



City of Bartlett
A. Keith McDonald, Mayor

BOARD OF MAYOR AND ALDERMEN MEETING AGENDA

TUESDAY, JULY 13, 2021 - BARTLETT CITY HALL - 6:00 PM

INVOCATION

Opening Prayer by Mark Gates, Bartlett Baptist Church

FUTURE MEETINGS

Board of Zoning Appeals, July 15 at 6:30 p.m.

Historic Preservation Commission, July 19 at 7 p.m.

Design Review Commission, July 30 at 6:30 p.m.

RECOGNITIONS

Official Business of the Day

MINUTES ACCEPTANCE

- 1 Minutes of the June 22, 2021 Board of Mayor and Aldermen Regular Meeting**
- 2 Minutes of the June 28, 2021 Board of Mayor and Aldermen Special Called Meeting**

CONSENT AGENDA

- 1 Special event permit for Memphis Runner's Track Club Road Race Series.
(Jim Brown, Director of Code Enforcement)**

The event will be held on Sunday, August 8 and Sunday, August 22 from 5:30 a.m. to 9:30 a.m. at W.J. Freeman Park.

- 2 Bid for renovation of hardwood floors at the Singleton Community Center.
(Shan Criswell, Director of Parks and Recreation)**

Recommend accepting the sole bid from Wagner General at a total Cost of \$32,323.00. Funds are available in Account 311.48311.780.51721.

NEW BUSINESS

- 1 Appoint Bob Boston to Bartlett Station Commission. (A. Keith McDonald, Mayor)**
- 2 Resolution 18-21, a resolution to adopt the Shelby County Hazard Mitigation Plan. (Rick McClanahan, Director of Engineering)**
- 3 Resolution 19-21, a resolution to delete uncollectable property taxes, interest, penalties, and associated costs from the City of Bartlett tax rolls in the amount of \$6,024.53. (Dick Phebus, Director of Finance)**
- 4 Resolution 20-21, a resolution to amend the Fiscal Year 2021 Bartlett City Schools Education Capital Project Fund, Federal and State Special Revenue Fund and General Purpose School Fund. (Dick Phebus, Director of Finance)**

OPEN DISCUSSION**ADJOURNMENT**



City of Bartlett

A. Keith McDonald, Mayor

BOARD OF MAYOR AND ALDERMEN MEETING MINUTES

TUESDAY, JUNE 22, 2021 - BARTLETT CITY HALL - 6:00 PM

ATTENDANCE

Mayor A. Keith McDonald: Present, Alderman W.C. Pleasant: Present, Alderman Emily Elliott: Present, Alderman David Parsons: Present, Alderman Bobby Simmons: Present, Vice Mayor Jack Young: Absent, Alderman Kevin Quinn: Present.

INVOCATION

Opening Prayer by Mayor A. Keith McDonald

FUTURE MEETINGS

Special Called Board of Mayor and Aldermen meeting, June 28 at 6 p.m.

City Beautiful Commission, July 1 at 6:30 p.m.

Beer Board, July 6 at 6 p.m.

Planning Commission, July 6 at 7 p.m.

Bartlett Station Commission, July 7 at 7:30 a.m.

Parks and Recreation Advisory Board, July 8 at 6 p.m.

Family Assistance Commission, July 12 at 6 p.m.

RECOGNITIONS

Bartlett High Boys Track Team State Championship

*****Official Business of the Day*****

Mayor McDonald announced the emergency purchase of a Salt Dome. The total including materials and construction was \$54,000.00.

Minutes Acceptance: Minutes of Jun 22, 2021 6:00 PM (MINUTES ACCEPTANCE)

MINUTES ACCEPTANCE**Minutes of the June 8, 2021 Board of Mayor and Aldermen Regular Meeting**

RESULT:	ACCEPTED [UNANIMOUS]
MOVER:	David Parsons, Alderman
SECONDER:	Emily Elliott, Alderman
AYES:	Pleasant, Elliott, Parsons, Simmons, Quinn

CONSENT AGENDA

RESULT:	APPROVED [UNANIMOUS]
MOVER:	W.C. Pleasant, Alderman
SECONDER:	Bobby Simmons, Alderman
AYES:	Pleasant, Elliott, Parsons, Simmons, Quinn

- 1 Property, general liability, auto, worker's compensation, and other insurance renewals. (Dick Phebus, Director of Finance)**
- 2 Proposal for citywide pest control services. (Dick Phebus, Director of Finance)**
Recommend accepting the best proposal from Nu Era Pest Control at an estimated annual cost of \$16,080.00. Funds are available in various maintenance departmental accounts.
- 3 Bid for water meters. (Dick Phebus, Director of Finance)**
Recommend accepting the sole, qualified bid from Badger Meter beginning July 1, 2021.
- 4 Annual bid for ready-mix concrete. (Matt Crenshaw, Assistant Director of Public Works)**
Recommend accepting the sole bid from Memphis Ready Mix. This is an annual bid item.
- 5 Annual bid for fill sand, limestone and rip rap. (Matt Crenshaw, Assistant Director of Public Works)**
Recommend accepting the lowest bid from Mid South Supplier's, LLC.
- 6 Bid for solid waste disposal landfill contract. (Matt Crenshaw, Assistant Director of Public Works)**
Recommend accepting the lower bid meeting specifications from Republic Services. This is a five year contract with five additional one-year renewals. Funds are available in Account 122.48122.563.

Minutes Acceptance: Minutes of Jun 22, 2021 6:00 PM (MINUTES ACCEPTANCE)

7 Bid for walking trails overlay 2021. (Shan Criswell, Director of Parks and Recreation)

Recommend accepting the sole bid from Gibson Paving at a total cost of \$96,952.46. Funds are available in Accounts 311.48311.51421 and 110.44300.922.

8 Subdivision Contract for Karen Campbell Subdivision. (John Horne, Assistant Director of Engineering)

The developer, Karen Campbell, will pay \$7,375.00 in City fees. The bond is set at \$0.00.

9 Contract with Groundwater Institute at the University of Memphis for wellhead protection study and other regional work. (Rick McClanahan, Director of Engineering)

Authorize the Mayor to sign the contract with the Groundwater Institute for the study for a total cost of \$16,100.00. Funds are available in Account 510.51200.179.

10 Bid for Fire Department uniforms. (Terry Wiggins, Fire Chief)

Recommend accepting the bid from MidSouth Solutions for the purpose of fire uniform items beginning July 1, 2021.

11 Bid for Police Department uniforms. (Jeff Cox, Police Chief)

Recommend accepting bids from Mid-South Solutions and Galls Uniforms for the purchase of police uniform items beginning July 1, 2021. Funds are available in Account 110.42100.340.

12 Treasurer's Report for May 2021. (Dick Phebus, Director of Finance)

Budgeted Expenditures	\$85,525,146
Year-to-date Expenditures	\$76,983,292
Budgeted Revenues	\$85,525,146
Year-to-date Revenues	\$84,778,094

NEW BUSINESS

I Resolution 16-21, a resolution to amend the Fiscal Year 2021 Bartlett City Schools Education Capital Project Fund and General Purpose School Fund. (Dick Phebus, Director of Finance)

RESULT:	APPROVED [UNANIMOUS]
MOVER:	David Parsons, Alderman
SECONDER:	W.C. Pleasant, Alderman
AYES:	Pleasant, Elliott, Parsons, Simmons, Quinn

Minutes Acceptance: Minutes of Jun 22, 2021 6:00 PM (MINUTES ACCEPTANCE)

- 2 Resolution 17-21, a resolution to transfer \$250,000.00 from fund balance in the General Fund to the Capital Improvement Projects Fund for the purpose of providing resources for Parks and Recreation, Performing Arts, and Fire Department projects. (Dick Phebus, Director of Finance)**

RESULT: APPROVED [UNANIMOUS]
MOVER: David Parsons, Alderman
SECONDER: W.C. Pleasant, Alderman
AYES: Pleasant, Elliott, Parsons, Simmons, Quinn

- 3 Appoint J.J. Leatherwood as Chief Inspector for Police, effective July 1, 2021. (A. Keith McDonald, Mayor)**

RESULT: APPROVED [UNANIMOUS]
MOVER: David Parsons, Alderman
SECONDER: Emily Elliott, Alderman
AYES: Pleasant, Elliott, Parsons, Simmons, Quinn

OPEN DISCUSSION

Dennis Wise, 619 Mill Street, Raleigh, NC, with Recyclops, informed citizens of a new, home recycling pick up service in Bartlett.

Aubrey Lane, 4956 Grace View Lane, Bartlett, TN asked the City to partner with Recyclops for an at home pick up recycling service.

ADJOURNMENT

Meeting adjourned at 6:29 PM

W.C. Pleasant, Register to the
Board of Mayor and Aldermen

A. Keith McDonald, Mayor

Minutes Acceptance: Minutes of Jun 22, 2021 6:00 PM (MINUTES ACCEPTANCE)



City of Bartlett
A. Keith McDonald, Mayor

BOARD OF MAYOR AND ALDERMEN MEETING MINUTES

MONDAY, JUNE 28, 2021 - BARTLETT CITY HALL - 6:00 PM

ATTENDANCE

Mayor A. Keith McDonald: Present, Alderman W.C. Pleasant: Present, Alderman Emily Elliott: Present, Alderman David Parsons: Present, Alderman Bobby Simmons: Present, Vice Mayor Jack Young: Present, Alderman Kevin Quinn: Present.

PUBLIC HEARING

Individuals will have a maximum of three minutes to speak either for or against the item, with a total of 20 minutes for each side.

1. Ordinance 21-01, an ordinance to adopt the 2021-2022 General Fund, Street Aid Fund, Solid Waste Fund, General Improvement Fund, Drug Enforcement Fund, DEA Enforcement Fund, Drainage Fund, Parks Improvement Fund, E-Citation Fund, Bartlett City School Fund, Utility Fund, Debt Service Fund and Capital Improvements Fund Budgets.

The City Clerk read comments in favor of Ordinances 21-01 and 21-02 submitted by Linda Gibson, 6063 Camelia Lane.

No one spoke against.

Adjourned at 6:04 p.m.

2. Notice of intent to exceed the certified tax rate.

For notification purposes. No one spoke or against.

Adjourned at 6:05 p.m.

3. Ordinance 21-02, an ordinance to levy and assess a tax rate for ad valorem taxes upon real property and personal property in the City of Bartlett for the tax year 2021.

The City Clerk read comments in favor of Ordinances 21-01 and 21-02 submitted by Linda Gibson, 6063 Camelia Lane.

Christine and Dan Richards at 8855 Memphis Arlington Road spoke against Ordinance 21-02.

Randall Cole, 5998 Hickory Grove Lane, spoke against Ordinance 21-02.

Jerry Luther, 6051 Daybreak Dr., spoke against Ordinance 21-02.

Nick Sawall, 2498 Kenwood Lane, spoke against Ordinance 21-02.

Mayor McDonald encouraged qualifying senior citizens to apply for Property Tax Abatement.

Minutes Acceptance: Minutes of Jun 28, 2021 6:00 PM (MINUTES ACCEPTANCE)

UNFINISHED BUSINESS

- 1 **Third Reading of Ordinance 21-01, an ordinance to adopt the 2021-2022 General Fund, Street Aid Fund, Solid Waste Fund, General Improvement Fund, Drug Enforcement Fund, DEA Enforcement Fund, Drainage Fund, Parks Improvement Fund, E-Citation Fund, Bartlett City School Fund, Utility Fund, Debt Service Fund and Capital Improvements Fund Budgets. (Dick Phebus, Director of Finance)**

Alderman Elliott expressed her support of this budget and the funding thereof by a tax increase. She commented on the increase in citizen's solid waste output, the high cost of paving neighborhoods, bringing the City into ADA compliance, the necessity of giving City employees raises, and the fact that the City does not have storm water fees as other municipalities as justification. She also stated in order to maintain our excellent bond rating, we must maintain a healthy emergency fund balance and recalled when those reserves had to be used during the economic downturn in 2008 and after Hurricane Elvis.

Alderman Parsons agreed that during his terms as alderman, he had witnessed reserves drop to single digits during times of hardship.

Alderman Pleasant commented on the need for a good bond rating and stated that without one, it would cost millions of dollars more.

Alderman Quinn thanked Director of Finance, Dick Phebus and Chief Administrative Officer, Mark Brown for responding to his questions regarding the budget and tax ordinances. He thanked the citizens who came to voice their concerns and stated he respected the views of the other alderman, but remained in opposition of the tax increase.

RESULT:	APPROVED ON THIRD AND FINAL RE [UNANIMOUS]
MOVER:	Jack Young, Vice Mayor
SECONDER:	Emily Elliott, Alderman
AYES:	Pleasant, Elliott, Parsons, Simmons, Young, Quinn

- 2 **Third Reading of Ordinance 21-02, an ordinance to levy and assess a tax rate for ad valorem taxes upon real property and personal property in the City of Bartlett for the tax year 2021. (Dick Phebus, Director of Finance)**

RESULT:	APPROVED ON THIRD AND FINAL RE [5 TO 1]
MOVER:	Jack Young, Vice Mayor
SECONDER:	Bobby Simmons, Alderman
AYES:	Pleasant, Elliott, Parsons, Simmons, Young
NAYS:	Quinn

ADJOURNMENT

Meeting adjourned at 6:42 PM

Minutes Acceptance: Minutes of Jun 28, 2021 6:00 PM (MINUTES ACCEPTANCE)

W.C. Pleasant, Register to the
Board of Mayor and Aldermen

A. Keith McDonald, Mayor

Minutes Acceptance: Minutes of Jun 28, 2021 6:00 PM (MINUTES ACCEPTANCE)

**Board of Mayor and Aldermen**

6400 Stage Road
Bartlett, TN 38134

SCHEDULED**AGENDA ITEM**

Meeting: 07/13/21 06:00 PM
Department: Code Enforcement
Category: Special event permit
Prepared By: Valerie Brantley
Department Head: Jim Brown

Special event permit for Memphis Runner's Track Club Road Race Series.



**APPLICATION FOR SPECIAL EVENT
OFFICE OF
BARTLETT CODE ENFORCEMENT
6382 STAGE ROAD
BARTLETT TN 38134
901-385-6425**

W.J. Freeman Park 2629 Bartlett Blvd 38134
Address Zip Code

August 8th and August 22nd 2021 5:30 - 9:30 a.m.
Dates of the Event Hours of the Event

Memphis Runner's Track Club Road Race Series 5 mile runs
Type of Event (Fund Raiser, Seasonal, Tent Sale, Sidewalk Sale, Public Attraction)

City of Bartlett
Property Owner

Memphis Runner's Track Club P.O. Box 17981 Memphis, TN
Special Event Permit Applicant Address of Applicant

(901) 291-9423
Phone Number Fax Number

Check all items that apply:

For information call (901) 385-6425.

- ☒ State of TN Business License, Shelby County Business License, Bartlett Business License (For Type 2 Events)
☒ Letter of Permission
☒ Insurance
☒ Tents (Fire Retardant letter included)
☒ Special Event Checklist
☒ Map
☐ Sign or Banner

\$60.00 Special Event Fee
\$4.00 Permit Issuing Fee
\$ 2% Credit Card Fee
\$ 64.00 Total Permit Fee

April Flanagan / Sheri Coxcell 6/14/21
Responsible Person Date

****Notify building department 10 days prior to Special Event to be held unless it is a Public Attraction which requires approval from the Board of Mayor & Aldermen.****

APPROVAL

This application is not a permit and grants no rights or privileges.

Special Event Checklist

Event: Road Race Series 5 mile runs
 Location: W.J. Freeman Park 2629 Bartlett Blvd
 Dates: August 8th and August 22nd 2021
 Type of special event: (Check one.)

☐ *Type 1: Noncommercial Events.* Fund-raising or non-commercial events held outside an enclosed permanent structure, including parades, advertised demonstrations, or events, including structures used in conjunction with the event.

☐ *Type 2: Special Seasonal Events.* Farmers' market, Christmas tree sales, fruit, flower or vegetable sales, or sale of other seasonal products, when sold other than on the site where grown, constructed or assembled.

☐ *Type 3: Commercial Events.* Significant commercial events such as tent sales, sidewalk sales, trade shows, merchandise sales, product demonstrations or transient merchants.

☒ *Type 4: Public Attractions.* Significant outdoor public events intended primarily for entertainment or amusement, such as carnivals, concerts, or festivals, including fireworks displays. **Requires approval by the Board of Mayor and Aldermen.**

Exempt events: (If any of these apply, the special event is exempt from the permit requirement.)

☐ *Public property.* Any special event wholly on public streets and right-of-ways or other property of the City, excluding public parks, which special event is allowed specifically or generally by action of the Board of Mayor and Aldermen.

☒ *Public parks.* Any special event held within a public park. (Although exempt from this Section, these types of special events shall be governed by other provisions of the Codified Ordinances regulating conduct in City parks and recreation areas.)

☐ *City sponsorship.* Any special event sponsored or co-sponsored by the City. Such event shall, however, be in compliance with the performance standards in Section 27.F.

☒ *Special use permit or site plan.* Any business already operating under a special use permit or site plan that authorizes the display and sale of outdoor goods or authorizes the operation of any special event as defined herein.

☐ *Yard sales.* Yard sales regulated under Article VI, Section 1 of the Zoning Ordinance.

☐ *Auctions/estate sales.* Auctions/estate sale for individual property that is not considered a special event and is conducted by duly licensed auctioneers.

☐ *Business deliveries.* Newspaper delivery or bona fide merchants who deliver goods in the regular course of business.

