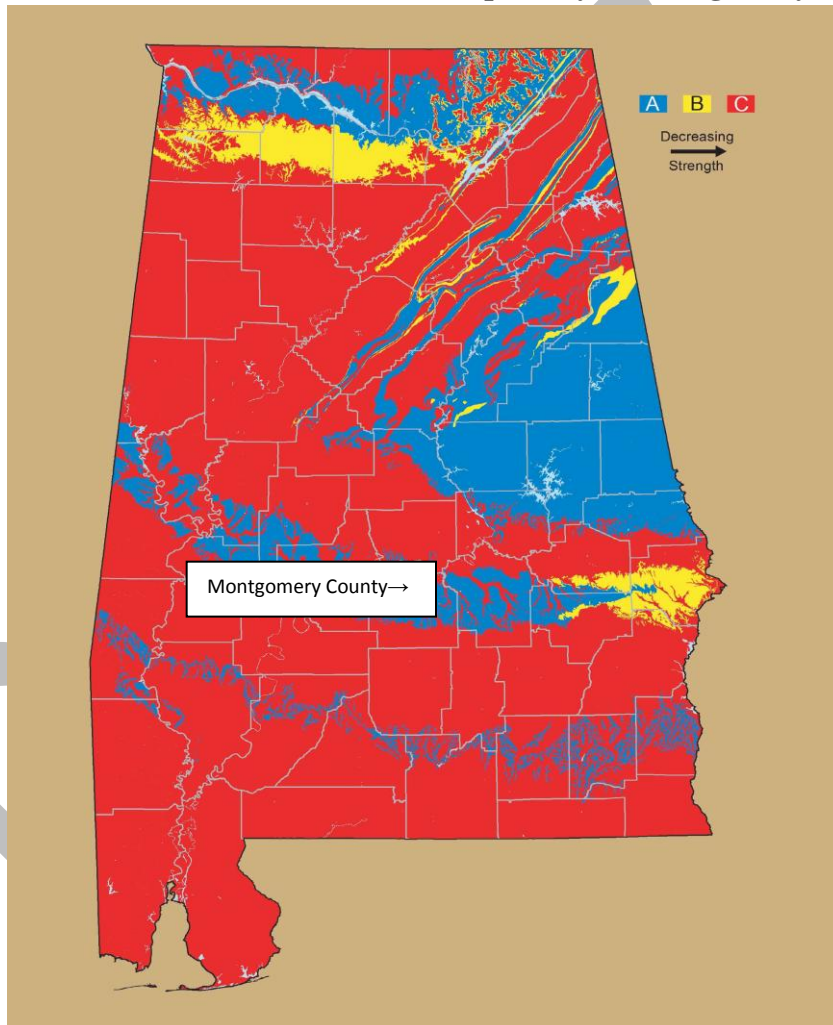
1. Property damage
2. Impassable roads
3. Sediment erosion
4. Underground infrastructure damage

Hazardous results from landslide in Montgomery County would include:

1. Landslides move with tremendous force capable of destroying most structures in its path while carrying anything it comes in contact with.
2. Material from landslides can damage and destroy roads as well as block them with debris, resulting in disruption to business and other activity.
3. Removed sediment can leave the surrounding area bare and prone to erosion.
4. The flow of a landslide can rip underground pipes and wiring from an area as well as bury them deeper under debris, creating a loss of services.

Montgomery County experienced 0 landslides in a 10 year period resulting in an unknown probability that a landslide event will occur on an annual basis. The total amount of damages for a landslide event is unknown, as well as the expected annual damages from future events. The ranking is minimum to minor.

Figure 3-6: Landslide Incidence and Susceptibility in Montgomery County



Source: Geological Survey of Alabama, 2015

XI. Earthquakes

An earthquake is a sudden slip on a fault and the resulting ground shaking and radiated seismic energy caused by an abrupt release of accumulated strain in the tectonic plates that comprise the earth's crust. These rigid plates, known as tectonic plates, are some 50 to 60 miles in thickness and move slowly and continuously over the earth's interior. The plates meet along their edges, where they move away, past or under each other at rates varying from less than a fraction of an inch up to five inches per year. While this sounds small, at a rate of two inches per year, a distance of 30 miles would be covered in approximately one million years (FEMA, 1997).

The tectonic plates continually bump, slide, catch, and hold as they move past each other which causes stress to accumulate along faults. When this stress exceeds the elastic limit of the rock, an earthquake occurs, immediately causing sudden ground motion and seismic activity. Secondary hazards may also occur, such as surface faulting, sinkholes, and landslides. While the majority of earthquakes occur near the edges of the tectonic plates, earthquakes may also occur at the interior of plates.

The vibration or shaking of the ground during an earthquake is described by ground motion. The severity of ground motion generally increases with the amount of energy released and decreases with distance from the fault or epicenter of the earthquake. Ground motion causes waves in the earth's interior, also known as seismic waves, and along the earth's surface, known as surface waves. The following are the two kinds of seismic waves:

- P (primary) waves are longitudinal or compression waves similar in character to sound waves that cause back-and-forth oscillation along the direction of travel (vertical motion), with particle motion in the same direction as wave travel. They move through the earth at approximately 15,000 MPH.
- S (secondary) waves, also known as shear waves, are slower than P waves and cause structures to vibrate from side-to-side (horizontal motion) due to particle motion at right angles to the direction of wave travel. Unreinforced buildings are more easily damaged by S waves. There are also two kinds of surface waves, Rayleigh waves and Love waves. These waves travel more slowly and typically are significantly less damaging than seismic waves.

Seismic activity is commonly described in terms of magnitude and intensity. Magnitude

(M) describes the total energy released and intensity (I) subjectively describes the effects at a particular location. Although an earthquake has only one magnitude, its intensity varies by location.

Magnitude is the measure of the amplitude of the seismic wave and is expressed by the Richter scale. The Richter scale is a logarithmic measurement, where an increase in the scale by one whole number represents a tenfold increase in measured amplitude of the earthquake. Intensity is a measure of the strength of the shock at a particular location and is expressed by the Modified Mercalli Intensity (MMI) scale.

Another way of expressing an earthquake's severity is to compare its acceleration to the normal acceleration due to gravity. If an object is dropped while standing on the surface of the earth (ignoring wind resistance), it will fall towards earth and accelerate faster and faster until reaching terminal velocity. The acceleration due to gravity is often called "g" and is equal to 9.8 meters per second squared (980 cm/sec/sec). This means that every second something falls towards earth, its velocity increases by 9.8 meters per second. Peak ground acceleration (PGA) measures the rate of change of motion relative to the rate of acceleration due to gravity. For example, acceleration of the ground surface of 244 cm/sec/sec equals a PGA of 25.0 percent. It is possible to approximate the relationship between PGA, the Richter scale, and the MMI, as shown in **Table 3-12**. The relationships are, at best, approximate, and also depend upon such specifics as the distance from the epicenter and depth of the epicenter. An earthquake with 10.0 percent PGA would roughly correspond to an MMI intensity of V or VI, described as being felt by everyone, overturning unstable objects, or moving heavy furniture.

Table 3-12: Earthquake PGA, Magnitude and Intensity Comparison

PGA (%g)	Magnitude (Richter)	Intensity (MMI)	Description (MMI)
<0.17 – 1.4	1.0 – 3.0	I	Not felt except by a very few under especially favorable conditions.
0.17 – 1.4	3.0 – 3.9	II - III	II. Felt only by a few persons at rest, especially on upper floors of buildings. III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
1.4 – 9.2	4.0 – 4.9	IV - V	IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rock noticeably. V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
9.2 - 34	5.0 – 5.9	VI – VII	VI. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight. VII. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
34 – 124	6.0 – 6.9	VIII - IX	VIII. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. IX. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
>124	7.0 and higher	VIII or Higher	X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent. XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. XII. Damage total. Lines of sight and level are distorted. Objects thrown into the air.

(Source: <http://earthquake.usgs.gov>, 2014)

Earthquake-related ground failure, due to liquefaction, is a common potential hazard from strong earthquakes in the central and eastern United States. Liquefaction occurs when seismic waves pass through saturated granular soil, distorting its granular structure, and causing some of

the empty spaces between granules to collapse. Pore-water pressure may also increase sufficiently to cause the soil to behave like a fluid (rather than a soil) for a brief period and causing deformations. Liquefaction causes lateral spreads (horizontal movement commonly 10-15 feet, but up to 100 feet), flow failures (massive flows of soil, typically hundreds of feet, but up to 12 miles), and loss of bearing strength (soil deformations causing structures to settle or tip). Sands blows were common following major New Madrid earthquakes in the central United States.

The hazards associated with earthquakes include anything that can affect the lives of humans, including surface faulting, ground shaking, landslides, liquefaction, tectonic deformation, tsunamis, and seiches. Earthquake risk is defined as the probability of damage and loss that would result if an earthquake caused by a particular fault were to occur. Losses depend on several factors including the nature of building construction, population density, topography and soil conditions, and distance from the epicenter.

Interestingly, an earthquake's magnitude can be a poor indicator of hazard impact because the duration of ground shaking, and resulting increased damages, is not factored into the magnitude concept. The majority of losses are due to collapsing houses and other structures, the most vulnerable being those of unreinforced masonry and adobe. Structures built with more flexible materials such as steel framing are preferred. Wood frame construction, which constitutes a high percentage of homes in the United States, also tends to flex rather than collapse but is more susceptible to fire. Building codes have historically been utilized to address construction standards to mitigate damages for earthquakes and other hazards. However, older structures, non-compliance, and incomplete knowledge of needed measures remain a problem. In order to reduce losses to lives and property, wider adoption of improved construction methods for both residential and important critical facilities such as hospitals, schools, dams, power, water, and sewer utilities is needed.

Three zones of frequent earthquake activity affecting Alabama are the New Madrid Seismic Zone (NMSZ), the Southern Appalachian Seismic Zone (SASZ) (also called the Eastern Tennessee Seismic Zone), and the South Carolina Seismic Zone (SCSZ). The NMSZ lies within the central Mississippi Valley, extending from northeast Arkansas through southeast Missouri, western Tennessee, and western Kentucky, to southern Illinois. The SASZ extends from near

Roanoke in southwestern Virginia southwestward to central Alabama. Considered a zone of moderate risk, the SASZ includes the Appalachian Mountains. Most of the earthquakes felt in Alabama are centered in the SASZ. The hypocenters of earthquakes in this zone are on deeply buried faults. The SCSZ is centered near Charleston South Carolina and encompasses nearly the whole State. Montgomery City-County is at risk for earthquakes.

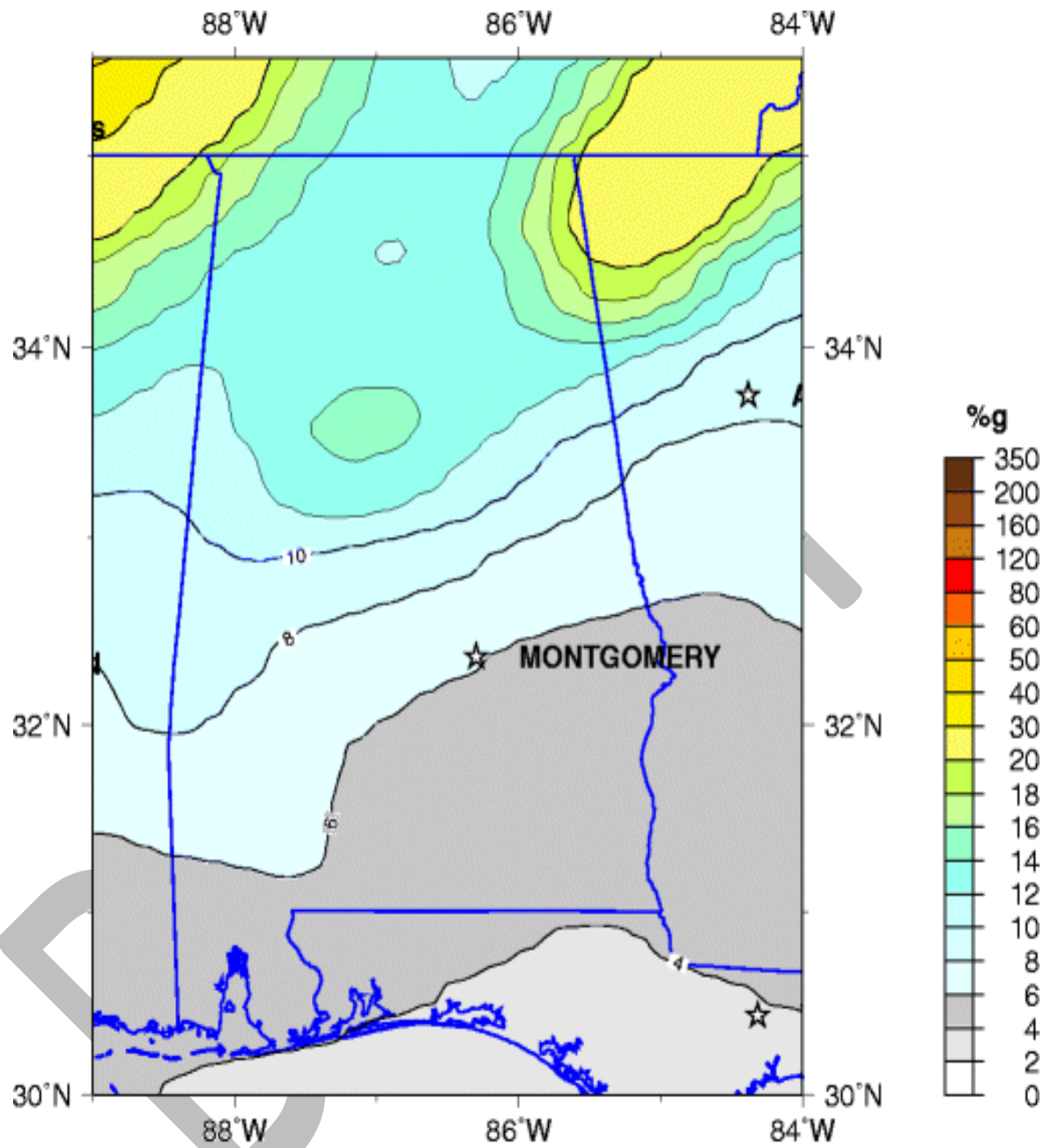
Earthquakes occurring in Montgomery City-County are predominantly low magnitude events. However, there is growing concern that a high magnitude event is inevitable and earthquakes are becoming a much larger concern to the county. GSA is currently working to better define seismic hazards and impacts throughout the county. **Figure 3-7** shows the Percent Ground Acceleration (PGA) with two percent 50 year exceedance probability. There is insufficient data to predict the future probability of an earthquake occurring in Montgomery City-County. The risk of a significant, damage-causing earthquake in Montgomery City-County is low to moderate. The northeastern portion of the county is at a slightly greater risk than other portions of the county.

Although many areas of the United States are better known for their susceptibility, earthquakes do occur in Alabama. **Figure 3-8** shows the seismic zones of the Southeastern United States, which includes Alabama, as well as the epicenters of earthquakes recorded in the state from 1886-2007 as provided by the Geological Survey of Alabama and noted in the Alabama EMA Earthquake Book 2002. Montgomery City-County did not experience any major earthquake events during the past ten years (January 1, 2003 – December 31, 2013) as noted in **Table 3-5**.

Two zones of frequent earthquake activity that could potentially impact Montgomery City-County are the New Madrid Seismic Zone and the Southern Appalachian Seismic Zone. Damage could be significant in Montgomery City-County if a powerful earthquake were to occur because buildings in this part of the country have not been constructed to withstand such a powerful force. In 1916 on October 18, a strong earthquake occurred on an unnamed fault east of Birmingham. It was apparently most strong at Easonville. Near the epicenter, chimneys were knocked down, windows broken, and frame buildings were greatly shaken. It was noted by residents in seven states and covered 100,000 square miles. The 1895 New Madrid earthquake registered a 6.8 on the Richter scale and was moderately felt throughout the southeastern United

States. The New Madrid Fault line runs along the Mississippi River. Geologists agree that another major earthquake along the New Madrid Fault line could cause chimneys to fall, glass to break, and walls to crack in Montgomery City-County.

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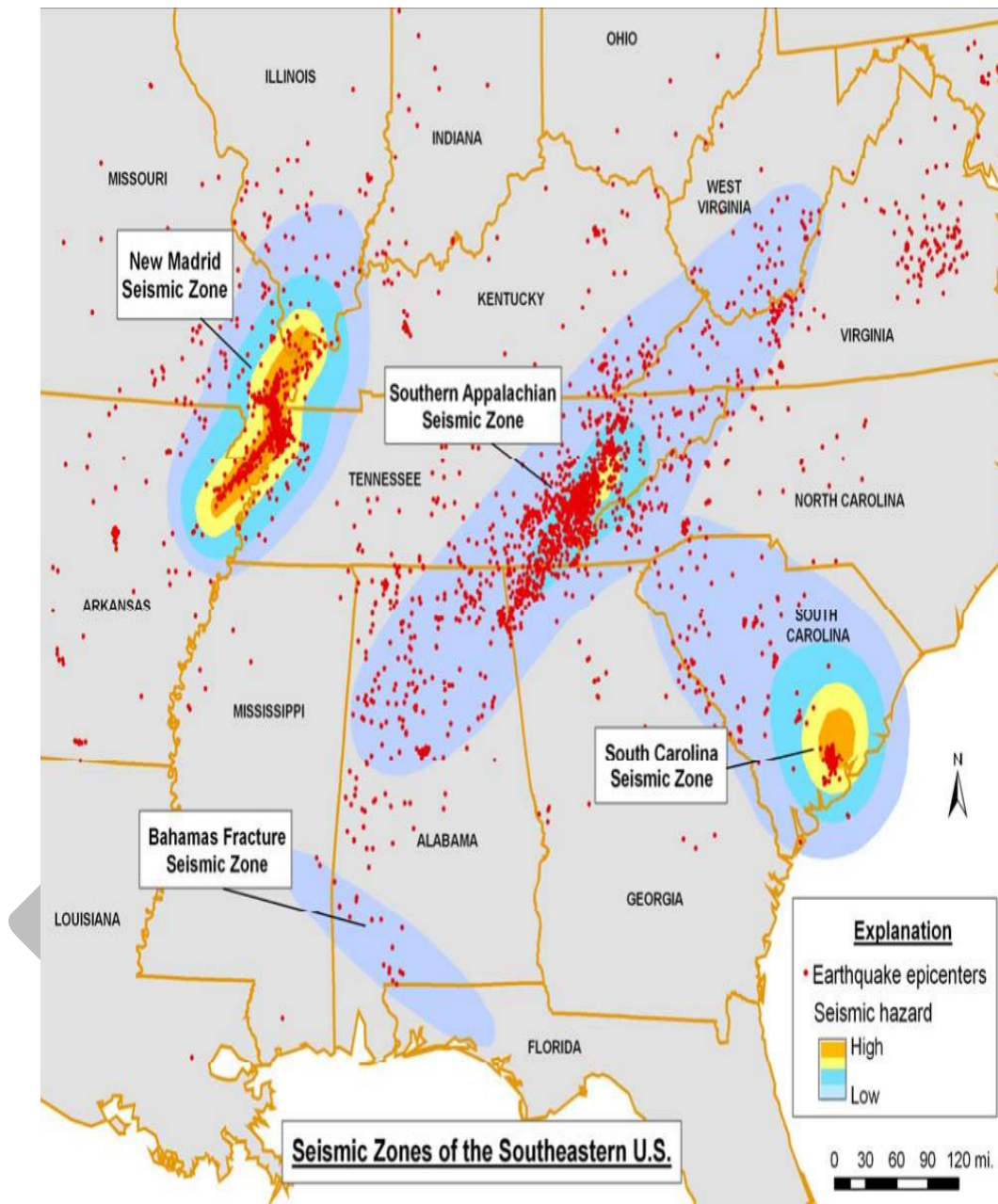
Peak Acceleration (%g) with 2% Probability of Exceedance in 50 Years
site: NEHRP B-C boundary
National Seismic Hazard Mapping Project (2008)

Figure 3-7

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Figure 3-8: Seismic Zones of the Southeastern United States



Source: Geological Survey of Alabama, 2014

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In the eastern United States strong earthquakes occur less frequently than other parts of the country; however, this does not mean that the damage in this area would be any less catastrophic should a powerful quake occur. There are two important reasons for this. The first is that the type of rock present in the eastern part of the country transmits seismic waves more effectively. This in turn creates better transmission of earthquake energy and results in higher damage over a wider area. Second, because buildings and other structures in the eastern United States have not been designed to withstand severe earth shaking, they will sustain more damage.

Montgomery County experienced three earthquake events in a 10 year period resulting in 30% (0.30) probability that an earthquake event will occur on an annual basis. The total amount of damages for an earthquake event is unknown, as well as the expected annual damages from future events. The ranking is minimum to minor.

Primary effects from earthquake in Montgomery County would include:

1. Property Damage
2. Underground infrastructure damage
3. Building collapse
4. Trigger for other natural disasters

Hazardous results from earthquake in Montgomery County would include:

1. Shaking can cause cracking of roads, bridges, or buildings, which may also lead to collapse.
2. Pipes and wiring underground could be severely damaged due to the movement of the earth. This would result in interruption of service and long periods of repair before lines were serviceable again.
3. Buildings in Montgomery County are not built to meet the rigors of earthquakes; collapsing structures could kill or injure occupants.
4. Earthquakes can create other disasters such as landslides, flooding, and sinkholes.
5. Shifting of underlying soil and breaching of dams are examples of possible results from an earthquake.

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XII. Wildfire

Wildfires are responsible for burning thousands of acres of land across the United States each year. They are large, fast moving, disastrous fires that occur in the wilderness or rural areas. These fires are uncontrolled and in dry conditions can spread rapidly through the surrounding vegetation and structures. Montgomery County is susceptible to wild/forest fires especially during times of drought. Montgomery County has a total of 247,643 acres of forestland. The total acres are made up of 62,215 softwoods, 45,305 oak-pine, and 140,123 hardwoods. (*Source: Alabama Forestry Commission – Forest Resource Report 2012*)

The frequency and severity of wildfires is dependent on weather and on human activity. Nearly all wildfires in Montgomery County are human caused (only a small percent are caused by lightning), with arson and careless debris burning being the major causes of wildfires. If not promptly controlled, wildfires may grow into an emergency or disaster. Even small fires can threaten lives, damage forest resources and destroy structures. **Table 3-13** shows the number of fires and acres burned during the period 2010 - 2013, as recorded by the Alabama Forestry Commission. Montgomery County had a total of 75 fires during this 3 year period, affecting a total of 1108.35 acres. Montgomery County is located in an area where the current fire danger conditions are low to moderate, according to the U. S. Forestry Service.

The National Forest Service (NFS) maintains data nationwide and produces various maps and forecasts daily under the Wildland Fire Assessment System (WFAS). A review of this data showed Montgomery County has an 11-15 percent probability of a fire occurring because of a lightning strike. The probability of ignition by lightning depends mainly on fuel moisture. Fuel Model Maps help to determine susceptibility of vegetative cover to wildfires. Montgomery County is covered by Fuel Models A and C. Areas covered by these models consist of light fuel vegetation such as herbaceous plants and round woods that are less than one-quarter of an inch.

Figure 3-9 and **Figure 3-10** from the Alabama Forestry Commission show Alabama Counties' total acres burned by wildfires from 1997-2012 and the average number of wildfires per year per square mile. The total acres burned by wildfires during this time in Montgomery County were 926 – 3,000 acres. The number of fires per year per square mile in Montgomery County were 0.014 – 0.03 wildfires.

Table 3-13: Wildfires in Montgomery County 2010 -2013					
County	Total # of Fires	Average # of Fires	Total Acres Burned	Average Acres Burned	Average Fire Size in Acres
Montgomery	75	25	1,108.35	369.45	15

Source: Alabama Forestry Commission, 2014

Montgomery County experienced 75 wildfire events in a 3 year period resulting in a greater than 100% (25.0) probability that a wildfire event will occur on an annual basis. The total amount of acres burned for the 75 wildfire events was 1,108.35 resulting in an estimated 15 acres burned per wildfire event. The total amount of acres burned was 1,108.35 multiplied by \$1,900 (the average market value for an acre of land in Montgomery County) equals \$2,105,865 damages for the 75 wildfire events with 75 wildfire events causing damage resulting in an estimated \$28,078 multiplied by 1.09 (projected loss expresses an estimated damage amount per future occurrence by converting the average loss figures from a midpoint of 2008 dollars to 2014 dollars - \$1 in 2008 = \$1.09 in 2014...a cumulative rate of inflation of 9%) equals a total of \$30,605 of expected annual damages from future events. No deaths or injuries were reported. The ranking, extent/range of magnitude or severity that could be experienced by Montgomery County due to a wildfire event is minor to major.

Primary effects from wildfire in Montgomery County would include:

1. Loss of property
2. Loss of livestock
3. Destruction of wilderness
4. Crop destruction

Hazardous results from significant wildfire in Montgomery County would include:

1. Widespread fire destroys everything flammable, leaving people homeless and businesses destroyed.
2. Fenced in livestock have no way of escaping the path of a wildfire and most are lost due to smoke inhalation.

3. Most wildfires actually help forests grow because they rid the forest of underbrush, but exceptionally hot fires that have a long duration destroy entire forests.
4. An entire year's crop can be lost by burning through all vegetation.

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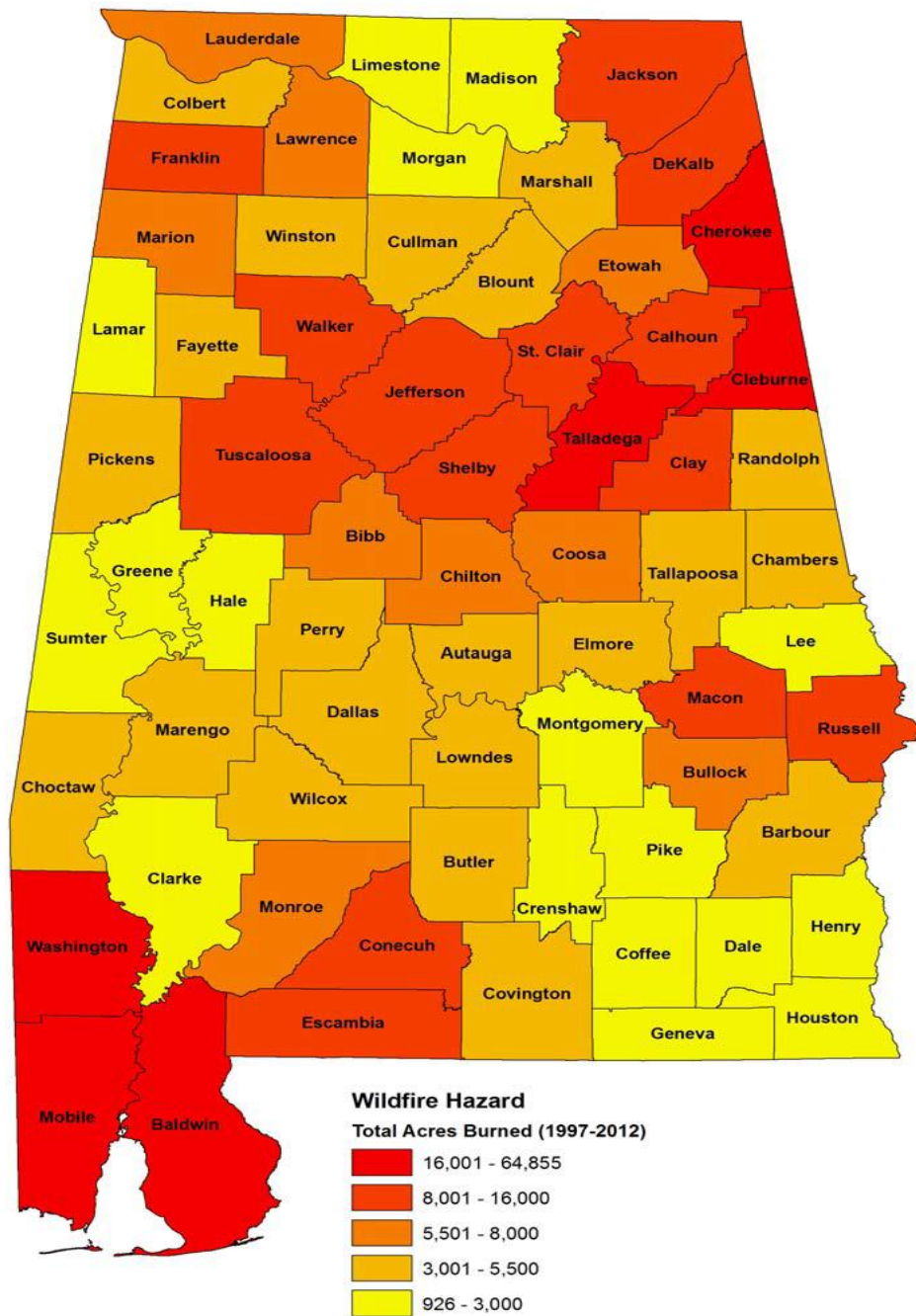


FIGURE 3-9
Total Acres Burned by Wildfire 1997-2012
(Source: Alabama Forestry Commission and the Alabama Emergency Management Agency, 2014)

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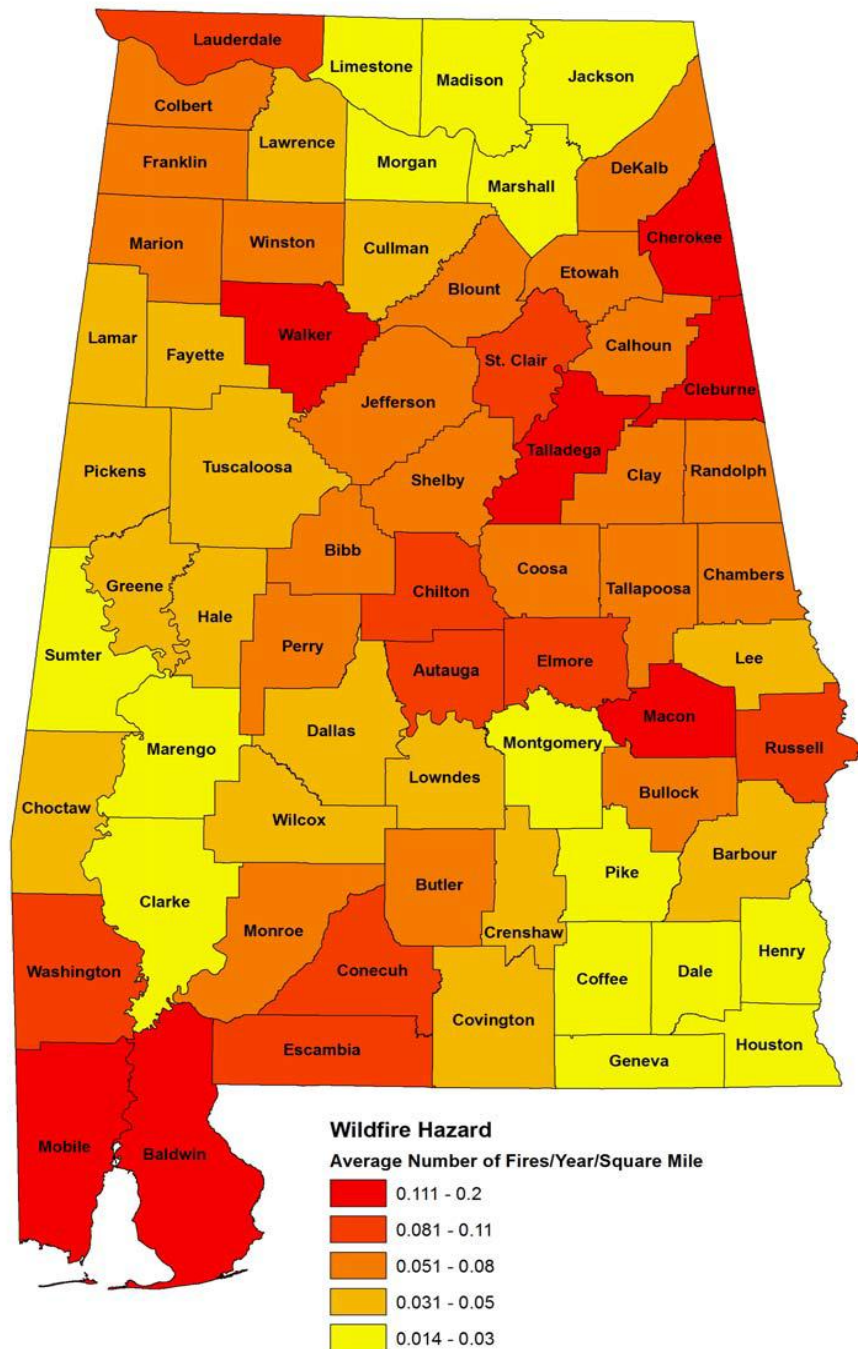


FIGURE 3-10
Number of Fires per Year per Square Mile 1997-2012
(Source: Alabama Forestry Commission and the Alabama Emergency Management Agency, 2014)

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XIII. Dam Failures

A dam is barriers constructed across a watercourse in order to store, control, or divert water. Dams are usually constructed of earth, rock, concrete, or mine tailings. The water impounded behind a dam is referred to as the reservoir and is measured in acre-feet, with one acre-foot being the volume of water that covers one acre of land to a depth of one foot. Due to topography, even a small dam may have a reservoir containing many acre-feet of water. A dam failure is the collapse, breach, or other failure of a dam that causes downstream flooding. Dam failures may result from natural events, human-caused events, or a combination thereof. Due to the lack of advance warning, failures resulting from natural events, such as hurricanes, earthquakes, or landslides, may be particularly severe. Prolonged rainfall that produces flooding is the most common cause of dam failure (FEMA, 1997).

Dam failures usually occur when the spillway capacity is inadequate and water overtops the dam or when internal erosion through the dam foundation occurs (also known as piping). If internal erosion or overtopping cause a full structural breach, a high-velocity, debris-laden wall of water is released and rushes downstream, damaging or destroying whatever is in its path.

Dam failures may result from one or more the following:

- ☐ Prolonged periods of rainfall and flooding (the cause of most failures)
- ☐ Inadequate spillway capacity which causes excess overtopping flows
- ☐ Internal erosion erosions due to embankment or foundation leakage or piping
- ☐ Improper maintenance
- ☐ Improper design
- ☐ Negligent operation
- ☐ Failure of upstream dams
- ☐ Landslides into reservoirs
- ☐ High winds
- ☐ Earthquakes

Dam failures are potentially the worst flood events. A dam failure is usually the result of neglect, poor design, or structural damage caused by a major event such as an earthquake.

Historical records of dam/levee failures for Montgomery County are not available. When a dam

fails, a large quantity of water is suddenly released downstream, destroying anything in its path. The area impacted by the water emitted by dam failure would encounter the same risks as those in a flood zone during periods of flooding. The area directly affected by the water released during a dam failure is not county wide. The risks associated with dam/levee failures are the same as those risks associated with flooding. There have been no significant dam or levee failures reported in Montgomery County during 2003 - 2013.

Dam safety has been an ongoing hazard mitigation issue in the State of Alabama, especially for small dams that are privately owned and poorly maintained. No state law currently exists to regulate any private dams or the construction of new private dams, nor do private dams require federal licenses or inspections. There have been several attempts in the State of Alabama to pass legislation that would require inspection of dams on bodies of water over 50 acre-feet or dams higher than 25 feet. Enactment has been hampered by the opposition of agricultural interest groups and insurance companies. Once established, the program will provide an up-to-date inventory of dams in Montgomery County. A full inventory of dams will help to benefit public safety and emergency response operations in the event of a natural or other disaster. It will also provide for the inspection and permitting certification of certain dams in order to protect the citizens of Alabama by reducing the risk of failure of such dams. According to *HAZUS-MH 2.1* and *NOAA*, Montgomery County has 97 High Density Polyethylene (HPDE - Earth) Dams including 1 high hazard dam (failure or poor operation would likely result in the loss of human life), 26 significant hazard dams (failure or poor operation would not likely result in the loss of human life, but would result in economic loss, environmental damage, and disruption of lifeline facilities), and 70 low hazard dams (failure or poor operations would not likely result in the loss of human life, but would result in low economic and environmental damage). No dam is located within a municipality. All dams are located in sparsely populated areas scattered throughout the unincorporated jurisdiction. **Table 3-14** shows risk categories of dams. **Table 3-15** provides an inventory listing of all the dams in Montgomery County and includes additional data on each.

The probability of future occurrences cannot be characterized on a countywide basis because of the lack of information available. The qualitative probability is rated low because the overall area affected is low and impacts are localized. This rating is intended only for general

comparison to other hazards that are being considered.

Primary effects from Dam failure in Montgomery County would include:

1. Loss of life
2. Destruction of property
3. Unregulated water flow to surrounding areas
4. Increased amount of disease and disease-carrying animals in the area

Hazardous results from dam failure in Montgomery County would include:

1. Heavy flooding would be a direct result of a dam failure, causing many deaths by injuring and trapping people in structures.
2. Large amounts of water would sweep with it property and severely damage any property that remained in the area.
3. Chemical spills from local factories caused by rushing water would pollute the area and destroy crops and other property.
4. The river would be able to flow naturally once the dam was breached - damaging any structures in the path, as well as interrupting wildlife cycles and hydrologic power supply.
5. There would be increased diseases as a result of the unsanitary conditions.

Table 3-14: Montgomery County Dams Risk Categories	
Risk Categories	Number of Dams
High - loss of one human life is likely if the dam fails	1
Significant - possible loss of human life and likely significant property or environmental destruction if the dam fails if the dam fails	26
Low	70
Total	97
(Source: HAZUS MH 2.1, 2015)	

Table 3-15: DAM INVENTORY LISTING FOR MONTGOMERY COUNTY						
Dam ID	Dam Name	River	Dam Type	Hazard	Latitude	Longitude
AL000081	W. C. Gibson	Sandy Creek	HPDE (Earth Dam)	L	32.138329	-86.165
AL000083	Morris Dees No. 2	Catoma Creek	HPDE (Earth Dam)	L	32.216669	-86.12333
AL000140	W. C. Gray	Catoma Creek	HPDE (Earth Dam)	L	32.18	-86.094999
AL000141	Fannin	Jackson Creek	HPDE (Earth Dam)	L	32.034999	-86.139999
AL000142	Bob Thompson	Thompson Creek	HPDE (Earth Dam)	L	32.116669	-86.155
AL000143	Wylie Hill No. 2	Sandy Creek	HPDE (Earth Dam)	L	32.18833	-86.15667
AL000144	Morris Dees	Catoma Creek	HPDE (Earth Dam)	L	32.056669	-86.13333
AL000145	Freeman	Miller Creek	HPDE (Earth Dam)	L	32.329999	-86.09833
AL000146	C. E. Sellers	Thompson Creek	HPDE (Earth Dam)	L	32.05333	-86.181669
AL000147	Allison	Little Catoma Creek	HPDE (Earth Dam)	L	32.245	-86.103329
AL000148	Arrington No. 2	Sandy Creek	HPDE (Earth Dam)	L	32.15667	-86.16833
AL000149	Arrington No. 1	Ramar Creek	HPDE (Earth Dam)	L	32.161669	-86.181669
AL000150	Wylie Hill No. 1	Little Catoma Creek	HPDE (Earth Dam)	L	32.198329	-86.16667
AL000151	Herman Gibson No. 2	Catoma Creek	HPDE (Earth Dam)	S	32.245	-86.186669
AL000152	McBride	Ramar Creek	HPDE (Earth Dam)	L	32.27	-86.218329
AL000153	Herman Gibson	Ramar Creek	HPDE (Earth	L	32.264999	-86.209999

Table 3-15: DAM INVENTORY LISTING FOR MONTGOMERY COUNTY

Dam ID	Dam Name	River	Dam Type	Hazard	Latitude	Longitude
			Dam)			
AL000154	Lecroy	White Slough	HPDE (Earth Dam)	S	32.323329	-86.233329
AL000155	Norman	Patsaliga Creek	HPDE (Earth Dam)	L	32.024999	-86.253329
AL000156	A. W. Dale	Tallapoosa River	HPDE (Earth Dam)	L	32.341669	-86.15667
AL000157	McClurkin No. 3	Line Creek	HPDE (Earth Dam)	L	32.315	-86.03
AL000158	C. E. Sellers No. 4	Little Catoma Creek	HPDE (Earth Dam)	L	32.106669	-86.001669
AL000159	C. E. Sellers No. 3	Little Catoma Creek	HPDE (Earth Dam)	L	32.12	-86.003329
AL000160	C. E. Sellers No. 2	Little Catoma Creek	HPDE (Earth Dam)	L	32.114999	-86
AL000161	Jack Wool	Little Sandy Creek	HPDE (Earth Dam)	S	32.104999	-86.02333
AL000162	Lee Merriweather	McDowell Creek	HPDE (Earth Dam)	L	32.245	-86.026669
AL000163	Shirley	McDowell Creek	HPDE (Earth Dam)	L	32.261669	-86.02167
AL000164	Guy Pugh	Little Sandy Creek	HPDE (Earth Dam)	S	32.125	-86.038329
AL000165	T. S. Turnipseed Dam	Little Catoma Creek	HPDE (Earth Dam)	S	32.149999	-86.011669
AL000166	W. J. Sorrell	McDowell Creek	HPDE (Earth Dam)	S	32.235	-86.036669
AL000167	Edward Myers	Ramar Creek	HPDE (Earth Dam)	S	32.171669	-86.27333
AL000168	McClurkin No. 2	Line Creek	HPDE (Earth Dam)	L	32.311669	-86.028329

Table 3-15: DAM INVENTORY LISTING FOR MONTGOMERY COUNTY

Dam ID	Dam Name	River	Dam Type	Hazard	Latitude	Longitude
AL000169	Frank Rutland No. 2	Miller Creek	HPDE (Earth Dam)	L	32.329999	-86.045
AL000170	Belser	Miller Creek	HPDE (Earth Dam)	L	32.341669	-86.06333
AL000171	Gerald Wallace No. 2	Line Creek	HPDE (Earth Dam)	L	32.344999	-86.028329
AL000172	Gerald Wallace No. 1	Line Creek	HPDE (Earth Dam)	L	32.34	-86.036669
AL000173	Frank Rutland No. 1	Miller Creek	HPDE (Earth Dam)	S	32.33667	-86.04
AL000174	Brooks No. 2	Catoma Creek	HPDE (Earth Dam)	L	32.173329	-86.083329
AL000175	Kirksey	Little Catoma	HPDE (Earth Dam)	L	32.229999	-86.1
AL00176	W. R. Turnipseed	Little Catoma Creek	HPDE (Earth Dam)	S	32.18833	-86.048329
AL000177	Nutson No. 1	Pintlala Creek	HPDE (Earth Dam)	L	32.116669	-86.29
AL000178	Mize	Pintlala Creek	HPDE (Earth Dam)	L	32.056669	-86.29
AL000179	Hill	Pintlalla Creek	HPDE (Earth Dam)	L	32.091669	-86.276669
AL000180	Collins	Ramar Creek	HPDE (Earth Dam)	L	32.118329	-86.26833
AL000181	Mead	Ramar Creek	HPDE (Earth Dam)	L	32.114999	-86.27167
AL000182	Underwood No. 2	Ramar Creek	HPDE (Earth Dam)	L	32.11	-86.27
AL000183	Underwood No. 1	Ramar Creek	HPDE (Earth Dam)	L	32..103329	-86.27
AL000184	Cauthen No. 1	Pintlala Creek	HPDE (Earth Dam)	S	32..10167	-86.26833

Table 3-15: DAM INVENTORY LISTING FOR MONTGOMERY COUNTY

Dam ID	Dam Name	River	Dam Type	Hazard	Latitude	Longitude
AL000185	Hubie Cauthen No. 2	Ramar Creek	HPDE (Earth Dam)	L	32.135	-86.25667
AL000186	Nutson No. 2	Pintlala Creek	HPDE (Earth Dam)	L	32.12	-86.29
AL000187	D. W. Rutland	Pintlala Creek	HPDE (Earth Dam)	S	32.34667	-86.471167
AL000188	Flowers	Pintlala Creek	HPDE (Earth Dam)	S	32.128329	-86.298329
AL000189	Vongol No. 2	Ramar Creek	HPDE (Earth Dam)	L	32.184999	-86.225
AL000190	Vongol No. 1	Ramar Creek	HPDE (Earth Dam)	L	32.186669	-86.235
AL000191	Davis No. 3	Ramar Creek	HPDE (Earth Dam)	L	32.17	-86.229999
AL000192	Davis No. 2	Ramar Creek	HPDE (Earth Dam)	L	32.173329	-86.22667
AL000193	Davis No. 1	Ramar Creek	HPDE (Earth Dam)	L	32.145	-86.35
AL000196	Nutson No. 3	Pintlala Creek	HPDE (Earth Dam)	L	32.12	-86.288329
AL000197	Frank Davis	Pintlala Creek	HPDE (Earth Dam)	L	32.253329	-86.354999
AL000199	Pirtle	Ramar Creek	HPDE (Earth Dam)	L	32.22333	-86.29167
AL000200	Faulkner	Pintlala Creek	HPDE (Earth Dam)	S	32.198329	-86.30167
AL000201	Sims No. 2	Pintlala Creek	HPDE (Earth Dam)	S	32.219999	-86.309999
AL000202	Sims No. 1	Pintlala Creek	HPDE (Earth Dam)	S	32.22167	-86.306669
AL000203	Lassiter	Pintlala Creek	HPDE (Earth Dam)	L	32.196669	-86.343329

Table 3-15: DAM INVENTORY LISTING FOR MONTGOMERY COUNTY

Dam ID	Dam Name	River	Dam Type	Hazard	Latitude	Longitude
AL000204	Wallock	Pinchony Creek	HPDE (Earth Dam)	L	32.16833	-86.376669
AL000205	Duggar	Pintlala Creek	HPDE (Earth Dam)	H	32.229999	-86.343329
AL000206	C. E. Neal	Jackson Creek	HPDE (Earth Dam)	L	32.02	-86.136669
AL000207	Davis No. 4	Pintlala Creek	HPDE (Earth Dam)	L	32.251669	-86.35167
AL000208	Bowling	Pintlala Creek	HPDE (Earth Dam)	L	32.26667	-86.40833
AL000209	Fisher	Caney Branch	HPDE (Earth Dam)	S	32.26	-86.356669
AL000210	Farm Bureau	Catoma Creek	HPDE (Earth Dam)	S	32.30333	-86.354999
AL000211	Maddox	Pinchony Creek	HPDE (Earth Dam)	L	32.06333	-86.399999
AL000212	Suggs	Pintlala Creek	HPDE (Earth Dam)	L	32.24833	-86.39167
AL000213	Elgin	Catoma Creek	HPDE (Earth Dam)	S	32.306669	-86.421669
AL000214	Baggett	Catoma Creek	HPDE (Earth Dam)	L	32.309999	-86.44
AL000215	C. H. Warner	Pintlala Creek	HPDE (Earth Dam)	L	32.32833	-86.45333
AL000216	Stallings	Ramar Creek	HPDE (Earth Dam)	L	32.245	-86.27
AL000217	Davis No. 5	Pintlala Creek	HPDE (Earth Dam)	L	32.25	-86.35167
AL001115	Scott Dam		HPDE (Earth Dam)	S	32.341669	-86.16667
AL001116	Spears Rhodes Dam		HPDE (Earth Dam)	S	32.216669	-86.19167

Table 3-15: DAM INVENTORY LISTING FOR MONTGOMERY COUNTY

Dam ID	Dam Name	River	Dam Type	Hazard	Latitude	Longitude
AL001117	Myers No. 2 Dam		HPDE (Earth Dam)	S	32.171669	-86.274999
AL001149	C. D. Long Lake Dam	Pintlala Creek	HPDE (Earth Dam)	S	32.288329	-86.48667
AL001894	Evans Dam	Thompson Creek	HPDE (Earth Dam)	L	32.114999	-86.155
AL001895	Pat McIntyre	Sandy Creek	HPDE (Earth Dam)	L	32.183329	-86.183329
AL001896	Dr. John Kimbrough	McDowell Creek	HPDE (Earth Dam)	L	32.2	-86.03333
AL001897	Hubie Cauthen No. 1	Ramar Creek	HPDE (Earth Dam)	L	32.128329	-86.261669
AL001898	Hubie Cauthen	Ramar Creek	HPDE (Earth Dam)	L	32.116669	-86.25
AL001899	Doug Chapman	Patsaliga	HPDE (Earth Dam)	S	32.016939	-86.183329
AL001900	George H. Owens	Johnson Creek	HPDE (Earth Dam)	L	32.2	-86.01667
AL001901	Dr. Bill Cauthen	Pintlala Creek	HPDE (Earth Dam)	L	32	-86.299999
AL001902	Strickland	Weaver Mill Creek	HPDE (Earth Dam)	L	32.03	-86.174999
AL001903	Hill and Hill	Pintlala Creek	HPDE (Earth Dam)	L	32.13333	-86.299999
AL001904	Weil	Pintlala Creek	HPDE (Earth Dam)	L	32.128329	-86.29167
AL001905	James Sykes	Little Sandy	HPDE (Earth Dam)	S	32.1	-86.06694
AL001906	C. H. Warner Pond	Antioch Branch Creek	HPDE (Earth Dam)	S	32.2	-86.27
AL001908	Frank Rutland Pond	Miller Creek	HPDE (Earth Dam)	L	32.333329	-86.01667

Table 3-15: DAM INVENTORY LISTING FOR MONTGOMERY COUNTY						
Dam ID	Dam Name	River	Dam Type	Hazard	Latitude	Longitude
AL001909	Silverman and Dykes	Pintlala Creek	HPDE (Earth Dam)	L	32.056669	-86.364999
AL001910	W. E. Waters	Little Catoma	HPDE (Earth Dam)	L	32.274999	-86.07833

(Source: Hazus-MH 2.1, 2015)

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Section Four: Vulnerability Assessment

In Section Three, the primary effects and hazardous results were considered for all identified hazards. In this section each hazard was further reviewed to identify the impacts on the county and its jurisdictions. Impact in terms of dollar value for past hazard occurrences are shown for the county in **Table 3-5** and for each jurisdiction in their individual Hazard Event table in Section Five of this plan.

Vulnerability is the extent to which something is damaged by a hazard. Vulnerability is very often measured using “damage functions.” These are based on studies of how buildings perform when they are exposed to hazards. Similar functions are available for infrastructure and other physical assets. Injury and mortality functions (how many people are injured or die during events) are also sometimes used as indicators of vulnerability, but these are generally not as reliable as functions for physical assets because there are many more variables.

Thunderstorms (Source: NCDC NOAA)

Damage from thunderstorms can have a wide range of severity. All jurisdictions are vulnerable to thunderstorm events. A thunderstorm event in Montgomery County on May 8, 2008 resulted in wind speeds estimated near 100 miles per hour and property damages of \$500,000.

During 2003-2013, 67 thunderstorm events occurred in Montgomery County. Forty-eight of these thunderstorms caused \$902,500 in damages, resulting in an estimated \$18,802 of expected annual damages from future events.

Lightning (Source: NCDC NOAA)

Lightning can cause substantial property damage and loss of human lives. All jurisdictions are vulnerable to lightning events.

Hail (Source: NCDC NOAA)

Severe thunderstorms have been known to produce hailstones 2.75 inch in diameter (baseball size) in Montgomery County. A hail event on April 25, 2003 occurred in Montgomery County resulting in \$100,000 property damages and another hail event on March 27, 2005 resulted in \$70,000 property damages.

During 2003-2013, 36 hail events occurred in Montgomery County. Seven of these hail events caused \$212,000 in damages, resulting in an estimated \$30,286 of expected annual damages from future events.

Tornado (Source: NCDC NOAA)

The impacts of tornados can be far-reaching. Life, property, and personal items are at risk. Tornados do not follow a definite path; all jurisdictions are vulnerable to tornado events. Property damage, injury, and death can result from the weakest tornados. Interruption of electrical services, communications, and other utilities may occur. Transportation corridors may be blocked or even destroyed. Debris removal can take time and can be costly. Residents may suffer from post-traumatic stress disorder, depression, anxiety, and grief for lost loved ones. Longer response times results from having limited emergency personnel.

Areas with higher population densities pose the greatest potential for property damage, injury, and death. The City of Montgomery and the Town of Pike Road are the most densely populated areas in the county. Communities with a high concentration of mobile homes are extremely vulnerable to tornados. Mobile homes are not capable of withstanding the strong winds associated with tornados. Montgomery County has a total of 3,952 mobile homes countywide, 3.88% of the total housing stock. The City of Montgomery has 1,843 mobile homes, 2% of the total housing stock. The Town of Pike Road has 77 mobile homes, 3.49% of total housing stock.

(Sources: U.S. Census Bureau, 2010-2012 American Community Survey and Easidemographics.com)

An EF0 tornado event on March 1, 2007 resulted in two injuries and \$650,000 property damages and an EF2 tornado event on November 15, 2006 resulted in \$500,000 property damages. During 2003-2013, 13 tornado events occurred in Montgomery County. Twelve of

these tornado events caused \$2,417,000 in damages, resulting in an estimated \$201,417 of expected annual damages from future events.

Flood/Flash Flood (Source: NCDC NOAA)

Flooding can occur along the banks of the creeks and streams that flow throughout the county and where development has encroached in the floodplain. Flash flooding can occur anywhere in the county due to inadequate or clogged drainage systems and excessive rainfall. Unpaved dirt roads, common in the rural areas, are particularly vulnerable. Impacts in developed areas such as the City of Montgomery and the Town of Pike Road include street flooding and water backing up into homes and buildings. In addition to damaging homes, flooding can adversely impact crops, water and sewer systems, and dams and levees. All jurisdictions are vulnerable to flood events.

On May 7, 2009 a flash flood event occurred in the City of Montgomery resulting in one death and property damages of \$1.8 million. A flood event on April 1, 2005 produced 8 to 10 inches of rain over the lower portions of the Alabama River basin below Selma. Property damages of \$7,000 occurred.

During 2003-2013, 21 flood/flash flood events occurred in Montgomery County. Twelve of these flood/flash flood events caused \$2,082,000 in damages, resulting in an estimated \$173,500 of expected annual damages from future events.

Drought/Extreme Heat (Source: NOAA NCDC)

All jurisdictions are vulnerable to occurrences of drought and extreme heat. Droughts may cause a shortage of water for human and industrial consumption, hydroelectric power, recreation, and navigation. Water quality may also decline and the number and severity of wildfires may increase. Severe droughts may result in the loss of agricultural crops and forest products, undernourished wildlife and livestock, lower land values, and higher unemployment.

Abnormally Dry (D0) - Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered. **Moderate Drought (D1)** - Some damage to

crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested. **Severe Drought (D2)** - Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed. **Extreme Drought (D3)** - Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions. **Exceptional Drought (D4)** - Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies.

Montgomery City-County experienced severe (D2) to extreme (D3) drought conditions in 2006 having hydrologic and agricultural impacts, severe (D2) to exceptional (D4) drought conditions in 2007, moderate (D1) to exceptional (D4) drought conditions in 2008, severe (D2) to extreme (D3) drought conditions in 2010, severe (D2) to exceptional (D4) drought conditions in 2011, severe (D2) to extreme (D3) drought conditions in 2012, and severe (D2) drought conditions in 2013. (Source: NOAA NCDC)

The categories of drought are defined as follows (Source <http://droughtmonitor.unl.edu>) Accessed 11/16/14: **Abnormally Dry (D0)** - Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered. **Moderate Drought (D1)** - Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested. **Severe Drought (D2)** - Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed. **Extreme Drought (D3)** - Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions. **Exceptional Drought (D4)** - Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies.

Extreme summer heat is the combination of very high temperatures and exceptionally humid conditions. If such conditions persist for an extended period of time, it is called a heat wave (FEMA). Heat stress can be indexed by combining the effects of temperature and humidity. The index estimates the relationship between dry bulb temperatures (at different humidity) and the skin's resistance to heat and moisture transfer - the higher the temperature or humidity, the

higher the apparent temperature. The human risks associated with extreme heat include heatstroke, heat exhaustion, heat syncope, heat cramps. Montgomery County experienced one extreme heat event on July 1, 2012, with dew points in the 70s and the heat index rising to 111 degrees.

Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold

Montgomery County commonly has extreme cold and winter storm events in any given year. These events impact the county in a variety of ways. Ice and small amounts of snow can cripple the county. Drivers are not accustomed to driving in these conditions, therefore many accidents occur. Snow and ice can weigh down tree limbs and power lines causing them to break, resulting in power failure and property damage. Local businesses and residents are not equipped with generators to restore power during these severe winter weather events. Also many homes may not be properly insulated, leading to health concerns and deaths. Since these storms have no defined track, all residents of Montgomery County are vulnerable to severe winter storms.

On February 12, 2010, a heavy snow event resulted in an average of 2 to 3 inches of snow fell across the whole of Montgomery County. The highest amount, 4 inches, was observed in the Ramer Community. Many bridges and other elevated surfaces became icy and hazardous. On AL-110, near the Pike Road Community, a vehicle lost control and slid into a pond, killing a 4-year-old and a 2-year-old passenger (both indirect), and injuring (indirect) the mother that was driving. One injury, two deaths, and no crop or property damages were reported.

On January 9, 2011, an ice storm event resulted in ice accumulations over one quarter inch on elevated roadways and bridges. No deaths, injuries, crop or property damages were reported.

On December 15, 2010, a winter weather event resulted in a period of freezing rain creating a light glaze of ice on area bridges and numerous vehicle accidents. A fatality occurred (indirect) along Interstate 65 when a vehicle bypassed slowed traffic and struck an EMS worker. The EMS worker was responding to a vehicle accident with injuries (indirect) caused by icy spots on the roadway. One death, one injury, and no crop or property damages occurred.

On January 24, 2003, an extreme cold/wind chill event resulted in the coldest temperatures in 7 years occurred across much of North and Central Alabama and lasted for about two days. Early morning temperatures ranged from 2 to 10 degrees. The coldest temperatures were measured in outlying areas. Although no new records were established, these temperatures were very cold for the Deep South. Many area residents reported frozen and broken water pipes as a result of the extended cold. Several lawn sprinkler systems also froze and broke making many areas very icy. No injuries, deaths, crop, or property damages occurred.

Hurricanes/Tropical Storms/Tropical Depressions/Strong Winds/High Winds

Tropical Storms and Tropical Depressions such as Dennis, Katrina, Fay, Ida, and Ivan have affected Montgomery County. The most significant impacts have been related to excessive rainfall, damaging wind, and tornados. Residents suffer loss of power, damage to homes, blocked roadways from associated storm debris, and loss of other crucial utilities. Mobile homes are particularly vulnerable and are impacted more than conventionally built structures. Mobile homes in the county represent 3.88% of the housing stock. Effects of these storms generally impact the entire county and are not limited to a specific location. The fact that other surrounding counties will have also been affected by the same event only adds to the burden, as utility crews are often overwhelmed by the needs of an entire region or state.

On July 10-11, 2005, numerous trees and power lines were knocked down as Tropical Storm Dennis moved across Montgomery County. One person was injured when a tree fell on his/her vehicle. No deaths or crop damages occurred. Property damages of \$200,000 resulted from this event.

On August 29-30, 2005, numerous trees and power lines were damaged as Tropical Storm Katrina affected the area. Power outages were widespread. Numerous structures, homes, and vehicles were damaged. No injuries, deaths, or crop damages occurred. Property damages of \$175,000 resulted from this event.

On August 23-25, 2008, Tropical Depression Fay brought high winds, heavy rain, and numerous tornadoes to the Montgomery County area. No injuries, deaths, or crop damages occurred. Property damages of \$10,000 resulted.

On November 9-11, 2009, Tropical Depression Ida brought very heavy rain and gusty winds to a large portion of Central Alabama. Montgomery had 2.33 inches of rain reported. Sustained winds around Central Alabama maxed out between 20 and 30 mph, with peak wind gusts generally between 30 and 40 mph. These winds blew down a few trees around the area, especially shallow rooted trees where the saturated soil likely played a significant role. No injuries, deaths, or crop damages occurred. Property damages of \$3,000 resulted from this event.

On September 16, 2004, a high wind event resulted in hundreds of trees and power lines being snapped off or blown down during Ivan. At least 3,300 homes sustained varying degrees of wind damage. Power was not fully restored for at least a week. Maximum wind gusts were estimated around 75 miles an hour. Three women in Montgomery were killed due to carbon monoxide poisoning after Ivan. The women had a generator running in their home because the power was out of service. Three deaths and no injuries were reported. Property damages of \$9 million and crop damages of \$50,000 were reported.

Two strong wind events occurred in April of 2005: one on April 2, 2005 resulted in 38 miles per hour wind and one on April 12, 2005 resulted in 47 miles per hour wind. Both events resulted in \$1,000 property damages (each event) and no deaths, injuries, or crop damages.

Sinkholes/Expansive Soils

During the risk assessment, it was determined that Montgomery County's geology is susceptible to sinkholes/expansive soils/landslides; however, the county has a low incidence of occurrences. All jurisdictions have identified this hazard in the risk assessment but only an unincorporated area of the county (Hope Hull) has experienced an occurrence within the study period of this plan update (WSFA Channel 12). Though the soils present in the county do have some shrink-swell potential, the risk assessment determined that a profile was not necessary. No expansive soil issues were reported from NOAA NCDC or other sources.

Landslides (Source: Local Input)

Montgomery County is located in a part of the state where the geology is low landslide incidence susceptibility to subsidence. Precise locations of susceptibility would require extensive

and costly geologic studies, which are not available. All jurisdictions identified this hazard however the absence of occurrences indicate a low vulnerability to landslides at this time.

Earthquakes (Sources: Alabama Geological Survey; USGS Database; NOAA NCDC; www.homefacts.com/earthquakes/Alabama.html)

A major earthquake in Montgomery County could result in great loss of life and property damage in the billions of dollars. Adding to the danger is the fact that structures in the area were not built to withstand earthquake shaking. Construction of many buildings on steep slopes susceptible to landslides and in karst terrains susceptible to sinkholes will be a major contributing factor to damage from future earthquakes in the county. Earthquakes can trigger other natural disasters such as landslides and sinkholes. No earthquakes were reported by the NOAA NCDC Storm Events Database; however, three earthquakes near to the county's center were reported by city-data.com. Damages are unknown.

Wildfires (Source: Alabama Forestry Commission)

Montgomery County has a significant amount of acreage that is comprised of forestland and is therefore vulnerable to wildfires, especially during times of drought. Both rural and urban areas in all jurisdictions are impacted by wildfires and result in loss of wilderness, crops, livestock and other property. Loss of human life, both residents and firefighters, is also possible. Montgomery County experienced 75 wildfires from 2010-2013 resulting in 1,108.35 acres burned and \$2,105,865 of land loss for a total of \$30,605 expected annual damages from future events.

Dam/Levee Failures (Sources: HAZUS MH 2.1; Local Input)

There are 97 dams in Montgomery County, one of which is classified as having High Hazard potential. The high hazard dam is located on the tributary of Pintlala Creek near Beulah Church. Potential impacts would include unregulated water flow, possible crop and property damage, and an increase of waterborne disease. The risks associated with dam/levee failures are the same as those risks associated with flooding. There have been no significant dam or levee failures reported in Montgomery County during 2003 - 2013.

Socially Vulnerable Populations

Certain populations are generally more affected by hazard events. These populations can be defined in terms of social, racial, and economic characteristics. Data provided in the section was obtained from 2010 Census using breakouts for entire municipalities and census tracts.

According to the 2010 Census, Montgomery County has 784.25 acres of land area and 286.74 persons per square mile. The population density is much greater than Alabama's at 91.18 per square mile and the U.S. at 81.32 per square mile.