☐ *Certain solicitations.* Solicitors for charitable, non-profit or religious organizations who go from dwelling to dwelling, business to business, street to street, taking or attempting to take orders for goods, wares and merchandise are exempt from these provisions, provided these organizations meet the Internal Revenue Service Criteria to qualify as a charitable, non-profit or religious organization.

☐ *First Amendment activity.* The dispensing of religious pamphlets or other literature which is protected by the United States Constitution under Freedom of Speech, Religion or Press.

☐ *Political campaigning.* Campaigning for public office.

Performance standards:

	Sub- mitted ✓ or X	OK	N/A		Comments
1	X			<i>Location.</i> Special events that do not require the use of public right-of-way shall be conducted on private property in a commercial or industrial zoning district, except that non-profit organizations may conduct special events on any property where the owner has granted permission.	
2	X			For all special events that require the use of public right-of-way, the permit granted shall clearly specify the streets to be used for the event and the time that the streets will be closed, if applicable.	map attached Police notified
3			X	Type 3 outdoor sales must be conducted by an existing permanent business adjacent to and on the property of the location of the permanent business. The outdoor sales are to be conducted as an adjunct to the existing permanent business.	
4			X	<i>Land-use compatibility.</i> The special event shall be compatible with the purpose and intent of this Section and with adjacent land uses.	
5		X		The special event shall not impair the normal, safe and effective operation of a permanent use on the same site.	
6		X		The special event shall not endanger or be detrimental to the public health, safety or welfare or injurious to property or improvements in the immediate vicinity of the special event, given the nature of the activity, its location on the site and its relationship to parking and access points.	
7		X		<i>Compliance with other regulations.</i> All structures shall meet all applicable provisions of the Building Code.	
8		X		Any temporary structure shall be promptly removed upon the cessation of the event. Within forty-eight (48) hours of cessation of the event, the site shall be returned to its previous condition, including the removal of all litter, signage, attention-attracting devices or other evidence of the special event. If the site is not returned to its previous condition, the City may restore the site at the event coordinator's expense.	

	Sub- mitted ✓ or X	OK	N/A		Comments										
9	X			<i>Hours of operation and duration.</i> The duration and hours of operation of a special event shall be consistent with the surrounding land uses. The total duration of a special event shall not exceed the duration set forth in Table VI.27-1; however, the duration of the special event may be modified by conditions attached to the issuance of the special event permit, as set forth in Section 27.F. Table V.27-1: Special Event Maximum Duration <table><tr><th>Type of Special Event</th><th>Duration</th></tr><tr><td>Type 1: Noncommercial</td><td>30 days</td></tr><tr><td>Type 2: Special Seasonal</td><td>90 days</td></tr><tr><td>Type 3: Commercial</td><td>14 days</td></tr><tr><td>Type 4: Public Attractions</td><td>14 days</td></tr></table>	Type of Special Event	Duration	Type 1: Noncommercial	30 days	Type 2: Special Seasonal	90 days	Type 3: Commercial	14 days	Type 4: Public Attractions	14 days	
Type of Special Event	Duration														
Type 1: Noncommercial	30 days														
Type 2: Special Seasonal	90 days														
Type 3: Commercial	14 days														
Type 4: Public Attractions	14 days														
10			X	In addition to the maximum duration as set forth in Table VI.27-1, a shopping center may hold centralized special events, not connected to individual businesses within the shopping center, which do not exceed sixty (60) days in a calendar year. The duration of all special events in a shopping center may be extended on a case by case basis if the special event(s) take place in shopping center parking areas not required for the primary businesses.											
11			X	<i>Frequency.</i> Except as otherwise provided herein, the maximum frequency of a special event on the same property shall be two (2) times per calendar year, excluding a shopping center. A shopping center shall be allowed to hold four (4) centralized events not connected to any individual business located within the center in addition to those events held by the individual businesses located within the shopping center.											

	Sub- mitted ✓ or X	OK	N/A		Comments
12				Type 3 outdoor sales at a specific location may be permitted only as follows: a. Outdoor sales may be permitted once in each calendar month if the duration is not more than three (3) days. b. Outdoor sales may be permitted once in each calendar quarter if the duration is more than three (3) days but not more than ten (10) days. c. The minimum time between consecutive outdoor sales periods for the same business on the same property shall be fourteen (14) days from the beginning of one period to the beginning of the next period. Permitted durations are not cumulative in any time period, that is, the time periods in both "a" and "b" may not be added together.	
13	X			<i>Traffic circulation.</i> The special event shall not cause undue traffic congestion or accident potential, given anticipated attendance and the design of adjacent streets, intersections, parking and traffic controls. All sidewalks shall be left open for pedestrian traffic unless special approval is received for blockage. No alleys, driveways, fire lanes or other access points shall be blocked by the special event unless specific approval is granted for the special event.	memo to Police
14	X			<i>Street closings.</i> The special event permit recipients shall be responsible for securing, installing and immediate removal upon cessation all barricades and signs when street closings are approved. Large Class III barricades shall be sandbagged to prevent blowing over.	

	Sub- mitted ✓ or X	OK	N/A		Comments
15				• <i>Fire safety.</i> The fire department shall be consulted for the following requirements and inspection, as necessary. a. Fire lanes a minimum of 20 feet in width and 12 feet in height or as otherwise approved by the Fire Chief must be provided in order to allow Fire Department access within 150 feet of all structures and on at least two sides of all two-story structures within 500 feet of the location of the special event. b. All fire hydrants in the area of the special event must be left with five (5) feet of clearance on all sides and shall be accessible from the fire lanes that are designated with the event. c. No open fires shall be permitted unless advance approval is obtained from the Fire Department. d. Fire extinguishers shall be available as determined by the Fire Chief. e. Temporary electrical wiring for the special event shall be installed in accordance with the requirements of the National Electrical Code. f. Tents shall comply with the Fire Code and applicable building codes. g. Exit signs and proper exiting aisles shall be provided in temporary special event structures.	
16		X		<i>Off-street parking.</i> The event shall not create a parking shortage for any other use. All off-street parking surfaces used for the special event shall be concrete or asphalt.	
17		X		<i>Public conveniences and litter control.</i> Adequate on-site rest room facilities and solid waste containers shall be provided. The applicant shall calculate the demand for such facilities and specify how the need will be addressed.	
18				<i>Nuisances.</i> The special event shall not generate excessive noise, dust, smoke, glare, spillover lighting or other forms of environmental or visual pollution.	

	Sub- mitted ✓ or X	OK	N/A		Comments
19		X		<i>Area of parking lot dedicated to outdoor special events.</i> a. No more than ten (10) percent of the parking stalls required for the structure associated with the parking lot in which the special event occurs shall be permitted to be used for a special event. Regardless of how many stalls are occupied by the special event, no special event that occurs in the parking lot for a permanent structure may cause a parking shortage for primary and accessory uses associated with that structure. b. No spikes, nails, anchors or other devices shall be driven into any public street, sidewalk or parking lot surface or into any existing concrete or asphalt. Such devices may be used on private parking lots provided any damage resulting therefrom shall be fixed upon cessation of the event and removal of the devices.	
20	X			<i>City services.</i> If the applicant requests the City to provide services or equipment, including but not limited to traffic control or security personnel, or if the City otherwise determines that services or equipment are required to protect the public health, safety, or general welfare, the applicant shall be required to reimburse the City for the cost of the services. The City may require the applicant to submit a security deposit, in an amount determined by the Chief Administrative Officer and in the form approved by the City Attorney, prior to the event to ensure that the applicant complies with this provision.	memo attached
21	X			<i>Insurance coverage.</i> Special event permit recipients must show proof of liability insurance at time of application. If the special event will take place on public property, said certificate of insurance shall name the City as an additional insured party in an amount determined by the Chief Administrative Officer based on the nature of the special event.	

4/25/02

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Conditions

Conditions deemed necessary to ensure compatibility with adjacent land-uses and to minimize potential adverse impacts on nearby uses:

	Required ✓ or X	N/A		Comments
22		X	Limitations on signs.	
23		X	Temporary arrangements for parking and traffic circulation.	
24		X	Requirements for screening/buffering and guarantees for site restoration and cleanup following the special event.	
25		X	Modifications or restrictions on the hours of operation, duration of the event, size of the event or other operational characteristics.	
26		X	The posting of security in an amount required by the Permitting Official to help ensure that the operation of the event and the subsequent restoration of the site are conducted according to required special event standards and conditions of approval.	
27		X	The provision of traffic control or security personnel to ensure the public safety and convenience.	
28		X	Execution of a "Special event agreement" in a form acceptable to the City Attorney to ensure the indemnification of the City and that public property will be protected and/or restored to its condition prior to the special event.	

Special event permit application, content and submission requirements

A complete application shall be submitted to the Permitting Official at least **ten (10) days** prior to the requested start date of any special event.

The application shall set forth and contain the following information:

	Sub- mitted ✓ or X	OK	N/A		Comments
29	X			Name and address of the applicant.	
30	X			Names and address of the owner of the premises on which the proposed event is to be held.	memo attached
31		X		Written approval from the property owner agreeing to the proposed event, if the applicant is not the same as the property owner.	
32	X			Description of the site on which the proposed event is to be held.	map attached
33	X			Date of the proposed event.	memo attached
34	X			A narrative written description of the proposed event, the hours of operation, anticipated attendance, and any buildings/ structures, signs or attention-attracting devices proposed to be used in conjunction with the event, as well as a statement that the standards set forth in this Section have been satisfied. The narrative written description shall also state what public streets, if any, are requested to be used for the special event.	memo attached
35	X			A site plan in the form and the level of detail as required by the Permitting Official, showing the location of all existing or proposed uses, structures, parking areas, outdoor display areas, signs, streets, and property lines.	map attached
36	X			Location and number of proposed temporary public toilets.	memo attached
37			X	Proposed temporary potable water supplies, which shall be subject to approval by the Director of Code Enforcement, pursuant to applicable authority of the City.	
38		X		Any other information deemed necessary by the Permitting Official to ensure compliance with the standards set forth in this Section.	

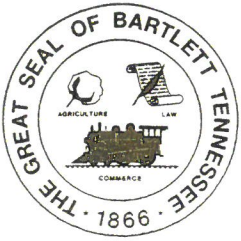
4/25/02

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Special event permit - authorization by Permitting Official

Type 1, 2 and 3 special events (as defined in part B) may be issued a special event permit by the Permitting Official on the form provided by the City when all of the following conditions have been satisfied and continue to be met throughout the special event:

	OK ✓ or X	N/A		Comments
39	X		A complete application is made on the form provided by the City and a fee paid in accordance with City ordinances.	
40			The application has been reviewed and approved in writing by the Code Enforcement, Fire, Police, and Public Works Departments for traffic control and other safety concerns.	
41		X	An electrical plan, if required for the special event, is approved by the Director of Code Enforcement.	
42	X		The Permitting Official determines the following: a. The special event will comply with the special event performance standards...;	
43	X		b. The special event will not endanger the public health, safety, or general welfare given the nature of the activity, its location on the site, and its relationship to parking and access points;	
44	X		c. The special event will not impair the usefulness, enjoyment or value of adjacent property due to the generation of excessive noise, smoke, odor, glare, litter, or visual pollution;	
45	X		d. The special event shall comply with all applicable state and federal health, safety, environmental and other applicable requirements.	



City of Bartlett

PARKS & RECREATION

A. Keith McDonald, Mayor
Shan Criswell, CPRP, Parks Director

June 25, 2021

City of Bartlett
Code Enforcement
6462 Stage Rd.
Bartlett, TN 38134

The Memphis Runners Track Club has requested to use W. J. Freeman Park on Sunday, August 8, 2021, and Sunday, August 22, 2021, for their Road Race Series 5 Mile runs.

Permission is hereby given by Bartlett Parks and Recreation Department pending approval by the Mayor and Board of Aldermen.

Sincerely,

Shan Criswell
Parks and Recreation Director
City of Bartlett



City of Bartlett

A. Keith McDonald, Mayor
Shan Criswell, Parks Director
Paul Wright, Assistant Parks Director

MEMORANDUM

TO: Chief Inspector Chris Golden
CC: Assistant Chief Sones
FROM: Shan Criswell SC
RE: Road Race Series 5 Mile Runs
DATE: July 1, 2021

The Memphis Runners Track Club has contacted me about their two annual five mile runs that are held in Bartlett every year. They need help with traffic control at three locations and would like to request the assistance of the Bartlett Police Department.

The dates for the two runs are Sunday, August 8, 2021, and Sunday, August 22, 2021, they begin at 7:00 a.m. The locations where traffic control is needed are:

1. Bartlett Blvd. just north of the pedestrian crosswalk for W. J. Freeman Park for the start.
2. Hawthorn at Elmore Park; and
3. Elmore at Bartlett Blvd. (The officer at the start line could actually move to this spot.)

MRTC RRS 5 MILER, WJ Freeman Park, Bartlett, TN
Measured by Rob Hunter & Lane Purser, 13 May 2008

USATF-Certified Course TN080
Expiration Date: 31 December 201

START—Located on the east side of Bartlett Blvd approx. 125' north of the pedestrian crosswalk, the nail is 63'9" north of manhole in the grass behind the curb and 51'7" south of a sewer manhole in the sidewalk.

MILE 1—Located at the driveway to 6143 Ivanhoe, the nail is 30'10" southeast of a fire hydrant and 32' southwest of a sewer manhole in the grass on the east side of the street.

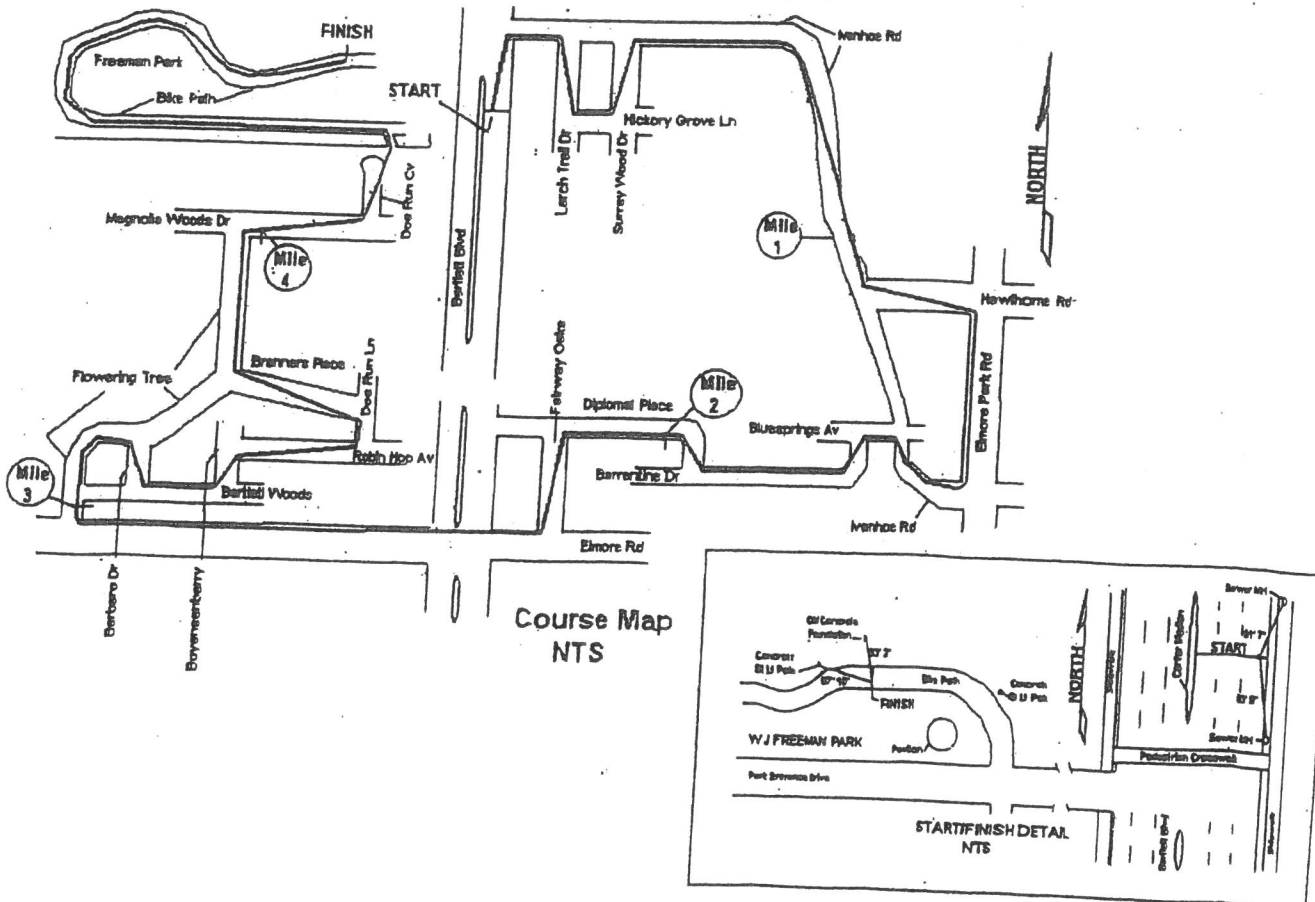
MILE 2—Located at the west edge of the driveway to 5981 Diplomat, the nail is 12'11" east of a water valve cover and 23'2" a sewer manhole (both in the street).

MILE 3—Located on the east side of Flowering Tree approx. 35' south of Bartlett Woods, the nail is 3'3" south of a water valve cover and 8' 7" south of a storm drain inlet.