Table 4-1 shows the county's population characteristics by jurisdiction and by area. The City of Montgomery is the most populated jurisdiction, followed by the Town of Pike Road. The county has 65 census tracts (See **Map 4-1**). In terms of vulnerability, the larger the population of an area the more people and structures that could possibly be damaged or destroyed. Tract 5406 is the most populated tract. Tract 5406 contains the portions of the City of Montgomery and a portion of the Town of Pike Road. Tract 2900 is the second most populated tract and contains portions of the City of Montgomery. Tract 5612 is the least populated tract and contains a portion of the City of Montgomery.

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Table 4-1: Montgomery County Population Characteristics

Geographic Area	<i>Population</i>	<i>Race-White</i>	<i>Race-Black</i>	<i>Race-Other*</i>	<i>Ages 19 and Under</i>	<i>Ages 20-64 years</i>	<i>Ages 65 and Over</i>
Montgomery County	229,363	90,656	125,477	13,230	63,460	138,482	27,421
City of Montgomery	205,764	76,656	116,524	12,584	57,942	123,552	24,270
Town of Pike Road	5,406	3,702	1,551	5,253	1,542	3,316	548
Census Tracts							
100	1,174	232	923	190	325	805	44
200	1,605	289	1,290	26	192	1,151	262
300	1,666	330	1,303	33	543	949	174
400	4,893	2,158	2,434	301	1,558	2,691	644
500	3,656	1,557	1,048	1,051	1,092	2,289	275
600	1,148	43	1,086	19	328	611	209
700	1,388	239	1,130	19	350	813	225
900	2,515	1,436	954	125	529	1,978	8
1000	1,369	155	1,200	14	447	788	134
1100	3,569	60	3,469	40	1,035	1,946	588
1200	1,771	13	1,714	44	519	988	264
1300	2,497	771	1,635	91	654	1,551	292
1400	3,618	2,793	736	89	762	2,431	425
1500	3,760	765	2,849	146	1,327	2,132	301
1600	3,769	1,643	1,817	309	1,117	2,271	381
1700	5,463	4,363	924	176	1,366	3,195	902

1800	3,411	2,506	768	137	817	2,015	579
1900	3,151	2,725	308	118	689	1,788	674
2000	4,554	3,060	1,388	106	1,250	2,479	825
2100	4,091	883	3,133	75	1,230	2,465	396
2201	4,518	114	4,342	62	1,269	2,620	629
2202	1,185	19	1,145	210	331	710	144
2300	3,136	25	3,072	39	829	1,699	608
2400	2,008	40	1,940	28	522	1,109	377
2500	2,754	752	1,738	264	985	1,560	209
2600	5,956	4,938	813	205	1,292	3,314	1,350
2700	4,467	3,422	889	156	999	2,533	935
2800	4,220	1,267	2,812	141	1,141	2,440	639
2900	8,217	370	7,652	195	2,838	4,795	584
3000	3,344	519	2,690	135	1,267	1,755	322
3100	3,744	238	3,478	28	1,307	2,219	248
3200	5,724	463	5,138	123	1,726	3,385	613
3301	3,495	2,467	915	113	898	1,960	637
3302	6,376	2,593	3,399	384	1,615	3,983	778
5101	3,689	1,055	2,513	121	1,004	2,390	295
5102	4,576	499	3,971	106	1,309	2,598	669
5301	6,376	2,593	3,399	384	1,615	3,983	778
5302	2,104	1,034	789	281	627	1,298	179
5402	5,656	1,758	3,612	286	1,619	3,448	589
5403	3,614	1,045	2,364	205	900	2,445	269
5406	8,896	6,797	1,540	559	2,113	5,401	1,382
5407	4,599	2,537	1,636	426	1,115	2,830	654
5408	7,637	4,356	2,802	479	1,815	4,720	1,102

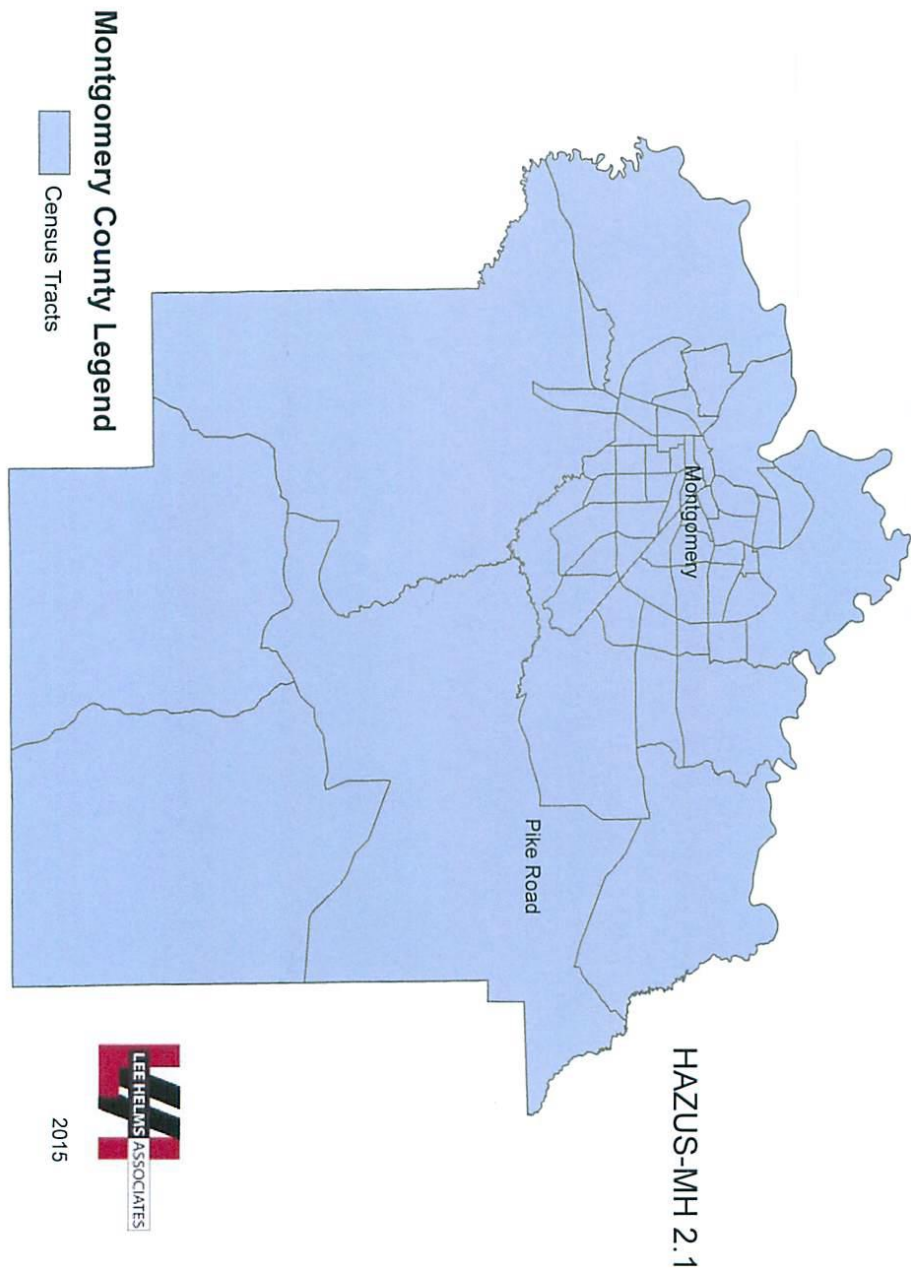
5409	2,495	1,108	1,269	118	557	1,720	218
5410	4,933	1,918	2,717	298	1,052	3,546	335
5501	3,246	1263	1886	97	657	2,418	171
5502	839	247	583	9	214	486	139
5503	3,772	2,511	977	234	1,119	2,347	256
5504	870	668	173	29	211	585	74
5603	7,828	746	5,649	1,433	3,033	4,520	275
5604	870	668	173	59	211	585	74
5605	3,473	1,020	2,298	155	965	2,170	338
5606	4,964	630	4,089	245	1,580	3,133	251
5607	4,531	2,976	666	889	1,618	2,626	287
5608	947	774	153	20	238	512	197
5609	4,622	1,535	2,385	702	1,215	3,175	232
5610	1,284	460	767	57	366	774	144
5611	3,140	2,110	441	589	914	1,957	269
5612	1,107	818	187	102	348	670	89
5700	1,526	939	557	30	322	938	266
5800	2,186	1,341	779	66	449	1,315	422
5901	4,865	2,601	2,048	216	1,108	2,968	789
5902	3,762	44	3,674	44	1,142	2,218	402
6000	3,611	1,936	1,277	398	882	2,132	597
6100	2,243	71	2,147	25	572	1,262	409

(Source: 2010 Census; www.usa.com; Accessed 2015)

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Map 4-1: Montgomery County's Census Tracts



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Minority populations are generally considered to be more vulnerable to hazard events. These populations may not have the resources necessary to recover as quickly or completely from disasters. Minorities generally have higher percentages of inadequate medical insurance, inadequate home insurance, and homes that may be deemed as substandard housing.

Populations over sixty-five years of age and those under eighteen years of age are more vulnerable than other population groups. These groups are at higher risk for injury and medical complications that may occur during or as a result of a disaster. These special needs populations may require more attention during evacuation and may require special shelters.

In addition to the racial and age composition within the county, income levels are important when identifying vulnerable populations. Lower income individuals may not have the resources to prepare for or recover from disasters. **Table 4-2** shows the median household income, per capita income, and poverty level data for the jurisdictions in Montgomery City-County.

The median household income for the State of Alabama is \$43,160. The median household income for the United States is \$53,046. Montgomery County's median household income exceeds the State of Alabama's average, but is less than the national average. The City of Montgomery's median household income exceeds the State of Alabama's average, but is less than the national average. The Town of Pike Road's median household income exceeds the state and national averages. (*Source: 2010 Census*)

Per capita income is the average obtained by dividing aggregate income by the total population of an area. The per capita income for the State of Alabama is \$23,587. The per capita income for the United States is \$28,051. Montgomery County's per capita income exceeds the State of Alabama's average, but is less than the national average. The City of Montgomery's per capita income exceeds the State of Alabama's average, but is less than the national average. The Town of Pike Road's per capita income exceeds the state and national averages. (*Source: 2010 Census*)

The percent of persons below the poverty level in the State of Alabama is 18.1%. The corresponding rate for the United States is 14.9%. Much of the county is above both of these rates. The Town of Pike Road is the only jurisdiction that is below the state and national rates.

The City of Montgomery has the highest poverty rate in the county at 21.60%. (*Source: 2010 Census*)

Table 4-2: Montgomery County Income Data

Geographic Area	Median Household Income	Per Capita Income	Persons Below Poverty Level	Percent Below Poverty Level
Montgomery County	\$44,401	\$24,765	45,028	20.40%
City of Montgomery	\$43,390	\$24,247	42,855	21.60%
Town of Pike Road	\$87,212	\$38,753	245	4.39%
<i>(Sources: 2010 Census; www.usa.com, 2015)</i>				

Vulnerable Structures

Housing is an important consideration of mitigation planning. The concentration and the type of housing are two primary factors. In Montgomery County there are a total of 44,401 housing units. **Table 4-3** shows the housing characteristics of the county by jurisdiction.

The City of Montgomery has the greatest concentration of housing units, followed by the Town Pike Road. The City of Montgomery has the highest number of mobile home units within a municipality; while, the Town of Pike Road has the highest percent of mobile homes within a municipality. Mobile home units are historically very vulnerable to a variety of hazards and prone to high amounts of damage and complete destruction.

Table 4-3: Montgomery County Housing Characteristics			
Geographic Area	Total Housing Units	Mobile Home Units	Mobile Home %
Montgomery County	101,956	3,952	3.88%
City of Montgomery	92,013	1,843	2.00%
Town of Pike Road	2,208	77	3.49%
(Source: 2010 Census)			

Table 4-5 shows the building stock in Montgomery City-County by general occupancy. The data provides the number of buildings by use and is shown by census tract. According to this data, provided by *HAZUS-MH 2.1* software, tract 5401 has the highest number of structures in the county. Complementing this information is **Table 4-6** that provides the value totals for these building types and **Table 4-7** that provides the content value for these building types, each table is shown by Census Tract. Tract 5401 also has the highest total value for structures in the county.

Table 4-4: Montgomery County Building Count by General Occupancy								
(These structures are vulnerable to: Thunderstorms, lightning, hail, tornados, floods/flash floods, drought/extreme heat, winter weather, frost freeze, heavy snow, ice storms, winter weather, extreme cold, tropical storms, tropical depressions, high winds, strong winds, sinkholes, earthquakes, wildfires, and dam failures.)								
Tract	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Building Count
100	269	339	40	4	33	37	10	732
200	523	126	18	7	34	79	9	796
300	935	90	43	3	11	1	0	1083
400	2,120	57	20	1	8	1	1	2208
500	1,496	67	16	1	10	0	2	1592
600	786	137	11	3	21	3	5	966
700	909	101	17	2	22	2	0	1053
900	551	16	2	1	1	13	2	586
1000	1,224	73	29	2	14	2	2	1346
1100	2,029	69	9	0	26	0	5	2138
1200	1,160	30	5	2	8	0	3	1208

Table 4-4: Montgomery County Building Count by General Occupancy

(These structures are vulnerable to: Thunderstorms, lightning, hail, tornados, floods/flash floods, drought/extreme heat, winter weather, frost freeze, heavy snow, ice storms, winter weather, extreme cold, tropical storms, tropical depressions, high winds, strong winds, sinkholes, earthquakes, wildfires, and dam failures.)

Tract	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Building Count
1300	1,166	60	6	2	6	0	1	1241
1400	1,605	97	11	8	10	2	3	1736
1500	1,204	119	23	4	11	0	2	1363
1600	1,874	124	33	6	12	2	3	2054
1700	2,423	75	24	7	6	1	2	2538
1800	1,476	73	16	4	8	6	4	1587
1900	1,331	30	7	2	4	1	2	1377
2000	1,950	142	14	6	16	5	4	2137
2100	1,650	75	16	2	8	0	1	1752
2201	2,122	66	11	2	9	2	4	2216
2202	495	33	9	1	9	1	1	549
2300	1,428	39	6	1	5	0	1	1480
2400	1,109	52	19	2	6	1	6	1195
2500	1,118	58	20	2	8	13	3	1222
2600	2,462	90	24	7	10	1	3	2597
2700	1,614	79	18	6	10	9	4	1740
2800	1,497	82	13	6	6	2	5	1611
2900	2,158	75	10	3	9	0	2	2257
3000	1,169	77	22	2	7	0	1	1278
3100	1,362	40	10	0	6	1	5	1424
3200	1,868	60	20	3	8	0	4	1963
3301	1,403	100	23	3	11	0	5	1545
3302	1,798	172	22	7	20	6	8	2033
5101	1,332	90	29	6	7	2	0	1466
5102	1,785	36	11	0	9	4	1	1846
5301	162	4	1	0	1	4	2	174
5302	887	66	121	3	1	19	1	1098
5401	3,512	199	37	9	20	9	12	3798
5402	1,873	138	28	8	10	3	6	2066
5403	727	81	18	4	23	2	2	857
5405	1,933	120	16	4	7	1	4	2085
5406	2,792	137	28	8	20	0	4	2989
5501	214	23	11	4	4	1	1	258
5502	166	11	8	2	2	2	0	191
5503	457	12	3	3	2	3	1	481
5504	647	21	10	5	2	3	2	690

Table 4-4: Montgomery County Building Count by General Occupancy

(These structures are vulnerable to: Thunderstorms, lightning, hail, tornados, floods/flash floods, drought/extreme heat, winter weather, frost freeze, heavy snow, ice storms, winter weather, extreme cold, tropical storms, tropical depressions, high winds, strong winds, sinkholes, earthquakes, wildfires, and dam failures.)

Tract	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Building Count
5601	2,307	125	34	10	17	4	8	2505
5602	2,517	97	14	7	11	3	6	2655
5603	2,378	66	22	5	7	0	0	2478
5604	1,188	59	22	11	4	3	2	1289
5700	501	21	4	6	2	1	1	536
5702	339	9	3	1	3	0	1	356
5800	1,185	62	28	8	12	3	3	1301
5901	2,158	136	42	14	17	4	2	2373
5902	1,277	28	16	0	2	0	2	1325
6000	2,063	119	41	34	13	2	3	2275
6100	842	32	7	0	3	1	1	886
Total	81,526	4,615	1,141	264	592	265	178	88,581

(Source: HAZUS-MH 2.1; 2015)

Table 4-5: Montgomery County Building Exposure

(Numbers shown in thousands of dollars)

(These structures are vulnerable to: Thunderstorms, lightning, hail, tornados, floods/flash floods, drought/extreme heat, winter weather, frost freeze, heavy snow, ice storms, winter weather, extreme cold, tropical storms, tropical depressions, high winds, strong winds, sinkholes, earthquakes, wildfires, and dam failures.)

CensusTract	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Building Exposure
100	77219	235498	21112	387	27637	29610	8857	400320
200	105502	100990	3276	5819	27818	67199	7733	318337
300	152185	85597	47423	318	8130	749	0	208805
400	237337	14972	5638	100	4466	557	1269	264339
500	155368	17569	3909	165	6913	0	1488	185412
600	82665	105832	4400	456	15969	1211	3181	213714
700	75350	44851	3314	674	14006	921	0	139116
900	366914	32939	335	53	1149	11843	7068	420301

Table 4-5: Montgomery County Building Exposure*(Numbers shown in thousands of dollars)*

(These structures are vulnerable to: Thunderstorms, lightning, hail, tornados, floods/flash floods, drought/extreme heat, winter weather, frost freeze, heavy snow, ice storms, winter weather, extreme cold, tropical storms, tropical depressions, high winds, strong winds, sinkholes, earthquakes, wildfires, and dam failures.)

CensusTract	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Building Exposure
1000	149822	39418	49532	90	7377	1521	4495	252255
1100	160705	22236	1212	0	13750	0	4995	202898
1200	87983	8250	440	201	3029	0	2592	102495
1300	139367	18276	788	148	4643	0	1483	164705
1400	237478	35718	1231	515	12405	1209	10243	298799
1500	219769	38712	3323	1074	5132	0	1742	269752
1600	211665	56777	8145	768	6164	1517	2055	287091
1700	305970	32454	3724	561	4886	108	2305	350008
1800	197112	42672	2612	377	6338	5081	8215	262407
1900	186391	7240	597	212	3845	171	290	198746
2000	348930	94699	2083	630	18222	2655	3825	471044
2100	180301	35004	2708	134	3571	0	956	226674
2201	220239	22441	1473	162	5936	324	2954	253529
2202	39080	16931	2055	71	4866	1143	1457	65603
2300	104096	15956	518	50	2589	0	89	123298
2400	123547	21629	15649	159	3910	1278	5606	171778
2500	120030	35463	14306	200	6305	10915	1690	188909
2600	379857	47584	4389	875	7039	532	12633	452909
2700	254651	73946	5603	2193	8257	8118	2762	355530
2800	271606	73961	2385	617	4177	1400	4313	358459
2900	302238	36466	1262	388	7485	0	12949	360788
3000	96098	61261	27356	359	4897	0	1233	191204
3100	165812	14672	1951	0	4178	200	5560	192373
3200	289498	69674	2846	379	5924	0	4230	372551
3301	288967	65046	8206	580	9599	0	3244	375642
3302	302374	167892	5968	1155	16377	4745	5897	504408
5101	145498	54616	11691	2390	2770	1181	0	219146
5102	138367	9256	5254	0	8427	1623	304	163231
5301	41167	1592	267	0	290	2819	428	46563

Table 4-5: Montgomery County Building Exposure*(Numbers shown in thousands of dollars)*

(These structures are vulnerable to: Thunderstorms, lightning, hail, tornados, floods/flash floods, drought/extreme heat, winter weather, frost freeze, heavy snow, ice storms, winter weather, extreme cold, tropical storms, tropical depressions, high winds, strong winds, sinkholes, earthquakes, wildfires, and dam failures.)

CensusTract	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Building Exposure
5302	91266	57824	230501	271	494	15881	605	396842
5401	545832	165637	16564	1556	16861	8573	7851	762856
5402	325956	115202	14913	1490	9348	2857	2492	472258
5403	167298	70999	7939	883	35229	466	2225	285039
5405	459573	91508	3440	277	5637	781	3575	564791
5406	605262	105410	17255	1155	24402	0	3765	757249
5501	28268	8830	6404	812	5595	229	1233	51371
5502	84330	8091	2198	124	1472	1106	0	97321
5503	69480	3184	1819	499	823	2502	125	78432
5504	67817	5067	2023	389	1332	1483	1045	79156
5601	438121	61398	6832	1225	13767	1650	4856	527849
5602	387006	38102	2433	700	10098	898	8886	448123
5603	237312	47137	21731	1125	5756	0	0	313061
5604	150772	15972	3663	2496	2993	2964	1337	180197
5700	47586	5284	467	813	624	57	277	55108
5702	31720	1437	259	53	1042	0	223	34734
5800	107582	18575	5399	1222	7305	1981	3315	145379
5901	220848	79989	28627	1897	8098	1060	2574	343093
5902	147390	6572	45918	0	805	0	2520	203205
6000	160016	72568	33391	48050	7326	422	1511	323284
6100	100182	15603	6567	0	1580	174	1233	125339
TOTAL	\$11,349,178	\$3,587,785	\$735,306	\$87,297	\$460,063	\$201,714	\$187,789	\$15,873,826

(Source: HAZUS-MH 2.1; 2015)

Table 4-6: Montgomery County Building Content Replacement Value
(Numbers shown in thousands of dollars)

(These structures are vulnerable to: Thunderstorms, lightning, hail, tornados, floods/flash floods, drought/extreme heat, winter weather, frost freeze, heavy snow, ice storms, winter weather, extreme cold, tropical storms, tropical depressions, high winds, strong winds, sinkholes, earthquakes, wildfires, and dam failures.)

Tract	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Total Exposure
100	38650	237698	27022	387	27637	33819	11684	376897
200	52818	106112	4600	5819	27818	68255	7879	273301
300	33341	85857	68794	318	8130	1124	0	197564
400	118711	14972	5913	100	4466	557	1269	145988
500	77762	17716	4674	165	6913	0	1488	108718
600	41396	139152	5752	456	15969	1211	3181	207117
700	37730	47809	4191	674	14006	921	0	105331
900	183459	40819	397	53	1149	11843	8784	246504
1000	75023	39418	72537	90	7377	1521	4495	200461
1100	80458	22446	1242	0	13750	0	4995	122891
1200	44036	8250	488	201	3029	0	2592	58596
1300	69747	18896	816	148	4643	0	1483	95733
1400	118853	36272	1444	515	12405	1209	12195	182893
1500	109957	41643	4098	1074	5132	0	1742	163646
1600	105926	58244	9993	768	6164	1517	2055	184667
1700	153019	32958	4516	561	4886	108	2305	198353
1800	98597	46529	3403	377	6338	5081	8215	168540
1900	93217	7240	671	212	3845	171	290	105646
2000	174528	121261	2296	630	18222	2680	3825	323442
2100	90255	39025	3761	134	3571	0	956	137702
2201	110204	22903	1607	162	5936	324	2954	144090
2202	19554	16982	2193	71	4866	1143	1457	46266
2300	52071	17637	518	50	2589	0	89	72954
2400	61801	22714	20907	159	3910	1917	5643	117351
2500	60045	35966	19294	200	6305	10915	1690	134415
2600	189950	48454	5537	875	7039	532	14736	267123
2700	127348	77211	6320	2193	8257	8118	2762	232209
2800	135858	78375	3085	617	4177	1400	4313	227825
2900	151185	38147	1502	388	7485	0	12949	211656
3000	48083	61293	39876	359	4897	0	1233	155741
3100	82960	14856	2376	0	4178	200	5560	110130
3200	144769	72798	3213	379	5924	0	5094	232177
3301	144530	68463	10499	580	9599	0	3244	236915

Table 4-6: Montgomery County Building Content Replacement Value
(Numbers shown in thousands of dollars)

(These structures are vulnerable to: Thunderstorms, lightning, hail, tornados, floods/flash floods, drought/extreme heat, winter weather, frost freeze, heavy snow, ice storms, winter weather, extreme cold, tropical storms, tropical depressions, high winds, strong winds, sinkholes, earthquakes, wildfires, and dam failures.)

Tract	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education	Total Exposure
3302	151218	185726	8151	1155	16377	4745	5897	373269
5101	72790	54981	15825	2390	3770	1181	0	150937
5102	69212	9619	7551	0	8427	2346	304	97459
5301	20585	1592	401	0	290	2819	428	26115
5302	45642	61088	344328	271	494	15881	605	468309
5401	273009	192956	23291	1556	16861	8573	9601	525847
5402	163007	116263	17359	1490	9348	2857	2492	324957
5403	83677	72911	10445	883	35229	466	2225	193695
5405	229831	95174	4165	277	5637	781	3575	339440
5406	302680	110150	24230	1155	24402	0	4410	467027
5501	14143	8956	8704	812	5595	229	1233	39672
5502	42174	8135	2897	124	1472	1106	0	55908
5503	34744	3235	2635	499	823	2502	125	44563
5504	33922	5067	2707	389	1332	1483	1045	45945
5601	219108	64325	7891	1225	13767	1650	5316	313282
5602	193578	38877	2556	700	10098	898	8886	255593
5603	118723	47628	31332	1125	5756	0	0	204564
5604	75423	16351	4266	2496	2993	4418	1337	107284
5700	23816	5284	659	813	624	57	277	31530
5702	15873	1437	357	53	1042	0	223	18985
5800	53833	21295	7144	1222	7305	2829	3315	96943
5901	110517	80312	40629	1897	8098	1235	2574	245262
5902	73717	6572	68459	0	805	0	2520	152073
6000	80059	72726	48065	48050	7326	458	1511	258195
6100	50104	15730	9809	0	1580	174	1233	78630
Total	\$5,677,226	\$3,034,506	\$1,037,391	\$87,297	\$460,063	\$211,254	\$200,589	\$10,708,326

(Source: HAZUS-MH 2.1; 2015)

Critical Facility Inventory

Critical facilities are crucial to the daily operation of Montgomery City-County. Critical facilities help maintain a certain quality of life. Loss of operation could result in severe impacts

on the community. Each of the critical facilities listed in **Table 4-8** is vulnerable to each of the hazards identified in the risk assessment. Critical facilities include but are not limited to the following:

- Governmental services
- Police and Fire Departments
- Public Works
- Education
- Industrial
- Medical
- Agricultural

Each jurisdiction provided addresses and approximate values for the facilities listed, using replacement values from their insurance policies when available. *HAZUS-MH 2.1* was also utilized for building and content values.

Critical facilities were reviewed to consider vulnerability to special flood hazard areas. The determination utilized the review of existing FIRMs or FHBMs.

According to the Central Alabama Regional Planning Development Commission's (CARPDC) *Comprehensive Economic Development Strategy 2014* that can be found at www.CARPDC.info:

- There are ongoing regional comprehensive planning processes through which efforts and initiatives to address the potential for expansion and linking new and existing greenspace.
- Montgomery City-County's riverfront development is expanding for recreational and entertaining activities.
- Montgomery City-County and the Town of Pike Road are working together to develop an interconnecting system of multi-use trails for leisure activities.
- Montgomery is bordered by the Alabama River on the south and the Tallapoosa River on the north, making waterways available.
- Close proximity and accessibility to Interstate 65 and Interstate 85 and several U.S. Highways are a plus; however, there is no regional transportation system.

- Montgomery is the center of State Government for Alabama.
- The City of Montgomery is the primary center for arts and entertainment and is home to the Alabama Shakespeare Festival, the Blount Museum of Fine Art, the State Capitol, Old Alabama Town, the first White House of the Confederacy, Civil Rights Museum, and the Rosa Parks Museum, among others.