MILE 4—Located in front of 5673 Magnolia Woods approx. 60' east of Flowering Tree, the nail is 37'6" southwest of an electrical transformer grate in the sidewalk and 31'8" southeast of the concrete water meter box to 5672 Magnolia Woods (both on the north side of the street).

FINISH—Located on the asphalt path approx. 200' west of the pavilion, the nail is 67'10" east of the 2nd concrete street light from the park entrance drive and 33'2" south of an old rectangular concrete foundation in the grass on the north side of the trail.

COURSE DESCRIPTION—The runners start with traffic in the 3 northbound lanes of Bartlett Blvd in front of the park. At I Rd the runners turn right (east) and run unrestricted (for the remainder of the race) to Larch Trail Dr where they turn right (south) to Hickory Grove Lane where they turn left (east) to Surrey Wood Dr where they turn left (north) back to Ivanhoe Rd where they turn right (east) and continue passing Mile 1 to Hawthorne Rd where they turn left (east) to Elmore Park Rd where they turn right (south) At Ivanhoe Rd they turn right (west & north) to Blue Springs Ave where they turn left (west) and make a quick left (south & west) to Barrentine Dr. The runners continue to Diplomat Place where they turn right (north & west) passing Mile 2 to Fairway Oaks where they turn left (south) and proceed to Elmore Rd where they turn right (west). At Flowering Tree the runners turn right (north & west) passing Mile 3 to Barbara Dr where they turn right (south) to Bartlett Woods where they turn left (east) to Boysenberry where they turn left (west) back to Flowering Tree where they turn right (north) to Magnolia Woods where they turn right (east) and pass Mile 4 to Doe Run Cove where they turn left (north) and take the shortest route to the pedestrian gate to the asphalt trail in the park. The runners turn left (west) and proceed on the trail in a clockwise direction around the park to the finish near the pavilion.





CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

06/03/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Insurance Management Group 12730 Coldwater Road Suite 103 Fort Wayne IN 46845	CONTACT NAME: Margaret Mayers PHONE (A/C, No, Ext): (260) 338-2925 FAX (A/C, No): (765) 664-0761 E-MAIL ADDRESS: mmayers@insmgt.com
INSURER(S) AFFORDING COVERAGE	
INSURER A: National Casualty Company	
INSURER B: Nationwide Life Insurance Company	
INSURER C:	
INSURER D:	
INSURER E:	
INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** 2021 \$2M A.I. **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR ☒ Legal Liability to Participant \$2,000,000 GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☐ PRO-JECT ☐ LOC ☒ OTHER: Per Event Basis			KRO0000008622100	12/31/2020	12/31/2021	EACH OCCURRENCE \$ 2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 500,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 5,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 Abuse and Molestation \$ 500,000 COMBINED SINGLE LIMIT (Ea accident) \$ 2,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	☐ AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☒ HIRED AUTOS ONLY ☒ NON-OWNED AUTOS ONLY			KRO0000008622100	12/31/2020	12/31/2021	BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	☐ UMBRELLA LIAB ☐ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE DED \$ RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$ \$
	☐ WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						PER STATUTE ☐ OTH-ER ☐ E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
B	Excess Medical & Accident (\$250 Deductible/Claim)			BAX0000031541900	12/31/2020	12/31/2021	Excess Medical \$10,000 AD & Specific Loss \$2,500

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER IS NAMED AS AN ADDITIONAL INSURED AS RESPECTS TO THEIR INTEREST IN THE OPERATIONS OF THE NAMED INSURED. DATE OF EVENT(S): 08/08/21 and 08/22/21 Road Race Series 5 Milers INSURED RRCA CLUB/EVENT MEMBER: Memphis Runners Track Club, Attn: April Flanigan, PO Box 17981, Memphis, TN 38187
 Processed by MMM

CERTIFICATE HOLDER

08/08/21 City of Bartlett
 6400 Stage Road
 Bartlett TN 38134

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Gerry R. Miller

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**Board of Mayor and Aldermen**

6400 Stage Road
Bartlett, TN 38134

SCHEDULED**AGENDA ITEM**

Meeting: 07/13/21 06:00 PM

Department: Parks and Recreation

Category: Bid

Prepared By: Debbie Christopher

Department Head: Shan Criswell

Bid for renovation of hardwood floors at the Singleton Community Center.

On June 11, 2021, an ad was placed in *The Daily News*. On June 25, 2021, the City of Bartlett received one bid, which was opened at City Hall.

The sole bid was received from:

Wagner General for \$32,323.00

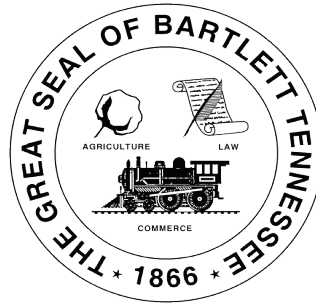
We recommend the bid be awarded to Wagner General for a total price of \$32,323.00.

Funds are available in Account 311.48311.780.51721.

Thank you for your consideration.

CITY OF BARTLETT
6400 STAGE ROAD
BARTLETT, TENNESSEE 38134

A. Keith McDonald, Mayor
Mark Brown, Chief Administrator Officer
Dick Phebus, Finance Director
Shan Criswell, Parks and Recreation Director



REQUEST FOR SEALED BIDS

SB # FY2021-06-042

DUE: Friday, June 25, 2021, no later than 2:00 p.m. (CST)

RENOVATION OF HARDWOOD FLOORS
Parks and Recreation

ADDENDUM # 1

Issued June 23, 2021

The following clarification shall be made a part of the Contract Documents:

RENOVATION OF HARDWOOD FLOORS
Sealed Bid # FY2021-06-042
DUE: June 25, 2021
Addendum 1

CLARIFICATIONS

- City will be responsible for removing items from the rooms before work is to be done.
- Contractor is responsible for painting quarter rounds with City selected paint. City will be responsible for painting any other portion of the baseboard as needed.
- Contractor will be responsible for supplying needed power generator if the City does not have 3 phase power supply.
- Project does not include any closet areas.

DELETIONS

- **Scope of Work Item # 12 is deleted. No stain required.**

All other bid specifications and bid date are to remain the same.

BID RESPONSE SHEET

FY2021-06-042 Renovation of Hardwood Floors - Singleton

DUE 06/25/2021 AT 2:00 P.M.

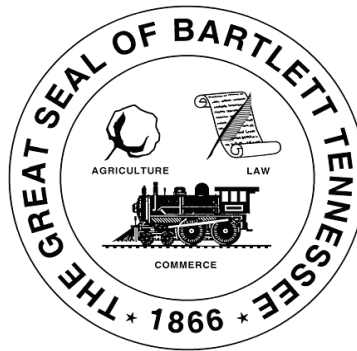
COMPANY/BIDDER	BID AMOUNT	SUBS (if any)	PUBLIC ACTS	BID BOND	ACKNOWLEDG ADDENDUM 1
			if yes check	if yes check	if yes check
			√	√	√
Carpet Spectrum, Ronnie Sessum	outside envelope not filled out, could not accept bid				
Sports Floors,	no bid submitted				
*Wagner General, Seth Reeves	\$32,323		√	√	√
*Apparent low bid, pending review					

Attachment: FY2021-06-042 Renovation of Hardwood Floors Singleton bid response sheet (2990 : Bid for

CITY OF BARTLETT

**6400 STAGE ROAD
BARTLETT, TENNESSEE 38134**

A. Keith McDonald, Mayor
Mark Brown, Chief Administrator Officer
Dick Phebus, Finance Director
Shan Criswell, Parks and Recreation Director



REQUEST FOR SEALED BIDS

SB # FY2021-06-042

DUE: Friday, June 25, 2021, no later than 2:00 p.m. (CST)

RENOVATION OF HARDWOOD FLOORS

Singleton Community Center

The City of Bartlett and Singleton Community Center is seeking bids to renovate the existing hardwood floors, including replacing boards as necessary, sanding and with appropriate protective finish in accordance to the following bid specifications.

RENOVATION OF HARDWOOD FLOORS
Singleton Community Center
Sealed Bid #: FY2021-06-042
Due Date: June 25, 2021

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RENOVATION OF HARDWOOD FLOORS
 Singleton Community Center
 Sealed Bid #: FY2021-06-042
 Due Date: June 25, 2021

NOTICE TO BIDDERS

Bids are to be received no later than 2:00 P.M. on **June 25, 2021**. Sealed bids are to be marked **“FY2021-06-042 RENOVATION OF HARDWOOD FLOORS”** and addressed as follows:

**MAYOR A. KEITH MCDONALD
 CITY OF BARTLETT
 6400 STAGE ROAD
 BARTLETT, TENNESSEE 38134-1148**

The City reserves the right to reject any and all bids and to waive any informality in the bidding process. The City of Bartlett is an equal opportunity employer and will not discriminate against any individual for any reason. If further information is desired, please contact Dick Phebus, Finance Director at 901-385-1060 or by email at dphebus@cityofbartlett.org.

Please quote prices on bid pricing sheet

We propose to furnish and install the item(s) listed on attached form(s) at prices quoted and guarantee safe delivery FOB Delivered and as specified.

These prices are submitted with a declaration that no City Official or Employee has a financial or beneficial interest in this transaction.

 NAME OF FIRM

 E-MAIL ADDRESS

 ADDRESS

 SIGNATURE OF AUTHORIZED
 REPRESENTATIVE

 TELEPHONE

 PRINT NAME

NB-1

RENOVATION OF HARDWOOD FLOORS
 Singleton Community Center
 Sealed Bid #: FY2021-06-042
 Due Date: June 25, 2021

INSTRUCTIONS TO BIDDER

PROJECT SCOPE

This project consists of the replacing boards as needed, sanding, refinishing the existing hardwood floors in the downstairs hallway and the dance rooms and removing the quarter-round wood trim (and reinstalling quarter-round after flooring is refinished) at the Singleton Community Center located at 7266 Third Road, Bartlett, TN. This will include preparation of areas to be refinished, stain color as specified, and polyurethane sealants for a complete installation as per the Special Conditions and Scope of Work specified in this bid.

1. USE OF BID FORMS

These Contract documents include a complete set of Bidding and Contract forms, which are for the convenience of bidders.

2. INSPECTION OF SITE

A pre-bid conference will be held on Thursday, June 17, 2021 at 11:30 a.m. (CST) to address your questions and provide additional information for this bid. It is highly recommended that all interested bidders attend this meeting. The pre-bid conference will be held at the Singleton Community Center, 7266 Third Road, Bartlett, TN 38135. If you plan to attend, please provide a company name, representative and contact number via email to Susan Scott, sscott@cityofbartlett.org, to confirm your attendance. A confirmation email will be returned with additional information concerning the conference.

The Bidder should thoroughly examine and familiarize himself with the contract document and the City's technical specifications. The Contractor, by the execution of the Contract, shall in no way be relieved of any obligation under it, due to failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions. The City will be justified in rejecting any claim based on facts regarding which the Bidder should have been on notice as a result thereof.

3. ALTERNATIVE BIDS

Add Alternate #1 – Main Office floors

4. BIDS

- a. All Bids must be submitted on forms supplied by City of Bartlett and shall be subject to all requirements of the Contract Documents, including any Drawings, and these INSTRUCTIONS TO BIDDERS. All Bids must be regular in every respect and no inter-lineations, excisions or special conditions shall be made or included in the Bid Form by the Bidder.

- e. Each Bidder shall include in his Bid the following information:

<u>Principals:</u>	Names and Titles
---------------------------	------------------

- Project – FY2021-06-042 Renovation Of Hardwood Floors
Date of Bid Opening – June 25, 2021
Name of Contractor/Company
Tennessee License Number and Classification
Licenses Expiration Date
Acknowledgement of Each Addendum

a. The Bid must be accompanied by a Bid Guaranty which shall not be less than **FIVE** percent (5%) of the amount of the Bid. At the option of the Bidder, the guaranty may be a certified check, bank draft, negotiable U.S. Government Bonds (at par value), or a Bid Bond in the form attached. The Bid Bond shall be secured by a guaranty or a surety company listed in the latest issue of U.S. Treasury Circular 570. The amount of such Bid Bond shall be within the maximum amount specified for such Company in said Circular 570. No Bid will be considered unless it is accompanied by the required guaranty. Certified check or bank draft must be made payable to the order of the **City**. Cash deposits will not be accepted. The Bid Guaranty shall insure the execution of the successful Bidder, all as required by the Contract Documents. As soon as the Bid prices have been compared, the City will return the check or bond of all except the three lowest responsible bidders. When the contract is executed and delivered, the checks or bonds of the two remaining unsuccessful Bidders will be returned.

RENOVATION OF HARDWOOD FLOORS
 Singleton Community Center
 Sealed Bid #: FY2021-06-042
 Due Date: June 25, 2021

- b. Revised Bids submitted before the opening of Bids, whether forwarded by mail or telegram, if representing an increase in excess of two percent (2%) of the original Bid, must have the Bid Guaranty adjusted accordingly; otherwise the Bid will not be considered.

6. COLLUSIVE AGREEMENTS

Each Bidder submitting a Bid to the City for any portion of the work contemplated by the documents on which bidding is based shall execute and attach thereto, an affidavit substantially in the form herein provided, to the effect that he has not entered into a collusive agreement with any other person, firm or corporation in regard to any Bid submitted.

7. STATEMENT OF BIDDER'S QUALIFICATIONS

Each Bidder shall, upon request of the City, submit on the form furnished for that purpose (a copy of which is included in the Contract Documents), a statement of the Bidder's Qualifications, his experience, record in constructing the type improvements embraced in the project contemplated by the Contract.

The City shall have the right to take such steps as deemed necessary to determine the ability of the Bidder to perform his obligations under the Contract and the Bidder shall furnish the City all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the City that the Bidder is qualified to carry out properly the terms of the Contract.

8. CORRECTIONS

Erasures or other changes in the Bids must be explained or noted over the signature of the Bidder.

9. TIME FOR RECEIVING BIDS

- a. Bids received prior to **2:00 P.M. June 25, 2021** will be securely kept sealed. The Purchasing Authority, whose duty it is to open them will decide when the specified time has arrived, and no Bid received thereafter will be considered; except that when a Bid arrives by mail after the time fixed for opening, but before the reading of all other bids is completed, and it is shown to the satisfaction of the City that the non-arrival on time was due solely to delay in the mails for which the Bidder was not responsible, such Bid will be received and considered.
- b. Bidders are cautioned that, while telegraphic modification of Bids may be received as provided above, such modifications, if not explicit and if in any sense subject to misinterpretation, shall make the Bid so modified or amended subject to rejection.

RENOVATION OF HARDWOOD FLOORS
Singleton Community Center
Sealed Bid #: FY2021-06-042
Due Date: June 25, 2021

10. OPENING OF BIDS

At the time and place fixed for the opening of Bids, the City will cause to be opened and publicly read aloud every Bid received within the time set for receiving Bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present, in person or by representative.

11. WITHDRAWAL OF BIDS

Bids may be withdrawn on written or telegraphic request dispatched by the Bidder in time for delivery in the normal course of business to the time fixed for opening; provided, that written confirmation of any telegraphic withdrawal over the signature of the Bidder is placed in the mail and postmarked prior to the time set for Bid opening. The Bid Guaranty of any Bidder withdrawing his bid in accordance with the foregoing conditions will be returned promptly.

12. AWARD OF CONTRACT: REJECTION OF BIDS

- a. The Contract will be awarded to the responsible Bidder Submitting the lowest and/or best bid complying with the conditions of the Invitation for Bids. The Bidder to whom the award is made will be notified at the earliest possible date. The City, however, reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such rejection or waiver is in its interest.
- b. The City reserves the right to consider as unqualified to do the work of general construction any Bidder who does not habitually perform with his own forces the major portion of the work involved in construction of the Improvements contemplated by the Contract Documents.

13. NON-DISCRIMINATION

Attention of Bidders is particularly called to the requirements for ensuring that employees and applicants for employment are not discriminated against because of their race, color, religion, sex, or national origin. Additionally, the City provides services without regard to race, color, religion, sex, or national origin. The City of Bartlett agrees to comply with Title VI regulations.

RENOVATION OF HARDWOOD FLOORS
 Singleton Community Center
 Sealed Bid #: FY2021-06-042
 Due Date: June 25, 2021

GENERAL CONDITIONS:

A. INSURANCE

A.1. General Requirements - The Contractor shall be responsible from the time of signing the contract or from the time of the beginning of the first work, whichever shall be earlier, for all injury or damage of any kind resulting from this work to persons or property. In addition to the liability imposed upon the Contractor on account of bodily injury (including death) or property damage suffered through the Contractor's negligence, which liability is not impaired or otherwise affected hereby, the Contractor assumes the obligation to protect, defend, indemnify and hold the **City of Bartlett and the State of Tennessee**, its officers, employees and agents free and harmless from and against any and all losses, penalties, damages, settlements, cost, charges, professional fees or other expenses or liabilities of every kind and character arising out of or relating to any and all claims, liens, demands, obligations, actions, proceedings or causes of action of any kind and character in connection with or arising directly or indirectly out of this Contract and/or the performance hereof by act or omission of the Contractor or Subcontractor, or anyone either (a) directly or indirectly employed or (b) under the supervision of any of them in the execution of the Work included in this Contract.