SWOT Analysis (*Source: CARPDC*)

➤ **Strengths:**

- Montgomery is centrally located with nearby interstates
- Proximity to State Government
- CSX Rail Hub and Airport
- Rivers are assets to tourism and quality of life
- Several water treatment plants
- Many public and private educational institutions
- Recreation/Arts/Culture – rivers, theater, ball fields, golf, Alabama Wildlife Federation, festivals/events, cultural/historical tourism, minor league baseball, Shakespeare
- Land availability and affordability (green and brown sites)
- Access to infrastructure
- Military Base – billions in economic impact, foreign citizens, exposure, Squadron Officer School, brain center for the Air Force, data center that is a conduit for recruitment of higher level professionals, and prestige for the area
- Diversity
- RSA Investment
- Strong Existing Industry
- Reliable Energy Supply
- Historical Assets – Wright Brothers/Aerospace Industry and asset for film industry
- Low cost of living and doing business
- Hospitals

- Prison System
- Juvenile Detention Center

➤ ***Weaknesses:***

- Unemployed/lack of labor force
- Lack of vocational training
- Literacy rate
- Public Education – poor performance and lack of funding
- Loss of agricultural property to development
- Access to Medical Care – specialists shortage, long appointment times, lack of trauma centers, limited resources for medical transport, physician retention, prevalence of prominent diseases (heart disease and diabetes), and shortage of nurses
- Not pro-active in long range planning
- I-65 Corridor – lack of access and interchanges that can handle industrial traffic
- Termination of I-85 Corridor in Montgomery
- Drug screening failures in the workplace
- Lack of work ethic, technology, and entitlements
- Lack of public transportation leading to congestions and pollution

➤ ***Opportunities:***

- I-65 and I-85 Corridors – access to the Port of Mobile, aerospace and automotive access, and extension of I-85 to Mississippi to promote tourism
- Continued capitalization of cultural, historical, and natural history assets
- Revitalization
- Recreation
- Waterway tourism
- Consolidation of Water and Sewer Systems
- Improvements to alternative transportation system

- Improve turf war issues with cities and utilities
- Better use of educational resources
- Improve education – life skills, dual enrollment, vocational education
- Better management of resources
- Use of comprehensive plans
- Partnerships
- Workforce development
- Develop international relationships
- Improve workforce standards
- Black belt commission
- I-85 improvements
- Improve funding
- Alabama and Tallapoosa Rivers
- Medical
- Improve or develop new fairgrounds
- Gambling
- Marketing
- Public Transportation
- Family Values
- Military Base closure issues

➤ ***Threats:***

- Unplanned growth and closures
- Industry flight
- Decrease in industrial diversity
- Lack of cooperation among governments
- Illegal aliens
- Lack of public safety providers
- Loss of quality of life – planning

- Aging population needs
- Funding
- Migration to surrounding counties
- Prison system
- Lack of workforce
- State effort to build black belt counties
- Military base closures and mission changes

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TABLE 4-7: Montgomery County Critical Facilities*(Source: Local and HAZUS-MH 2.1; 2015)*

FACILITY	LOCATION	AREA	USE	VALUE
Medical Care				
Jackson Hospital and Clinic	1725 Pine Street	Montgomery	Large Hospital	\$56,528,660
Long Term Care Hospital	1725 Pine Street, 5 North	Montgomery	Small Hospital	\$6,035,090
Central Alabama VA Healthcare	215 Perry Hill Road	Montgomery	Large Hospital	\$66,989,480
HealthSouth Rehab Hospital	4465 Narrow Lane Road	Montgomery	Medium Hospital	\$18,105,270
Baptist Medical Center	2105 East South Blvd.	Montgomery	Large Hospital	\$69,001,180
Baptist Medical Center East	400 Taylor Road	Montgomery	Medium Hospital	\$26,152,050
Emergency Operations Center				
Montgomery City-County EMA	14 Madison Ave.	Montgomery	Emergency Ops/Communications Center	\$12,000,000
Fire Departments				
Montgomery Fire Department	103 N. Perry Street	Montgomery	Fire Station	\$1,260,000
Pike Road Volunteer Fire Department	3427 Wallahatchie Road	Pike Road	Fire Station	\$1,260,000
Rolling Hills Lakes Volunteer Fire Dept.	6120 Trotman Road	Montgomery	Fire Station	\$1,260,000
Snowdoun Volunteer Fire Department	219 Hobbie Road	Montgomery	Fire Station	\$1,260,000
Pintlala Volunteer Fire Department	250 Federal Road	Hope Hull	Fire Station	\$1,260,000
Pisgah Volunteer Fire Department	28 Hollie Street	Pisgah	Fire Station	\$1,260,000
Law Enforcement				
Montgomery Police Radio Shop	1164 S. McDonough Street	Montgomery	Police Department	\$1,260,000
Sheriff Dept. Civil Division	115 S. Perry Street	Montgomery	Sheriff Department	\$1,260,000
Police Dept. School Security	1153 S. Lawrence Street	Montgomery	Police Department	\$1,260,000
Montgomery County Sheriff	129 Main Street	Ramer	Sheriff Department	\$1,260,000
Police Dept. Narcotics Bureau	1514 Highland Ave.	Montgomery	Police Department	\$1,260,000
Circuit Court Clerk Criminal	251 S. Lawrence St.	Montgomery	Police Department	\$1,260,000
Crime Prevention Program	3046 Fairwest Pl.	Montgomery	Police Department	\$1,260,000
Montgomery Chief of Police	320 N. Ripley St.	Montgomery	Police Department	\$1,260,000
Montgomery Housing Authority	5 Eugene St.	Montgomery	Police Department	\$1,260,000
Montgomery Police Dare Supervisor	632 S. Union St.	Montgomery	Police Department	\$1,260,000
Police Department Training Division	740 Mildred St.	Montgomery	Police Department	\$1,260,000
Montgomery Police Canine Unit	934 N. Ripley St.	Montgomery	Police Department	\$1,260,000
Educational Facilities				
Group Homes For Children Inc.	1426 South Court St.	Montgomery	Public School	
Maxwell AFB Elementary School	800 Magnolia Blvd.	Maxwell AFB	Public School	
St. Jude High School	2048 W. Fairview Ave.	Montgomery	Private School	
Brown's Private School	1130 Bellview Str.	Montgomery	Private School	
St. Bede Elementary School	3850 Atlanta Highway	Montgomery	Private School	
Alabama Christian Academy	4700 Wares Ferry Road	Montgomery	Private School	
Green Gate School	3265 McGehee Road	Montgomery	Private School	
Our Lady Queen of Mercy School	4437 Narrow Lane Road	Montgomery	Private School	
The Montgomery Academy	3240 Vaughn Road	Montgomery	Private School	
Trinity Presbyterian School, Inc.	1700 East Trinity Blvd.	Montgomery	Private School	
Montgomery Catholic Preparatory	5350 Vaughn Rd.	Montgomery	Private School	
St. James School	6010 Vaughn Rd.	Montgomery	Private School	
Macon-East Montgomery Academy	15396 Vaughn Rd.	Cecil	Private School	
South Montgomery County Academy	10 Old Schoolhouse Rd.	Grady	Private School	
Hooper Academy	380 Fischer Rd.	Hope Hull	Private School	

Montgomery SDA School	4233 Atlanta Highway	Montgomery	Private School	
Grace Christian Academy	203 E. Fleming Road	Montgomery	Private School	
Resurrection Catholic School	2815 Forbes Drive	Montgomery	Private School	
Montessori Academy	1025 South Hull St.	Montgomery	Private School	
Emerald Mountain Christian School	P. O. Box 241405	Montgomery	Private School	
Freedom Life Christian Academy	223 W. Fleming Rd.	Montgomery	Private School	
Canterbury High School	2005 N. Country Club Dr.	Montgomery	Private School	
Evangel Christian Academy	3975 Vaughn Rd.	Montgomery	Private School	
ESA at Taylor Road Academy	7050 University Court	Montgomery	Private School	
Bethany Day Care – KG	714 Cedar St.	Montgomery	Private School	
New Generation Pre-School	3461 Old Selma Road	Montgomery	Private School	
Bethany Christian Academy	1765 Highland Ave.	Montgomery	Private School	
Lighthouse Christian Academy	3570 Bell Rd.	Montgomery	Private School	
Davis Elementary School	3605 Rosa Parks Ave.	Montgomery	Public School	
Harrison Elementary School	164 E. South Blvd.	Montgomery	Public School	
Carver Elementary School	3100 Mobile Dr.	Montgomery	Public School	
Carver Senior High School	2001 W. Fairview Ave.	Montgomery	Public School	
Montgomery Youth Facility	1111 Air Base Blvd.	Montgomery	Public School	
Chisholm Elementary School	307 E. Vandiver Blvd.	Montgomery	Public School	
Dalraida Elementary School	440 Dalraida Rd.	Montgomery	Public School	
Dozier Elementary School	200 Eastern Blvd.	Montgomery	Public School	
Goodwyn Junior High School	209 Perry Hill Road	Montgomery	Public School	
Head Elementary School	3950 Atlanta Hwy.	Montgomery	Public School	
Dannelly Elementary School	3425 Carter Hill Rd.	Montgomery	Public School	
Lanier Senior High School	1756 S. Court St.	Montgomery	Public School	
Forest Ave. Elementary School	1700 W. 5 th St.	Montgomery	Public School	
Highland Ave. Elementary School	2024 Highland Ave.	Montgomery	Public School	
Lee High School	225 Ann Street	Montgomery	Public School	
Flowers Elementary School	3510 Harrison Road	Montgomery	Public School	
Capitol Heights Junior High School	116 Federal Drive	Montgomery	Public School	
Morningview Elementary School	2849 Pelzer Ave.	Montgomery	Public School	
Bear Exploration Center	2525 Churchill Dr.	Montgomery	Public School	
Jefferson Davis High School	3420 Carter Hill Rd.	Montgomery	Public School	

Floyd Elementary School	630 Augusta Ave.	Montgomery	Public School	
Floyd Middle School	3444 Lebron Rd.	Montgomery	Public School	
Bellingrath Junior High School	3488 S. Court St.	Montgomery	Public School	
Brewbaker Technology Magnet High School	4405 Brewbaker Dr.	Montgomery	Public School	
Brewbaker Junior High School	4425 Brewbaker Dr.	Montgomery	Public School	
Brewbaker Primary School	4445 Brewbaker Dr.	Montgomery	Public School	
Fitzpatrick Elementary School	4055 Fitzpatrick Blvd.	Montgomery	Public School	
Dunbar-Ramer School	56 Naftel Ramer Rd.	Ramer	Public School	
Pintlala Elementary School	215 Federal Drive	Hope Hull	Public School	
Southlawn Elementary School	5225 Patricia Lane	Montgomery	Public School	
Southlawn Middle School	5533 Mobile Hwy.	Montgomery	Public School	
Hayneville Road Elementary School	3315 Hayneville Rd.	Montgomery	Public School	
City School	3315 Old Hayneville Rd.	Montgomery	Public School	
Johnson Elementary School	4550 Narrow Lane Rd.	Montgomery	Public School	
Crump Elementary School	3510 Woodley Rd.	Montgomery	Public School	
Walter McKee Elementary School	4015 McInnis Rd.	Montgomery	Public School	
Walter McKee Junior High School	4017 McInnis Rd.	Montgomery	Public School	
Vaughn Road Elementary School	4407 Vaughn Rd.	Montgomery	Public School	
William Silas Garrett Elementary School	555 McLemore Dr.	Montgomery	Public School	
Wares Ferry Road Elementary School	6425 Wares Ferry Rd.	Montgomery	Public School	
Halcyon Elementary School	1501 Parkview Dr.	Montgomery	Public School	
Georgia Washington Junior High School	696 Georgia Washington Rd.	Pike Road	Public School	
McInnis School	3500 McInnis Rd.	Montgomery	Public School	
Wynton M. Blount Elementary School	1650 Ray Thorington Rd.	Montgomery	Public School	
Brewbaker Intermediate School	4455 Brewbaker Dr.	Montgomery	Public School	
Camps	P. O. Box 66	Mt. Meigs	Public School	
Detention Center	P. O. Box 66	Mt. Meigs	Public School	
Wallace School – Mt. Meigs Campus	Industrial School Rd.	Mt. Meigs	Public School	
Patterson Elementary School	1015 E. Jefferson St.	Montgomery	Public School	
Baldwin Art and Academics Magnet	410 S. McDonough St.	Montgomery	Public School	
Highland Gardens Elementary School	2801 Willena Ave.	Montgomery	Public School	
Childrens Center	310 Madison Terr.	Montgomery	Public School	
Davis Learning Center-Beep	309 N. California St.	Montgomery	Public School	

Booker T. Washington Magnet High School	632 S. Union St.	Montgomery	Public School	
Houston Hill Junior High School	215 Hall St.	Montgomery	Public School	
Second Chance	810 Cedar St.	Montgomery	Public School	
E. D. Nixon Elementary School	1000 Goode St.	Montgomery	Public School	
Peterson Elementary School	201 Pendar St.	Montgomery	Public School	
MacMillan International Academy	25 Covington St.	Montgomery	Public School	
McIntyre Middle School	1220 Hugh St.	Montgomery	Public School	
T. S. Morris Elementary School	801 Hill St.	Montgomery	Public School	
Loveless Academic Magnet Program High School	921 West Jeff Davis	Montgomery	Public School	
Fews Secondary Alternative	321 Early St.	Montgomery	Public School	
Catoma Elementary School	1780 Mitchell Young Rd.	Montgomery	Public School	
Martin Luther King Elementary	4655 Gateway Dr.	Montgomery	Public School	
Peppermint Hill Learning Center	1217 Oak St.	Montgomery	Private School	
Exploratorium Academy Inc.	37388 Atlanta Hwy.	Montgomery	Private School	
Future Generations School	109 East South Blvd.	Montgomery	Private School	
Whitfield Kindergarten	2673 Fisk Road	Montgomery	Private School	
Eastwood Christian School	1701 East Trinity Blvd.	Montgomery	Private School	
Heritage Child Development Center	1849 Perry Hill Road	Montgomery	Private School	
Eastdale Baptist Church Kinder	400 N. Burbank Dr.	Montgomery	Private School	
Holy Cross Episcopal School	4400 Bell Rd.	Montgomery	Private School	
Calvary Christian Academy	4601 Troy Highway	Montgomery	Private School	
Park Crossing High School		Montgomery		\$36,000,000
LAMP @ Montgomery Mall		Montgomery		\$10,000,000
MPACT @ Montgomery Mall		Montgomery		\$13,000,000
Military Facilities				
Maxwell AFB		Montgomery	Military	
Gunter Air Station		Montgomery	Military	
Transportation Facilities				
Maxwell AFB Airport		Montgomery	Air Force Owned Airport	\$10,651,000
Montgomery Regional (Dannelly Field) Airport		Montgomery	Publicly Owned Airport	\$10,651,000
Montgomery Riverboat Landing Wharf	Foot of Commerce Street	Montgomery	Water Transportation Port	\$1,997,000
Alabama State Docks, Montgomery Inland D	State Docks Road	Montgomery	Water Transportation Port	\$1,997,000

Agricultural Services of Alabama, Montgomery	825 Walker Street	Montgomery	Water Transportation Port	\$1,997,000
Trinity Industries, Montgomery Wharf	Lafayette Ave. & W. Railroad St.	Montgomery	Water Transportation Port	\$1,997,000
Foshee Trucking, Montgomery Wharf	Foot of Ninth Street	Montgomery	Water Transportation Port	\$1,997,000
Transflo		Montgomery	Railway Cargo Transportation Facility	\$2,663,000
Hodges Bonded Warehouse		Montgomery	Railway Cargo Transportation Facility	\$2,663,000
Shaw Montgomery Warehouse Corp.		Montgomery	Railway Cargo Transportation Facility	\$2,663,000
Utility Systems				
Catoma STP		Montgomery	Sewer Treatment	\$59,940,000
Catoma Water Pollution Control Plant WPC	6000 Richard E. Hanan Drive	Montgomery	Water Pollution	\$59,940,000
Day Street Pump Station	2350 Day Street	Montgomery	Pump Station	\$59,940,000
Econchate Water Pollution Control Plant	2501 Jackson Ferry Road	Montgomery	Water Pollution	\$59,940,000
Montgomery WW SB Pike Road WWTP	City of Montgomery WW and SB	Montgomery	Waste Water Treatment	\$59,940,000
Stewart McLean Lagoon	Pintlala Water Authority	Hope Hull	Lagoon	\$59,940,000
Towassa Waste Water Treatment Plant	3000 Washington Ferry Road	Montgomery	Waste Water Treatment	\$59,940,000
Alabama Power – So. Div. Garage	1810 Cong. W. L. Dickinson Drive	Montgomery	Electricity	\$99,000,000
WAIQ CH 26		Montgomery	TV Broadcast	\$90,000
WSFA CH 12		Montgomery	TV Broadcast	\$90,000
WMCF-TV CH 45		Montgomery	TV Broadcast	\$90,000
WBXM-CA CH 5		Montgomery	TV Broadcast	\$90,000
WCOV-TV CH 20		Montgomery	TV Broadcast	\$90,000
WMSP 740		Montgomery	AM Broadcast	\$90,000
WMSP 740		Montgomery	AM Broadcast	\$90,000
WNZZ 950		Montgomery	AM Broadcast	\$90,000
WACV 1170		Montgomery	AM Broadcast	\$90,000
WXVI 1600		Montgomery	AM Broadcast	\$90,000
WLWI 1440		Montgomery	AM Broadcast	\$90,000
WMGY 800		Montgomery	AM Broadcast	\$90,000
WVAS CH 214		Montgomery	FM Broadcast	\$90,000
WQLD CH 282		Luverne	FM Broadcast	\$90,000
WZHT CH 289		Troy	FM Broadcast	\$90,000
WMCZ CH 246		Millbrook	FM Broadcast	\$90,000

WLWI-FM CH 222		Montgomery	FM Broadcast	\$90,000
WMXS CH 277		Montgomery	FM Broadcast	\$90,000
WBAM-FM Ch 255		Montgomery	FM Broadcast	\$90,000
WQKS-FM CH 241		Montgomery	FM Broadcast	\$90,000
WLBF CH 206		Montgomery	FM Broadcast	\$90,000
WHHY-FM CH 270		Montgomery	FM Broadcast	\$90,000
WTSU CH 210		Montgomery	FM Broadcast	\$90,000
WJWZ CH 250		Wetumpka	FM Broadcast	\$90,000
Patterson Field Tower and Equip.		Montgomery		\$2,000,000
Mike Green Tower and Equip.		Montgomery		\$1,500,000
WLWI Tower Site Equipment Only		Montgomery		\$1,000,000
WCOV Tower Site Equipment Only		Montgomery		\$1,000,000
MISCELLANEOUS				
28 outdoor warning sirens at \$30,000 each		Montgomery Countywide	Emergency Warning	\$840,000
TOTAL				
(Source: HAZUS-MH 2.1; Accessed 2015)				

Development Trends

The 2010 Census for Montgomery City-County, Alabama shows a countywide population of 229,363. Current population projection numbers show that the population in Montgomery County will continue increasing within the next 20 years. There is a population change of 19,045 from 2010 to 2035, which is an 8.3% population increase. **Table 4-8** provides the population projections for Montgomery County.

Table 4-8: Montgomery County Population Projections	
YEAR	POPULATION PROJECTION
2015	233,033
2020	237,348
2025	241,629
2030	245,423
2035	248,408
<i>(Sources: Center for Business and Economic Research, University of Alabama; Alabama Hazard Mitigation Plan, 2014)</i>	

The development trends in the county do not indicate any marked increase in vulnerability to identified hazards.

Methods of Warning

Montgomery City-County Emergency Management Agency and the county's jurisdictions have constructed a warning system that provides multiple ways to receive weather watches, warnings, and other emergency messages.

NOAA Weather Radio

NOAA Weather Radio is a nationwide network of radio stations broadcasting weather and other emergency information 24 hours a day. All National Weather Service-issued watches, warnings, forecasts and other emergency messages are broadcast on one of seven frequencies.

National Weather Service personnel at offices in Birmingham record weather information that plays in a cyclical pattern repeating every three to six minutes. Broadcasts generally include local area five-day forecasts, current weather conditions, radar reports, weather summaries, climatic data, river and lake stage readings, and other weather information. The broadcasts are continuously updated to provide the listener with the latest information.

NOAA Weather Radio is useful any time for the latest weather information but becomes even more important during severe or hazardous weather. During episodes of severe weather, the normal broadcast cycle is interrupted and focus shifted to the local severe weather threat. Watches, warnings, and statements are given the highest priority and are updated frequently as conditions change.

In an emergency each transmitter is capable of transmitting a warning alarm tone signal and the new Specific Area Message Encoding (SAME) signal, followed by information on the emergency situation. These signals will activate specially designed receivers, either bringing up the volume or producing a visual and/or audible alarm. Not all weather band receivers have this capability, but all radios that receive NOAA Weather Radio transmissions can receive the emergency broadcasts. The warning alarm device is tested each Wednesday, between 11 am and noon, weather permitting.

WeatherTAP Weather Monitoring Service

WeatherTAP provides detailed and current weather. It allows one to view NEXRAD Level II radar that is updated every six minutes. The service delivers high-res, Level II imagery in real time. Those that would like to receive text message alerts and/or email alerts must register to do so.

Outdoor Warning Sirens

Montgomery County EMA has 28 in-place outdoor warning sirens, while the City of Montgomery has 52 in-place outdoor warning sirens. Although these sirens cover most of the populated areas, there are many places without an outdoor siren. Outdoor warning sirens are becoming too expensive for the county to maintain; therefore as a continuing mitigation action

for the 2015 plan update, distributing NOAA Weather Radios and/or Alert FM Receivers to residents is included.

The existing sirens have an effective radiated coverage area of one mile around the siren. The sirens are activated only for Tornado Warnings but will be used to notify the public of Hazardous Materials Incidents in the near future. There is no ALL CLEAR siren sounding due to the possibility of public confusion. Weather Warnings sound like a long wail or steady tone while Hazardous Material Alerts and Civil Defense Alerts will have a distinct, wavering/intermittent sound when the program goes on line. The siren blasts run three to five minutes and are activated from the Montgomery City-County E-911 Office.

The entire countywide Outdoor Siren Warning System is periodically tested. Notification of testing is usually posted in the newspapers to avoid confusion. The general public is advised to not depend on hearing the sirens inside a building. The sirens are designed to be heard outdoors only and are installed near recreational areas and shopping malls where there are large outdoor populations. As a backup to the Outdoor Warning Siren System, police and fire units throughout the county can be instructed to sound their sirens.

Broadcast Media

One of the key elements of the Countywide Warning System is broadcast media. Most of the radio, television, and cable companies that serve Montgomery City-County residents are dedicated to informing their audiences of impending emergencies. These broadcasters have partnered with the Montgomery City-County Emergency Management Agency to bring their listeners and viewers fast, accurate, and important severe weather and civil emergency information via EAS and traditional newsgathering methods. Most of the television stations serving the Montgomery City-County market feature live Doppler radar and certificated meteorologists. Many of the radio stations provide continuous severe weather coverage. Local newspapers, outdoor warning sirens, NOAA radios, and WeatherTap also assist in informing the public of risks, threats, watches, warnings, evacuations, shelters, etc. The Montgomery City-County EMA has printed and distributed materials with information concerning safe rooms, natural and man-made hazards, and what to do during tornados.

Vulnerability Summary

Table 4-11 provides a summary of Montgomery City-County's vulnerability to specified hazards by jurisdiction. Each jurisdiction was tasked with considering how vulnerable they are to each hazard by considering the percentage of potential damage and the frequency of occurrences. Using information from the Risk Assessment in Section Three as well as the data in the earlier parts of this section as a basis for evaluation, the committee members assigned either N/A: Not Applicable, L: Low Risk, M: Medium Risk, and H: High Risk as defined in the Table Key.

Table 4-9: Montgomery County Vulnerability Summary

Natural Hazards	City of Montgomery	Town of Pike Road	Montgomery County
Thunderstorm	H	H	H
Lightning	L	L	L
Hail	L	L	L
Tornado	H	H	H
Flood/Flash Flood	M	M	M
Drought/Extreme Heat	M	M	M
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	M	M	M
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	H	H	H
Sinkhole/Expansive Soil	L	L	L
Landslide	L	L	L
Earthquake	L	L	L
Wildfire	M	M	M
Dam/Levee Failure	L	L	L
KEY: NA – Not Applicable; not a hazard to the jurisdiction L – Low Risk; little damage potential (damage to less than 5% of the jurisdiction) M – Medium Risk; moderate damage potential (damage to 5-10% of jurisdiction, infrequent occurrence) H – High Risk; significant risk/major damage potential (damage to over 10% of jurisdiction, regular occurrence)			
<i>(Source: Participating Jurisdictions, 2015)</i>			

Estimated Loss Projections

Table 4-11 shows the figures used for valuation of deaths and injuries are approximations based on FEMA guidance used in benefit-cost analysis of hazard mitigation measures. Major and minor injuries are combined in the NOAA data, so it was necessary to use a blended number in the valuation.

Table 4-11: 2014 Values used for Monetary Conversion of Tornado Injuries and Deaths	
Damage Category	Value
Injury (blended major and minor)	\$23,175
Death	\$3,660,003
<i>(Source: FEMA, 2014)</i>	

Table 4-12 shows the estimated loss projections for each hazard. The average number of occurrences per year is shown along with total number of deaths and injuries. The average amount of loss per event was determined by combining crop and property loss damages for each event type and then dividing by the corresponding total number of events reported during the ten-year study period. This amount is shown under the column heading Average Crop and Property Loss. There are instances where the Average Crop and Property Loss (per event) and Projected Loss (per Event) for an identified hazard could not be determined due to the absence of historical event data. This is a data limitation beyond the control of an affected jurisdiction.

**Table 4-12: Montgomery County
Estimated Loss Projections from Specified Hazards**

Natural Hazards	Average Occurrences (per year)	Total Deaths	Total Injuries	Average Death and Injury Loss (per event)	Average Crop and Property Loss (per event)	Projected Loss (per event)
Thunderstorm	6.7	0	0	Unknown	\$21,488	\$23,422
Lightning	0	0	0	Unknown	Unknown	Unknown
Hail	3.6	0	0	Unknown	\$30,286	\$33,011
Tornado	1.3	0	8	\$92,700	\$201,417	\$320,588
Flood/Flash Flood	2.1	1	0	\$3,666,003	\$173,500	\$4,185,058
Drought/Extreme Heat	5.0	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	0.4	0	0	Unknown	Unknown	Unknown
Hurricane/Tropical Storm/ Tropical Depression/High Wind/ Strong Wind	0.7	3	1	\$11,021,184	\$1,341,571	\$13,475,403
Sinkhole/Expansive Soil	1	0	0	Unknown	Unknown	Unknown
Landslide	0	0	0	Unknown	Unknown	Unknown
Earthquake	0.3	0	0	Unknown	Unknown	Unknown
Wildfire (3 year study period)	25.0	0	0	Unknown	\$28,500	\$31,065
Dam/Levee Failure	0	0	0	Unknown	Unknown	Unknown

Sources: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; Local Input; USDA Census of Agriculture; Alabama Forestry Commission and National Forestry Service; Alabama Geological Survey, 2015

Methodology: Average occurrences were expressed annually by dividing the total number of occurrences by the ten-year period. Deaths and injuries were taken from the hazard event data. Average losses were calculated by dividing the total amount of all damages by the total number of occurrences causing damage during the ten-year period - with the exception of wildfire which is a 3-year period (# fires x # acres per fire x \$1,900/acre average). Projected loss expresses an estimated damage amount per future occurrence by converting the average loss figures from a midpoint of 2008 dollars to 2014 dollars (\$1 in 2008 = \$1.09 in 2014...a cumulative rate of inflation of 9%). Zero or unknown denotes no data available to determine the average occurrences, average loss or projected loss per event.

The Projected Loss is shown per event by hazard type. Due to the fluctuations in the value of a dollar over the ten-year study period, the year 2008 was chosen as a midpoint year. The Projected Loss was then calculated by adjusting the 2008 value of \$1 up to \$1.09, a 9 % increase to reflect the value of the dollar in 2014. Average loss amounts were increased by 9% to achieve a 2014 value for an estimated projected loss per event occurrence. *(Source: U. S. Inflation Calculator based on the U. S. Government Consumer Price Index Data)*

Mitigating Potential Losses

The Hazard Mitigation Planning Committee set forth mitigation goals and objectives for the county and its jurisdictions. Each jurisdiction sets forth its own mitigation action plan located in Section Five.

Mitigation Strategy

In the preparation of the mitigation strategy, the Hazard Mitigation Planning Committee reviewed the goals and objectives of the 2010 plan revision. The committee agreed the goals and objectives would remain the same for this plan revision.

Mitigation Actions

Mitigation ideas can be found on the FEMA.gov website. FEMA summarizes mitigation actions into four types: Local Planning and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, Education and Awareness.

Jurisdictions sought and selected their own mitigation actions to support the goals and objectives of the mitigation strategy. The identification of mitigation actions has been shaped by the events that occurred over the past five years, vulnerabilities, and available mitigation actions. Each significant event revealed strengths and weaknesses within the hazard mitigation program; therefore, jurisdictions adjusted their mitigation actions to address these weaknesses accordingly. Because of these events, the prioritization of actions has been re-evaluated and ranked as follows:

Actions identify the activity, what hazard(s) are addressed, whether the activity applies to

a new or existing asset, and an estimated cost. The action also identifies the planning mechanism, possible funding sources, and a time frame for completion of the activity.

Action Priority and Cost Benefit Review

In the selection and prioritization of mitigation actions, each member was asked to consider the following: funding options, political support, public support, legality, preservation of the environment, and staff capability. The committee then looked at each strategy in terms of costs and benefits. Not only were direct costs and benefits considered, but indirect costs and benefits were also acknowledged. Indirect costs and/or benefits are often intangible attributes such as social effects.

Priority mitigation actions will be implemented only if they are cost beneficial; maximum benefits must outweigh the associated costs of the proposed actions. The committee performed a general evaluation of each mitigation measure which might require FEMA funds. The committee weighed the estimated costs for each mitigation measure against the projected benefits of the action. A more detailed benefit-cost analysis will be required for each priority action to determine economic feasibility during the project planning phase. Projects will also require a more detailed evaluation for eligibility and feasibility including social impact, environmental impact, technical feasibility, and other criteria that measure project effectiveness. This detailed evaluation of projects will be performed in the pre-application phase of a grant request. Further, implementation of actions will be subject to the availability of FEMA grants and other sources of funding from year-to-year.

Mitigation Status

During the plan update mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates. **Table 4-13** shows Montgomery County's updated mitigation actions for the 2015 plan revision. All actions will be addressed as soon as possible depending on available funding and resources; however, actions labeled high in priority will be addressed first, medium in priority will be addressed secondly, and low in priority will be addressed last. The most important

determination is funding, which greatly affects which projects can be completed. Status of mitigation actions from the 2010 plan update can be found under 'Benchmark'.

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Table 4-13: Montgomery County Mitigation Actions

Mitigation Action	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	MPD, MCGIS, EMA, Montgomery City Engineer
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	HMGP, Local
Priority	High
Benchmark	In progress – the county is utilizing HAZUS-MH 2.1
Mitigation Action	Investigate the feasibility of a land trust to acquire open space, purchase easements, and accept donations of lands within environmentally sensitive and vulnerable locations, such as undeveloped flood plains.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Gov
Estimated Time Frame for Completion	2018
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	In progress with Genetta Ditch

Mitigation Action	Obtain membership for local flood plain managers in the Association of State Flood Plain Managers. Make application and/or commit/continue to participate in the NFIP.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Flood Plain Manager
Estimated Time Frame for Completion	2017
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	In progress
Mitigation Action	Evaluate the effectiveness of higher regulatory standards, such as additional building elevation and limitation of fill within flood plains, to be included in local flood plain management regulations.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	New
Local Planning Mechanism	Montgomery City Engineer, Flood Plain Manager
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	In progress

Mitigation Action	Request the easement to install community storm shelters within sizeable mobile home parks and subdivisions.
Type	Prevention
Goal	Reduce Montgomery County's vulnerability to natural hazards.
Hazard(s) Addressed	H, T, SS
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Gov
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	No action has been taken thus far. Officials are still discussing this action.
Mitigation Action	Promote the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.
Type	Prevention
Goal	Reduce Montgomery County's vulnerability to natural hazards.
Hazard(s) Addressed	Thunderstorms, Hail, Tornados, High Wind, Strong Wind
Applies to new/existing asset(s)	New
Local Planning Mechanism	Gov
Estimated Time Frame for Completion	2017
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	No action has been taken thus far. According to state law, all new school buildings will include safe rooms.

Mitigation Action	Study the feasibility of a regional greenways demonstration project.
Type	Prevention
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	New
Local Planning Mechanism	CARPDC, City Planning
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	LOCAL
Priority	High
Benchmark	No action taken thus far due to personnel availability and funding.
Mitigation Action	Continue the annual Severe Weather Awareness Day.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA, NWS
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	Severe Weather Awareness Day is held annually. Officials plan to continue.

Mitigation Action	Identify other environmental awareness events to integrate public information on hazard exposure and protection measures.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Planning Mechanism	EMA, Fire Departments
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	LOCAL
Priority	Low
Benchmark	The EMA is working with local Fire Departments on informing the public on hazard exposures and protective measures.
Mitigation Action	Support the establishment of a statewide technical assistance program through the Alabama Cooperative Extension System to (a) develop Best Management Practices (BMP) guidelines for channel and drainage system maintenance, (b) conduct seminars for local officials, and (c) carry out demonstration project in Montgomery County.
Type	Natural Resources Protection
Goal	Establish a comprehensive countywide hazard mitigation system.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	New
Local Planning Mechanism	ACES, City and County Engineering
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	This action is in the implementation stage.

Mitigation Action	Support the Alabama Skywarn Foundation efforts to distribute weather radios to low-income households, especially in rural areas outside of siren coverage areas.
Type	Natural Resources Protection
Goal	Reduce Montgomery County's vulnerability to natural hazards.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	AEMA, EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	HMGP, PDM
Priority	High
Benchmark	Plans are in progress to complete this action. No radios have been distributed thus far.
Mitigation Action	Purchase/update emergency generators for post-disaster/emergency mitigation and conduct routine tests for critical facilities to ensure critical facilities and shelters continue operations. This includes a 100KW generator for the City Hall on Vaughn Road and the Town Hall on Pike Road.
Type	Emergency Services
Goal	Reduce Montgomery County's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	EMA, General Services
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	HMGP, ADECA
Priority	High
Benchmark	No generators have been purchased thus far due to lack of funds.

Mitigation Action - Action was updated	Continue program to subsidize storm shelter construction/installation in existing homes.
Type	Structural Projects
Goal	Reduce Montgomery County's vulnerability to natural hazards.
Hazard(s) Addressed	Thunderstorms, Hail, Tornados, High Wind, Strong Wind
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	HMGP
Priority	High
Benchmark	The City-County will continue to subsidize storm shelters in homes. It is now a state law that all new schools will include a safe room. Schools will fund their own projects; however, will apply through the City-County.
Mitigation Action	Install freestanding public safe rooms in vulnerable locations. Install individual safe rooms and/or community shelters at critical facilities and existing schools/educational facilities.
Type	Structural Projects
Goal	Reduce Montgomery County's vulnerability to natural hazards.
Hazard(s) Addressed	Thunderstorms, Hail, Tornados, High Wind, Strong Wind
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	HMGP
Priority	High
Benchmark	Only individual safe rooms have been constructed thus far; however, the City-County wishes to keep this mitigation action in the plan for the future.

Mitigation Action	Support the installation of a tornado detection system at the NWS using sonic detection technology developed by the NOAA Research Lab.
Type	Emergency Services
Goal	Establish a comprehensive countywide hazard mitigation system
Hazard(s) Addressed	Tornados
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	NWS, EMA
Estimated Time Frame for Completion	2017
Estimated Cost	
Funding Sources	HMGP, PDM
Priority	High
Benchmark	No action has been taken on this item during the past five years due to lack of funding. The HMPC wishes to keep this action item.
DELETED ACTIONS	
Mitigation Action DELETED FROM MONTGOMERY COUNTY'S ACTIONS	Continue to provide structural projects such as wind retrofits, drainage improvements, reservoirs and retention or detention basins which store excess waters, levees and floodwalls which place barriers between the source of flooding and damage prone properties, channeling modifications: widening, straightening, or removing bridge and culvert restrictions so the channel can convey more water or carry it faster, diversions that redirect high flows to another location and channel maintenance: keeping streams, ditches, and storage basins clear. This is to include the following projects: Highway 110 at Timberlane; Fox Chase Drive; Barnes Road, and Meriwether Road.
Type	Structural Projects
Goal	Reduce Montgomery County's vulnerability to natural hazards
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Engineering Departments
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	HMGP, Local, DOT
Priority	High
Benchmark	This action is for the Town of Pike Road

Mitigation Action DELETED	Maintain current Flood Insurance Rate Maps in digital format.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	MPD, MCGIS, CARPDC, City Planner and Engineer
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED – utilizing Webviewer
Mitigation Action DELETED	Complete a comprehensive inventory of critical facilities within all jurisdictions and maintain in GIS.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	MPD, MCGIS, EMA, City Planning – General Services
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	HMGP, Local
Priority	High
Benchmark	COMPLETED

Mitigation Action DELETED	Identify persons eligible to become a local flood plain manager and train local flood plain managers through programs offered through the State Flood Plain Manager and FEMA's training center in Emmitsburg, Maryland.
Type	Prevention
Goal	Establish a comprehensive countywide hazard mitigation system.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Flood Plain Manager
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	FPM
Priority	High
Benchmark	COMPLETED - Patrick Dunson is the local flood plain manager
Mitigation Action DELETED	Maintain a library of technical assistance and guidance materials to support the local flood plain manager.
Type	Prevention
Goal	Reduce Montgomery County's risk from natural hazards
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Flood Plain Manager
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	Materials are maintained at the Montgomery City-County EMA

Mitigation Action DELETED	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Flood Plain Manager, Engineering Department
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED
Mitigation Action DELETED	Continue the work of the local Emergency Planning Committee by informing people at public functions.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Planning Mechanism	EMA, Montgomery City Engineer
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	LOCAL
Priority	High
Benchmark	COMPLETED

Mitigation Action DELETED	Arrange with the Multiple Listing Service (MLS) to require flood plain location disclosure as a condition for each real estate listing.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	New
Local Planning Mechanism	EMA, Alabama Association of Realtors
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	LOCAL
Priority	Low
Benchmark	COMPLETED
Mitigation Action DELETED	Obtain free publications from FEMA NWS, USGS, and other federal and state agencies and deposit these materials with local libraries.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED – City/County Managers decided to keep these materials at the EMA. They are available for public use.

Mitigation Action DELETED	Maintain local library repositories with the latest available publications.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED – City/County Managers decided to keep these materials at the EMA. They are available for public use.
Mitigation Action DELETED	Distribute hazard mitigation brochures to area schools for distribution to students.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED – City/County Managers decided to keep these materials at the EMA. They are available for public use.

Mitigation Action DELETED	Enact and enforce dumping regulations.
Type	Natural Resources Protection
Goal	Establish a comprehensive countywide hazard mitigation system.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Engineering Departments, Police Department, Sheriff Department, Local Government
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED
Mitigation Action DELETED	Enact and enforce erosion and sedimentation control regulations.
Type	Natural Resources Protection
Goal	Reduce Montgomery County's risk from natural hazards.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Engineering Departments
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED
Mitigation Action DELETED	Purchase, install, and test outdoor warning siren systems.
Type	Emergency Services
Goal	Reduce Montgomery County's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	HMGP, ADECA
Priority	High
Benchmark	COMPLETED

Mitigation Action DELETED	Promote the use of weather radios in households and businesses.
Type	Emergency Services
Goal	Reduce Montgomery County's vulnerability to natural hazards.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED
Mitigation Action DELETED	Prepare and implement standard operating procedures for drainage system maintenance.
Type	Structural Projects
Goal	Reduce Montgomery County's risk from natural hazards
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	MCED, MED, ACES
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	HMGP, ACES
Priority	High
Benchmark	COMPLETED

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Section Five:

Jurisdiction Assessments

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CITY OF MONTGOMERY

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**Table 5-1: City of Montgomery
Risk and Vulnerability Overview**

Natural Hazards	Hazard Identification	Mitigation Actions Prioritization	Prioritized Occurrence Threat	Vulnerability
Thunderstorm	X	3	3	H
Lightning	X	4	10	L
Hail	X	4	5	L
Tornado	X	2	10	H
Flood/Flash Flood	X	1	4	M
Drought/Extreme Heat	X	4	2	M
Winter Storm/Frost Freeze/ Heavy Snow/ Ice Storm/Winter Weather/Extreme Cold	X	4	7	M
Hurricane/Tropical Storm/ Tropical Depression/High Wind/ Strong Wind	X	3	6	H
Sinkhole/Expansive Soil	X	4	9	L
Landslide	X	4	10	L
Earthquake	X	4	8	L
Wildfire	X	4	1	M
Dam/Levee Failure	X	4	10	L
<i>Sources: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey; Participating Jurisdictions, 2015</i>				
<p>KEY</p> <p><u>Hazard Identification:</u> X Affects the Jurisdiction, N/A Not a threat to the jurisdiction</p> <p><u>Priority:</u> Hazards are prioritized with the highest threat of occurrence assigned number one based on hazardous events that have occurred within each jurisdiction over the past ten years, with the exception of wildfires that were based on events that have occurred over three years. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same. These prioritized threats may or may not be the same as the mitigation actions prioritization.</p> <p><u>Vulnerability:</u> NA – Not Applicable; not a hazard to the jurisdiction</p> <p>L – Low Risk; little damage potential (damage to less than 5% of the jurisdiction)</p> <p>M – Medium Risk; moderate damage potential (damage to 5-10% of jurisdiction, infrequent occurrence)</p> <p>H – High Risk; significant risk/major damage potential (damage to over 10% of jurisdiction, regular occurrence)</p>				

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TABLE 5-2: CITY OF MONTGOMERY HAZARD EVENTS

25 Thunderstorms Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
MONTGOMERY	MONTGOMERY CO.	AL	04/07/2003	07:00	CST	Thunderstorm Wind	60 kts. EG	0	0	35.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/07/2004	22:54	CST	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	07/16/2004	15:59	CST	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
(MGM)MONTGOMERY ARPT	MONTGOMERY CO.	AL	03/27/2005	14:42	CST	Thunderstorm Wind	51 kts. EG	0	0	50.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	04/30/2005	06:07	CST	Thunderstorm Wind	55 kts. EG	0	0	45.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	05/29/2005	16:35	CST	Thunderstorm Wind	55 kts. EG	0	0	16.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	03/20/2006	19:10	CST	Thunderstorm Wind	52 kts. EG	0	0	50.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	01/05/2007	06:23	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	02/13/2007	19:00	CST-6	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	06/18/2007	17:55	CST-6	Thunderstorm Wind	30 kts. EG	0	0	1.00K	0.00K
MONTGOMERY	MONTGOMERY	AL	06/30/2007	13:05	CST-	Thunderstorm	50 kts.	0	0	2.00K	0.00K

	CO.				6	Wind	EG				
MONTGOMERY	MONTGOMERY CO.	AL	08/25/2007	16:21	CST-6	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	05/08/2008	18:35	CST-6	Thunderstorm Wind	87 kts. EG	0	0	500.00K	0.00K
(MXF)MAXWELL AFB MNT	MONTGOMERY CO.	AL	06/29/2008	16:05	CST-6	Thunderstorm Wind	52 kts. MG	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	06/29/2008	16:07	CST-6	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	06/28/2009	16:10	CST-6	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
(MXF)MAXWELL AFB MNT	MONTGOMERY CO.	AL	06/28/2009	16:30	CST-6	Thunderstorm Wind	45 kts. EG	0	0	0.50K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	08/08/2011	16:35	CST-6	Thunderstorm Wind	45 kts. EG	0	0	2.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	11/16/2011	11:01	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	11/16/2011	11:02	CST-6	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
(MGM)MONTGOMERY ARPT	MONTGOMERY CO.	AL	11/22/2011	16:58	CST-6	Thunderstorm Wind	40 kts. EG	0	0	5.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	01/08/2012	18:33	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	05/31/2012	15:18	CST-6	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K

							EG				
(MGM)MONTGOMERY ARPT	MONTGOMERY CO.	AL	12/25/2012	20:50	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	07/23/2013	14:50	CST-6	Thunderstorm Wind	65 kts. EG	0	0	0.00K	0.00K
Totals:								0	0	768.5K	0.00K

0 Lightning Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database and Local Input)

No lightning events occurred or were reported during 01/01/2003 thru 12/31/2013.

14 Hail Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
MONTGOMERY	MONTGOMERY CO.	AL	04/07/2003	07:00	CST	Hail	1.00 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/25/2003	15:49	CST	Hail	2.75 in.	0	0	100.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/25/2003	17:01	CST	Hail	1.00 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/07/2004	22:54	CST	Hail	0.75 in.	0	0	0.00K	0.00K
(MGM)MONTGOMERY ARPT	MONTGOMERY CO.	AL	03/27/2005	14:42	CST	Hail	2.75 in.	0	0	70.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	03/27/2005	16:30	CST	Hail	0.88 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	03/31/2005	00:15	CST	Hail	0.75 in.	0	0	0.00K	0.00K
(MGM)MONTGOMERY ARPT	MONTGOMERY CO.	AL	04/21/2005	14:55	CST	Hail	1.00 in.	0	0	1.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/22/2005	18:08	CST	Hail	1.75 in.	0	0	11.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/19/2006	21:42	CST	Hail	0.75 in.	0	0	0.00K	0.00K

MONTGOMERY	MONTGOMERY CO.	AL	09/28/2006	16:00	CST	Hail	0.88 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	02/13/2007	18:55	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	04/05/2009	05:50	CST-6	Hail	1.75 in.	0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	01/08/2012	18:34	CST-6	Hail	1.00 in.	0	0	0.00K	0.00K
Totals:								0	0	182.00K	0.00K

0 Tornado Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No tornado events occurred or were reported during 01/01/2003 thru 12/31/2013.

19 Flood Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	I.Z.	Type	Mag	Dth	Inj	PrD	CrD
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/09/2003	07:30	CST	Flood		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/09/2003	08:30	CST	Flood		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/22/2003	03:00	CST	Flood		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/01/2005	00:00	CST	Flood		0	0	7.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	04/07/2003	08:00	CST	Flash Flood		0	0	60.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	06/15/2003	15:00	CST	Flash Flood		0	0	30.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	07/01/2003	06:00	CST	Flash Flood		0	0	8.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	08/06/2003	05:30	CST	Flash Flood		0	0	22.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	03/27/2005	03:00	CST	Flash Flood		0	0	38.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	03/27/2005	16:00	CST	Flash Flood		0	0	75.00K	0.00K

COUNTYWIDE	MONTGOMERY CO.	AL	03/31/2005	00:00	CST	Flash Flood		0	0	11.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	04/01/2005	07:00	CST	Flash Flood		0	0	11.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	07/06/2005	13:00	CST	Flash Flood		0	0	18.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	11/15/2006	12:03	CST-6	Flash Flood		0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	01/07/2007	16:45	CST-6	Flash Flood		0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	05/07/2009	07:00	CST-6	Flash Flood		1	0	1.800M	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	09/16/2009	13:00	CST-6	Flash Flood		0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	07/09/2013	15:30	CST-6	Flash Flood		0	0	0.00K	0.00K
MONTGOMERY	MONTGOMERY CO.	AL	07/23/2013	14:25	CST-6	Flash Flood		0	0	0.00K	0.00K
Totals:								1	0	2.080M	0.00K

50 Drought/Extreme Heat Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/11/2006	07:00	CST	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/01/2006	00:00	CST	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/22/2007	06:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	06/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K

MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	10/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	11/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2007	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	03/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	06/01/2008	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/05/2008	06:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/21/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	10/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY	AL	11/01/2010	00:00	CST-	Drought		0	0	0.00K	0.00K

	(ZONE)				6						
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	03/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/05/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/10/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	06/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K

MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	03/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	06/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/01/2012	12:00	CST-6	Excessive Heat		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

4 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/12/2010	11:00	CST-6	Heavy Snow		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/09/2011	20:00	CST-6	Ice Storm		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/15/2010	07:00	CST-6	Winter Weather		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

7 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/10/2005	15:00	CST	Tropical Storm		0	1	200.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/29/2005	17:00	CST	Tropical Storm		0	0	175.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	10.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	3.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/16/2004	04:00	CST	High Wind	65 kts. EG	0	0	9.000M	50.00K

MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/02/2005	08:00	CST	Strong Wind	33 kts. MG	0	0	1.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/12/2005	02:00	CST	Strong Wind	40 kts. EG	0	0	1.00K	0.00K
Totals:								0	1	9.391M	0.00K

0 Sinkhole/Expansive Soil Events - 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/U.S. Geological Survey)

No events occurred or were reported during 01/01/2003 thru 12/31/2013.

0 Landslide Events - 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/U.S. Geological Survey)

No events occurred or were reported during 01/01/2003 thru 12/31/2013.

3 Earthquake Events - 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/U.S. Geological Survey)

No events occurred or were reported during 01/01/2003 thru 12/31/2013.

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
100.0 miles away from county center	MONTGOMERY	AL	11/07/2004	11:20	CST	Earthquake	4.4	0	0	0.00K	0.00K
73.0 miles away from county center	MONTGOMERY	AL	08/19/2004	23:51	CST	Earthquake	3.6	0	0	0.00K	0.00K
74.3 miles away from county center	MONTGOMERY	AL	05/09/2004	08:56	CST	Earthquake	3.3	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

75 Wildfire Events – 2010 - 2013
(Source: Alabama Forestry Commission)

County	Total # of Fires	Average # of Fires	Total Acres Burned	Average Acres Burned	Average Fire Size in Acres
Montgomery	75	25	1,108.35	369.45	15

0 Dam/Levee Failure Events - 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No events occurred or were reported during 01/01/2003 thru 12/31/2013.

**Table 5-3: City of Montgomery
Hazard Probability Assessment**

Natural Hazards	Number of Historical Occurrences	Probability of Future Occurrence	Extent	Area Affected
Thunderstorm	25	>100%	>10%	Citywide
Lightning	0	Unknown	<5%	Citywide
Hail	14	>100%	<5%	Citywide
Tornado	0	Unknown	>10%	Citywide
Flood/Flash Flood	19	>100%	5-10%	Citywide
Drought/Extreme Heat	50	>100%	5-10%	Citywide
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	4	40%	5-10%	Citywide
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	7	70%	>10%	Citywide
Sinkhole/Expansive Soil	0	Unknown	<5%	Citywide
Landslide	0	Unknown	<5%	Citywide
Earthquake	3	30%	<5%	Citywide
Wildfire (2010-2013 – 3 year study period)	75	>100%	5-10%	Citywide
Dam/Levee Failure	0	Unknown	<5%	Citywide

Sources: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; USGS ; Local Input; USDA Census of Agriculture; Alabama Forestry Commission; and National Forestry Service; Participating Jurisdictions, 2015

Methodology: Number of historical occurrences is those reported by NOAA NCDC during the 10 year study period, with the exception of wildfire that is a 3 year study period. Probability is expressed by dividing the total number of occurrences by the study period in years. Extent is expressed as the percentage assigned by the jurisdictions' ranking in the vulnerability summary (Table 4-12). Zero denotes no data available to determine the probability, extent, or affected area.

TABLE 5-4: City of Montgomery Critical Facilities*(Source: Local and HAZUS-MH 2.1; 2015)*

FACILITY	LOCATION	AREA	USE	VALUE
Government				
City Hall			Government	
DPS South Central – (Crampton Bowl and Montgomery Biscuits Stadium Multiplex)	Madison Ave.	Montgomery	Public Safety – Gov't (Intermodal Facility)	
Medical Care				
Jackson Hospital and Clinic	1725 Pine Street	Montgomery	Large Hospital	\$56,528,660
Long Term Care Hospital	1725 Pine Street, 5 North	Montgomery	Small Hospital	\$6,035,090
Central Alabama VA Healthcare	215 Perry Hill Road	Montgomery	Large Hospital	\$66,989,480
HealthSouth Rehab Hospital	4465 Narrow Lane Road	Montgomery	Medium Hospital	\$18,105,270
Baptist Medical Center	2105 East South Blvd.	Montgomery	Large Hospital	\$69,001,180
Baptist Medical Center East	400 Taylor Road	Montgomery	Medium Hospital	\$26,152,050
Emergency Operations Center				
Montgomery City-County EMA/911/Communications Center	14 Madison Ave.	Montgomery	Emergency Ops Center	\$900,000
Fire Departments				
Montgomery Fire Department	103 N. Perry Street	Montgomery	Fire Station	\$1,260,000
Rolling Hills Lakes Volunteer Fire Dept.	6120 Trotman Road	Montgomery	Fire Station	\$1,260,000
Snowdown Volunteer Fire Department	219 Hobbie Road	Montgomery	Fire Station	\$1,260,000
Law Enforcement				
Montgomery Police Radio Shop	1164 S. McDonough Street	Montgomery	Police Department	\$1,260,000
Sheriff Dept. Civil Division	115 S. Perry Street	Montgomery	Sheriff Department	\$1,260,000
Police Dept. School Security	1153 S. Lawrence Street	Montgomery	Police Department	\$1,260,000
Police Dept. Narcotics Bureau	1514 Highland Ave.	Montgomery	Police Department	\$1,260,000
Circuit Court Clerk Criminal	251 S. Lawrence St.	Montgomery	Police Department	\$1,260,000
Crime Prevention Program	3046 Fairwest Pl.	Montgomery	Police Department	\$1,260,000
Montgomery Chief of Police	320 N. Ripley St.	Montgomery	Police Department	\$1,260,000
Montgomery Housing Authority	5 Eugene St.	Montgomery	Police Department	\$1,260,000
Montgomery Police Dare Supervisor	632 S. Union St.	Montgomery	Police Department	\$1,260,000
Police Department Training Division	740 Mildred St.	Montgomery	Police Department	\$1,260,000
Montgomery Police Canine Unit	934 N. Ripley St.	Montgomery	Police Department	\$1,260,000
DPS Central		Montgomery	Public Safety	\$1,260,000
Educational Facilities				
Group Homes For Children Inc.	1426 South Court St.	Montgomery	Public School	
Maxwell AFB Elementary School	800 Magnolia Blvd.	Maxwell AFB	Public School	
St. Jude High School	2048 W. Fairview Ave.	Montgomery	Private School	
Brown's Private School	1130 Bellview Str.	Montgomery	Private School	
St. Bede Elementary School	3850 Atlanta Highway	Montgomery	Private School	
Alabama Christian Academy	4700 Wares Ferry Road	Montgomery	Private School	
Green Gate School	3265 McGehee Road	Montgomery	Private School	
Our Lady Queen of Mercy School	4437 Narrow Lane Road	Montgomery	Private School	
The Montgomery Academy	3240 Vaughn Road	Montgomery	Private School	
Trinity Presbyterian School, Inc.	1700 East Trinity Blvd.	Montgomery	Private School	
Montgomery Catholic Preparatory	5350 Vaughn Rd.	Montgomery	Private School	
St. James School	6010 Vaughn Rd.	Montgomery	Private School	

Montgomery SDA School	4233 Atlanta Highway	Montgomery	Private School	
Grace Christian Academy	203 E. Fleming Road	Montgomery	Private School	
Resurrection Catholic School	2815 Forbes Drive	Montgomery	Private School	
Montessori Academy	1025 South Hull St.	Montgomery	Private School	
Emerald Mountain Christian School	P. O. Box 241405	Montgomery	Private School	
Freedom Life Christian Academy	223 W. Fleming Rd.	Montgomery	Private School	
Canterbury High School	2005 N. Country Club Dr.	Montgomery	Private School	
Evangel Christian Academy	3975 Vaughn Rd.	Montgomery	Private School	
ESA at Taylor Road Academy	7050 University Court	Montgomery	Private School	
Bethany Day Care – KG	714 Cedar St.	Montgomery	Private School	
New Generation Pre-School	3461 Old Selma Road	Montgomery	Private School	
Bethany Christian Academy	1765 Highland Ave.	Montgomery	Private School	
Lighthouse Christian Academy	3570 Bell Rd.	Montgomery	Private School	
Davis Elementary School	3605 Rosa Parks Ave.	Montgomery	Public School	
Harrison Elementary School	164 E. South Blvd.	Montgomery	Public School	
Carver Elementary School	3100 Mobile Dr.	Montgomery	Public School	
Carver Senior High School	2001 W. Fairview Ave.	Montgomery	Public School	
Montgomery Youth Facility	1111 Air Base Blvd.	Montgomery	Public School	
Chisholm Elementary School	307 E. Vandiver Blvd.	Montgomery	Public School	
Dalraida Elementary School	440 Dalraida Rd.	Montgomery	Public School	
Dozier Elementary School	200 Eastern Blvd.	Montgomery	Public School	
Goodwyn Junior High School	209 Perry Hill Road	Montgomery	Public School	
Head Elementary School	3950 Atlanta Hwy.	Montgomery	Public School	
Dannelly Elementary School	3425 Carter Hill Rd.	Montgomery	Public School	
Lanier Senior High School	1756 S. Court St.	Montgomery	Public School	
Forest Ave. Elementary School	1700 W. 5 th St.	Montgomery	Public School	
Highland Ave. Elementary School	2024 Highland Ave.	Montgomery	Public School	
Lee High School	225 Ann Street	Montgomery	Public School	
Flowers Elementary School	3510 Harrison Road	Montgomery	Public School	
Capitol Heights Junior High School	116 Federal Drive	Montgomery	Public School	
Morningview Elementary School	2849 Pelzer Ave.	Montgomery	Public School	
Bear Exploration Center	2525 Churchill Dr.	Montgomery	Public School	
Jefferson Davis High School	3420 Carter Hill Rd.	Montgomery	Public School	

Floyd Elementary School	630 Augusta Ave.	Montgomery	Public School	
Floyd Middle School	3444 Lebron Rd.	Montgomery	Public School	
Bellingrath Junior High School	3488 S. Court St.	Montgomery	Public School	
Brewbaker Technology Magnet High School	4405 Brewbaker Dr.	Montgomery	Public School	
Brewbaker Junior High School	4425 Brewbaker Dr.	Montgomery	Public School	
Brewbaker Primary School	4445 Brewbaker Dr.	Montgomery	Public School	
Fitzpatrick Elementary School	4055 Fitzpatrick Blvd.	Montgomery	Public School	
Southlawn Elementary School	5225 Patricia Lane	Montgomery	Public School	
Southlawn Middle School	5533 Mobile Hwy.	Montgomery	Public School	
Hayneville Road Elementary School	3315 Hayneville Rd.	Montgomery	Public School	
City School	3315 Old Hayneville Rd.	Montgomery	Public School	
Johnson Elementary School	4550 Narrow Lane Rd.	Montgomery	Public School	
Crump Elementary School	3510 Woodley Rd.	Montgomery	Public School	
Walter McKee Elementary School	4015 McInnis Rd.	Montgomery	Public School	
Walter McKee Junior High School	4017 McInnis Rd.	Montgomery	Public School	
Vaughn Road Elementary School	4407 Vaughn Rd.	Montgomery	Public School	
William Silas Garrett Elementary School	555 McLemore Dr.	Montgomery	Public School	
Wares Ferry Road Elementary School	6425 Wares Ferry Rd.	Montgomery	Public School	
Halcyon Elementary School	1501 Parkview Dr.	Montgomery	Public School	
McInnis School	3500 McInnis Rd.	Montgomery	Public School	
Wynton M. Blount Elementary School	1650 Ray Thorington Rd.	Montgomery	Public School	
Brewbaker Intermediate School	4455 Brewbaker Dr.	Montgomery	Public School	
Patterson Elementary School	1015 E. Jefferson St.	Montgomery	Public School	
Baldwin Art and Academics Magnet	410 S. McDonough St.	Montgomery	Public School	
Highland Gardens Elementary School	2801 Willena Ave.	Montgomery	Public School	
Childrens Center	310 Madison Terr.	Montgomery	Public School	
Davis Learning Center-Beep	309 N. California St.	Montgomery	Public School	
Booker T. Washington Magnet High School	632 S. Union St.	Montgomery	Public School	
Houston Hill Junior High School	215 Hall St.	Montgomery	Public School	
Second Chance	810 Cedar St.	Montgomery	Public School	
E. D. Nixon Elementary School	1000 Goode St.	Montgomery	Public School	
Peterson Elementary School	201 Pendar St.	Montgomery	Public School	
MacMillan International Academy	25 Covington St.	Montgomery	Public School	

McIntyre Middle School	1220 Hugh St.	Montgomery	Public School	
T. S. Morris Elementary School	801 Hill St.	Montgomery	Public School	
Loveless Academic Magnet Program High School	921 West Jeff Davis	Montgomery	Public School	
Fews Secondary Alternative	321 Early St.	Montgomery	Public School	
Catoma Elementary School	1780 Mitchell Young Rd.	Montgomery	Public School	
Martin Luther King Elementary	4655 Gateway Dr.	Montgomery	Public School	
Peppermint Hill Learning Center	1217 Oak St.	Montgomery	Private School	
Exploratorium Academy Inc.	37388 Atlanta Hwy.	Montgomery	Private School	
Future Generations School	109 East South Blvd.	Montgomery	Private School	
Whitfield Kindergarten	2673 Fisk Road	Montgomery	Private School	
Eastwood Christian School	1701 East Trinity Blvd.	Montgomery	Private School	
Heritage Child Development Center	1849 Perry Hill Road	Montgomery	Private School	
Eastdale Baptist Church Kinder	400 N. Burbank Dr.	Montgomery	Private School	
Holy Cross Episcopal School	4400 Bell Rd.	Montgomery	Private School	
Calvary Christian Academy	4601 Troy Highway	Montgomery	Private School	
Military Facilities				
Maxwell AFB		Montgomery	Military	
Gunter Air Station		Montgomery	Military	
Transportation Facilities				
Maxwell AFB Airport		Montgomery	Air Force Owned Airport	\$10,651,000
Montgomery Regional (Dannelly Field) Airport		Montgomery	Publicly Owned Airport	\$10,651,000
Montgomery Riverboat Landing Wharf	Foot of Commerce Street	Montgomery	Water Transportation Port	\$1,997,000
Alabama State Docks, Montgomery Inland D	State Docks Road	Montgomery	Water Transportation Port	\$1,997,000
Agricultural Services of Alabama, Montgomery	825 Walker Street	Montgomery	Water Transportation Port	\$1,997,000
Trinity Industries, Montgomery Wharf	Lafayette Ave. & W. Railroad St.	Montgomery	Water Transportation Port	\$1,997,000
Foshee Trucking, Montgomery Wharf	Foot of Ninth Street	Montgomery	Water Transportation Port	\$1,997,000
Transflo		Montgomery	Railway Cargo Transportation Facility	\$2,663,000
Hodges Bonded Warehouse		Montgomery	Railway Cargo Transportation Facility	\$2,663,000
Shaw Montgomery Warehouse Corp.		Montgomery	Railway Cargo Transportation Facility	\$2,663,000
Utility Systems				
Catoma STP		Montgomery	Sewer Treatment	\$59,940,000

Catoma Water Pollution Control Plant WPC	6000 Richard E. Hanan Drive	Montgomery	Water Pollution	\$59,940,000
Day Street Pump Station	2350 Day Street	Montgomery	Pump Station	\$59,940,000
Econchate Water Pollution Control Plant	2501 Jackson Ferry Road	Montgomery	Water Pollution	\$59,940,000
Montgomery WW SB Pike Road WWTP	City of Montgomery WW and SB	Montgomery	Waste Water Treatment	\$59,940,000
Towassa Waste Water Treatment Plant	3000 Washington Ferry Road	Montgomery	Waste Water Treatment	\$59,940,000
Alabama Power – So. Div. Garage	1810 Cong. W. L. Dickinson Drive	Montgomery	Electricity	\$99,000,000
WAIQ CH 26		Montgomery	TV Broadcast	\$90,000
WSFA CH 12		Montgomery	TV Broadcast	\$90,000
WMCF-TV CH 45		Montgomery	TV Broadcast	\$90,000
WBXM-CA CH 5		Montgomery	TV Broadcast	\$90,000
WCOV-TV CH 20		Montgomery	TV Broadcast	\$90,000
WMSP 740		Montgomery	AM Broadcast	\$90,000
WMSP 740		Montgomery	AM Broadcast	\$90,000
WNZZ 950		Montgomery	AM Broadcast	\$90,000
WACV 1170		Montgomery	AM Broadcast	\$90,000
WXVI 1600		Montgomery	AM Broadcast	\$90,000
WLWI 1440		Montgomery	AM Broadcast	\$90,000
WMGY 800		Montgomery	AM Broadcast	\$90,000
WVAS CH 214		Montgomery	FM Broadcast	\$90,000
WLWI-FM CH 222		Montgomery	FM Broadcast	\$90,000
WMXS CH 277		Montgomery	FM Broadcast	\$90,000
WBAM-FM Ch 255		Montgomery	FM Broadcast	\$90,000
WQKS-FM CH 241		Montgomery	FM Broadcast	\$90,000
WLBF CH 206		Montgomery	FM Broadcast	\$90,000
WHHY-FM CH 270		Montgomery	FM Broadcast	\$90,000
WTSU CH 210		Montgomery	FM Broadcast	\$90,000
MISCELLANEOUS				
52 outdoor warning sirens at \$30,000 each		Montgomery Countywide	Emergency Warning	\$1,560,000
TOTAL				\$763,887,730
(Source: HAZUS-MH 2.1; Accessed 2015)				

**Table 5-5: City of Montgomery
Estimated Loss Projections from Specified Hazards**

Natural Hazards	Average Occurrences (per year)	Total Deaths	Total Injuries	Average Death and Injury Loss (per event)	Average Crop and Property Loss (per event)	Projected Loss (per event)
Thunderstorm	2.5	0	0	Unknown	\$42,694	\$46,537
Lightning	0	0	0	Unknown	Unknown	Unknown
Hail	1.4	0	0	Unknown	\$45,500	\$49,595
Tornado	0	0	0	Unknown	Unknown	Unknown
Flood/Flash Flood	1.9	1	0	\$3,666,003	\$189,091	\$4,202,053
Drought/Extreme Heat	5.0	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	0.4	0	0	Unknown	Unknown	Unknown
Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind	0.7	0	1	\$23,175	\$1,341,571	\$1,487,573
Sinkhole/Expansive Soils	0	0	0	Unknown	Unknown	Unknown
Landslide	0	0	0	Unknown	Unknown	Unknown
Earthquake	0.3	0	0	Unknown	Unknown	Unknown
Wildfire (3 year study period)	25	0	0	Unknown	\$28,500	\$31,065
Dam/Levee Failure	0	0	0	Unknown	Unknown	Unknown

Sources: NOAA NCDC; U.S. Inflation Calculator/Consumer Price Index; Local Input; USDA Census of Agriculture; Alabama Forestry Commission and National Forestry Service; Alabama Geological Survey, 2015

Methodology: Average occurrences were expressed annually by dividing the total number of occurrences by the ten-year period. Deaths and injuries were taken from the hazard event data. Average losses were calculated by dividing the total amount of all damages by the total number of occurrences during the ten-year period with the exception of wildfire. Projected loss expresses an estimated damage amount per future occurrence by converting the average loss figure from a midpoint of 2008 dollars to 2014 dollars (\$1 in 2008 = \$1.09 in 2014...a cumulative rate of inflation of 9%). Zero denotes no data available to determine the average occurrences, average loss or projected loss per event.

City of Montgomery Mitigation Action Plan

The City of Montgomery recognizes the importance of mitigation planning and will incorporate mitigation planning in planning documents as they are revised or initiated.