A.2. In addition to the indemnification provided in paragraph A.1, the Contractor, upon award of the Contract, shall provide, at his own cost and expense, the following insurance to the City of Bartlett with insurance companies acceptable to the City and licensed in the State of Tennessee, which insurance shall be evidenced by certificates and/or policies as determined by the City. All policies will provide for thirty (30) days written notice to the City of Bartlett of cancellation of coverage provided. **Note: A ten (10) day notice applicable to non-payment of premium.** If insurer is not required by the policy terms and conditions to provide written notice of cancellation to the City of Bartlett, the Contractor is responsible and must provide immediate notice to the City, in writing, of cancellation of the policies and evidence of replacement coverage with no lapse in coverage. The notice thereof shall be "by registered mail, return receipt requested," for all the following stated insurance policies. If any of the Property and Casualty Insurance requirements are not complied with at their renewal dates, payments to the Contractor may be withheld until those requirements have been met, or at the option of the City, the City may pay the renewal premiums and withhold such payments from any monies due the Contractor.

A.3. Worker's Compensation and Employers Liability - The Contractor shall maintain in force Worker's Compensation coverage in accordance with the Statutory Requirements and Limits of the State of Tennessee and shall require all Subcontractors to do likewise. ALL STATE ENDORSEMENT IS REQUIRED OR a Certificate of the State Worker's Compensation Board showing proof of ability to pay compensation directly.

A.4. Business Automobile Liability Insurance – Single limit of no less than \$1,000,000 each accident for bodily injury and property damage. Coverage is to be provided on all Owned/Leased autos, non-owned autos and hired autos. The City of Bartlett, its elected officials, Aldermen, appointees, employees and members of boards, agencies and commissions shall be named as additional insureds.

RENOVATION OF HARDWOOD FLOORS
 Singleton Community Center
 Sealed Bid #: FY2021-06-042
 Due Date: June 25, 2021

A.5 Commercial General Liability Insurance - a) Insurance is to be taken out in the name of the Contractor as named insured. With minimum limits of \$1,000,000 limit per occurrence bodily injury (including death) and Property Damage/\$1,000,000 personal and advertising injury/\$2,000,000 General Aggregate/\$2,000,000 Products-Completed Operations Aggregate. The City of Bartlett, its elected officials, appointees, employees and members of boards, agencies and commissions shall be named as additional insureds. b) Insurance coverage shall include a)Premises/Operations, b)Products/Completed Operations, c)Contractual, d)Independent Contractors, e)Broad Form Property Damage, f)Personal Injury and Advertising Liability, g) Comprehensive Form; h)XCU (Explosion, Collapse, and Underground), if applicable to the project.

B. SAFETY, PROTECTION, AND EMERGENCIES

B.1 Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. He shall take all necessary precautions for the safety of and provide the necessary protection to prevent damage, injury, or loss to:

- a) The public and to vehicular and pedestrian traffic
- b) All employees on the Work and other persons who may be affected thereby
- c) All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site
- d) Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

B.2 The Contractor shall comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss. He shall erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety, protection, and guidance of traffic in accordance with the Tennessee Manual on Uniform Traffic Control Devices. All work, conditions, operations, procedure, and actions of every nature shall be performed in strict conformance with requirements of the "Occupational Safety and Health Act of 1970" as revised and amended. The Contractor shall notify owners of adjacent utilities and railroad facilities when execution of the Work may affect them. All damage, injury, or loss to any property referred to in Subparagraph B.1.c or B.1.d caused directly or indirectly, in whole or in part, by the Contractor, and Subcontractor, or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by the Contractor at his expense.

B.3 The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's Superintendent unless otherwise designated in writing by the Contractor to the City and shall be responsible for notification to the City of all instances of damage, injury or loss related to the project.

RENOVATION OF HARDWOOD FLOORS
 Singleton Community Center
 Sealed Bid #: FY2021-06-042
 Due Date: June 25, 2021

B4 In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer or the City, is obligated to act, at his discretion, to prevent threatened damage, injury, or loss. He shall give the Engineer prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby. If the Contractor believes that additional Work done by him in an emergency which arose from causes beyond his control entitles him to an increase in the Contract Price or to an extension of the Contract Time.

C. CONSTRUCTION MATERIALS

C.1 All construction materials and specifications are to be in accordance with the City of Bartlett Construction Specifications. All work done must be in accordance with the City of Bartlett Technical Specifications, unless otherwise specified. These Specifications have been recently modified. The Technical Specifications can be downloaded for free from the City of Bartlett website at <https://www.cityofbartlett.org/documentcenter/view/3875>.

D. TIME OF COMPLETION

D.1 Construction is to begin within ten (10) days after Notice to Proceed is issued and all construction is to be completed within **Seventy-five (75) days** after notice to proceed.

E. CONSTRUCTION ENGINEERING / COORDINATION

Not Applicable

F. PERFORMANCE BOND

F.1 Subsequent to the award and **within ten (10) days** after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the City an Agreement on the form included in the Contract documents in such number of copies as the City may require.

F.2 Having satisfied all conditions of award as set forth elsewhere in these documents, the successful Bidder shall, within the period specified in paragraph "1F.1" above, furnish a surety bond in a penal sum not less than the amount of the Contract as awarded, as security for the faithful performance of the Contract, and for the payment of all persons, firms or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature including utility and transportation services, employed or used by him in performing the work. Such bond shall be in the same form as that included in the Contract Documents and shall bear the same date as, or a date subsequent to that of the Agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bond. This bond shall be signed by a guaranty or surety company listed in the latest issue of the U. S. Treasury Circular 570 and the penal sum shall be within the maximum specified for such company in said Circular 570.

GC-4

F.3 The failure of the successful Bidder to execute such Agreement and to supply the required bond or bonds within ten (10) days after the prescribed forms and presented for signature, or within such extended period as the City may grant, based upon reasons determined sufficient by the City shall constitute a default, and the City may either award the Contract to the next lowest responsible Bidder or re-advertise for bids, and may charge against the Bidder the difference between the amount of the bid and the amount for which a Contract for work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the Bid Bond. If a more favorable bid is received by re-advertising the defaulting Bidder shall have no claim against the City for a refund.

G. INSPECTION AND TESTING OF MATERIALS

G.1 All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with accepted standards. The laboratory or inspection agency shall be selected by the City. The City will pay for all laboratory inspection service direct, and not as a part of the contract.

G.2 Materials of construction, particularly those upon which the strength and durability of the structure may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for uses intended.

H. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

H.1 It is hereby understood and mutually agreed, by and between the Contractor and the City, that the date of beginning and the time for completion as specified in the contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this contract; and it is further mutually understood and agreed that the work embraced in this contract shall be commenced on a date to be specified in the "Notice to Proceed".

H.2 The Contractor agrees that said work shall be executed regularly, diligently, and uninterruptedly at such rate of progress as will ensure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the City, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality. If the said Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the City, then the Contractor does hereby agree, as a part consideration for the awarding of this contract, to pay to the City the amount of **\$250.00** per day, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the contract for completing the work.

H.3 The said amount is fixed and agreed upon by and between the Contractor and the City because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the City would in such event sustain, and said amount is agreed to be the amount of damages which the City would sustain and said amount shall be retained from time to time by the City or current periodical estimates.

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H.4 It is further agreed that time is of the essence of each and every portion of this contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract. **Provided**, that the Contractor shall not be charged with liquidated damages or any excess cost when the City determines that the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the City; **Provided, further**, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay of completion of the work is due;

H.5 Furthermore:

- a) To any preference, priority or allocation order duly issued by the Government;
- b) To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the City, acts of another Contractor in the performance of a contract with the City, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and
- c) To any delays of Subcontractors or suppliers occasioned by any of the causes specified in subsections (a) and (b) of this article;

Provided, further, that the Contractor shall, within ten (10) days from the beginning of such delay, unless the City shall grant a further period of time prior to the date of final settlement of the contract, notify the City, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify the Contractor within a reasonable time of its decision in the matter.

I. SUBSURFACE CONDITIONS FOUND DIFFERENT

I.1 Should the Contractor encounter sub-surface and/or latent conditions at the site materially differing from those shown on the Plans or indicated in the Specifications, he shall immediately give notice to the Facility Manager of such conditions before they are disturbed. The Facility Manager will thereupon promptly investigate the conditions, and if he finds that they materially differ from those shown on the Plans or indicated in the Specifications, he will at once make such changes in the Plans and/or Specifications as he may find necessary, and increase or decrease the costs resulting from such changes.

J. PAYMENTS TO CONTRACTOR

J.1 Not later than the 20th day of each calendar month the City shall make a progress payment to the Contractor on the basis of a duly certified and approved estimate of the work performed during the preceding calendar month under this contract, but to insure the proper performance of this contract, the City shall retain ten percent (10%) of the amount of each estimate until final completion and acceptance of all work covered by this contract; **Provided**, that the Contractor shall submit his estimate not later than the first day of the month.

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J.2 In preparing estimates, the material delivered on the site and preparatory work done may be taken into consideration.

J.3 All material and work covered by partial payments made shall thereupon become the sole property of the City, but this provision shall not be construed as relieving the Contractor from the sole responsibility for the care and protection of materials and work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the City to require the fulfillment of all of the terms of the contract.

J.4 City's Right to Withhold Certain Amounts and Make Application Thereof: The Contractor agrees that he will indemnify and save the City harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, power tools, and supplies, including commissary, incurred in the furtherance of the performance of this contract. The Contractor shall, at the City's request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If the Contractor fails so to do, then the City may, after having served written notice on the said Contractor, either pay unpaid bills, of which the City has written notice, direct, or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of this contract, but in no event shall the provisions of this sentence be construed to impose any obligations upon the City to either the Contractor or his Surety. In paying any unpaid bills of the Contractor, the City shall be deemed the agent of the Contractor, and any payment so made by the City shall be considered as a payment made under the contract by the City to the Contractor and the City shall not be liable to the Contractor for any such payments made in good faith.

K. PAYMENTS BY CONTRACTOR

K.1 The Contractor shall pay (a) for all transportation and utility services not later than the 20th day of the calendar month following that in which services are rendered, (b) for all materials, tools, and other expendable equipment to the extent of ninety percent (90%) of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools, and equipment are delivered at the site of the project, and the balance of the cost thereof, not later than the 30th day following the completion of that part of the work in or on which such materials, tools, and equipment are incorporation or used, and (c) to each of his subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his subcontractors to the extent of each subcontractor's interest therein.

L. SUBCONTRACTING

L.1 The Contractor may utilize the services of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors.

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L.2 The Contractor shall not award any work to any subcontractor without prior written approval of the City, which approval will not be given until the Contractor submits to the City a written statement concerning the proposed award to the subcontractor, which statement shall contain such information as the City may require.

L.3 The Contractor shall be as fully responsible to the City for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

L.4 The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and other contract documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that the City may exercise over the Contractor under any provision of the contract documents.

L.5 Nothing contained in this contract shall create any contractual relation between any subcontractor and the City.

M. FINAL ACCEPTANCE AND WARRANTY PERIOD

M.1 The acceptance by the Contractor of final payment shall be and shall operate as a release to the City of all claims and all liability to the Contractor for all things done or furnished in connection with the Work and shall constitute the beginning of the warranty period.

No payment, however, final or otherwise shall operate to release the Contractor or his sureties from any obligations under this contract or the Performance and Payment Bond. The Contractor shall remedy any defects in work and repair any damage to other work resulting therefrom which shall appear within a period of one (1) year from the date of final written approval and acceptance. The City shall give notice of observed defects with reasonable promptness. The surety will provide bond at one half of project amount until the end of the one- year warranty period. The City will then reduce the bond to zero if all defects have been remedied by the Contractor.

N. UTILITIES

Not Applicable

O. DRUG PROGRAM

O.1 State TCA Title 50, Chapter 9, Part 1, requires all bids to be accompanied by the following statements and requires a signed affidavit attesting to the following statements:

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- a) The City of Bartlett has a drug and alcohol testing program for testing employees for workplace drug and alcohol use.
- b) Full documentation of the program can be found on the City's website, Personnel Department, Chapter 10 of the Personnel Manual. This program is described by the following statement:

O.2 Drug Testing - It is the City's policy to require a drug test in the following situations:

- a) New Employee (Post offer testing)
- b) Employee being advanced in job or salary, or both
- c) Random under U.S. DOT regulations (may also include alcohol test).
- d) Random for Fire, EMS or Law Enforcement employees (at the Fire or Police Chief's discretion with approval by the Mayor).
- e) When an employee is at fault in a vehicle or equipment accident. The department head has the option to require testing when not at fault or when at fault is not evident.
- f) When the department head determines there is reasonable suspicion or reasonable cause to warrant testing.

O.3 Drugs to be tested for - When drug and alcohol screening is required under the provisions of this policy, a urinalysis test will be given to detect the presence of the drug groups listed below. This list is not intended as an exhaustive inventory of every drug for which an employee can be tested. The selection of drugs subject to testing will be based upon known abuse in the community and the ability of any drug to affect job performance.

- a) Alcohol (Ethyl)
- b) Amphetamines (e.g. Speed)
- c) Barbiturates (e.g. Amobarbital, Butobarbital, Phenobarbital, Secobarbital)
- d) Cocaine
- e) Methaqualone (e.g. Quaalude)
- f) Opiates (e.g. Codeine, Heroin, Morphine, Hydromorphone, Hydrocodone)
- g) Phencyclidine (PCP)
- h) THC (Marijuana)
- i) Other illegal substances as requested by the City.

NOTE: All bidders responding to this bid must have affidavit signed by the officer of the company stating the company has a drug testing program for its employees at least as stringent as the government's program. See attached affidavit.

State of _____) S.S.
County of _____)

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PUBLIC ACTS 109
(Iran Divestment Act)

“By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalties of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to § 12-12-106.”

Full text of Public Chapters can be found on the Tennessee Secretary of State's website: [http://tnsos.org/acts/](http://tnsos.org/acts/PublicActs.109.php) PublicActs.109.php.

Print Name _____

Signed _____

Title _____

Subscribed and sworn before me this _____ day of _____, 20____.

Signed _____ Print Name _____

Title _____

My commission expires: _____, 20____.

NOTE: Bids cannot be considered nor awards made to anyone without the above required statement.

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SUSPENSION AND DEBARMENT CERTIFICATION

NOTE: *This form is required for all Federal and State funded bids and is optional for all other bids.*

Definitions:

Debarment In general, an exclusion from federal government contracting and subcontracting for a reasonable, specified period of time because an individual or vendor failed to perform or their performance was inadequate.

Suspension A disqualification from federal government contracting and subcontracting for a temporary period of time occurs when a company or individual is suspected of engaging in criminal, fraudulent, or seriously improper conduct. Suspension is to be used on an interim basis pending debarment proceedings.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 7 CFR Part 3017, Section 3017.510, Participants' responsibilities. The regulations were published as Part IV of the January 30, 1989 Federal Register (pages 4722-4733). Copies of the regulation may be obtained by contacting the USDA agency with which the transaction originated.

INSTRUCTIONS FOR CERTIFICATION

1. By signing and submitting this form, the prospective lower tier participant (Contractor) is providing the certification set out below in accordance with these instructions.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant (Contractor) **knowingly** rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant (Contractor) shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant (Contractor) learns that this certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

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4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
5. The prospective lower tier participant (Contractor) agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
6. The prospective lower tier participant (Contractor) further agrees by submitting this form that it will include this clause title "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible or voluntarily excluded from the covered transaction; unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Non-procurement List.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
 - (a) The prospective lower tier participant (Contractor) certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by a Federal department or agency.
 - (b) Where the prospective lower tier participant (Contractor) is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Signatures on next page

DCF-2

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Suspension and Debarment Certification

(Signature page)

Company/Firm _____

Print Name _____

Signed _____

Title _____

Subscribed and sworn before me this _____ day of _____, 20____.

Signed _____ Print Name _____

Title _____

My commission expires: _____, 20____.

NOTE: This form is required for all Federal and State funded bids and is optional for all other bids.

State of _____) S.S.
County of _____)

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CONTRACT MONITORING

The **Tennessee Department of Transportation** requires the City of Bartlett to maintain records of those ethnic and gender groups who are awarded bids on projects.

You are asked for **voluntary disclosure** of the following information as it pertains to the ownership of the bidding company:

Company Name: _____

Date: _____

Gender: Male _____ Female _____

Race: Caucasian _____

African American _____

Hispanic _____

Other (please specify) _____.

_____ I have reviewed this request and have decided **NOT** to provide the requested information.

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CONTRACT MONITORING – PART 2

All contractors, consultants, and suppliers that receive funds from state or federal projects (through Bartlett) must comply with Title VI guidelines. All contractors/consultants/suppliers will have to follow many of the same guidelines that apply to the City of Bartlett. The City's Title VI coordinator will perform compliance reviews of each entity as the selection for the award to receive funds and then reviews will be performed a minimum of every 3 years during the life of the contract while they are receiving funds.

The following self-survey will be the tool used by the City of Bartlett to ensure the selected contractor/consultant/supplier compliance; if found to be non-compliant, the City's Title VI Coordinator will attempt to bring into compliance. If continued to be non-compliant, the contract will be cancelled and the City's our association will be discontinued.

Title VI Self Survey for Contractors/Consultants/Suppliers

Name of Contractor: _____ Date Completed: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

This should be completed annually while the contract is active and submitted to the sub-recipient's Title VI Coordinator for review.

1. Are Title VI posters visible to staff? If yes, where? _____

2. Are all Physical Areas (i.e. restrooms, dining rooms, waiting rooms, etc.) provided without regard to race, color, or national origin? _____
3. How is Title VI information disseminated to new/current employees? _____

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4. Describe how certified Disadvantaged Business Enterprises (DBEs), other small, minority and women-owned businesses are solicited to participate on contracts.