Mitigation Status

During the plan update, mitigation actions were reviewed in order to identify completed, deferred, or deleted actions from the previous plan and incorporate actions added during annual updates, if applicable. **Table 5-6** shows the City of Montgomery's updated mitigation actions.

Of special interest to the City of Montgomery are the Garden District drainage improvement project and the storm water detention systems in the Genetta Watershed. The primary function of the Garden District drainage improvement project is to reduce the frequency and severity of flooding for residents on the block bound by Felder Avenue, Hull Street, Norman Bridge Road, and Rose Lane. An existing drainage channel/storm sewer system runs in the backyards of the homes on this block; however, the storm drain outfall pipe is inadequate for the drainage area. During major rain events, storm water backs up in the storm pipe and causes the surcharged system to overflow into the backyards and homes on the block. Numerous pipes downstream are also inadequately sized, creating flooding in other areas of the Genetta Watershed. A drainage improvement project is needed to reduce flooding in the primary block area, as well as in the overall watershed. **Figure 5-1** and **Figure 5-2** show the project location and residential structures involved in the flooding area. **Figure 5-3** does not include a legend; however the flood hazard area is indicated on the figure by blue with white hash marks. Most zones are residential, with the exception of the gray and solid orange areas that indicate manufacturing areas.

FIGURE 5-1: Flooding Project Location and Residential Structures

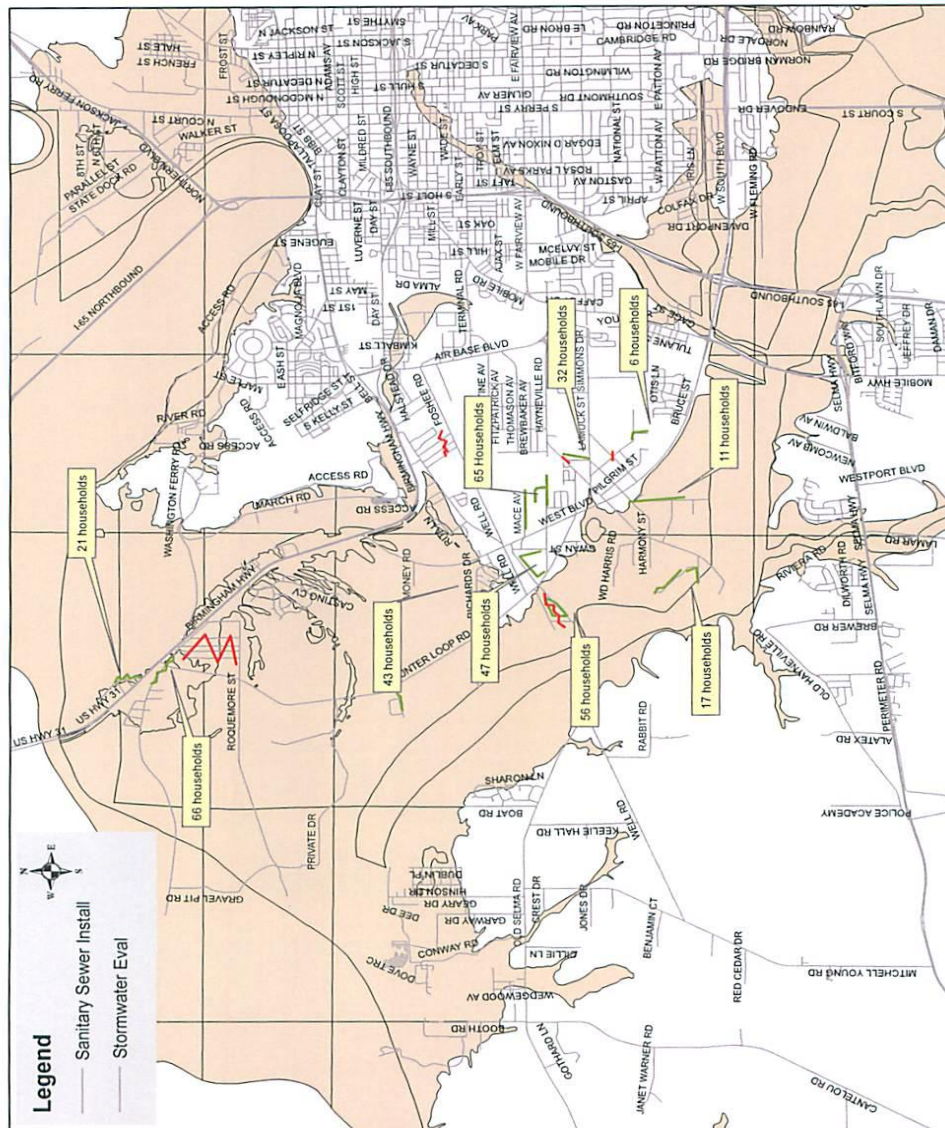
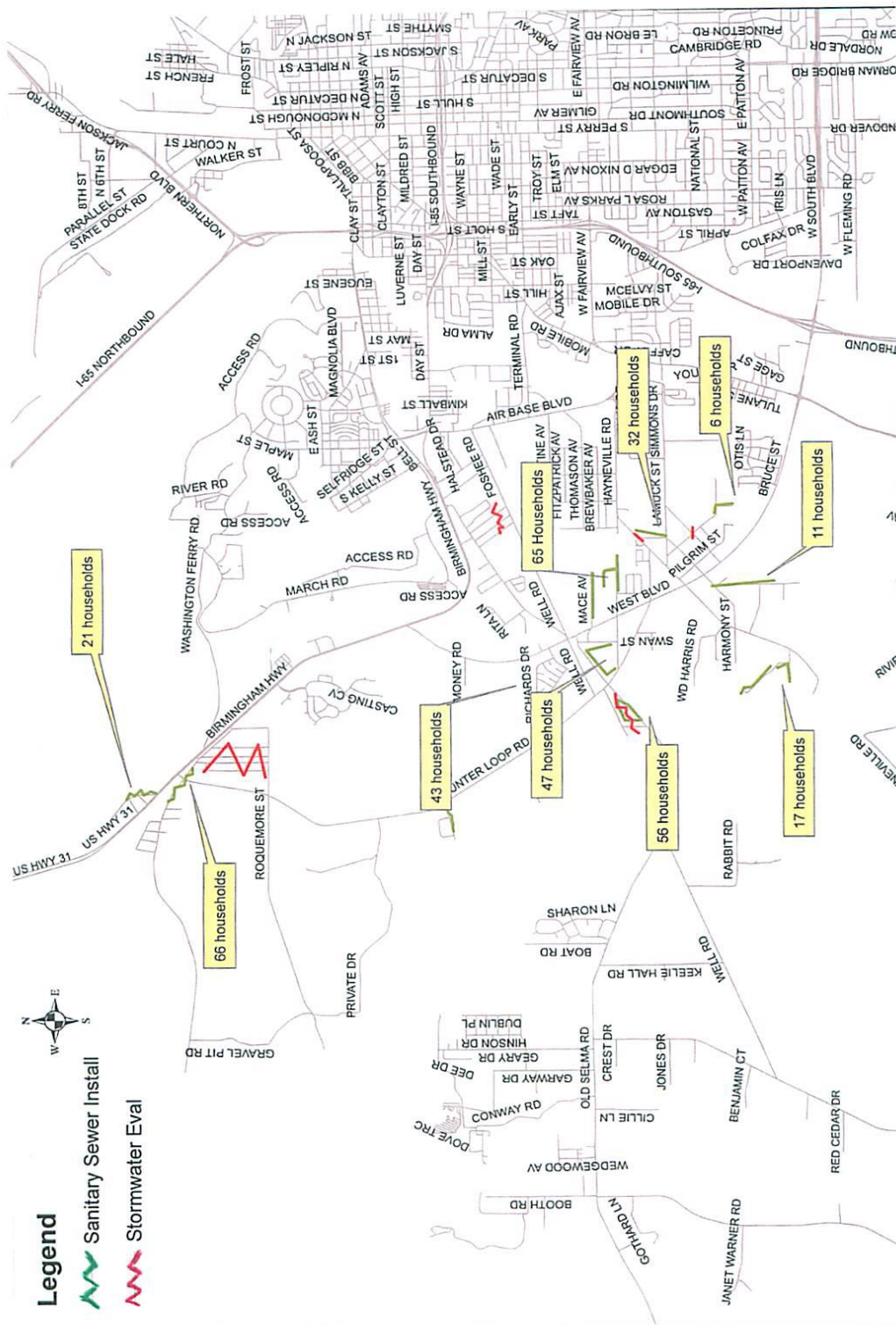


FIGURE 5-2: Flooding Project Location and Residential Structures



Mitigation Strategy – City of Montgomery

Table 5-6: City of Montgomery Mitigation Actions

Mitigation Action	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.
Type	Prevention
Goal	Establish a comprehensive county/citywide hazard mitigation system.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Montgomery County GIS, EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	HMGP, Local
Priority	High
Benchmark	In progress – the city is utilizing HAZUS-MH 2.1
Mitigation Action	Investigate the feasibility of a land trust to acquire open space, purchase easements, and accept donations of lands within environmentally sensitive and vulnerable locations, such as undeveloped flood plains.
Type	Prevention
Goal	Establish a comprehensive county/citywide hazard mitigation system.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Gov
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	In progress – a land trust is still in discussion among local officials

Mitigation Action	Obtain membership for local flood plain managers in the Association of State Flood Plain Managers. Make application and/or commit/continue to participate in the NFIP.
Type	Prevention
Goal	Establish a comprehensive county/citywide hazard mitigation system.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Flood Plain Manager
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	The city is a member of the NFIP and plans to continue
Mitigation Action	Evaluate the effectiveness of higher regulatory standards, such as additional building elevation and limitation of fill within flood plains, to be included in local flood plain management regulations.
Type	Prevention
Goal	Establish a comprehensive county/citywide hazard mitigation system.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	New
Local Planning Mechanism	City Engineer, Flood Plain Manager
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	In progress

Mitigation Action	Evaluate building code standards for roof construction to assure protection against wind damage from hurricanes, tornadoes, and windstorms: require installation of “hurricane clips”
Type	Prevention
Goal	Reduce Montgomery County/City’s risk from natural hazards
Hazard(s) Addressed	Thunderstorms, Hurricanes, Tropical Storms, Tropical Depressions, Tornados, High Wind, Strong Wind
Applies to new/existing asset(s)	New
Local Planning Mechanism	City Engineer, Flood Plain Manager
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	In progress
Mitigation Action	Review and amend existing local and regional planning documents to be certain the vulnerability and environmental suitability of lands for future development are clearly addressed.
Type	Prevention
Goal	Reduce vulnerability of new and future development
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	CARPDC, Montgomery Planning Department
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	In progress

Mitigation Action	Consider large lot size restrictions on flood-prone areas designated on Flood Insurance Rate Maps
Type	Prevention
Goal	Reduce Montgomery City's vulnerability to natural hazards.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Flood Plain Manager, Montgomery Planning Department
Estimated Time Frame for Completion	2018
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	The city is in progress of revising their comprehensive plan, which will include this mitigation action item.
Mitigation Action	Request the easement to install community storm shelters within sizeable mobile home parks and subdivisions.
Type	Prevention
Goal	Reduce Montgomery City's vulnerability to natural hazards.
Hazard(s) Addressed	Thunderstorms, Hail, Tornadoes, High Wind, Strong Wind
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Gov
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	No action has been taken thus far. Officials are still discussing this action.

Mitigation Action	Promote the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible.
Type	Prevention
Goal	Reduce Montgomery City's vulnerability to natural hazards.
Hazard(s) Addressed	Thunderstorms, Hail, Tornados, High Wind, Strong Wind
Applies to new/existing asset(s)	New
Local Planning Mechanism	Gov
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	The city has adopted this action item for new construction. No action has been taken thus far. According to state law, all new school buildings will include safe rooms.
Mitigation Action	Study the feasibility of a regional greenways demonstration project
Type	Prevention
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Planning Mechanism	CARPDC, Montgomery Planning Department
Estimated Time Frame for Completion	2018
Estimated Cost	
Funding Sources	Local, TBD
Priority	High
Benchmark	The city is in progress of revising their comprehensive plan, which will include this mitigation action item.

Mitigation Action	Determine the cost-benefit and the support for acquisition of homes subject to damaging flooding from Catoma Creek
Type	Property Protection
Goal	Establish a comprehensive county/citywide hazard mitigation system
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA, Montgomery Planning Department
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	HMGP, PDM
Priority	High
Benchmark	City officials discussed this item with the community during the past five years; however, the community residents did not want to move. Krebs Engineering completed a study during the past five years on this project. The item will remain for the next five years.
Mitigation Action	Seek funding sources, such as Community Development Block Grant funds to assist low income home owners with building retrofits to protect against flood damage.
Type	Property Protection
Goal	Reduce Montgomery City's risk from natural hazards.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Montgomery Planning Department
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local, CDBG
Priority	High
Benchmark	No action has been taken due to lack of funding.

Mitigation Action	Continue the annual Severe Weather Awareness Day
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	EMA, NWS
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	Severe Weather Awareness Day is held annually. Officials plan to continue.
Mitigation Action	Identify other environmental awareness events to integrate public information on hazard exposure and protection measures
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2018
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	The city is in progress of revising their comprehensive plan, which will include this mitigation action item in the public outreach portion.

Mitigation Action	Continue the work of the local Emergency Planning Committee by informing people at public functions.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	LOCAL
Priority	High
Benchmark	Citizens are always informed of hazard mitigation at public functions such as, chamber meetings, club functions, EMA meetings, etc.
Mitigation Action	Make local government experts available to property owners to offer hazard audits of vulnerable buildings.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	LOCAL, HMGP
Priority	Low
Benchmark	This action is in the implementation stage.

Mitigation Action	Support the establishment of a statewide technical assistance program through the Alabama Cooperative Extension System to (a) develop Best Management Practices (BMP) guidelines for channel and drainage system maintenance, (b) conduct seminars for local officials, and (c) carry out a demonstration project in Montgomery City/County.
Type	Natural Resource Protection
Goal	Establish a comprehensive county/citywide hazard mitigation system
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	ACES
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local, HMGP
Priority	Medium
Benchmark	This action is in the implementation stage.
Mitigation Action	Support the Alabama Skywarn Foundation efforts to distribute weather radios to low-income households, especially in rural areas outside of siren coverage areas.
Type	Natural Resource Protection
Goal	Reduce the City of Montgomery's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	AEMA, EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	HMGP, PDM, Local
Priority	High
Benchmark	Plans are in progress to complete this action. No radios have been distributed thus far.

Mitigation Action	Support the installation of a tornado detection system at the NWS using sonic detection technology developed by the NOAA Research Lab.
Type	Emergency Services Protection
Goal	Establish a comprehensive county/citywide hazard mitigation system
Hazard(s) Addressed	Tornados
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	NWS, EMA
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	HMGP, PDM
Priority	High
Benchmark	No action was taken on this item during the past five years due to lack of funding; however, the HMPC wishes to keep the item in for this plan revision.
Mitigation Action Action was updated	Continue program to subsidize safe room construction in existing homes.
Type	Structural Projects
Goal	Reduce Montgomery City/County's vulnerability to natural hazards.
Hazard(s) Addressed	Thunderstorms, Hail, Tornados, High Wind, Strong Wind
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	HMGP
Priority	High
Benchmark	The City-County will continue to subsidize storm shelters in homes. It is now a state law that all new schools will include a safe room. Schools will fund their own projects; however, will apply through the City-County.

Mitigation Action	Construct freestanding public safe rooms in vulnerable locations. Install individual safe rooms and/or community shelters at critical facilities and schools/educational facilities.
Type	Structural Projects
Goal	Reduce Montgomery City/County's vulnerability to natural hazards.
Hazard(s) Addressed	Thunderstorms, Hail, Tornados, High Wind, Strong Wind
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	HMGP
Priority	High
Benchmark	Only individual safe rooms have been constructed thus far; however, the City-County wishes to keep this mitigation action in the plan for the future.
Mitigation Action	Purchase/update emergency generators for post-disaster/emergency mitigation and conduct routine tests for critical facilities to ensure critical facilities and shelters continue operations. This includes a 100KW generator for the City Hall on Vaughn Road.
Type	Emergency Services Protection
Goal	Reduce the City of Montgomery's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2020
Estimated Cost	\$1,500 - \$25,000
Funding Sources	HMGP, ADECA
Priority	High
Benchmark	No generators have been purchased thus far in the City of Montgomery due to lack of funds.

Mitigation Action	Complete a comprehensive inventory of critical facilities within all jurisdictions and maintain in GIS.
Type	Prevention
Goal	Establish a comprehensive county/citywide hazard mitigation system.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	Montgomery Planning Department
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	HMGP, Local
Priority	High
Benchmark	No action has been taken on this item during the past five years due to lack of leadership; however, the HMPC discussed this action item and wants it to remain in this plan revision.
DELETED ACTIONS	
Mitigation Action DELETED	Local plans should address the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.
Type	Prevention
Goal	Establish a comprehensive county/citywide hazard mitigation system
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	Montgomery Planning Department
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	Medium
Benchmark	COMPLETED – Local plans incorporate this action item.

Mitigation Action DELETED	Apply for and maintain membership in the Community Rating System (CRS) Program
Type	Prevention
Goal	Establish a comprehensive county/citywide hazard mitigation system
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	FPM
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	The HMPC discussed this action item and the City of Montgomery does not wish to participate in the CRS at this time.
Mitigation Action DELETED	Maintain current Flood Insurance Rate Maps in digital format.
Type	Prevention
Goal	Establish a comprehensive county/citywide hazard mitigation system.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	MPD, MCGIS, CARPDC
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED – 1/7/15

Mitigation Action DELETED	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, storage of hazardous materials, and restrictive development of floodways, among other
Type	Prevention
Goal	Establish a comprehensive county/citywide hazard mitigation system
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	MPD, FPM
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	COMPLETED
Mitigation Action DELETED	Identify persons eligible to become a local flood plain manager and train local flood plain managers through programs offered through the State Flood Plain Manager and FEMA's training center in Emmitsburg, Maryland.
Type	Prevention
Goal	Establish a comprehensive county/citywide hazard mitigation system.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	FPM
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	FPM
Priority	High
Benchmark	Patrick Dunson is the local flood plain manager - COMPLETED

Mitigation Action DELETED	Maintain a library of technical assistance and guidance materials to support the local flood plain manager.
Type	Prevention
Goal	Reduce Montgomery County/City's risk from natural hazards
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	FPM
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	Materials are maintained at the Montgomery City-County EMA
Mitigation Action DELETED	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	FPM
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED

Mitigation Action DELETED	Arrange with the Multiple Listing Service (MLS) to require flood plain location disclosure as a condition for each real estate listing.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	New
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	COMPLETED
Mitigation Action DELETED	Obtain free publications from FEMA, NWS, USGS, and other federal and state agencies and deposit these materials with local libraries.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2017
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED – City/County Managers decided to keep these materials at the EMA. They are available for public use.

Mitigation Action DELETED	Maintain local library repositories with the latest available publications.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2017
Estimated Cost	
Funding Sources	Local, HMGP
Priority	High
Benchmark	COMPLETED – City/County Managers decided to keep these materials at the EMA. They are available for public use.
Mitigation Action DELETED	Arrange with the Multiple Listing Service (MLS) to require flood plain location disclosure as a condition for each real estate listing.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	New
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	COMPLETED

Mitigation Action DELETED	Obtain free publications from FEMA, NWS, USGS, and other federal and state agencies and deposit these materials with local libraries.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2017
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED – City/County Managers decided to keep these materials at the EMA. They are available for public use.
Mitigation Action DELETED	Maintain local library repositories with the latest available publications.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2017
Estimated Cost	
Funding Sources	Local, HMGP
Priority	High
Benchmark	COMPLETED – City/County Managers decided to keep these materials at the EMA. They are available for public use.

Mitigation Action DELETED	Distribute hazard mitigation brochures to area schools for distribution to students.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local, HMGP
Priority	High
Benchmark	COMPLETED – City/County Managers decided to keep these materials at the EMA. They are available for public use.
Mitigation Action DELETED	Enact and enforce dumping regulations.
Type	Natural Resource Protection
Goal	Establish a comprehensive county/citywide hazard mitigation system
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	MCED
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED

Mitigation Action DELETED	Enact and enforce erosion and sedimentation control regulations.
Type	Natural Resource Protection
Goal	Reduce the City of Montgomery's risk from natural hazards
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	MCED
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	Medium
Benchmark	COMPLETED
Mitigation Action DELETED	Promote the use of weather radios in households and businesses.
Type	Emergency Services Protection
Goal	Reduce the City of Montgomery's vulnerability to natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	COMPLETED

Mitigation Action DELETED	Prepare and implement standard operating procedures for drainage system maintenance.
Type	Structural Projects
Goal	Reduce the City of Montgomery's risk from natural hazards.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	MCED, MED, ACES
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	HMGP, ACES, Local
Priority	High
Benchmark	COMPLETED
Mitigation Action DELETED	Purchase, install, and test outdoor warning siren systems.
Type	Emergency Services Protection
Goal	Reduce the City of Montgomery's risk from natural hazards
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Local Planning Mechanism	EMA
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local, HMGP
Priority	High
Benchmark	COMPLETED

Mitigation Action DELETED	Provide technical assistance to owners of pre-FIRM buildings to advise on available retrofits to protect against flood damage.
Type	Property Protection
Goal	Reduce Montgomery City's risk from natural hazards.
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	City Engineer
Estimated Time Frame for Completion	
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	The city has current NFIP flood maps (since 1/7/15). No assistance was provided or needed during the past five years. This item is being removed.
Mitigation Action DELETED FOR THE CITY OF MONTGOMERY	Continue to provide structural projects such as wind retrofits, drainage improvements, reservoirs and retention or detention basins which store excess waters, levees and floodwalls which place barriers between the source of flooding and damage prone properties, channeling modifications: widening, straightening, or removing bridge and culvert restrictions so the channel can convey more water or carry it faster, diversions that redirect high flows to another location and channel maintenance: keeping streams, ditches, and storage basins clear. This is to include the following projects: Highway 110 at Timberlane; Fox Chase Drive; Barnes Road, and Meriwether Road.
Type	Structural Projects
Goal	Reduce Montgomery City/County's vulnerability to natural hazards
Hazard(s) Addressed	Flood
Applies to new/existing asset(s)	Existing
Local Planning Mechanism	MC Eng
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	HMGP, Local, DOT
Priority	High
Benchmark	This action item is only for the Town of Pike Road

Town of Pike Road

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**Table 5-7: Town of Pike Road
Risk and Vulnerability Overview**

Natural Hazards	Hazard Identification	Mitigation Actions Prioritization	Prioritized Occurrence Threat	Vulnerability
Thunderstorm	X	3	5	H
Lightning	X	4	10	L
Hail	X	4	8	L
Tornado	X	2	10	H
Flood	X	1	3	M
Drought/Extreme Heat	X	4	2	M
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/Extreme Cold	X	4	7	M
Hurricane/Tropical Storm/ Tropical Depression/ High Wind/ Strong Wind	X	2	4	H
Sinkhole/Expansive Soil	X	4	9	L
Landslide	X	4	10	L
Earthquake	X	4	6	L
Wildfire	X	4	1	M
Dam/Levee Failure	X	4	10	L

KEY:
Hazard Identification – Identified by local jurisdictions
Mitigation Actions Prioritization - Hazards are prioritized by jurisdictions based on past hazard experiences, vulnerabilities, and available mitigation actions with the hazard having highest priority of mitigation assigned number one.
Prioritized Occurrence Threat - Hazards are prioritized with the highest threat of occurrence assigned number one based on hazardous events that have occurred within each jurisdiction over the past ten years, with the exception of wildfires that were based on events that have occurred over three years. Some natural hazards have equal threats to a jurisdiction; therefore, their threat number will be the same. These prioritized threats may or may not be the same as the mitigation actions prioritization.
Vulnerability – Identified by local jurisdictions. NA – Not Applicable; not a hazard to the jurisdiction; L – Low Risk; little damage potential (damage to less than 5% of the jurisdiction); M – Medium Risk; moderate damage potential (damage to 5-10% of jurisdiction, infrequent occurrence); and H – High Risk; significant risk/major damage potential (damage to over 10% of jurisdiction, regular occurrence)

(Source: NOAA NCDC Storm Events Database; Alabama Forestry Commission; National Forestry Service; Alabama Geological Survey; Participating Jurisdictions, 2015)

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TABLE 5-8: TOWN OF PIKE ROAD HAZARD EVENTS

4 Thunderstorm Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
PIKE ROAD	MONTGOMERY CO.	AL	11/24/2004	07:23	CST	Thunderstorm Wind	53 kts. EG	0	0	4.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	04/30/2005	06:07	CST	Thunderstorm Wind	55 kts. EG	0	0	45.00K	0.00K
PIKE ROAD	MONTGOMERY CO.	AL	04/14/2007	15:28	CST-6	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
PIKE ROAD	MONTGOMERY CO.	AL	12/20/2012	11:05	CST-6	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Totals:								0	0	49.00K	0.00K

0 Lightning Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No lightning events occurred or were reported during 01/01/2003 thru 12/31/2013.

1 Hail Event – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
PIKE ROAD	MONTGOMERY CO.	AL	12/28/2005	14:17	CST	Hail	0.75 in.	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

0 Tornado Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

No tornado events occurred or were reported during 01/01/2003 thru 12/31/2013.

10 Flood/Flash Flood Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/09/2003	07:30	CST	Flood		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/09/2003	08:30	CST	Flood		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/22/2003	03:00	CST	Flood		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/01/2005	00:00	CST	Flood		0	0	7.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	04/07/2003	08:00	CST	Flash Flood		0	0	60.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	07/01/2003	06:00	CST	Flash Flood		0	0	8.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	03/27/2005	03:00	CST	Flash Flood		0	0	38.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	03/27/2005	16:00	CST	Flash Flood		0	0	75.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	03/31/2005	00:00	CST	Flash Flood		0	0	11.00K	0.00K
COUNTYWIDE	MONTGOMERY CO.	AL	04/01/2005	07:00	CST	Flash Flood		0	0	11.00K	0.00K
Totals:								0	0	203.00K	0.00K

25 Drought/Extreme Heat Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2010	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/05/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/10/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	06/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K

MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	10/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	11/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2011	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	03/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	05/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	06/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	10/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	11/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	12/01/2012	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	01/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/01/2013	00:00	CST-6	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

2 Winter Storm/Frost Freeze/Heavy Snow/Ice Storm/Winter Weather/Extreme Cold Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	02/12/2010	11:00	CST-6	Heavy Snow		2	1	0.00K	0.00K
(ZONE)	MONTGOMERY (ZONE)	AL	01/24/2003	00:00	CST	Extreme Cold/wind Chill		0	0	0.00K	0.00K
Totals:								2	1	0.00K	0.00K

7 Hurricane/Tropical Storm/Tropical Depression/High Wind/Strong Wind Events – 01/01/2003 thru 12/31/2013 (4018 days)
(Source: NOAA NCDC Storm Events Database)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	07/10/2005	15:00	CST	Tropical Storm		0	1	200.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/29/2005	17:00	CST	Tropical Storm		0	0	175.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	08/23/2008	12:00	CST-6	Tropical Depression		0	0	10.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	11/09/2009	14:00	CST-6	Tropical Depression		0	0	3.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	09/16/2004	04:00	CST	High Wind	65 kts. EG	0	0	9.000M	50.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/02/2005	08:00	CST	Strong Wind	33 kts. MG	0	0	1.00K	0.00K
MONTGOMERY (ZONE)	MONTGOMERY (ZONE)	AL	04/12/2005	02:00	CST	Strong Wind	40 kts. EG	0	0	1.00K	0.00K
Totals:								0	1	9.391M	0.00K

0 Sinkhole Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/U.S. Geological Survey)

No sinkhole events occurred or were reported during 01/01/2003 thru 12/31/2013.

0 Landslide Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/U.S. Geological Survey)

No landslide events occurred or were reported during 01/01/2003 thru 12/31/2013.

3 Earthquake Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: www.city-data.com)

<u>Location</u>	<u>County/Zone</u>	<u>St.</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Type</u>	<u>Mag</u>	<u>Dth</u>	<u>Inj</u>	<u>PrD</u>	<u>CrD</u>
100.0 miles away from county center	MONTGOMERY	AL	11/07/2004	11:20	CST	Earthquake	4.4	0	0	0.00K	0.00K
73.0 miles away from county center	MONTGOMERY	AL	08/19/2004	23:51	CST	Earthquake	3.6	0	0	0.00K	0.00K
74.3 miles away from county center	MONTGOMERY	AL	05/09/2004	08:56	CST	Earthquake	3.3	0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

No earthquake events occurred or were reported to NOAA NCDC Storm Events Database/U.S. Geological Survey during 01/01/2003 thru 12/31/2013.

75 Wildfire Events – 2010 - 2013

(Source: Alabama Forestry Commission)

County	Total # of Fires	Average # of Fires	Total Acres Burned	Average Acres Burned	Average Fire Size in Acres
Montgomery	75	25	1,108.35	369.45	15

0 Dam/Levee Failure Events – 01/01/2003 thru 12/31/2013 (4018 days)

(Source: NOAA NCDC Storm Events Database/Local Input)

No dam/levee failure events occurred or were reported during 01/01/2003 thru 12/31/2013.

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**Table 5-9: Town of Pike Road
Hazard Probability Assessment**

Natural Hazards	Number of Historical Occurrences	Probability of Future Occurrence	Extent	Area Affected
Thunderstorm	4	40%	>10%	Town wide
Lightning	0	Unknown	<5%	Town wide
Hail	1	10%	<5%	Town wide
Tornado	0	Unknown	>10%	Town wide
Flood/Flash Flood	10	100%	5-10%	Town wide
Drought/Extreme Heat	25	>100%	5-10%	Town wide
Winter Storm/Frost Freeze/Heavy Snow/ Ice Storm/Winter Weather/ Extreme Cold	2	20%	5-10%	Town wide
Hurricane/High Wind/ Strong Wind/ Tropical Storm/ Tropical Depression	7	70%	>10%	Town wide
Sinkhole/Expansive Soil	0	Unknown	<5%	Town wide
Landslide	0	Unknown	<5%	Town wide
Earthquake	3	30%	<5%	Town wide
Wildfire (2010-2013 – 3 year study period)	75	>100%	5-10%	Town wide
Dam/Levee Failure	0	Unknown	<5%	Town wide

Source: NOAA NCDC; U. S. Inflation Calculator/Consumer Price Index; USGS ; Local Input; USDA Census of Agriculture; Alabama Forestry Commission; and National Forestry Service; Participating Jurisdictions, 2015

Methodology: Number of historical occurrences is those reported by NOAA NCDC during the 10 year study period, with the exception of wildfire that is a 3 year study period. Probability is expressed by dividing the total number of occurrences by the study period in years. Extent is expressed as the percentage assigned by the jurisdictions' ranking in the vulnerability summary (Table 4-12). Zero denotes no data available to determine the probability, extent, or affected area.

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Table 5-10: Town of Pike Road's Critical Facilities

Government				
Pike Road Town Hall (New)	9575 Vaughn Road, 36064	Pike Road	Government	\$1,800,000
Fire Departments				
Station 1	3427 Wallahatchie Road, 36064	Pike Road	Fire Station	\$1,260,000
Station 2	334 Bridlebrook Blvd., 36064	Pike Road	Fire Station	\$1,260,000
Station 3	2695 Flowers Road, 36052	Mathews	Fire Station	\$1,260,000
Station 4	1496 Hayneville Ridge Road, 36052	Mathews	Fire Station	\$1,260,000
Station 5	13 Okfuski Trail, Pike Road, 36064	Pike Road	Fire Station	\$1,260,000
Station 6	4920 Pike Road, 36064	Pike Road	Fire Station	\$1,260,000
Rolling Hills Lakes VFD Station	6120 Trotman Road, 36116	Rolling Hills	Fire Station	\$1,260,000
Station 1	20 Line Creek Road, 36117	Montgomery	Fire Station	\$1,260,000
Station 2	2267 Alexander Road, 36064	Pike Road	Fire Station	\$1,260,000
Station 3	551 Okfuski Trail, 36064	Pike Road	Fire Station	\$1,260,000
Station 4	306 Pike Road, 36064	Pike Road	Fire Station	\$1,260,000
Station 5	8744 Wares Ferry Road, 36117	Montgomery	Fire Station	\$1,260,000
Educational Facilities				
Pike Road School	100 Avenue of Learning, 36064	Pike Road	School to open in 2015	
Utility Systems				
Water Works Treatment Facility	Bridlebrook Area	Pike Road	Water Treatment	
Water Works Treatment Facility	Millie Creek Plant (under construction)	Pike Road	Water Treatment	
Montgomery WW SB Pike Road WWTP	City of Montgomery WW and SB	Montgomery	Waste Water Treatment	\$59,940,000
Alabama Power – So. Div. Garage	1810 Cong. W. L. Dickinson Drive	Montgomery	Electricity	\$99,000,000
WAIQ CH 26		Montgomery	TV Broadcast	\$90,000
WSFA CH 12		Montgomery	TV Broadcast	\$90,000
WMCF-TV CH 45		Montgomery	TV Broadcast	\$90,000
WBXM-CA CH 5		Montgomery	TV Broadcast	\$90,000
WCOV-TV CH 20		Montgomery	TV Broadcast	\$90,000
WMSP 740		Montgomery	AM Broadcast	\$90,000
WMSP 740		Montgomery	AM Broadcast	\$90,000
WNZZ 950		Montgomery	AM Broadcast	\$90,000
WACV 1170		Montgomery	AM Broadcast	\$90,000
WXVI 1600		Montgomery	AM Broadcast	\$90,000
WLWI 1440		Montgomery	AM Broadcast	\$90,000
WMGY 800		Montgomery	AM Broadcast	\$90,000
WVAS CH 214		Montgomery	FM Broadcast	\$90,000
WQLD CH 282		Luverne	FM Broadcast	\$90,000
WZHT CH 289		Troy	FM Broadcast	\$90,000
WMCZ CH 246		Millbrook	FM Broadcast	\$90,000

WLWI-FM CH 222		Montgomery	FM Broadcast	\$90,000
WMXS CH 277		Montgomery	FM Broadcast	\$90,000
WBAM-FM Ch 255		Montgomery	FM Broadcast	\$90,000
WQKS-FM CH 241		Montgomery	FM Broadcast	\$90,000
WLBF CH 206		Montgomery	FM Broadcast	\$90,000
WHHY-FM CH 270		Montgomery	FM Broadcast	\$90,000
WTSU CH 210		Montgomery	FM Broadcast	\$90,000
WJWZ CH 250		Wetumpka	FM Broadcast	\$90,000
MISCELLANEOUS				
Founders Station at Veterans Park	4902 Pike Road, 36064	Pike Road		
Trailhead #1	Meriwether Road/231 end Parking, Restroom/Water access, Pavilion	Pike Road		
Trailhead #2	Founders Station, 4902 Pike Road Parking, Restroom/Water access, Pavilion	Pike Road		
Meriwether Road Natural Trail	In place, 4 miles	Pike Road		
Rolling Hills Park	10 acres including walking track, pond, playground equipment, pavilion	Pike Road		
Wallahatchie Road Natural Trail	Received grant – will be under construction within a year; approximately 2.5 miles currently	Pike Road		
Marler Road Natural Trail	Received grant – will be under construction by the end of 2015; approximately 4 miles currently	Pike Road		
TOTAL				\$178,020,000 + (still gathering amounts)
(Sources: Local Jurisdiction and HAZUS-MH 2.1; Accessed 2015)				

**Table 5-11: Town of Pike Road
Estimated Loss Projections from Specified Hazards**

Natural Hazards	Average Occurrences (per year)	Total Deaths	Total Injuries	Average Death and Injury Loss (per event)	Average Crop and Property Loss (per event)	Projected Loss (per event)
Thunderstorm	0.4	0	0	Unknown	\$24,500	\$26,705
Lightning	Unknown	0	0	Unknown	Unknown	Unknown
Hail	0.1	0	0	Unknown	Unknown	Unknown
Tornado	Unknown	0	0	Unknown	Unknown	Unknown
Flood/Flash Flood	1	0	0	Unknown	\$29,000	\$31,610
Drought/Extreme Heat	2.5	0	0	Unknown	Unknown	Unknown
Winter Storm/Frost Freeze/ Heavy Snow/Ice Storm/Winter Weather/ Extreme Cold	0.2	2	1	\$7,355,181	Unknown	\$8,017,147
Hurricane/Tropical Storm/ Tropical Depression/High Wind/Strong Wind	0.7	0	1	\$23,175	\$1,341,571	\$1,364,746
Sinkhole/Expansive Soil	Unknown	0	0	Unknown	Unknown	Unknown
Landslide	Unknown	0	0	Unknown	Unknown	Unknown
Earthquake	0.3	0	0	Unknown	Unknown	Unknown
Wildfire (3 year study period)	25	0	0	Unknown	\$712,500	\$776,625
Dam/Levee Failure	Unknown	0	0	Unknown	Unknown	Unknown

Methodology: Average occurrences were expressed annually by dividing the total number of occurrences by the ten-year period. Deaths and injuries were taken from the hazard event data. Average losses were calculated by dividing the total amount of all damages by the total number of occurrences causing damage during the ten-year period with the exception of wildfire. Projected loss expresses an estimated damage amount per future occurrence by converting the average loss figures from a midpoint of 2008 dollars to 2014 dollars (\$1 in 2008 = \$1.09 in 2014...a cumulative rate of inflation of 9%). Zero denotes no data available to determine the average occurrences, average loss or projected loss per event.

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Town of Pike Road Mitigation Action Plan

The Town of Pike Road recognizes the importance of mitigation planning and will incorporate mitigation planning in planning documents as they are revised or initiated.

Mitigation Status

Table 5-12: Town of Pike Road Mitigation Actions	
Mitigation Action	Local plans should address the vulnerability of designated hazard areas and encourage open space planning to create amenities for recreation and conservation of fragile resources.
Type	Prevention
Goal	Establish a comprehensive town wide hazard mitigation system.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	Medium
Benchmark	New ordinances and planning procedures require each subdivision to be studied before approval is given
Mitigation Action	Apply for and maintain membership in the CRS Program
Type	Prevention
Goal	Establish a comprehensive town wide hazard mitigation system.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	Pike Road plans on applying for membership in the CRS Program

Mitigation Action	Maintain current Flood Insurance Rate Maps in digital format.
Type	Prevention
Goal	Establish a comprehensive town wide hazard mitigation system.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road, MCGIS, CARPDC
Estimated Time Frame for Completion	2016
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	New maps obtained through MCGIS
Mitigation Action	Complete a comprehensive inventory of critical facilities within all jurisdictions and maintain in GIS.
Type	Prevention
Goal	Establish a comprehensive town wide hazard mitigation system.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road, MCGIS, EMA
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	HMGP
Priority	High
Benchmark	Pike Road GIS is continually updated with information as it is brought to the town and developed.

Mitigation Action	Integrate FEMA HAZUS-MH applications for hazard loss estimations within local GIS programs. Maintain up-to-date data within GIS to apply the full loss estimation capabilities of HAZUS.
Type	Prevention
Goal	Establish a comprehensive town wide hazard mitigation system.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road, MCGIS, EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	HMGP
Priority	High
Benchmark	In progress
Mitigation Action	Evaluate additional land use restrictions within designated flood zones, such as prohibition of storage of buoyant materials, and restrictive development of flood ways, among others.
Type	Prevention
Goal	Establish a comprehensive town wide hazard mitigation system.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2018
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	New zoning and development ordinances address many of these issues. Ordinances are being updated periodically as development increases.

Mitigation Action	Investigate the feasibility of a land trust to acquire open space, purchase easements, and accept donations of lands within environmentally sensitive and vulnerable locations, such as undeveloped flood plains.
Type	Prevention
Goal	Establish a comprehensive town wide hazard mitigation system.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	No action on this item has been taken due to lack of funding; however, the town wishes to keep this action item in this plan revision.
Mitigation Action	Obtain membership for local flood plain managers in the Association of State Flood Plain Managers. Make application and/or commit/continue to participate in the NFIP.
Type	Prevention
Goal	Establish a comprehensive town wide hazard mitigation system.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	In progress – the town recently hired a town engineer who is becoming involved with local and federal organizations.

Mitigation Action	Evaluate the effectiveness of higher regulatory standards, such as additional building elevation and limitation of fill within flood plains, to be included in local flood plain management regulations.
Type	Prevention
Goal	Establish a comprehensive town wide hazard mitigation system.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	New
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	Building standards are being addressed with new zoning and development ordinances.
Mitigation Action	Maintain a library of technical assistance and guidance materials to support the local flood plain manager.
Type	Prevention
Goal	Reduce Pike Road's risk from natural hazards.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	New and Existing
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	Digital library for cross reference to materials is being compiled daily as need arises.

Mitigation Action	Evaluate building standards for roof construction to assure protection against wind damage from hurricanes, tornadoes, and windstorms; require installation of “hurricane clips.”
Type	Prevention
Goal	Reduce Pike Road’s risk from natural hazards.
Hazard(s) Addressed	Thunderstorms, Tornados, High Wind, Strong Wind
Applies to new/existing asset(s)	New
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	No action has been taken on this item due to lack of funding or opportunity to perform study.
Mitigation Action	Review and amend existing local and regional planning documents to be certain the vulnerability and environmental suitability of lands for future development are clearly addressed.
Type	Prevention
Goal	Reduce vulnerability of new and future development.
Hazard(s) Addressed	Flood, Hurricanes, Tornados, Thunderstorms
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	In progress

Mitigation Action	Consider large lot size restrictions on flood-prone areas designated on Flood Insurance Rate Maps.
Type	Prevention
Goal	Reduce Pike Road's vulnerability to natural hazards.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2017
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	Zoning Ordinance has been updated and addresses lot sizes and development restrictions.
Mitigation Action	Request the easement to install community storm shelters within sizeable mobile home parks and subdivisions. Includes generator if needed.
Type	Prevention
Goal	Reduce Pike Road's vulnerability to natural hazards.
Hazard(s) Addressed	Thunderstorms, Hail, Tornados, High Wind, Strong Wind
Applies to new/existing asset(s)	New and Existing
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2020
Estimated Cost	\$115,000 each
Funding Sources	Local
Priority	Low
Benchmark	No action has been taken on this item due to lack of funding and opportunity for a study.

Mitigation Action	Promote the construction of safe rooms within new public buildings, such as new schools, libraries, community centers, and other public buildings where feasible. Includes a generator if needed.
Type	Prevention
Goal	Reduce Pike Road's vulnerability to natural hazards.
Hazard(s) Addressed	Thunderstorms, Hail, Tornados, High Wind, Strong Wind
Applies to new/existing asset(s)	New
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2020
Estimated Cost	\$115,000 each
Funding Sources	Local
Priority	High
Benchmark	No action has been taken on this item due to lack of funding and opportunity for a study.
Mitigation Action	Study the feasibility of a regional greenways demonstration project.
Type	Prevention
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	New
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	LOCAL
Priority	Low
Benchmark	No action has been taken on this item due to lack of funding and opportunity.

Mitigation Action	Publicize the availability of FIRM information to real estate agents, builders, developers, and homeowners through local trade publications and newspaper announcements.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	All contacts with the town are informed of new flood maps and are assisted with locating correct maps and discerning information for their property.
Mitigation Action	Continue the annual Severe Weather Awareness Day.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Point of Contact Person for this Action	EMA, NWS, Town of Pike Road
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	The town continues this event through coordination with the Montgomery City/County EMA.

Mitigation Action	Identify other environmental awareness events to integrate public information on hazard exposure and protection measures.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Point of Contact Person for this Action	EMA, Town of Pike Road
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	No action has been taken on this item due to lack of opportunity for a study. The town will work with the Montgomery City/County EMA to determine possible events and awareness clinics.
Mitigation Action	Continue the work of the Local Emergency Planning Committee by informing people at public functions.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New
Point of Contact Person for this Action	Town of Pike Road, EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	Town Hall Meetings and informational meetings at Town Council Meetings are used to discern new weather and hazard information to the public.

Mitigation Action	Arrange with the Multiple Listing Service (MLS) to require flood plain location disclosure as a condition for each real estate listing.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	New
Point of Contact Person for this Action	Town of Pike Road, EMA
Estimated Time Frame for Completion	2016
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	The town is planning to coordinate meetings.
Mitigation Action	Obtain free publications from FEMA, NWS, USGS, and other federal and state agencies and deposit these materials with local libraries.
Type	Public Education and Awareness.
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road, EMA
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	The town is coordinating with the Pike Road Library to make materials and publications available to the public.

Mitigation Action	Maintain local library repositories with the latest available publications.
Type	Public Education and Awareness.
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road, EMA
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	The town is coordinating with the Pike Road Library to make materials and publications available to the public.
Mitigation Action	Make local government experts available to property owners to offer hazard audits of vulnerable buildings.
Type	Public Education and Awareness.
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road
Estimated Time Frame for Completion	2016
Estimated Cost	
Funding Sources	Local
Priority	Low
Benchmark	The Pike Road Building Department and Engineering Department are available to property owners.

Mitigation Action	Distribute hazard mitigation brochures to area schools for distribution to students.
Type	Public Education and Awareness
Goal	Foster public support and acceptance of hazard mitigation.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Point of Contact Person for this Action	Town of Pike Road, EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	No action has been taken on this item as the Pike Road School is just now under construction. The town will coordinate moving forward.
Mitigation Action	Support the establishment of a statewide technical assistance program through the Alabama Cooperative Extension System to (a) develop Best Management Practices (BMP) guidelines for channel and drainage system maintenance, (b) conduct seminars for local officials, and (c) carry out a demonstration project in Montgomery County.
Type	Natural Resources Protection
Goal	Establish a comprehensive town wide hazard mitigation system.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	New and Existing
Point of Contact Person for this Action	Town of Pike Road, ACES
Estimated Time Frame for Completion	2016
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	Pike Road works with ADEM, City of Montgomery and Montgomery County to develop and maintain BMP guidelines and participates in seminars and demonstrations as available.

Mitigation Action	Enact and enforce dumping regulations.
Type	Natural Resources Protection
Goal	Establish a comprehensive town wide hazard mitigation system.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road, Montgomery County Engineering Department
Estimated Time Frame for Completion	2016
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	The town continues enacting and enforcing dumping regulations.
Mitigation Action	Enact and enforce erosion and sedimentation control regulations.
Type	Natural Resources Protection
Goal	Reduce Pike Road's risk from natural hazards.
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	New and Existing
Point of Contact Person for this Action	Town of Pike Road, Montgomery County Engineering Department
Estimated Time Frame for Completion	2016
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	The town continues enacting and enforcing erosion and sedimentation control regulations.

Mitigation Action	Support the Alabama Skywarn Foundation efforts to distribute weather radios to low-income households, especially in rural areas outside of siren coverage areas.
Type	Natural Resources Protection.
Goal	Reduce Pike Road's vulnerability to natural hazards.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Point of Contact Person for this Action	Town of Pike Road, AEMA, EMA
Estimated Time Frame for Completion	2019
Estimated Cost	
Funding Sources	HMGP, PDM
Priority	High
Benchmark	No action has been taken on this item due to lack of funding.
Mitigation Action	Support the installation of a tornado detection system at the NWS using sonic detection technology developed by the NOAA Research Lab.
Type	Emergency Services
Goal	Establish a comprehensive town wide hazard mitigation system.
Hazard(s) Addressed	Tornados
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road, NWS, EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	HMGP, PDM
Priority	High
Benchmark	No action has been taken on this item due to lack of funding and opportunity.

Mitigation Action	Purchase, install, and test outdoor warning siren systems.
Type	Emergency Services
Goal	Reduce Pike Road's risk from natural hazards.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Point of Contact Person for this Action	Town of Pike Road, EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	HMGP, ADECA
Priority	High
Benchmark	In progress through participation with the Montgomery City/County EMA.
Mitigation Action	Purchase/update emergency generators for post-disaster/emergency mitigation and conduct routine tests for critical facilities to ensure critical facilities and shelters continue operations. This includes a 100KW generator for the City Hall on Vaughn Road and the Town Hall on Pike Road.
Type	Emergency Services
Goal	Reduce Pike Road's vulnerability to natural hazards.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Point of Contact Person for this Action	Town of Pike Road, EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	HMGP, ADECA
Priority	High
Benchmark	No action has been taken on this item due to lack of funding and opportunity.

Mitigation Action	Promote the use of weather radios in households and businesses.
Type	Emergency Services
Goal	Reduce Pike Road's vulnerability to natural hazards.
Hazard(s) Addressed	All
Applies to new/existing asset(s)	New and Existing
Point of Contact Person for this Action	Town of Pike Road, EMA
Estimated Time Frame for Completion	2016
Estimated Cost	
Funding Sources	Local
Priority	High
Benchmark	The town promotes the use of weather radios through public meetings and in coordination with the Montgomery City/County EMA's informational publications.
Mitigation Action	Prepare and implement standard operating procedures for drainage system maintenance.
Type	Structural Projects
Goal	Reduce Pike Road's risk from natural hazards
Hazard(s) Addressed	Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road, Montgomery County Engineering Department
Estimated Time Frame for Completion	2016
Estimated Cost	
Funding Sources	HMGP, PDM
Priority	High
Benchmark	The town continuously takes this action in coordination with the Montgomery County Engineering and Maintenance Departments.

Mitigation Action	Continue program to subsidize safe room construction in existing homes and schools.
Type	Structural Projects
Goal	Reduce Pike Road's vulnerability to natural hazards.
Hazard(s) Addressed	Thunderstorms, Hail, Tornados, High Wind, Strong Wind
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road, EMA
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	HMGP
Priority	High
Benchmark	No action has been taken on this item due to lack of funding.
Mitigation Action	Construct freestanding public safe rooms in vulnerable locations. Install individual safe rooms and/or community shelters at critical facilities and schools/educational facilities.
Type	Structural Projects
Goal	Reduce Pike Road's vulnerability to natural hazards.
Hazard(s) Addressed	Thunderstorms, Hail, Tornados, High Wind, Strong Wind
Applies to new/existing asset(s)	New and Existing
Point of Contact Person for this Action	Town of Pike Road, EMA
Estimated Time Frame for Completion	2020
Estimated Cost	\$4,500 - \$115,000 each
Funding Sources	HMGP
Priority	High
Benchmark	No action has been taken on this item due to lack of funding.

Mitigation Action	Continue to provide structural projects such as wind retrofits, drainage improvements, reservoirs, and retention or detention basins which store excess waters, levees and floodwalls which place barriers between the source of flooding and damage-prone properties, channeling modifications: widening, straightening, or removing bridge and culvert restrictions so the channel can convey more water or carry it faster, diversions that redirect high flows to another location and channel maintenance: keeping streams, ditches, and storage basins clear.
Type	Structural Projects
Goal	Reduce Pike Road's vulnerability to natural hazards.
Hazard(s) Addressed	Thunderstorms, Tornados, Hurricanes, Tropical Storms, Tropical Depressions, High Winds, Strong Winds, Floods/Flash Flooding
Applies to new/existing asset(s)	Existing
Point of Contact Person for this Action	Town of Pike Road, Montgomery County Engineer
Estimated Time Frame for Completion	2020
Estimated Cost	
Funding Sources	HMGP, Local, DOT
Priority	High
Benchmark	No action has been taken on this item due to lack of funding.

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Section Six: Mitigation Plan Maintenance

The plan may be reviewed at any time at the request of any local government, by the Chairman (Montgomery City-County EMA Director) of the Hazard Mitigation Planning Committee, or at the EMA Director's discretion. Local governments may submit a formal letter to the Montgomery City-County EMA Director or the Chairman of the Montgomery City-County Hazard Mitigation Planning Committee requesting a review of the plan. The public may also request review of the plan by submitting a formal letter to the Montgomery City-County EMA Director or the Chairman of the Montgomery City-County Hazard Mitigation Planning Committee requesting a review of the plan. In the future, the County EMA will strive to get jurisdictions with websites to post the Hazard Mitigation Plan and provide a way for the public to comment online. Citizen Input on Hazard Mitigation Planning forms will be placed in public places, to include on the courthouse bulletin board, in the local government buildings, and in the library to provide the public a chance to provide feedback during the plan's implementation, monitoring, update, and evaluation process.

The Hazard Mitigation Planning Committee may re-evaluate the plan after a disaster has occurred to make sure that mitigation of the hazard was addressed properly. At the minimum, the Hazard Mitigation Planning Committee will annually monitor, evaluate, and amend this plan. Public participation is encouraged to allow the public an opportunity to participate in the process. Efforts will be made to have the annual survey form placed on all jurisdictional websites for the public to complete and return. The Hazard Mitigation Planning Committee will review a variety of resources and examine conditions, which may affect mitigation activities for natural hazards. The committee will review existing plans, policies, maps, and other documentation such as, but not limited to:

- NFIP flood panels
- Post-disaster redevelopment models
- Critical facilities lists and maps
- Existing land-use maps
- Future land-use maps
- Current zoning maps
- Land development codes

- Governing body codes and resolutions
- Comprehensive plans, including drainage studies
- Emergency Operations Plan
- Standard Operating Guidelines
- Various other plans and/or studies related to hazard mitigation

For monitoring, evaluating, and updating this plan, Director of the Montgomery City-County EMA will serve as the point of contact for all amendments to the plan and will coordinate all additions, deletions or amendments of actions to the plan, as needed. The EMA Director will be responsible for informing the local governing bodies of any amendments made to the plan. Any local government seeking to add an action to the plan will be responsible for providing support for the action in the form of a resolution if, and only if, the funding source(s) requires so. The entire plan will be updated on a five-year planning cycle.

The method for monitoring the plan remains the same. Regular plan monitoring will be achieved through the County EMA's efforts to track mitigation activities. The Director of the Montgomery City-County EMA is the responsible person for the review of the plan to include monitoring, evaluating, and updating of the plan, reconvening the committee only if additional information is available or the EMA Director requires assistance. The annual review of the plan will take place in June of each year. Although the entire plan's progress will be monitored, evaluated, and updated on a continuous basis throughout the five-year timeframe, the annual review will begin by the EMA Director emailing an Annual Review and Monitoring Survey Form, as shown in **Figure 6-1** to the HMPC members asking them for their input and giving them a two-week deadline on returning the information to the EMA Director. Following the two-week deadline, the EMA Director will consolidate the survey forms and act upon the findings as needed and in the methods described below. Again, efforts will be made to have the annual survey form placed on all jurisdictional websites for the public to complete and return.

The County EMA will conduct an annual evaluation of the plan, reconvening the committee only if additional information is available or the EMA Director requires assistance. The EMA Director will document the annual evaluation and note the findings. The evaluation will consider several basic factors including:

1. Changes in the level of risk to the county and its citizens
2. Changes in laws, policies, or regulations at the local or state level
3. Changes in state or local agencies or their procedures that will affect how mitigation programs or funds are administered
4. Significant changes in funding sources or capabilities
5. Changes in the composition of the Hazard Mitigation Committee
6. Progress on mitigation actions (including project closeouts) and new mitigation actions that the county is considering
7. Major changes to the multi-jurisdictional hazard mitigation plan

Additionally, the County EMA Director will contact local agencies (and other individuals and organizations as appropriate) to determine if updates have been made to certain elements of the local plans as part of the annual review process. The purpose of this effort is to ensure that local information about risk, goals, projects, and mitigation strategies included in the plan remains current.

In the event modifications to the plan are warranted as a result of the annual review or other conditions, the HMPC will oversee and approve all revisions to the plan. Conditions which might warrant revisions to this plan would include, but not be limited to, special opportunities for funding, a response to a natural disaster, and changes in jurisdictions' capabilities to implement the plan. Before any revisions are submitted to the jurisdictions for adoption, a notice may be placed in the local newspaper or posted in public facilities, allowing an opportunity for the public to review the proposed amendments at the EMA, submit written comments, and/or present comments at a public meeting. The HMPC will then submit all revisions for adoption by jurisdictions affected by the changes. A copy of the plan revisions will be submitted to all holders of the original plan in a timely manner.

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Figure 6-1: Annual Review and Monitoring Survey Form

ANNUAL REVIEW AND MONITORING SURVEY FORM FOR THE _____ COUNTY HAZARD MITIGATION PLAN		
County:	HMPC Member:	Date:
<p>Have there been any changes in the level of risk to citizens? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If yes, please explain.</p>		
<p>Have there been any changes in laws, policies, or regulations at your level? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If yes, please list.</p>		
<p>Have there been any changes in your agency/jurisdiction or in procedures that will affect how mitigation programs or funds are administered? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If yes, please explain.</p>		
<p>Have there been significant changes in funding sources or capabilities? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If yes, please explain.</p>		
<p>Have there been any changes in your agency/jurisdiction in regards to representation on this committee? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If yes, list new representative(s).</p>		
<p style="text-align: center;">Please review the mitigation projects for your agency/jurisdiction and complete the information beginning on the next page: (This form can be completed on a computer or hand-written [print clearly] using additional paper if necessary.)</p> <p>Instructions on accessing your plan online: Go to www.cma.alabama.gov. Click on the "County EMA" tab at the top left of screen. Scroll to your county and click on "View Hazard Mitigation Plan" at the far right of your screen.</p>		

Mitigation Measure #:	Has project been accomplished? Yes <input type="checkbox"/> No <input type="checkbox"/>	Should project continue or be removed from plan? Continue <input type="checkbox"/> Remove <input type="checkbox"/> If project is to be removed, please explain the reason(s) for removal.	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.
Mitigation Measure #:	Has project been accomplished? Yes <input type="checkbox"/> No <input type="checkbox"/>	Should project continue or be removed from plan? Continue <input type="checkbox"/> Remove <input type="checkbox"/> If project is to be removed, please explain the reason(s) for removal.	Updated status on the project? List tasks that have and have not been completed on this project. For those tasks not completed, explain why.

The following samples represent the messages that accompanied the annual survey forms:

TO: Montgomery City/County HMPC Members:

It is time to conduct an annual review of the Montgomery City/County Hazard Mitigation Plan. If you have information that needs to be updated in the current Hazard Mitigation Plan (plan is on file at the Montgomery City/County EMA Office) or changed in any way, please send this information to the Montgomery City/County EMA Office with a copy (mail, fax, or email) to Renee Helms of Lee Helms Associates at the contact info below.

There is a copy of the plan for review at the Montgomery City/County EMA Office; however, you can view the plan online by going to www.ema.alabama.gov, click on “Links” and under County Information click on “County EMAs.” Once you reach the page for County EMAs, go to the county you want to view (Montgomery County in this case!) and on the far right you can click on “View Mitigation Plan.”

If you have any questions, you may contact your local EMA Office or Renee Helms of LHA. Thank you for your cooperation!

TO: LOCAL COUNTY EMAs

The Montgomery City/County EMA is conducting an annual review of their Hazard Mitigation Plan and offering the surrounding counties a chance to participate in this process. If you have information that needs to be updated in their current Hazard Mitigation Plan or changed in any way, please send this information to the Montgomery City/County EMA Office and a copy (mail, fax, or email) to Renee Helms of Lee Helms Associates at the contact info below.

There is a copy of the plan for review at the Montgomery City/County EMA Office; however, you can view the plan online by going to www.ema.alabama.gov, click on “Links” and under County Information click on “County EMAs.” Once you reach the page for County EMAs, go to the county you want to view (Montgomery County in this case!) and on the far right you can click on “View Mitigation Plan.”

If you have any questions, you may contact your local EMA Office or Renee Helms of LHA. Thank you for your cooperation!

The following responses were the only ones received during the past five years. Changes to the plan were made as requested.

Renee Helms

From: Renee Helms
Sent: Monday, June 25, 2012 4:19 PM
To: 'janderson@carpdc.com'; 'bobby.crew@mps.k12.al.us'; 'lfisher@montgomeryal.gov'; 'davebryan@mc-ala.org'; 'mstoudenmier@montgomeryal.gov'; 'jbarrett@montgomeryal.gov'; 'kbolling@montgomeryal.gov'; 'mchandler@montgomeryal.gov'; 'dthomas@montgomeryal.gov'; 'ggipson@montgomeryal.gov'; 'tbrassell@bellsouth.net'; 'smiller@montgomeryal.gov'; 'wmcladdie@alasu.edu'; 'jdillard@montgomeryal.gov'; 'robertlindsey@mc-ala.org'; 'jivey@montgomeryal.gov'; 'bthornton@alasu.edu'; 'jburdick@montgomeryal.gov'; 'diacheek@yahoo.com'; 'lfisher@montgomeryal.gov'; 'mchandler@montgomeryal.gov'; 'msmith@montgomeryal.gov'; 'dyelder@montgomeryal.gov'; 'dmccanless@montgomeryal.gov'; 'Zakiya.darby@ema.alabama.gov'; 'wmills@montgomeryal.gov'; 'lwalker@montgomeryal.gov'; 'cwalker@montgomeryal.gov'; 'jaddie@montgomeryal.gov'; 'operkins@montgomeryal.gov'; 'mjordan@montgomeryal.gov'; 'cbrunson@montgomeryal.gov'; 'kgroves@montgomeryal.gov'; 'ebaggett@montgomeryal.gov'; 'johnmitchell@mc-ala.org'; 'robertlindsey@mc-ala.org'; 'charleswilliams@ema.alabama.gov'; 'jamesmay@mc-ala.org'; 'ktate@alasu.edu'; 'davebryan@mc-ala.org'; 'mchandler@montgomeryal.gov'; 'wthompson@montgomeryal.gov'; 'townofpikeroad@charterinternet.com'; 'pikeroad.us'; 'Kenneth@pikeroad.us'
Subject: Annual Review of the Montgomery City/County Hazard Mitigation Plan
Importance: High

Good Afternoon!

It is time to conduct an annual review of the Montgomery City/County Hazard Mitigation Plan. If you have information that needs to be updated in the current Hazard Mitigation Plan (plan is on file at the Montgomery City/County EMA Office) or changed in any way, please send this information to the Montgomery City/County EMA Office with a copy (mail, fax, or email) to Renee Helms of Lee Helms Associates at the contact info below.

There is a copy of the plan for review at the Montgomery City/County EMA Office; however, you can view the plan online by going to www.ema.alabama.gov, click on "Links" and under County Information click on "County EMAs." Once you reach the page for County EMAs, go to the county you want to view (Montgomery, in this case!) and on the far right you can click on "View Mitigation Plan."

If you have any questions, you may contact your local EMA Office or Renee Helms of LHA. Thank you for your cooperation!

Renee Helms, Manager
Lee Helms Associates, L. L. C.
236 Town Mart
Clanton, AL 35045
Office: 205-280-3027
Fax: 205-280-0543
Email: renee@leehelmsllc.com
Website: www.leehelmsllc.com



Renee Helms

From: Renee Helms
Sent: Monday, June 25, 2012 4:13 PM
To: 'emamacon@bellsouth.net'; 'johnnyadams@bullockema.com'; 'crystal.ousley@prattvilleal.gov'; 'lowndesema@htcnet.net'; 'ccema@troycable.net'; 'ema2@troycable.net'; 'johnnyadams@bullockema.com'; 'ejones@elmoreco.org'
Cc: 'ebaggett@montgomeryal.gov'
Subject: Annual Review of the Montgomery City/County Hazard Mitigation Plan
Importance: High

Hello All!

The Montgomery City/County EMA is conducting an annual review of their Hazard Mitigation Plan and offering the surrounding counties a chance to participate in this process. If you have information that needs to be updated in their current Hazard Mitigation Plan or changed in any way, please send this information to the Montgomery City/County EMA Office and a copy (mail, fax, or email) to Renee Helms of Lee Helms Associates at the contact info below.

There is a copy of the plan for review at the Montgomery City/County EMA Office; however, you can view the plan online by going to www.ema.alabama.gov, click on "Links" and under County Information click on "County EMAs." Once you reach the page for County EMAs, go to the county you want to view (Montgomery, in this case!) and on the far right you can click on "View Mitigation Plan."