5. What process has been established to track and monitor ethnicity and gender of any contractors awarded contracts/sub-contracts?

6. Provide documentation to show that contracts contain non-discrimination assurance language.

7. Provide complaint procedures and attach complaint log form.

8. Provide Limited English Proficiency Communications Plan (i.e. how do you communicate with persons that speak a language other than English.)

The Title VI Assurance (below) is to **be submitted on Company (selected bidder's) Letterhead:**

Contractor/Consultant Name assures that no person on the grounds of race, color, national origin, or sex, as provided by the Title VI of the Civil Rights Act of 1964 and from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving Federal financial assistance from the Tennessee Department of Transportation (TDOT).

DECLARATION OF RESPONDENT: I declare that I have completed this form to the best of my knowledge and believe it to be true and correct.

 Signature of Authorized Official

 Date

PUBLIC NOTICE

TITLE VI OF THE 1964 CIVIL RIGHTS ACT

“No person in the United States shall, on the ground of race, color or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

The State Department of Military provides benefits and services such as emergency management assistance, National Guard protection services and facility construction and maintenance, and disaster assistance following a major Presidential declaration. The federal assistance administered by the Military Department are pass through funds to local governments, other state agencies, and certain private non-profit organizations.

Anyone who believes that an agency or local government receiving the federal funding mentioned above has discriminated against someone on the basis of race, color or national origin has a right to file a complaint within 180 days of the alleged discrimination.

Local Title VI Coordinator:

Ted Archdeacon
Director of Personnel,
City of Bartlett; 901-385-6430

**MILITARY DEPARTMENT
TITLE VI COMPLAINT HOTLINE:**

1-800-367-9635

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SPECIAL CONDITIONS

1. Use of Premises - The Contractor shall coordinate the work with Singleton Community Center Facility Manager, Kevin Rooney, at 901-385-5593. Work shall not interfere with the normal conditions and safe operation of the building.
2. Warranty of Work - Contractor shall state in the bid documents the standard warranty for the work. It will be the responsibility of the Contractor to execute any warranty work that may be necessary during this period.
3. Experience – Flooring contractor must have at least two (2) years' experience in refinishing hardwood floors.
4. License and Permits - The contractor must have or obtain the appropriate Tennessee license (s) for the type of work being performed, along with Shelby County and City of Bartlett business license. **NOTE:** Contractor shall obtain all necessary permits, **if required**, from the City of Bartlett Codes Department prior to any work. These permits will be issued at **NO** costs to the contractor.
5. Supervision - Provide at least one person who shall be present at all times during execution of the work and who shall be thoroughly familiar with the type of materials being installed, the referenced standards, and the requirements of the work, and who shall direct the execution of all the work.

A. SCOPE OF WORK

1. Contractor to provide all labor and materials to sand and refinish existing hardwood floors throughout Singleton Community Center.
2. Contractor to supply all protective coverings and barricades necessary to protect the public and City personnel from injury at all times. Note: Plastic sheeting which may be required to protect all unfinished work at the end of each work day.
3. The Contractor shall be held responsible for, and must make good at his own expense, any water damage or any other cause of damage due to improper protection and refinishing.
4. Contractor shall not store any flammable material shall be store on premises in excess of the amount allowed by Code.
5. Contractor shall keep the area free from accumulation of waste materials or rubbish caused by the work. All debris shall be removed from the work site daily. Note: The dumpsters at Singleton community Center shall NOT be used for disposal of any debris.

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6. Contractor must provide proper dust control measures and equipment during sanding procedures to minimize the possibility of dust particles in the air. All affected areas must be restored to their original furnished/cleanliness state.
7. Areas to be refinished include:
 - a. Dance 1 – approximately 900 square feet
 - b. Dance 2 – approximately 750 square feet
 - c. Dance 3 – approximately 750 square feet
 - d. Downstairs Hall – approximately 900 square feet (includes restroom landing)
8. Floor repairs (larger than twelve square inches) contractor will provide a line item on the bid submittal for labor and material costs per square foot.
9. Contractor is responsible for removing all shoe-molding (quarter-round) prior to the sanding of the floors. Note: Baseboards will not need to be removed for this project.
10. Floor to be sanded to a smooth finish using multiple grits of sandpaper to prepare the floor for refinishing.
11. Contractor to sweep and/or vacuum floors to remove all traces of dust prior to applying the stain and final coats of finish.
12. Contractor to stain the floors with a color selected by the Facility Manager.
13. Contractor to apply two (2) coats of polyurethane in all areas. Specify oil base or water base on Bid Pricing Sheet.
14. Contractor to replace shoe molding (quarter-round) after the refinished floors have completely dried. Note: Molding to be painted to match existing baseboards.
15. An inspection of the completed work must be approved by a representative of Bartlett Singleton Community Center prior to any payments for work performed.

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BID SUBMITTAL FORM

The following forms, including an original and (2) two copies shall be completed and submitted with the bid.

The following forms shall be completed and submitted with the bid.

1. Notice to Bidders—NB-1
2. Public Acts 109 Form – PA-1(notarized)
3. Suspension and Debarment Certification Form – DCF-1 to DCF-3
4. Non-Collusion Affidavit of Principal Bidder—NCA-1
5. Contract Monitoring –CM-1
6. Title VI Plan – Title Vi-1 to Title VI-2
7. Drug and Alcohol Affidavit—DAA-1
8. Bid Bond—BB-1 AND BB-2, OR OTHER APPROVED FORMS
9. Bid Pricing Sheet—BPS-1 and BPS-2
10. Current year, signed W-9 form (**MUST** be IRS form Rev. 10-2018)
11. Past Project References of Similar Work

Note: Failure to complete or include all of these forms with the bid may be grounds for rejecting the bid as being an incomplete bid.

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REFINISHING OF HARDWOOD FLOORS

BID PRICING SHEET

Areas to be refinished include: (specify is oil or water base polyurethane)

- | | | |
|----|---|----------|
| a. | Dance 1 – approximately 900 square feet | \$ _____ |
| b. | Dance 2 – approximately 750 square feet | \$ _____ |
| c. | Dance 3 – approximately 750 square feet | \$ _____ |
| d. | Downstairs Hall – approximately 900 square feet
(Includes restroom landings) | \$ _____ |

ALTERNATES

Add Alternate #1

Main Office floors – approximately 875 square feet \$ _____

TOTAL BID

\$ _____

TOTAL BASE BID IN WORDS:

Show dollar amount in both words and figures. In case of discrepancy, the amount in words shall govern.

Floor repairs, if needed – labor and material costs per square foot \$ _____

TOTAL ALTERNATE 1 BID IN WORDS:

Show dollar amount in both words and figures. In case of discrepancy, the amount in words shall govern.

Signatures on next page

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BID PRICING SHEET (Page 2)

Note: "Total Base Bid" shall include all materials, labor, subcontracting costs, permits (except those issued by Bartlett Codes Enforcement), bonds, and/or insurance, allowances, bailing, shoring, removal, overhead, profit, et cetera to cover the finished work of the project.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 days after the scheduled closing time for receiving bids.

The City of Bartlett will award the Base Bid and may choose to add the Alternate bid based on the funding that is available. The intent is to do the entire project as bid, if possible.

Respectfully submitted:

 NAME OF FIRM

 Email

 Authorized Representative
 (Typed or Printed)

 Phone Number

 Authorized Representative Signature
 (Required)

 Date

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned _____
 _____ As Principal, and
 _____ as Surety, are hereby held and firmly bound
 unto _____ as OWNER in the penal sum of _____
5% of BID _____ for the payment of which, well and truly to be
 made, we hereby jointly and severally bind successors, assigns and ourselves.

Signed, this _____ day of _____, 20_____.

The Condition of the above obligation is such that whereas the Principal has submitted to a
 certain BID attached hereto and hereby made a part hereof to enter into a contract in writing, for
 the _____

NOW, THEREFORE,

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall be execute and deliver a contract in the
 Form of Contract attached hereto (properly completed in accordance with said BID) and shall
 furnish a BOND for his faithful performance of said contract, and for the payment of all
 persons performing labor or furnishing materials in connection therewith, and shall in all other
 respects perform the agreement created by the acceptance of said BID, then this obligation
 shall be void, otherwise the same shall remain in force and effect; it being expressly
 understood and agreed that the liability of the Surety for any and all claims hereunder shall,
 in no event, exceed the penal amount of this obligation as herein stated.

BB-1

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Print Name_____

_____(L.S.)
Principal

Surety

By: _____

Print Name:_____

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

RENOVATION OF HARDWOOD FLOORS
 Singleton Community Center
 Sealed Bid #: FY2021-06-042
 Due Date: June 25, 2021

PERFORMANCE PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That We _____
 (Name of Contractor)

called "Principal" and _____ of _____,
 (Surety),

State of _____ herein-after called the "Surety", are held and firmly bound

unto _____ of _____,
 (Owner) (City)

_____ herein-after called "Owner" in the penal sum of _____
 (State)

_____ Dollars (\$_____) in
 lawful money of the United States, for the payment of which sum well and truly to be made, we bind
 ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these
 presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into
 a certain contract with the City, dated the _____ day of _____, 2020, a copy of which is
 hereto attached and made a part hereof for the construction of:

FY2021-061-042 RENOVATION OF HARDWOOD FLOORS

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all
 undertakings, covenants, terms, conditions, and agreements of said contract during the original term
 thereof, and any extensions thereof which may be granted by the City, with or without notice to the
 Surety, and if he shall satisfy all claims and demands incurred under such contract, and shall fully
 indemnify and same harmless the City from all costs and damages which may suffer by reason of
 failure to do so, and shall reimburse and repay the City all outlay and expense which the City may
 incur in making good and default, and shall promptly make payment to all persons, firms,
 subcontractors, and corporations furnishing materials for or performing labor in the execution of the
 work provided for in such contract, and may authorize extension or modifications thereof, including all
 amounts due for materials, used in connection with the construction of such work, and all insurance
 premiums on said work, and for all labor, performed in such work whether by subcontractor or
 otherwise, then this obligation shall be void; otherwise remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees
 that no change, extension of time, alteration or addition to the terms of the contract or to the work to be
 performed thereunder or the specifications accompanying the same shall in any wise affect its
 obligation on this bond, and it does hereby waive notice of any such change, extension of time,
 alteration or addition to the terms of the contract or to the work or to the specifications.

RENOVATION OF HARDWOOD FLOORS
 Singleton Community Center
 Sealed Bid #: FY2021-06-042
 Due Date: June 25, 2021

PROVIDED, FURTHER, that no final settlement between the City and Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in three (3) counterparts, each one of which shall be deemed an original, this the day of _____, 20____.

ATTEST:

 Print Name

 Principal

By: _____(s)

 (Principal) Secretary

(SEAL)

 Address - Zip Code

 Witness as to Principal

 Address - Zip Code

ATTEST:

 Surety

By: _____
 Attorney-in-Fact

 (Surety) Secretary

(SEAL)

 Address - Zip Code

 Witness as to Surety

 Address - Zip Code

RENOVATION OF HARDWOOD FLOORS
Singleton Community Center
Sealed Bid #: FY2021-06-042
Due Date: June 25, 2021

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is partnership, all partners should execute Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

RENOVATION OF HARDWOOD FLOORS
 Singleton Community Center
 Sealed Bid #: FY2021-06-042
 Due Date: June 25, 2021

NOTICE TO PROCEED

TO:

PROJECT: FY2021-061-042 RENOVATION OF HARDWOOD FLOORS

You are hereby notified, in accordance with the Agreement dated _____, to commence WORK on or before _____ and you are to complete the WORK within 75 (seventy-five) consecutive calendar days thereafter. The date of completion of all WORK is therefore _____.

CITY OF BARTLETT

By: _____

Print Name: A. Keith McDonald

Title: _____ Mayor, City of Bartlett

ACCEPTANCE OF NOTICE

Receipt of the above **NOTICE TO PROCEED** is hereby acknowledged by

this the _____ day of _____ 20____.

By: _____

Print Name: _____

Title: _____

NP-1

RENOVATION OF HARDWOOD FLOORS
 Singleton Community Center
 Sealed Bid #: FY2021-06-042
 Due Date: June 25, 2021

CONTRACT AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 2020 by and between City of Bartlett, hereinafter called "CITY" and _____, doing business as (an individual,) or (a Partnership,) or (a Corporation) hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. CONTRACTOR will commence and complete the construction of **FY2021-06-042 RENOVATION OF HARDWOOD FLOORS.**
2. CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.
3. CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within 10 calendar days after the date of the NOTICE TO PROCEED and will complete the same within 75 (seventy-five) calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.
4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of \$ _____, or as shown in the Bid schedule.
5. The term "CONTRACT DOCUMENT" means and includes the following:
 - (A) Advertisement for Bids
 - (B) Instructions to Bidders
 - (C) General Conditions
 - (D) Special Conditions
 - (E) Bid Specifications
 - (F) Bid Bond
 - (G) Notice of Award
 - (H) Payment Bond
 - (I) Performance Bond
 - (J) Notice To Proceed
 - (K) Contract Agreement
 - (L) Change Order
 - (M) SPECIFICATIONS prepared or issued by **The City of Bartlett Parks and Recreation Department** and dated **June 11, 2021.**

RENOVATION OF HARDWOOD FLOORS
 Singleton Community Center
 Sealed Bid #: FY2021-06-042
 Due Date: June 25, 2021

(O) ADDENDA:

NO. _____, Dated _____, 20

NO. _____, Dated. _____, 20

6. The CITY will pay to the CONTRACTOR in the manner and at such time as set forth in the General Conditions such amount as required by the CONTRACT DOCUMENTS.
7. This Agreement shall be binding upon all parties hereto and their respectable heirs, executors, administrators, successors, and assigns.
8. The City will provide the Awarded Contractor with up to (3) three sets of plans and specifications. Note: Any additional sets will be provided at the cost of reproduction.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, the Agreement in (5), each of which shall be deemed an original on the date first above written.

CITY OF BARTLETT

BY: _____

PRINT NAME: A. Keith McDonald

CONTRACTOR:

BY: _____

PRINT NAME: _____

TITLE: _____

(SEAL-Contractor's Notary)

ATTEST:

Print Name: _____

TITLE: _____ My Commission expires _____, 20____

**Board of Mayor and Aldermen**

6400 Stage Road
Bartlett, TN 38134

SCHEDULED**AGENDA ITEM**

Meeting: 07/13/21 06:00 PM
Department: Board of Mayor and Aldermen
Category: Appointment
Prepared By: Jeanie Underwood
Department Head: A. Keith McDonald

Appoint Bob Boston to Bartlett Station Commission.

Bob Boston will fill the position vacated by David Weimer. His term will expire December 31, 2025.



Board of Mayor and Aldermen

6400 Stage Road
Bartlett, TN 38134

SCHEDULED

RESOLUTION (ID # 2987)

Meeting: 07/13/21 06:00 PM

Department: Engineering

Category: Agreement

Prepared By: Penny Medlock

Initiator: Rick McClanahan

Sponsors:

DOC ID: 2987

Resolution 18-21, a resolution to adopt the Shelby County Hazard Mitigation Plan.

WHEREAS, the City of Bartlett, Tennessee recognizes the potential threat that natural and technological hazards pose to persons and property; and

WHEREAS, the act of undertaking hazards mitigation actions prior to disaster occurrence will reduce the potential for personal harm and the destruction of property, thereby saving taxpayer dollars; and

WHEREAS, the adoption of a hazards mitigation plan is required as a condition of receiving future grant funding for mitigation projects; and

WHEREAS, the City of Bartlett participated in the planning process with other units of local government within Shelby County to prepare the Hazards Mitigation Plan;

NOW THEREFORE BE IT RESOLVED BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF BARTLETT, that the City of Bartlett hereby adopts the Shelby County Hazards Mitigation Plan as an official plan.

BE IT FURTHER RESOLVED that the Board of Mayor and Aldermen authorizes the Shelby County Office of Preparedness Emergency Management Agency, on behalf of the City of Bartlett as well as other municipalities located within Shelby County, to submit the adopted Hazards Mitigation Plan to Federal Emergency Management Agency officials for final review and approval.

Adopted this 13th day of July 2021.

W.C. Pleasant, Register to the
Board of Mayor and Aldermen

A. Keith McDonald, Mayor

Attest: _____

Penny Medlock, City Clerk

Shelby County Hazard Mitigation Plan



2021 Update

Prepared By:

**Shelby County Hazard Mitigation Committee
Shelby County Emergency Management Agency**

Assistance Provided By:

Tennessee Emergency Management Agency
as part of the Tennessee Mitigation Initiative

Executive Summary

Over the past two decades, hazard mitigation has gained increased national attention due to the large number of natural disasters that have occurred throughout the U.S. and the rapid rise in costs associated with those disaster recoveries. It has become apparent that money spent mitigating potential impacts of a disaster event can result in substantial savings of life and property. With these benefit cost ratios being extremely advantageous, the Disaster Mitigation Act of 2000 was developed as U.S. Federal legislation that reinforces the importance of pre-disaster mitigation planning by calling for local governments to develop mitigation plans (*44 CFR 201*).

The purpose of a local hazard mitigation plan is to identify the community's notable risks and specific vulnerabilities, and then to create/implement corresponding mitigation projects to address those areas of concern. This methodology helps reduce human, environmental, and economical costs from natural and man-made hazards through the creation of long-term mitigation initiatives.

The advantages of developing a local hazard mitigation plan are numerous including improved post-disaster decision making, education on mitigation approaches, an organizational method for prioritizing mitigation projects, etc. It has been noted that communities who successfully complete and maintain a mitigation plan receive larger amounts of Federal and State funding to be used on mitigation projects, and receive these funds faster, than communities who do not have a plan. Such funding sources that the plan caters to are Pre-Disaster Mitigation, Flood Mitigation Assistance, Severe Repetitive Loss, and Hazard Mitigation Grant Programs.

The 2021 update of the Shelby County Hazard Mitigation Plan was created to act as a well-thought -out guide to be used by, and for, the people of Shelby County. For this plan to be successful, each jurisdiction/district within the county participated in the drafting and preparation of the plan update. These participating jurisdictions/districts include:

- Shelby County (Unincorporated)
- City of Memphis (County Seat)
- Town of Arlington
- City of Bartlett
- Town of Collierville
- City of Germantown

- City of Lakeland
- City of Millington
- Shelby County Schools
- Arlington Community Schools
- Bartlett City Schools
- Collierville Schools
- Lakeland School System
- Millington Municipal Schools

In reference to federal code title *44 CFR 201*, an updated hazard mitigation plan is required to be submitted to both TEMA (State) and FEMA (Federal) for review every five-years to be reapproved. When the plan is deemed “approval pending adoption” by FEMA (*44 CFR 201.6(c)5*), each of the participating jurisdictions will adopt the plan through a local resolution.

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- 1: Attendance Sheet Meeting #1
- 2: Attendance Sheet Meeting #2
- 3: Public Notice/Meeting Minutes/Letters
- 4: Flood Insurance Rate Maps for Shelby County
- 5: HAZUS: 500 Year Flood
- 6: Ongoing Performance Tasks
- 7: Ordinances

Section 1: Planning Process

Planning Process Update

The previous Shelby County Hazard Mitigation Plan was approved by FEMA on April 14th, 2016. Per federal requirements stated in *44 CFR 201*, all local hazard mitigation plans are required to go through a FEMA update review every 5 years to remain eligible for hazard mitigation grants. This update methodology was developed to assure that local governments are continuing to re-evaluate their risks and to regularly implement mitigation projects that can reduce community vulnerabilities.

The plan's five-year update process began in a meeting (via WebEX) on August 26th, 2020 (See [Appendix 1](#) for WebEx chat log/attendance sheet) . At this meeting Shelby County Emergency Management Agency stated that they would continue the role of leading staff and interested persons in updating their mitigation plan. The tasks to be undertaken by Shelby County Emergency Management Agency consisted of continuing to get agencies and the public involved in the county's mitigation efforts and performing the written plan's required 5-year update.

Prior to this meeting Shelby County began reorganizing the county-wide hazard mitigation committee. Realizing that a successful mitigation committee includes a number of representatives, specialists, and individuals who can give valuable/unique insights that local emergency management staff may not have considered; invites to be a part of this plan update included open invitations, via email and phone, to the following agencies/entities:

- Arlington Community Schools
- Arlington Fire Department
- Arlington Public Works
- Arlington Schools
- Assessor of Property
- Baptist College of Health Sciences
- Bartlett Fire
- Bartlett Police Department
- Bartlett Public Works
- Bartlett Schools
- Collierville Fire
- Collierville Public Works
- Collierville Schools
- Federal Emergency Management Agency
- Germantown Fire

- Germantown Municipal Schools
- Germantown Public Works
- Lakeland
- Lakeland Public Works
- Lakeland Schools
- Memphis Area Transit Authority
- Memphis Fire
- Memphis Fire- OEM
- Memphis Public Works
- Millington Fire
- Millington Public Works
- Millington Schools
- Memphis Light, Gas, & Water
- Municipal Technical Advisory Service
- Shelby County Regional Geographic Information Systems
- Rehkopf Civil Engineering Company
- Shelby County Health Department
- Shelby County Sheriff
- Shelby County / Memphis Planning
- Shelby County Assessor
- Shelby County Board of Conservation
- Shelby County Emergency Management and Homeland Security
- Shelby County Fire
- Shelby County Public Works
- Shelby County Roads and Bridges
- Shelby County Schools
- Shelby County/Memphis Division of Planning
- Tennessee Emergency Management Agency
- University of Memphis - GIS
- University of Memphis- Center for Earthquake Research and Information

In addition to public advertisements, Fayette and Tipton Counties (all adjacent counties) were invited to participate via announcements at the West Tennessee Regional Emergency Management Quarterly Director's Meetings. Despite notices to representatives from adjacent counties, none were present at either meeting. Additionally, there was no public input as no members of the public were in attendance.

The Shelby County Hazard Mitigation Committee for the plan update consists of the following members:

Section 1: Planning Process

Member	Title	Agency	Representation
Shannon Towery (Committee Chairperson)	Planning Coordinator	Shelby County Emergency Management and Homeland Security	Shelby County
James Harvill	Chief	Arlington Fire Department	Arlington
Jeremy Yow	Supervisor-Student Services and HR	Arlington Community Schools	Arlington Community Schools
Miracle Roberts	Chief Financial Officer	Arlington Community Schools	Arlington Community Schools
Tim Ruff	Director of Operations	Arlington Community Schools	Arlington Community Schools
Eric Leppanen	Captain	Bartlett Police Department	Bartlett
Jeff Cox	Chief	Bartlett Police Department	Bartlett
Rick McClanahan	City Engineer	Bartlett	Bartlett
Steve Sones	Assistant Chief	Bartlett Police Department	Bartlett
Terry Wiggins	Chief	Bartlett Fire	Bartlett
Gary Rikard	Security Manager	Bartlett City Schools	Bartlett City Schools
John Fox	Public Works Manager	Collierville	Collierville
Tommy Kelley	Chief of Operations	Collierville Fire Department	Collierville
Nancy Kelley	Safe Schools Director	Collierville Schools	Collierville Schools
Robin Berzins	Tennessee FEMA Integration Team	Federal Emergency Management Agency	Federal Emergency Management Agency
John Selberg	Fire Chief / Emergency Manager	Germantown Fire Department	Germantown
Dennis Wolf	Fire Management Consultant	Lakeland	Lakeland
Shane Horn	City Manager	Lakeland	Lakeland School Sytem
Brandon Carpenter	Planning	Memphis Office of Emergency Management	Memphis
Christopher Favaloro	Operations Officer	Office of Emergency Management	Memphis
Evan Boulanger	Senior Design Engineer	Memphis	Memphis

Section 1: Planning Process

Greg Waymon	Planning	Memphis Fire & Office of Emergency Management	Memphis
Jonathan Haley	Grants Coordinator	Memphis Fire Department	Memphis
Lopa Naik	Senior Design Engineer	Memphis	Memphis
Manny Belen	City Engineer	Memphis	Memphis
Patrina Chambers	Director of Grants and Procurement	Memphis Area Transit Authority	Memphis
Robert Rehkopf	Consultant	Memphis	Memphis
Gary Graves	Public Safety Director	Millington	Millington
Philip Leblanc	Director of Operations and Transportation	Millington Municipal Schools	Millington Municipal Schools
Angela Brown	Grant Manager	Shelby County Emergency Management and Homeland Security	Shelby County
Angela Hill	Administrator	Shelby County Parks and Neighborhood	Shelby County
Benjamin Hamilton	Asset Management Engineer	Memphis Light, Gas, and Water	Shelby County
Brenda Jones	Director	Shelby County Emergency Management and Homeland Security	Shelby County
Chris Masin	Senior Engineer	Shelby County Roads, Bridges, and Engineering	Shelby County
Cliff Norville	Director	Shelby County Public Works	Shelby County
Daniel Hochstein	Lead Project Engineer	Memphis Light, Gas, and Water	Shelby County
Erin Stirgus	Project Engineer	Memphis Light, Gas, and Water	Shelby County
George Boyington	Intergovernmental Affairs & Speicla Projects Manager	Shelby County Assessor of Property	Shelby County
Glen Kneeland	Deputy Chief	Shelby County Fire	Shelby County
Jared Darby	Senior Manager	Shelby County Office of Resilience and Sustainability	Shelby County
Madelyn Lukens	Project Engineer	Memphis Light, Gas, and Water	Shelby County

Attachment: Shelby County Hazard Mitigation Plan 2021- Approved (2018 - Res. 18-21, to adopt Hazards Mitigation Plan)

Section 1: Planning Process

Misty Haley	Emergency Operations Manager	Shelby County Emergency Management and Homeland Security	Shelby County
Oussama Terrab	Crisis Management	Memphis Light, Gas, and Water	Shelby County
Rick Stieg	GIS Administrator	Shelby County	Shelby County
Ryan Groves	Regulatory Compliance Coordinator	Memphis Light, Gas, and Water	Shelby County
Steve Fort	Emergency Response Coordinator	Shelby County Health Department	Shelby County
Jimmy Tuggers	Emergency Management	Shelby County Schools	Shelby County Schools
LaTonya McGowan	Emergency Management Specialist	Shelby County Schools	Shelby County Schools
Quentin Reed	Special Project Assistant	Shelby County Schools	Shelby County Schools
Brent Phillips	Planner	Tennessee Emergency Management Agency	Tennessee
Jane Waldrop	Regional Director	Tennessee Emergency Management Agency	Tennessee
Mack Green	District Coordinator	Tennessee Emergency Management Agency	Tennessee
Brian Waldron	Director	Center for Applied Earth Science and Engineering (CAESER)	University of Memphis
Gary Patterson	Director of Education and Outreach	Center for Earthquake Research and Information (CERI)	University of Memphis

The Shelby County Hazard Mitigation Committee continues to be the county's lead in all mitigation efforts and in the development of the county's mitigation plan. The committee member's efforts in the plan update were broken down into five stages: **1)** analysis of the original plan (*the plan as it stood prior to the updates*), **2)** updating of the plan, **3)** public participation, **4)** review of the final updated plan, and **5)** adoption of the plan.

Stage 1: During the analysis of the plan, Shelby County Emergency Management Agency reviewed the original county plan and made notes on what sections would require the main updates. Shelby County Emergency Management Agency suggested that the two core areas for needed updates were in the risk/vulnerability assessment and in the restructuring of the county's listed hazard mitigation projects, as well as re-evaluating the plan's hazards, re-assessing their risks, re-calculating each jurisdiction's vulnerable areas, and re-establishing the county's mitigation goals.

Stage 2: From there the committee started making the updates to the plan. A large amount of this effort took place at the second Shelby County Hazard Mitigation Committee meeting that was held on September 20th, 2020. Tasks included developing and prioritizing projects for the new plan and concluding any remaining business. TEMA personnel were present at this meeting to answer mitigation planning and grant questions. [Appendix 2](#) provides a copy of the meeting's attendance sheet.

Stage 3: To encourage public involvement, the Shelby County Hazard Mitigation Committee meetings were given public notice. [Appendix 3](#) presents a copy of the public notices.

Stage 4: Next the committee evaluated the written updates of the plan against FEMA's crosswalk requirements via email correspondence. This also included having the jurisdictions review the drafts that specifically addressed aspects of their jurisdiction before the plan is sent to FEMA for review.

Stage 5: Upon receiving the "Approval Pending Adoption" designation from FEMA's review, the public will be given a chance to comment on the final draft of the update plan prior to its adoption by each local jurisdiction. This opportunity will take place at a local board meeting for each jurisdiction before the updated plan adoption decision takes place. The opportunity for final public comment will therefore be documented through the receipt of a signed adoption resolution.

Review of Existing Information

A preliminary review of existing plans, reports, and information was conducted during the initial phase of creating the Shelby County Hazard Mitigation Plan. The primary purpose of reviewing this information was to identifying local hazards, recognizing local risks, and understanding different local vulnerabilities. The following list of sources identifies some of the existing studies that were reviewed:

- State of Tennessee Hazard Mitigation Plan
- Tennessee Emergency Management Plan (TEMP)
- U.S. Census Bureau
- FEMA Mitigation "How to" Guides
- NOAA National Climatic Data Center (NCDC) storm reports
- Shelby County BEOP
- County & Jurisdictional Schools Emergency Plans
- Shelby County Highway Department Plan
- County & Jurisdictional Public Works Development Plans
- County & Jurisdictional Fire Department 5 Year Plans
- Jurisdictional Plans, SOP's, & SOG's

These sources helped to develop the plan's hazard, risk, and vulnerability assessment sections that in return led to the establishment of meaningful mitigation actions.

Updates within the Plan

It is important to note that this countywide plan was a minor revision of the previous Shelby County Hazard Mitigation Plan. Shelby County reviewed and analyzed each section of the original plan and made updates in the following ways:

Section 1: Planning Process

Shelby County updated the original plan's description of the planning process to include the new or no longer participating committee members, the most recent countywide mitigation meetings that took place for the plan's update, and the latest opportunity for the public to get involved. Shelby County also compiled a new list of existing documents that they reviewed in updating their sections in the plan.

Section 2: County Profile

Shelby County created a new development trends section in this plan update.

Section 3: Risk Assessment

Shelby County kept all of their listed natural hazards from the original hazard mitigation plan. As part of the plan update, Shelby County updated their previous occurrence hazard listings to cover all occurrences for flood and tornado events, the most recent twenty years for all other hazards. The committee then re-evaluated each hazard's extent, probability, and potential impacts.

Section 4: Mitigation Strategy

Shelby County has brainstormed some new mitigation projects that were added to the list, used a new chart method to profile project details, and developed a system to describe where their previous plan's projects are in terms of being implemented. Projects were then prioritized based on specific criteria.

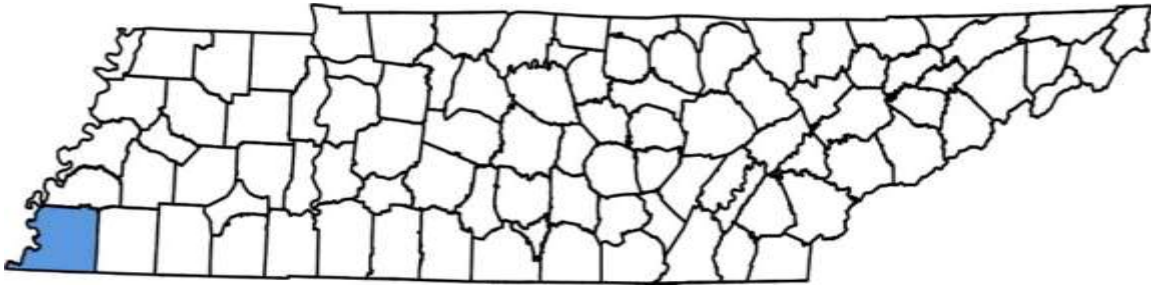
Section 5: Plan Maintenance

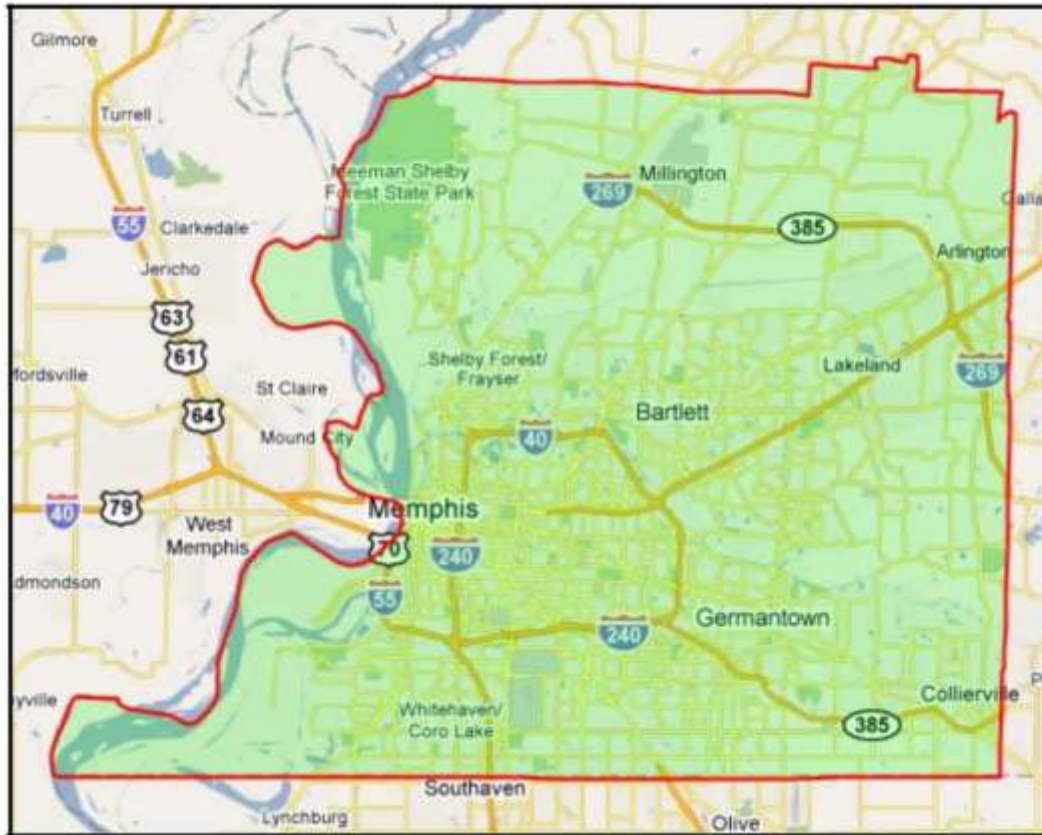
Shelby County updated how they would work with the other jurisdictions in monitoring, evaluating, and updating the plan; provided an updated list of mechanisms they could incorporate mitigation within; stated that now the Shelby County BEOP has mitigation concepts incorporated into it; and updated how all the jurisdictions would keep the public involved in updating processes.