If you have any questions, you may contact your local EMA Office or Renee Helms of LHA. Thank you for your cooperation!

Renee Helms, Manager
Lee Helms Associates, L. L. C.
236 Town Mart
Clanton, AL 35045
Office: 205-280-3027
Fax: 205-280-0543
Email: renee@leehelmsllc.com
Website: www.leehelmsllc.com



Renee Helms

From: Renee Helms
Sent: Tuesday, June 26, 2012 3:03 PM
To: 'janderson@carpdc.com'; 'bobby.crew@mps.k12.al.us'; 'lfisher@montgomeryal.gov'; 'davebryan@mc-ala.org'; 'mstoudenmier@montgomeryal.gov'; 'jbarrett@montgomeryal.gov'; 'kbolling@montgomeryal.gov'; 'mchandler@montgomeryal.gov'; 'dthomas@montgomeryal.gov'; 'ggipson@montgomeryal.gov'; 'tbrassell@bellsouth.net'; 'smiller@montgomeryal.gov'; 'wmclladdie@alasu.edu'; 'jdillard@montgomeryal.gov'; 'robertlindsey@mc-ala.org'; 'jivey@montgomeryal.gov'; 'bthornton@alasu.edu'; 'jburdick@montgomeryal.gov'; 'diacheek@yahoo.com'; 'lfisher@montgomeryal.gov'; 'mchandler@montgomeryal.gov'; 'msmith@montgomeryal.gov'; 'dyelder@montgomeryal.gov'; 'dmccanless@montgomeryal.gov'; 'Zakiya.darby@ema.alabama.gov'; 'wmills@montgomeryal.gov'; 'lwalker@montgomeryal.gov'; 'cwalker@montgomeryal.gov'; 'jaddie@montgomeryal.gov'; 'operkins@montgomeryal.gov'; 'mjordan@montgomeryal.gov'; 'cbrunson@montgomeryal.gov'; 'kgroves@montgomeryal.gov'; 'ebaggett@montgomeryal.gov'; 'johnmitchell@mc-ala.org'; 'robertlindsey@mc-ala.org'; 'charleswilliams@ema.alabama.gov'; 'jamesmay@mc-ala.org'; 'ktate@alasu.edu'; 'davebryan@mc-ala.org'; 'mchandler@montgomeryal.gov'; 'wthompson@montgomeryal.gov'; 'Kenneth@pikeroad.us'; 'townofpikeroad@pikeroad.us'
Subject: Form for Annual Review of Local Hazard Mitigation Plan
Attachments: Annual Review Form.docx

Feel free to use the attached form for your annual review of the Montgomery City/County Hazard Mitigation Plan. Make as many copies as needed of the second page of the form in order to cover all the mitigation measures your jurisdiction has listed in the plan.

Renee Helms, Manager
Lee Helms Associates, L. L. C.
236 Town Mart
Clanton, AL 35045
Office: 205-280-3027
Fax: 205-280-0543
Email: renee@leehelmsllc.com
Website: www.leehelmsllc.com



Renee Helms

From: Gordon, Sr, Kelly [kgordon@montgomeryal.gov]
Sent: Tuesday, June 26, 2012 2:37 PM
To: Renee Helms
Cc: Jordan, Miford; Baggett, Earnest
Subject: FW: Annual Review of the Montgomery City/County Hazard Mitigation Plan

Hello Renee,

We at Montgomery Fire Rescue have reviewed the Hazard Mitigation Plan and see no changes involving Montgomery Fire Rescue. However, some of the contact information in the e-mail list needs updated. Listed below are the new contacts.

Fire Chief Miford Jordan	mjordan@montgomeryal.gov	
Deputy Fire Chief Joey Addie	jaddie@montgomeryal.gov	Chief of Staff
Assistant Fire Chief Harold Bellinger	hbelling@montgomeryal.gov	Codes and Investigations Division
Assistant Fire Chief Ken Bolling	kbolling@montgomeryal.gov	Suppression Division
Assistant Fire Chief Bill Petrey	bpetrey@montgomeryal.gov	Medic Division
Assistant Fire Chief John Petrey	jpetrey@montgomeryal.gov	Administrative Division
Assistant Fire Chief Kelly Gordon	kgordon@montgomeryal.gov	Special Operations Division
Assistant Fire Chief D. Yelder	dyelder@montgomeryal.gov	Training Division

If there any questions please give me a call 334-309-5201

From: Jordan, Miford
Sent: Tuesday, June 26, 2012 11:40 AM
To: Gordon, Sr, Kelly
Subject: Re: Annual Review of the Montgomery City/County Hazard Mitigation Plan

Please take care of

From: Gordon, Sr, Kelly
Sent: Tuesday, June 26, 2012 11:38 AM
To: Jordan, Miford
Subject: RE: Annual Review of the Montgomery City/County Hazard Mitigation Plan

I see nothing on our end that needs to be changed.

From: Jordan, Miford
Sent: Monday, June 25, 2012 4:24 PM
To: Gordon, Sr, Kelly
Subject: Fw: Annual Review of the Montgomery City/County Hazard Mitigation Plan
Importance: High

There is a lot of old contacts?

From: Renee Helms [<mailto:renee@leehelmsllc.com>]
Sent: Monday, June 25, 2012 04:21 PM
To: janderson@carpdc.com <janderson@carpdc.com>; bobby.crew@mps.k12.al.us <bobby.crew@mps.k12.al.us>; Fisher, Larry J.; davebryan@mc-ala.org <davebryan@mc-ala.org>; Stoudenmire, Michael; Jim.Barrett; Bolling, Ken; Chandler, Melinda; Thomas, Donald; Gipson, Gail; tbrassell@bellsouth.net <tbrassell@bellsouth.net>; Miller, Scott; wmcladdie@alasu.edu <wmcladdie@alasu.edu>; Dillard, Jerry; robertlindsey@mc-ala.org <robertlindsey@mc-ala.org>; Ivey, James; bthornton@alasu.edu <bthornton@alasu.edu>; Burdick, James; diacheek@yahoo.com <diacheek@yahoo.com>; Fisher, Larry J.; Chandler, Melinda; Smith, Mike F.; Yelder, Dwayne; McCanless, Donald P.;

Renee Helms

From: Charlene Rabren [townofpikeroad@pikeroad.us]
Sent: Tuesday, June 26, 2012 11:42 AM
To: Renee Helms
Subject: Town of Pike Road

Renee,
Would you please change the email address for the Town of Pike Road to townofpikeroad@pikeroad.us rather than charter.net. Also add kenneth@pikeroad.us.

Charlene Rabren
Town Clerk
Town of Pike Road, Alabama

Welcome Home!

9575 Vaughn Road
Pike Road, AL 36064
P: (334) 272-9883
F: (334) 272-9884

The Town of Pike Road intends that this electronic message be used exclusively by the individual or entity to which it is addressed. The message may contain information that is privileged, confidential and exempt from disclosure under applicable law. The unauthorized disclosure or interception of e-mail is a federal crime; 18 U.S.C. § 2517(4). If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, be aware that any disclosure, dissemination, distribution or copying of this communication, or the use of its contents, is strictly prohibited. If you have received this communication in error, please notify the Town of Pike Road immediately by telephone at (334) 272-9883 or by electronic mail and delete the original message from your e-mail system. Thank you.

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Incorporation into Existing Planning Mechanisms

The Montgomery City-County Hazard Mitigation Plan is a stand-alone plan; however, will be placed alongside the current Montgomery City-County Emergency Operations Plan that is administered by the Montgomery City-County Emergency Management Agency. The Montgomery City-County Hazard Mitigation Plan update has also been incorporated into the Comprehensive Economic Development Strategy (CEDS) developed by the Central Alabama Regional Planning and Development Commission.

Incorporation of the hazard mitigation plan will vary for each jurisdiction based on existing planning methods and processes. Jurisdictions with planning commissions and respective zoning ordinances and building codes will incorporate mitigation plan elements as appropriate into their review of new developments.

The mitigation plan elements will be incorporated into local development decisions by the appropriate local coordinating body in order to determine funding, prioritization, and review of new development activities. At such time as a jurisdiction adopts zoning and building codes, they will reflect the goals and objectives set forth in this plan. Further, any jurisdiction preparing or updating a comprehensive plan will reflect their hazard mitigation goals and objectives in their plan. These updates will occur as budget and time allow.

The jurisdictions are funded through their local budgets and utilize grants that allow them to expand on and improve existing policies and programs. The EMA distributes educational material and reaches out to the citizens and businesses in the county. **Table 1-1** provides a list of plans, policies, and ordinances available to each jurisdiction. These plans, policies, and ordinances, along, with an engineer, planners, GIS staff, a building inspector, emergency managers, and grant writers help to expand on and improve the jurisdictions' capabilities.

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APPENDIX I

Adopting Resolutions

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APPROVAL & IMPLEMENTATION

The purpose of hazard mitigation is to implement action that eliminate the risk from hazards, or reduce the severity of the effects of hazards on people and property. Mitigation actions are both short-term and long-term activities that reduce the cause or occurrence of hazards; reduce exposure to hazards; or reduce effects of hazards through various means to include preparedness, response and recovery measures.

This plan update applies to all local agencies, boards, commissions, and departments assigned mitigation responsibilities, and to others as designated by the Mayor of the City of Montgomery or Director of the Montgomery City-County Emergency Management Agency.

The Montgomery City-County Hazard Mitigation Plan Update was prepared in compliance with Public Law 106-390, *Disaster Mitigation Act of 2000*, as amended. This plan update implements hazard mitigation measures intended to eliminate or reduce the effects of future disasters throughout Montgomery City-County, and was developed in a joint and cooperative venture by members of the Montgomery City-County Hazard Mitigation Planning Committee.

Montgomery City-County will comply with all applicable state and federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 Code of Federal Regulations (CFR) 13.11c. Montgomery City-County will amend its plan whenever necessary to reflect changes in local/state and/or federal laws and statutes as required in 44 CFR, 13.11d. At a minimum, the Montgomery City-County EMA will review and if necessary, update the plan every five years from the date of approval in accordance with 44 CFR, 201.6 (5) (d) (3) in order to continue program eligibility.

As the Director of the Montgomery City-County Emergency Management Agency, I hereby adopt this plan update in accordance to the powers delegated to me and accept this plan update for implementation in order to protect the lives and property of the citizens of Montgomery City-County, Alabama.

Date

Calvin Brown, Director

Montgomery City-County Emergency Management Agency

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County of Montgomery

2015 Montgomery County Hazard Mitigation Plan Update

Resolution of Adoption

WHEREAS, the Montgomery County Hazard Mitigation Plan has been updated in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, the County of Montgomery participated in the updating of a multi-jurisdictional plan, the Montgomery County Hazard Mitigation Plan; and

WHEREAS, the County of Montgomery is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the plan and the actions in the plan; and

WHEREAS, the County of Montgomery has reviewed the plan and affirms that the plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the County Commission that the County of Montgomery adopts the 2015 Montgomery County Hazard Mitigation Plan update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2015 at the meeting of the County Commission.

Chairman, Montgomery County Commission

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City of Montgomery
2015 Montgomery City-County Hazard Mitigation Plan Update
Resolution of Adoption

WHEREAS, the Montgomery County Hazard Mitigation Plan has been updated in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, the City of Montgomery participated in the updating of a multi-jurisdictional plan, Montgomery County Hazard Mitigation Plan; and

WHEREAS, the City of Montgomery is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the plan and the actions in the plan; and

WHEREAS, the City of Montgomery has reviewed the plan and affirms that the plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the City Council that the City of Montgomery adopts the 2015 Montgomery County Hazard Mitigation Plan Update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2015 at the meeting of the City Council.

Mayor, City of Montgomery

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Town of Pike Road

2015 Montgomery County Hazard Mitigation Plan Update

Resolution of Adoption

WHEREAS, the Montgomery County Hazard Mitigation Plan has been updated in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, the Town of Pike Road participated in the updating of a multi-jurisdictional plan, Montgomery County Hazard Mitigation Plan; and

WHEREAS, the Town of Pike Road is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the plan and the actions in the plan; and

WHEREAS, the Town of Pike Road has reviewed the plan and affirms that the plan will be updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the Town Council that the Town of Pike Road adopts the 2015 Montgomery County Hazard Mitigation Plan Update, and resolves to execute the actions in the plan.

ADOPTED, this _____ day of _____, 2015 at the meeting of the Town Council.

Mayor, Town of Pike Road

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APPENDIX II

Local Mitigation Plan Review Tool

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APPENDIX II:

LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

Jurisdiction: Montgomery County, Alabama	Title of Plan: Montgomery County Hazard Mitigation Plan Update	Date of Plan: 2015
Local Point of Contact: Calvin Brown	Address: 911 Communications Parkway P. O. Box 1111 Montgomery, AL 36104	
Title: Director		
Agency: Montgomery City-County EMA		
Phone Number: 334-240-4181	E-Mail: cibrown@montgomeryal.gov	

State Reviewer:	Title:	Date:
FEMA Reviewer:	Title:	Date:
Date Received in FEMA Region IV		
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved		

SECTION 1:

REGULATION CHECKLIST

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been ‘Met’ or ‘Not Met.’ The ‘Required Revisions’ summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is ‘Not Met.’ Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

1. REGULATION CHECKLIST		Location in Plan	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)		(section and/or		
ELEMENT A. PLANNING PROCESS				
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))		Section 1: Pages 13-30		
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))		Section 1: Pages 13-29		
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))		Section 1: Pages 13-14; 16-17		
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))		Section 1: Pages 28-31 (Table 1-1) Section 6: Pages 293-294; 307		
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))		Section 1: Page 13; Section 6: Page 293 – 295		
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))		Section 6: Pages 293 - 307		

1. REGULATION CHECKLIST		Location in Plan	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)		(section and/or		
ELEMENT A: REQUIRED REVISIONS				
<i>For more information see “Element A: Planning Process” in the Local Mitigation Plan Review Guide, October 1, 2011, pp. 14-17. Also refer to the Local Mitigation Planning Handbook, March 2013, “Task 2 – Build the Planning Team.”</i>				
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT				
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Section 3: Pages 45 -144, incl. tables; Section 4: Pages 185 and 187 Section 5: Pages 213 – 224, 230, 259, 261 – 267, 271			
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Section 3: Pages 48 – 152 Section 4: Pages 185 and 187 Section 5: Pages 213 – 224, 230, 259, 261 – 267, 271			
B3. Is there a description of each identified hazard’s impact on the community as well as an overall summary of the community’s vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Section 4: Pages 184 - 206 Section 5: Pages 211 – 292			
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Section 3: Page 86 – There are no Repetitive Loss Properties or Severe Repetitive Loss Properties in Montgomery County at this time.			

1. REGULATION CHECKLIST		Location in Plan	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)		(section and/or		
ELEMENT B: REQUIRED REVISIONS				
<p><i>B1For more information see “Element B: Hazard Identification and Risk Assessment” in the Local Mitigation Plan Review Guide, October 1, 2011, pp. 18-21. Also refer to the Local Mitigation Planning Handbook, March 2013, “Task 5 – Conduct a Risk Assessment”.</i></p>				
ELEMENT C. MITIGATION STRATEGY				
C1. Does the plan document each jurisdiction’s existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Section 1: Page 29-31 Section 6: Page 307			
C2. Does the Plan address each jurisdiction’s participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Section 3: Page 86; Section 4: Page 192; Section 5: Pages 236; 276			
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Section 4: Pages 191-205 Section 5: Pages 235-256; 273-291			
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Section 4: Pages 191-205 Section 5: Pages 235-256; 273-291			
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Section 5: Pages 188-189			

1. REGULATION CHECKLIST		Location in Plan	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)		(section and/or		
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))		Section 6: Page 307		
<u>ELEMENT C: REQUIRED REVISIONS</u>				
<p><i>For more information see “Element C: Mitigation Strategy” in the Local Mitigation Plan Review Guide, October 1, 2011, pp. 22-25. Also refer to the Local Mitigation Planning Handbook, March 2013, “Task 4 – Review Community Capabilities” and “Task 6 – Develop a Mitigation Strategy”.</i></p>				
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)				
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))		Section 4: Pages 153-181		
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))		See Benchmarks Section 4: Pages 191-205 Section 5: Pages 235-256; 273-291		
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))		Section 4: Pages 191-205 Section 5: Pages 235-256; 273-291 Mitigation Actions Prioritizations have been updated and Prioritized Occurrence Threats have been added - Section 5: Pages 211 and 259		

1. REGULATION CHECKLIST		Location in Plan	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)		(section and/or		
<u>ELEMENT D: REQUIRED REVISIONS</u>				
<p><i>For more information see "Element D: Plan Review, Evaluation, and Implementation" in the Local Mitigation Plan Review Guide, October 1, 2011, pp. 26-27. Also refer to the Local Mitigation Planning Handbook, March 2013, "Task 6 – Develop a Mitigation Strategy".</i></p>				
ELEMENT E. PLAN ADOPTION				
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	Appendix I: Adopting Resolutions (will be added upon FEMA's approval pending adoption)			
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	Appendix I: Adopting Resolutions (will be added upon FEMA's approval pending adoption)			
<u>ELEMENT E: REQUIRED REVISIONS</u>				
<p><i>Refer to "Local Mitigation Plan Review Guide", October 1, 2011, Requirement 201.6(c)(5), pp. 28-29.</i></p>				
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)				
F1.				
F2.				
<u>ELEMENT F: REQUIRED REVISIONS</u>				

SECTION 2:

PLAN ASSESSMENT

INSTRUCTIONS: The purpose of the Plan Assessment is to offer the local community more comprehensive feedback to the community on the quality and utility of the plan in a narrative format. The audience for the Plan Assessment is not only the plan developer/local community planner, but also elected officials, local departments and agencies, and others involved in implementing the Local Mitigation Plan. The Plan Assessment must be completed by FEMA. The Assessment is an opportunity for FEMA to provide feedback and information to the community on: 1) suggested improvements to the Plan; 2) specific sections in the Plan where the community has gone above and beyond minimum requirements; 3) recommendations for plan implementation; and 4) ongoing partnership(s) and information on other FEMA programs, specifically RiskMAP and Hazard Mitigation Assistance programs. The Plan Assessment is divided into two sections:

1. Plan Strengths and Opportunities for Improvement
2. Resources for Implementing Your Approved Plan

Plan Strengths and Opportunities for Improvement is organized according to the plan Elements listed in the Regulation Checklist. Each Element includes a series of italicized bulleted items that are suggested topics for consideration while evaluating plans, but it is not intended to be a comprehensive list. FEMA Mitigation Planners are not required to answer each bullet item, and should use them as a guide to paraphrase their own written assessment (2-3 sentences) of each Element.

The Plan Assessment must not reiterate the required revisions from the Regulation Checklist or be regulatory in nature, and should be open-ended and to provide the community with suggestions for improvements or recommended revisions. The recommended revisions are suggestions for improvement and are not required to be made for the Plan to meet Federal regulatory requirements. The italicized text should be deleted once FEMA has added comments regarding strengths of the plan and potential improvements for future plan revisions. It is recommended that the Plan Assessment be a short synopsis of the overall strengths and weaknesses of the Plan (no longer than two pages), rather than a complete recap section by section.

Resources for Implementing Your Approved Plan provides a place for FEMA to offer information, data sources and general suggestions on the overall plan implementation and maintenance process. Information on other possible sources of assistance including, but not limited to, existing publications, grant funding or training opportunities, can be provided. States may add state and local resources, if available.

A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

Element A: Planning Process

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Element B: Hazard Identification and Risk Assessment

Element C: Mitigation Strategy

Element D: Plan Update, Evaluation, and Implementation (*Plan Updates Only*)

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B. Resources for Implementing Your Approved Plan

The following resources may be of use to the planning committee in their next round of updating this Plan:

Mitigation Planning Toolkit: This is an extensive web based tool to assist States, Local, and Tribal Communities involved in Hazard Mitigation Plan Development and Updates.

<http://www.fema.gov/library/viewRecord.do?id=5580>

Local Mitigation Planning Handbook: This Handbook provides guidance to local governments on developing or updating hazard mitigation plans to meet the requirements under the Code of Federal Regulations (CFR) Title 44 – Emergency Management and Assistance §201.6.

<http://www.felibraryma.gov//viewRecord.do?fromSearch=fromsearch&id=7209>

Mitigation Ideas: Provides a resource that communities can use to identify and evaluate a range of potential mitigation actions for reducing risk to natural hazards and disasters.

<http://www.fema.gov/library/viewRecord.do?id=6938>

Integrating Mitigation Strategies with Local Planning: Provides practical guidance on how to incorporate risk reduction strategies into existing local plans, policies, codes, and programs that guide community development or redevelopment patterns.

<http://www.fema.gov/library/viewRecord.do?id=7130>

Risk Mapping, Assessment, and Planning (Risk MAP): Risk MAP is the Federal Emergency Management Agency (FEMA) Program that provides communities with flood information and tools they can use to enhance their mitigation plans and take action to better protect their citizens. Through more precise flood mapping products, risk assessment tools, and planning and outreach support, Risk MAP strengthens local ability to make informed decisions about reducing risk.

<http://www.fema.gov/risk-mapping-assessment-planning>

FEDERAL MITIGATION FUNDING SOURCES:

Federal Emergency Management Agency

Program	Details	Notes
Flood Mitigation Assistance Program (FMA)	Provides funding to implement measures to reduce or eliminate the long-term risk of flood damage http://www.fema.gov/government/grant/fma/index.shtm	States and localities

Hazard Mitigation Grant Program (HMGP)	Provides grants to implement long-term hazard mitigation measures after a major disaster declaration http://www.fema.gov/government/grant/hmgp/index.shtm	Open
National Flood Insurance Program (NFIP)	Enables property owners to purchase insurance as a protection against flood losses in exchange for state and community floodplain management regulations that reduce future flood damages http://www.fema.gov/business/nfip/	States, localities, and individuals
Pre-Disaster Mitigation Program (PDM)	Provides funds for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event http://www.fema.gov/government/grant/pdm/index.shtm	States, localities and tribal governments

Environmental Protection Agency

The EPA makes available funds for water management and wetlands protection programs that help mitigate against future costs associated with hazard damage.

Mitigation Funding Sources Program	Details	Notes
Clean Water Act Section 319 Grants	Grants for water source management programs including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and regulation. http://www.epa.gov/OWOW/NPS/cwact.html	Funds are provided only to designated state and tribal agencies
Clean Water State Revolving Funds	State grants to capitalize loan funds. States make loans to communities, individuals, and others for high-priority water-quality activities. http://www.epa.gov/owow/wetlands/initiative/srf.html	States and Puerto Rico
Wetland Program Development Grants	Funds for projects that promote research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution. http://www.epa.gov/owow/wetlands/initiative/#financial	See website

National Oceanic and Atmosphere Administration (NOAA)

NOAA is the major source for mitigation funding related to coastal zone management and other coastal protection projects.

Mitigation Funding	Details	Notes
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Sources Program		
Coastal Services Center Cooperative Agreements	Funds for coastal wetlands management and protection, natural hazards management, public access improvement, reduction of marine debris, special area management planning, and ocean resource planning. http://www.csc.noaa.gov/funding/	May only be used to implement and enhance the states' approved Coastal Zone Management programs
Coastal Services Center Grant Opportunities	Formula and program enhancement grants for implementing and enhancing Coastal Zone Management programs that have been approved by the Secretary of Commerce. http://www.csc.noaa.gov/funding/	Formula grants require non-federal match
Coastal Zone Management Program	The Office of Ocean and Coastal Resource Management (OCRM) provides federal funding and technical assistance to better manage our coastal resources. http://coastalmanagement.noaa.gov/funding/welcome.html	Funding is reserved for the nation's 34 state and territory Coastal Zone Management Programs
Marine and Coastal Habitat Restoration	Funding for habitat restoration, including wetland restoration and dam removal. http://www.nmfs.noaa.gov/habitat/recovery/	Funding available for state, local and tribal governments and for- and non-profit organizations.

Floodplain, Wetland and Watershed Protection Programs

USACE and the U.S. Fish and Wildlife Service offer funding and technical support for programs designed to protect floodplains, wetlands, and watersheds.

Funding and Technical Assistance for Wetlands and Floodplains Program	Details	Notes
USACE Planning Assistance to States (PAS)	Fund plans for the development and conservation of water resources, dam safety, flood damage reduction and floodplain management.	50 percent non-federal match

	http://www.lre.usace.army.mil/planning/assist.html	
USACE Flood Plain Management Services (FPMS)	Technical support for effective floodplain management. http://www.lrl.usace.army.mil/p3md-o/article.asp?id=9&MyCategory=126	See website
USACE Environmental Laboratory	Guidance for implementing environmental programs such as ecosystem restoration and reuse of dredged materials. http://el.erdc.usace.army.mil/index.cfm	See website
U.S. Fish & Wildlife Service Coastal Wetlands Conservation Grant Program	Matching grants to states for acquisition, restoration, management or enhancement of coastal wetlands. http://ecos.fws.gov/coastal_grants/viewContent.do?viewPage=home	States only. 50 percent federal share
U.S. Fish & Wildlife Service Partners for Fish and Wildlife Program	Program that provides financial and technical assistance to private landowners interested in restoring degraded wildlife habitat. http://ecos.fws.gov/partners/viewContent.do?viewPage=home	Funding for volunteer-based programs

Housing and Urban Development

The Community Development Block Grants (CDBG) administered by HUD can be used to fund hazard mitigation projects.

Mitigation Funding Sources Program	Details	Notes
Community Development Block Grants (CDBG)	Grants to develop viable communities, principally for low and moderate income persons. CDBG funds available through Disaster Recovery Initiative. http://www.hud.gov/offices/cpd/communitydevelopment/programs/	Disaster funds contingent upon Presidential disaster declaration
Disaster Recovery Assistance	Disaster relief and recovery assistance in the form of special mortgage financing for rehabilitation of impacted homes. http://www.hud.gov/offices/cpd/communitydevelopment/programs/dri/assistance.cfm	Individuals
Neighborhood Stabilization Program	Funding for the purchase and rehabilitation of foreclosed and vacant property in order to renew neighborhoods devastated by the economic crisis. http://www.hud.gov/offices/cpd/communitydevelopment/programs/neighborhoodspg/	State and local governments and non-profits

Bureau of Land Management

The Bureau of Land Management (BLM) has two technical assistance programs focused on fire mitigation strategies at the community level.

Mitigation Funding Sources Program	Details	Notes
Community Assistance and Protection Program	Focuses on mitigation/prevention, education, and outreach. National Fire Prevention and Education teams are sent to areas across the country at-risk for wildland fire to work with local residents. http://www.blm.gov/nifc/st/en/prog/fire/community_assistance.html	See website
Firewise Communities Program	Effort to involve homeowners, community leaders, planners, developers, and others in the effort to protect people, property, and natural resources from the risk of wildland fire before a fire starts. http://www.firewise.org/	See website

U.S. Department of Agriculture

There are multiple mitigation funding and technical assistance opportunities available from the USDA and its various sub-agencies: the Farm Service Agency, Forest Service, and Natural Resources Conservation Service.

Mitigation Funding Sources Agency Program	Details	Notes
USDA Smith-Lever Special Needs Funding	Grants to State Extension Services at 1862 Land-Grant Institutions to support education-based approaches to addressing emergency preparedness and disasters. http://www.csrees.usda.gov/funding/rfas/smith_lever.html	Population under 20,000
USDA Community Facilities Guaranteed Loan Program	This program provides an incentive for commercial lending that will develop essential community facilities, such as fire stations, police stations, and other public buildings. http://www.rurdev.usda.gov/rhs/cf/cp.htm	Population under 20,000
USDA Community Facilities Direct Loans	Loans for essential community facilities. http://www.rurdev.usda.gov/rhs/cf/cp.htm	Population of less than 20,000
USDA Community Facilities Direct Grants	Grants to develop essential community facilities. http://www.rurdev.usda.gov/rhs/cf/cp.htm	Population of less than 20,000
USDA Farm Service Agency Disaster	Emergency funding and technical assistance for farmers and ranchers to rehabilitate farmland and livestock	Farmers and ranchers

Assistance Programs	damaged by natural disasters. http://www.fsa.usda.gov/	
USDA Forest Service National Fire Plan	Funding for organizing, training, and equipping fire districts through Volunteer, State and Rural Fire Assistance programs. Technical assistance for fire related mitigation. http://www.forestsandrangelands.gov/	See website
USDA Forest Service Economic Action Program	Funds for preparation of Fire Safe plans to reduce fire hazards and utilize byproducts of fuels management activities in a value-added fashion. http://www.fs.fed.us/spf/coop/programs/eap/	80% of total cost of project may be covered
USDA Natural Resources Conservation Service Emergency Watershed Protection Support Services	Funds for implementing emergency measures in watersheds in order to relieve imminent hazards to life and property created by a natural disaster. http://www.nrcs.usda.gov/programs/ewp/	See website
USDA Natural Resources Conservation Service Watershed Protection and Flood Prevention	Funds for soil conservation; flood prevention; conservation, development, utilization and disposal of water; and conservation and proper utilization of land. http://www.nrcs.usda.gov/programs/watershed/index.html	See website

Health and Economic Agencies

Alternative mitigation programs can be found through health and economic agencies that provide loans and grants aimed primarily at disaster relief.

Federal Loans and Grants for Disaster Relief Agency Program	Details	Notes
Department of Health & Human Services Disaster Assistance for State Units on Aging (SUAs)	Provide disaster relief funds to those SUAs and tribal organizations who are currently receiving a grant under Title VI of the Older Americans Act. http://www.aoa.gov/doingbus/fundopp/fundopp.asp	Areas designated in a Disaster Declaration issued by the President
Economic Development Administration (EDA) Economic	Grants that support public works, economic adjustment assistance, and planning. Certain funds allocated for locations recently hit by major disasters. http://www.eda.gov/AboutEDA/Programs.xml	The maximum investment rate shall not exceed 50 percent of

Development Administration Investment Programs		the project cost
U.S. Small Business Administration Small Business Administration Loan Program	Low-interest, fixed rate loans to small businesses for the purpose of implementing mitigation measures. Also available for disaster damaged property. http://www.sba.gov/services/financialassistance/index.html	Must meet SBA approved credit rating

Research Grants

The United States Geological Survey (USGS) and the National Science Foundation (NSF) provide grant money for hazard mitigation-related research efforts.

Hazard Mitigation Research Grants Agency Program	Details	Notes
National Science Foundation (NSF) Decision, Risk, and Management Sciences Program (DRMS)	Grants for small-scale, exploratory, high-risk research having a severe urgency with regard to natural or anthropogenic disasters and similar unanticipated events. http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5423&org=SES	See website
U.S. Geological Survey (USGS) National Earthquake Hazards Reduction Program	The purpose of NEHRP is to provide products for earthquake loss reduction to the public and private sectors by carrying out research on earthquake occurrence and effects. http://www.usgs.gov/contracts/nehpr/	Community with a population under 20,000

SECTION 3:

MULTI-JURISDICTION SUMMARY SHEET (OPTIONAL)

INSTRUCTIONS: For multi-jurisdictional plans, a Multi-jurisdiction Summary Spreadsheet may be completed by listing each participating jurisdiction, which required Elements for each jurisdiction were 'Met' or 'Not Met,' and when the adoption resolutions were received. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/borough / township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Requirements
1	Montgomery	County	Calvin Brown	P. O. Box 1111, Montgomery, AL 36104	cibrown@montgomeryal.gov	334-240-4181						
2	Montgomery	City	Calvin Brown	P. O. Box 1111, Montgomery, AL 36104	cibrown@montgomeryal.gov	334-240-4181						

MULTI-JURISDICTION SUMMARY SHEET

#	Jurisdiction Name	Jurisdiction Type (city/borough / township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Requirements
3	Pike Road	Town	Gordon Stone, Mayor	4902 Pike Road, Pike Road, AL 36064	townofpikeroad@pikeroad.us	334-272-9883						
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