Section 2: County Profile

Development Trends

Shelby County and its jurisdictions can be found in the south -western portion of West Tennessee. It is bordered by the Mississippi River and Arkansas to the west, Tipton County to the north, Fayette County to the east, and Mississippi to the south. Shelby County has a population of 927,644 (2010 census), and is second in county population only to Davidson County (Metro Nashville) in Tennessee. The county has a total area of 785 square miles, of which 763 square miles is land and 22 square miles is water. Memphis is the county seat.





The incorporated jurisdictions have populations as follows (2010 census):

Jurisdiction	Population
Memphis	646,889
Arlington	11,517
Bartlett	54,613
Collierville	43,965
Germantown	38,844
Lakeland	12,430
Millington	10,176

Shelby County has many noteworthy attributes. It is home to the major hub for Federal Express (FedEx), among other major global corporations. The International Port of Memphis is the second largest inland port on the shallow draft portion of the Mississippi River, and the 5th largest inland port in the United States overall. Memphis is a frequent travel destination and is known as the "Home of the Blues". Surrounding the metropolitan areas of the county is a vibrant agricultural industry, supplying cotton, corn, and soybeans, among others.

Due to current land use trends, the Shelby County and jurisdictional officials predict significant growth in all areas. Significant projected growth includes the following:

Projected County/Jurisdictional Growth	
Industrial	• South Memphis- XPO Logistics is expanding local industrial operations in South Memphis adding new operating space, processing areas and over 300 distribution jobs • Memphis Airport Area- DHL Express expanding two industrial warehouse expansions, adding 250 jobs • South Memphis- Airport Area- Siemens Healthineers Industrial Products is launching a \$70M factory expansion • Memphis, South- Blues City Brewery, LLC expansion of manufacturing capabilities and machinery processing at primary distillery located at 5151 E Raines Road. • Memphis, Riverside - Hyosung Heavy Industries Corporation is developing new construction and site improvements in the City of Memphis at 2865 Riverport Road, to produce electrical power equipment and industrial machinery • Memphis, Riverside- The Pallet Factory Inc, expanding existing 46,508 square foot manufacturing facility, in addition to adding a 40,000 sq ft facility. The Pallet Factory makes pine and hardwood pallets and refurbishes existing pallets to customer specifications. • Memphis, Frayser- Penn A Kem LLC., renovation of existing structures and construction of new structures. Penn A Kem is a chemical manufacturing company for agrichemical and pharmaceutical markets. • Memphis- Airport Area, United Parcel Service Inc., is expanding current operating space with the construction of a new combined air and ground sorting facility • Memphis, Riverside- Carvana Distribution Center new facility will create more than 450 jobs with a new regional distribution center • PeroxyChem, a global leader in peroxygen chemistries, plans to construct a new peracetic acid production facility in Memphis, Tennessee. PeroxyChem won a competitive Memphis City contract, and has begun construction at the Maynard C. Stiles Wastewater Treatment Plant. • Memphis, South- Cummins, Inc. will investing \$6.7 million to expand its current parts and distribution center in Memphis, Tennessee. The expansion will create 70 new jobs for Shelby County. The site designs, manufactures, distributes, and services diesel and natural gas engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. • Memphis- Airport Area, United Parcel Service Inc., construction of new combined air and ground sort facility

Section 2: County Profile

	• Memphis, Airport Area The modernization project will consolidate airline operations as well as retail. The facility will see reconfigurations to the concourse and runways, giving more aircraft clearance. Facility will also be seismically retrofitted. • The new Amazon processing facility will contain more than 1 million sq ft of operating space and create 500 full-time jobs, It will handle larger bulk items and package sorting2
Commercial	• Downtown, Riverside – Memphis The \$60M makeover of the 30-acre Tom Lee Park will feature 5 new buildings; an open-air rec area and more than 250,000 square feet of open lawn space. • East Memphis - Poplar Plaza at Park Ave- project launched to develop a \$56M redevelopment and expansion of mixed use, and commercial properties • Germantown- Expedient, a leading provider of data center colocation, cloud computing and managed hosting services, opened its newest top-tier data. The new facility will be connected to the company's 10 other data centers, by its 10Gbps fiber optic network. The data center is 35,000 square feet with 7,500 square feet of raised floor production • Memphis- Airport Area, United Parcel Service Inc., construction of new combined air and ground sort facility • Memphis- Downtown- Autozone launches a \$12M Operations Expansion at the downtown site. • Memphis Downtown- FedEx Logistics moving national headquarters to former Gibson Guitar building in Downtown Memphis- The FedEx Logistics Operation began moving operations in April 2020, to expand to the 154,000 sq ft vacant Gibson Guitar Factory. • Memphis- Downtown, Loews Hotels developing a \$240 million Downtown Memphis project with retail space and apartments • Memphis- Raleigh-Frayser – 68,000sq ft Amazon Sorting Facility groundbreaking, adding to the current Amazon network centered in Shelby County. • Memphis, Airport - Mimeo, an online content management service, distribution network, and printing company, invested \$16 million to expand its facility operations, establishing its U.S. headquarters in Memphis, Tennessee, creating 300 jobs in Shelby County. The company's Memphis facility is located adjacent to FedEx's Global Hub • Memphis, Downtown- the ServiceMaster Corporate Headquarters relocated to downtown Memphis, bringing 2300 jobs • Memphis/Germantown- Renovation of existing structures and new construction at two properties at 1100 Ridgeway Loop and 889 Ridge Lake Boulevard. The Memphis facility will expand, providing service for the Private Capital Group, Equity Capital Markets, Fixed Income Markets, and maintaining daily operations

Section 2: County Profile

	• Memphis, Downtown/Medical District- UTHSC College of Dentistry is expanding with a 68,000 sq. ft. facility designed to provide special needs clinic • Memphis, Midtown- New headquarters for DEVCON (cybersecurity software), Green Mountain Technology (shipping/technology), and Indigo Ag (agricultural technology) have launched operations • Memphis, Raleigh-The closed Raleigh Springs Mall site was converted to into a \$28 million civic center the end of June 2019, creating civic and commercial space to include a library, rec park, and police precinct. • Memphis/Germantown- Carrefour Redevelopment is a multiphase commercial property development which will include retail space, multi-story office building and hotel space • St. Jude Children's Research Hospital announced a new construction project, a \$13.4 million laboratory and support facility • Memphis, Airport Area- FedEx launched a \$1 billion renovation and expansion of the FedEx hub • Memphis, University Areas- The University of Memphis Research Foundation has funded a research park, established on main University of Memphis campus in 2018. The 10,000-square-foot facility serves as research and technology facility for cybersecurity testing, robotics, smart biomaterials, additive manufacturing, and bioengineering. • Memphis- Raleigh Town Center District ("District") is a 211.5-acre area focused around the intersection of Austin Peay Highway at Yale Road is \$91 million commercial property, mixed use and retail zoned along the Austin Peay Highway. • Power & Tel is expanding a \$25 million headquarters on the border of Shelby and Fayette County to consolidate regional operations to one facility, while expanding operational capabilities. • Memphis Cook Convention Center is currently under renovations, expanding the existing facility instead of constructing a new one. The facility will undergo a \$175 Million investment
Residential	• Shelby County is seeing expanded residential project developments, with over 5000 new apartment units planned or in current development. Projects include: • Downtown Memphis - A local apartment developer has his sights set on the long-vacant building at 2701 Union Ave. Extended • Unincorporated Shelby County, near Germantown The 398-unit project will eventually cost about \$40 million in vertical construction. • Memphis- Cooper Young District 17,000-square-foot brewery and taproom is expected to open at 435 Madison Ave. in 2020

Section 2: County Profile

	• Memphis- Getwell \$17M worth of improvements to an apartment complex off of Getwell • Memphis, Medical District- Medical District apartments, Tower Park, a 128-unit apartment high-rise, undergoes \$18M overhaul • Collierville- \$270 million Farms at Bailey Station is now fully financed and under construction in Collierville. • Lakeland- The Lake District Project with Museum Lofts and the Lakeland Commons projects has broken ground • Memphis- Midtown- University Park Apartments is a new development with 80 apartment units and a retail restaurant space at 3637 Park Avenue • Memphis- Raleigh Town Center District ("District") is a 211.5-acre area focused around the intersection of Austin Peay Highway at Yale Road is \$91 million commercial property, mixed use and retail zoned along the Austin Peay Highway • Memphis- Binghampton- Grubb Management is developing and constructing a new residential development of approximately 350 apartment units at the intersection of Broad Avenue and Bingham Street. • Shelby County- Unincorporated, Shelby Farms- Velo at Shelby Farms Parkside at Shelby Farms with 267 Units, 63 Garages on Approximately 23 Acres, Opening 2021 • The Dwell at Shelby Farms is developing 715 apartments, 102 single-family houses and 162 senior-living units on undeveloped land now zoned heavy industrial • Parkside at Shelby Farms comprises approximately 59 acres facing Shelby Farms Park, Parkside at Shelby Farms Park is a 60+ acre development which will include 33,000 square feet of commercial space, 1,700 structured parking spaces, and 1,400 apartments, along with a mixture of garden homes, offices, and support services. The development will also include a 130-room boutique hotel at the corner of Mullins Station and Whitten Road • Memphis, East Park Area-New Project constructing approximately 240 apartment units at the intersection of Poplar Avenue and Highland to be marketed as Poplar Plaza
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Projected School/District Growth	
School	- Arlington Community Schools: new bus lot, new administration building, new middle school gym addition, new indoor practice facility - Bartlett High School located at 5688 Woodlawn St is undergoing major improvement and expansion - Collierville Elementary School addition to building, projection 2021 - Construction of the Lakeland Preparatory School high school addition (capacity for 1100 additional students) is underway, and the school is scheduled to open in August, 2022 - Shelby County Schools: Future school construction at Frayser Community, Kingsbury Area, Orange Mound Community, Raleigh Craigmont Community, Cordova, Southeast, and Hickory Hill Community; Kingsbury ES/ MS/ HS- Major School Renovations

As is often the case, development has led to some flooding problems and will be monitored by county and jurisdictional agencies, which will require careful planning to reduce the risk moving forward.

Jurisdictional & School District Capabilities

The following chart indicates the legal and regulatory adherence of each of the jurisdictions within Shelby County:

Jurisdictional Tools, Plans, & Capabilities	Shelby County	Memphis	Arlington	Bartlett	Collierville	Germentown	Lakeland	Millington
Building Codes	Y	Y	Y	Y	Y	Y	N	Y
Zoning	Y	Y	Y	Y	Y	Y	Y	Y
Emergency Response Plan	Y	Y	Y	Y	Y	Y	Y	Y
National Flood Insurance Program Participant	Y	Y	Y	Y	Y	Y	Y	Y
Post-Disaster Recovery Plan	Y	Y	Y	Y	Y	Y	Y	Y
Law Enforcement	Y	Y	N	Y	Y	Y	N	Y
Full Time Fire Services	Y	Y	Y	Y	Y	Y	N	Y

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Jurisdictional Tools, Plans, & Capabilities	Shelby County	Memphis	Arlington	Bartlett	Collierville	Germentown	Lakeland	Millington
Grant Writer	Y	Y	Y	N	N	Y	N	N
Public Information Officer	Y	Y	Y	Y	Y	Y	N	Y

School District Tools, Plans, & Capabilities	Community Schools	Schools	Collierville Schools	Lakeland School System	Millington Municipal Schools	Shelby County Schools
Emergency Response Plan	Y	Y	Y	Y	Y	Y
Post-Disaster Recovery Plan	Y	Y	Y	Y	Y	Y
Law Enforcement/SRO	Y	Y	Y	Y	Y	Y
Grant Writer	N	Y	Y	N	Y	Y
Public Information Officer	Y	Y	N	N	Y	Y
Capital Improvement Funding	N	Y	Y	Y	Y	Y
Bond Funding	N	Y	Y	Y	N	N
Private Contributions	N	Y	Y	Y	N	Y
State/Federal Funding	Y	Y	Y	Y	Y	Y
Emergency Notification System	Y	N	Y	Y	Y	Y

Expanding & Improving Mitigation Programs

All jurisdictions have been active in the past in pursuing mitigation projects. All involved see the opportunity in BRIC state funding minimums, as well as multiple HMGP funding streams from several disasters within the state. Challenges to expanding mitigation programs include funding of the local match, buy-in from elected officials, public support for additional funding for districts, and keeping all stakeholders involved in the planning process between 5-year mitigation plan updates.

Section 3: Risk Assessment

Hazard Identification

To begin to assess Shelby County's risk to natural hazards and identify the community's areas of highest vulnerability, the mitigation committee had to identify which hazards have or could impact the county. This hazard identification process began with researching previous hazard events that have occurred in Shelby County by going through newspaper articles, Shelby County Emergency Management Agency records, and recalling personal experiences. From there Emergency Management staff also analyzed hazard events that could occur in the county by reviewing scientific studies and the State of Tennessee Hazard Mitigation Plan. The following hazards have been identified as hazards of concern by the Shelby County mitigation committee within the update process.

Flooding

Flooding events occur when excess water from rivers and other bodies of water overflow onto riverbanks and adjacent floodplains. In addition, lower lying regions can collect water from rainfall and poorly drained land can accumulate rainfall through ponding on the surface. Floods in Shelby County are usually caused by rainfall, but may also be caused by snowmelt and man-made incidents. The below charts explain common ways flooding occurs and common factors that contribute toward the severity of floods.

Common Ways Flooding Occurs	
Methods	Description
Overland Flow	
(a) Infiltration	-Excess overland flow occurs when the rain is falling more rapidly that it infiltrates into the soil.
(b) Saturation	-Excess overland flow occurs when soil spaces are so full of water that no more rain can be absorbed.
Throughflow	-Rainwater which has infiltrated into unsaturated soil can move horizontally to the river channel. This process is slower than overland flow but faster than base flow.
Baseflow	-Rainwater which has percolated to the aquifer can seep into the river channel. This is the slowest process.

Source: The Field Studies Council

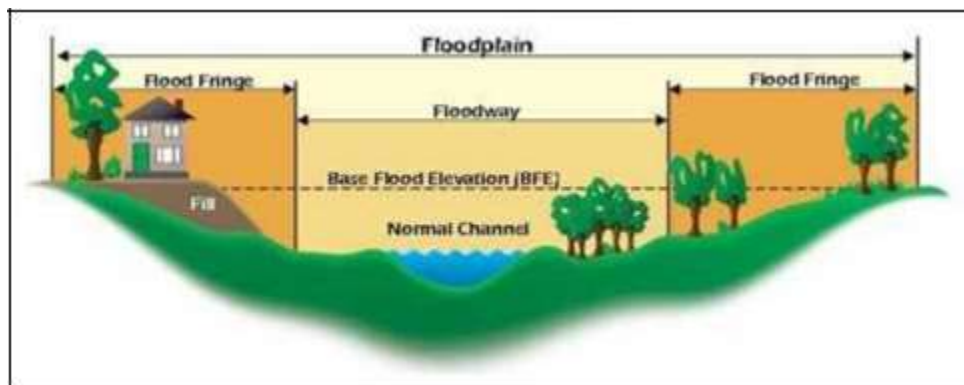
Section 3: Risk Assessment

Common Causes of Flooding	
Factor	Effect on Flooding
Geology	Impermeable rocks are saturated more quickly than porous and pervious rocks. Saturation excess overland flow is more common. Sandy soils have larger pore spaces than clay soils. Infiltration is most rapid in sandy soils.
Relief	Water reaches the channel more rapidly in a steeper basin as water is travelling more quickly downhill.
Vegetation	Vegetation intercepts a large proportion of rainfall. Where trees are deciduous, discharge is higher in a forested basin in winter as there is less interception.
Meteorological Factors	Where rain is falling faster than the infiltration rate, there is infiltration-excess overland flow. This is common after a summer storm. Snow does not reach the channel but is stored on the ground surface. As snow melts, the meltwater will reach the channel quickly as infiltration is impeded if the ground is still frozen.
Catchment Shape	It takes less time for water to reach the channel in a circular basin as all extremities are roughly equidistant from the channel.
Land Use	Surface runoff is higher in urban areas because there are more urban surfaces (concrete & tarmac) and sewers take water rapidly to rivers. There is less interception and evapotranspiration and more surface runoff in a deforested catchment.
Catchment Size	Water reaches the channel more rapidly in a smaller basin as water has a shorter distance to travel.
Antecedent Conditions	The level of discharge before the storm is called the antecedent discharge. Even a small amount of rain can lead to flooding.

Source: The Field Studies Council

In Shelby County some areas are more flood-prone than others. One of the ways of identifying these flood-prone areas is through determining the county's 100- and 500-year floodplains. 100- year floods are calculated to be the level of flood water expected to be equaled or exceeded every 100 years on average, meaning a flood that has a 1% chance of being equaled or exceeded in magnitude in any single year. A 500-year floodplain has a 0.2% chance. A 100-year floodplain would include the areas adjoining a stream, river, or watercourse that would be covered by water in the event of a 100-year flood (see diagram below).

Characteristics of a Floodplain



Source: FEMA

Detailed Flood Insurance Rate Maps (FIRMs) are also included in [Appendix 5](#), which shows where FEMA has placed the 500-year floodplain for each jurisdiction.

Shelby County historically has had many flood events in the past. Based on NOAA NCDC data, the following charts provide a list of flood events occurring in Shelby County from January 1950 to present and a list of floods with descriptions of their impacts imposed on the community.

Flood Events in Shelby County: January 1950–Present

Location	Date	Type	Deaths	Injuries	Property Damage
MEMPHIS	7/24/1996	Flash Flood	0	0	5.00K
MEMPHIS	10/27/1996	Flash Flood	0	0	20.00K
SHELBY (ZONE)	3/1/1997	Flood	1	0	100.00K
MEMPHIS	9/23/1997	Flood	0	0	40.00K
MEMPHIS	7/29/1998	Flood	0	0	1.00K
MEMPHIS	8/8/1998	Flash Flood	0	0	1.00K
MEMPHIS	4/3/1999	Flood	0	0	1.00K
MILLINGTON	5/5/1999	Flood	0	0	1.00K
GERMANTOWN	5/5/1999	Flood	0	0	1.00K
MEMPHIS	7/30/2001	Flash Flood	0	6	25.00K
MEMPHIS	8/12/2001	Flash Flood	0	0	1.000M
MEMPHIS	11/24/2001	Flash Flood	0	0	1.00K
SHELBY (ZONE)	11/28/2001	Flood	0	0	1.000M
SHELBY (ZONE)	12/12/2001	Flood	0	0	1.00K
MEMPHIS	3/17/2002	Flash Flood	0	0	1.00K
MEMPHIS	4/30/2002	Flash Flood	0	0	0.50K
FRAYSER	5/25/2002	Flash Flood	0	0	1.00K
BARTLETT	5/28/2002	Flash Flood	0	0	1.00K
MEMPHIS	6/13/2002	Flash Flood	0	0	1.00K
MEMPHIS	7/14/2002	Flash Flood	0	0	2.00K
BARTLETT	9/19/2002	Flash Flood	0	0	1.00K
MEMPHIS	9/20/2002	Flash Flood	0	0	100.00K
COUNTYWIDE	10/10/2002	Flash Flood	0	0	20.00K
MEMPHIS	11/10/2002	Flash Flood	0	0	1.00K
MEMPHIS	12/18/2002	Flash Flood	0	0	5.00K
MILLINGTON	12/19/2002	Flood	0	0	0.50K
MEMPHIS	4/20/2003	Flash Flood	0	0	5.00K
MILLINGTON	5/16/2003	Flash Flood	0	0	1.00K
MEMPHIS	5/17/2003	Flash Flood	0	0	5.00K
MEMPHIS	6/16/2003	Flash Flood	0	0	1.00K
MEMPHIS	2/5/2004	Flash Flood	0	0	1.00K
MEMPHIS	3/20/2004	Flash Flood	0	0	5.00K
MEMPHIS	6/14/2004	Flash Flood	0	0	5.00K
FRAYSER	10/18/2004	Flash Flood	0	0	1.00K

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MEMPHIS	10/19/2004	Flash Flood	0	0	1.00K
MEMPHIS	7/15/2005	Flash Flood	0	0	1.00K
MEMPHIS	7/17/2005	Flash Flood	0	0	1.00K
MEMPHIS	7/19/2005	Flash Flood	0	0	1.00K
MEMPHIS	11/15/2005	Flash Flood	0	0	1.00K
MEMPHIS	5/30/2006	Flash Flood	0	0	0.01K
CORDOVA	6/18/2006	Flash Flood	0	0	0.01K
GERMANTOWN	2/24/2007	Flash Flood	0	0	0.00K
GERMANTOWN	6/25/2007	Flash Flood	0	0	1.00K
ARLINGTON	7/6/2007	Flash Flood	0	0	0.00K
MEMPHIS	7/26/2007	Flash Flood	0	0	0.00K
BARTLETT	8/18/2007	Flash Flood	0	0	0.00K
FRAYSER	10/8/2007	Flash Flood	0	0	0.00K
BARTLETT	11/21/2007	Flash Flood	0	0	0.00K
ELLENDALE	11/21/2007	Flash Flood	0	0	0.00K
MEMPHIS	1/8/2008	Flash Flood	0	0	0.00K
RALEIGH	1/8/2008	Flash Flood	0	0	0.00K
CORDOVA	1/8/2008	Flash Flood	0	0	0.00K
SPRING LAKE	1/10/2008	Flash Flood	0	0	0.00K
GERMANTOWN	1/10/2008	Flash Flood	0	0	0.00K
WHITE STATION	3/3/2008	Flash Flood	0	0	0.00K
MEMPHIS	3/3/2008	Flash Flood	0	0	0.00K
BARTLETT	3/15/2008	Flash Flood	0	0	0.00K
BENJESTOWN	3/31/2008	Flash Flood	1	0	0.00K
PISGAH HGTS	3/31/2008	Flash Flood	1	0	0.00K
MEMPHIS	3/31/2008	Flash Flood	0	0	0.00K
COLLIERVILLE ARPK	4/1/2008	Flood	1	0	10.00K
COLLIERVILLE ARPK	4/4/2008	Flash Flood	0	0	0.00K
LENOW	4/11/2008	Flash Flood	0	0	0.00K
WHITE STATION	5/10/2008	Flash Flood	0	0	0.00K
GERMANTOWN	5/10/2008	Flash Flood	0	0	0.00K
PISGAH HGTS	7/31/2008	Flash Flood	0	0	0.00K
AULON	8/25/2008	Flash Flood	0	0	20.00K
NATIONAL CEMETERY	8/25/2008	Flash Flood	0	0	0.00K
SHELBY CENTER	8/25/2008	Flash Flood	0	0	0.00K
MEMPHIS	12/27/2008	Flash Flood	0	0	0.00K
AULON	5/2/2009	Flash Flood	0	0	0.00K
SHELBY FARMS	6/12/2009	Flash Flood	0	0	0.00K
MILLINGTON	7/5/2009	Flash Flood	1	0	20.00K
BERCLAIR	7/16/2009	Flash Flood	0	0	0.00K
RALEIGH	7/21/2009	Flash Flood	0	0	0.00K
WHITE STATION	7/26/2009	Flash Flood	0	0	0.00K
COLLIERVILLE	7/30/2009	Flash Flood	0	0	500.00K

Attachment: Shelby County Hazard Mitigation Plan 2021- Approved (2018) : Res. 18-21, to adopt Hazards Mitigation Plan)

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ARLINGTON	7/30/2009	Flash Flood	0	0	0.00K
COLLIERVILLE	8/1/2009	Flash Flood	0	0	0.00K
AULON	8/18/2009	Flash Flood	0	0	0.00K
GERMANTOWN	8/18/2009	Flash Flood	0	0	0.00K
MEMPHIS	9/16/2009	Flash Flood	0	0	0.00K
WEST JCT	9/18/2009	Flash Flood	0	0	40.00K
CORDOVA	9/20/2009	Flash Flood	0	0	0.00K
ARLINGTON	12/8/2009	Flash Flood	0	0	0.00K
SHELBY FARMS	4/7/2010	Flash Flood	0	0	0.00K
AULON	4/24/2010	Flash Flood	0	0	0.00K
(MEM)MEMPHIS INTL AR	4/24/2010	Flash Flood	0	0	0.00K
SHELBY CENTER	4/24/2010	Flash Flood	0	0	0.00K
GERMANTOWN	4/24/2010	Flash Flood	0	0	0.00K
ARLINGTON MUNI ARPT	4/24/2010	Flash Flood	0	0	0.00K
KERRVILLE	5/1/2010	Flash Flood	1	0	28.900M
PISGAH HGTS	5/1/2010	Flash Flood	0	0	150.00K
ARLINGTON	5/1/2010	Flood	0	0	50.000M
EAST JCT	5/14/2010	Flash Flood	0	0	0.00K
LENOW	5/16/2010	Flash Flood	0	0	0.00K
WOODSTOCK	5/24/2010	Flash Flood	0	0	0.00K
CORDOVA	5/24/2010	Flash Flood	0	0	0.00K
LUCY	5/24/2010	Flash Flood	0	0	0.00K
SHELBY CENTER	5/24/2010	Flash Flood	0	0	0.00K
BARTLETT	6/3/2010	Flash Flood	0	0	0.00K
BAILEY	6/16/2010	Flash Flood	0	0	0.00K
BAILEY	6/17/2010	Flash Flood	0	0	0.00K
MILLINGTON	6/18/2010	Flash Flood	0	0	0.00K
COLLIERVILLE ARPK	6/26/2010	Flash Flood	0	0	0.00K
(MEM)MEMPHIS INTL AR	7/12/2010	Flash Flood	0	0	20.00K
WHITEHAVEN	7/29/2010	Flash Flood	0	0	0.00K
GERMANTOWN	8/9/2010	Flash Flood	0	0	0.00K
BUNTYN	8/10/2010	Flash Flood	0	0	0.00K
WHITEHAVEN	8/13/2010	Flash Flood	0	0	0.00K
LENOW	2/24/2011	Flash Flood	0	0	0.00K
ARLINGTON	4/26/2011	Flash Flood	0	0	20.00K
SHELBY FARMS	4/27/2011	Flood	0	0	150.00K
DARWIN	5/1/2011	Flood	0	0	2.000B
LUCY	5/1/2011	Flash Flood	0	0	0.00K
MALLORY	5/2/2011	Flash Flood	0	0	0.00K
SHELBY FARMS	7/21/2011	Flash Flood	0	0	0.00K
CORDOVA	3/16/2012	Flash Flood	0	0	50.00K
GERMANTOWN	6/11/2012	Flash Flood	0	0	0.00K

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FOREST HILL	7/10/2012	Flash Flood	0	0	0.00K
MEMPHIS	9/2/2012	Flash Flood	0	0	0.00K
CORDOVA	1/30/2013	Flash Flood	0	0	100.00K
MALLORY	5/21/2013	Flash Flood	0	0	30.00K
ELLEDALE	7/18/2013	Flash Flood	0	0	250.00K
RUGBY	2/4/2014	Flash Flood	0	0	0.00K
FOREST HILL	6/6/2014	Flash Flood	0	0	0.00K
EADS	6/29/2014	Flash Flood	0	0	50.000M
MILLINGTON	9/11/2014	Flash Flood	0	0	1.100M
ARLINGTON	2/21/2015	Flood	0	0	0.00K
MADGE	4/13/2015	Flash Flood	0	0	0.00K
SHELBY FARMS	7/3/2015	Flash Flood	0	0	15.00K
MEMPHIS	7/23/2015	Flash Flood	0	0	500.00K
(MEM)MEMPHIS INTL AR	8/5/2015	Flash Flood	0	0	0.00K
SHELBY FARMS	8/5/2015	Flash Flood	0	0	0.00K
FELTS	11/17/2015	Flash Flood	0	0	25.00K
SHELBY CENTER	2/2/2016	Flash Flood	0	0	0.00K
MEMPHIS	2/2/2016	Flash Flood	0	0	0.00K
DARWIN	3/9/2016	Flash Flood	0	0	0.00K
EAST ACRES	3/11/2016	Flood	0	0	0.00K
WEST JCT	3/13/2016	Flash Flood	0	0	0.00K
BERCLAIR	4/29/2016	Flash Flood	0	0	0.00K
WHITE STATION	5/25/2016	Flash Flood	0	0	0.00K
ARLINGTON	6/3/2016	Flash Flood	0	0	1.500M
GERMANTOWN	6/27/2016	Flash Flood	0	0	0.00K
GERMANTOWN	7/14/2017	Flash Flood	0	0	0.00K
BERCLAIR	7/14/2017	Flash Flood	0	0	0.00K
MEMPHIS	8/11/2017	Flash Flood	0	0	1.00K
FOREST HILL	8/11/2017	Flash Flood	0	0	1.00K
MEMPHIS	8/31/2017	Flash Flood	0	0	0.00K
PISGAH	8/31/2017	Flash Flood	0	0	0.00K
EAST ACRES	3/1/2018	Flood	0	0	0.00K
ROSEMARK	3/1/2018	Flood	0	0	0.00K
SPRING LAKE	6/24/2018	Flash Flood	0	0	0.00K
GERMANTOWN	8/29/2018	Flash Flood	0	0	0.00K
RALEIGH	2/23/2019	Flash Flood	0	0	0.00K
FOREST HILL	6/7/2019	Flash Flood	0	0	0.50K
FOREST HILL	6/7/2019	Flash Flood	0	0	15.00K
FOREST HILL	6/7/2019	Flash Flood	0	0	1.500M
FOREST HILL	6/7/2019	Flash Flood	0	0	150.00K
GERMANTOWN	8/20/2019	Flash Flood	0	0	0.00K

The above list represents all listed incidents from the NCDC site for a given time period. If a jurisdiction or district is not listed, there is not a recorded incident of this nature with the NCDC.

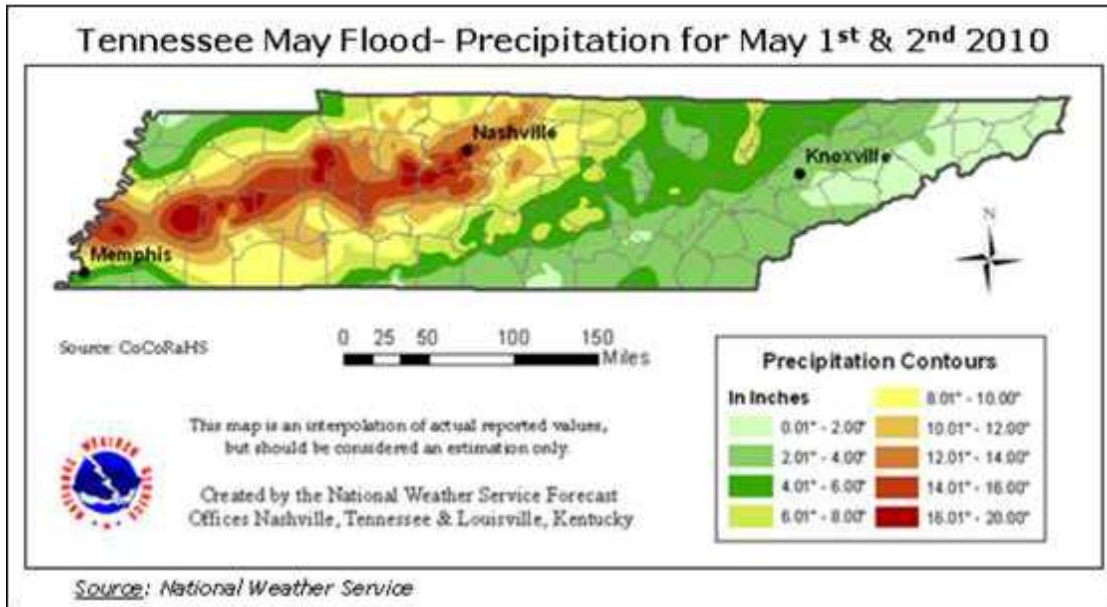
Small localized flood events are likely to occur approximately 6-7 times per year (over the last 25 years) in Shelby County. The severity of flooding that may occur in the county is measured by depth of inundation. The following occurred during the May 1st & 2nd, 2010 flood event (*DR-1909*), which led to up to 16" of precipitation in many areas of Shelby County. The impacts from this (or other) significant flooding events for each applicant are listed below:

Location	Extent
Shelby County	• 1 fatality when vehicle became stranded in a flooded roadway • 576 homes received some kind of flood damage, of which 77 were completely destroyed • 8 businesses were damaged • 403 mobile homes were completely destroyed • Several other buildings (including apartment complexes) were damaged • The flash flooding event transitioned into a flood event where rivers rose rapidly spilling over their banks • Inundation over roadways in the northern end of the county exceeded 5' in some areas
Memphis	• Water covered some streets with water inundation as high as vehicle wheel wells
Arlington	• No significant flooding from May, 2010 event • Arlington experienced flash flooding in 2016, with up to 1-2' of water in several homes
Bartlett	• Widespread flooding, with inundation up to 4'
Collierville	• Johnson Park flooded in 3' of water • Several homes flooded with several inches • Collierville-Arlington road was closed due to 6" of floodwater
Germantown	• Greenway along the Wolf River, as well as the associated out-buildings, experienced as much as 2' of inundation • Businesses built over a former landfill experienced flammable gas in their

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	building due to such a fast water table rise
Lakeland	• Steward Road flooding approximately 1' • Salem Road under 1' in areas near Brunswick Road • Ivy Creek Lane had 3-4' of flood water • Homes flood in Ivy Creek and on Stewart Road
Millington	• Levee holding back water from Big Creek was topped • 200-300 homes in base housing at Naval Support Activity Millington were flooded • Numerous people had to be rescued • 4-5' of water covered the navy base • Some locations were covered by as much as 8 feet of water • All roads were closed
Shelby County Schools	• Six schools sustained considerable flood damage in 2011 from up to 12" of flood water in school buildings
Arlington Community Schools	• Roof drains at Arlington Elementary are tied to the city drain system. The system periodically gets overwhelmed, and leads to several inches of flood water in classrooms
Bartlett City Schools	• Flood is low risk/no noted damage
Collierville Schools	• Flood is low risk/no noted damage
Lakeland School System	• No flooding incidents since the inception of the school district. Flood is rated as a moderate risk due to the impact on bus routes.
Millington Municipal Schools	• Millington High School experienced 3+" of inundation in flooding during 2016

Precipitation Map – May 1st & 2nd, 2010

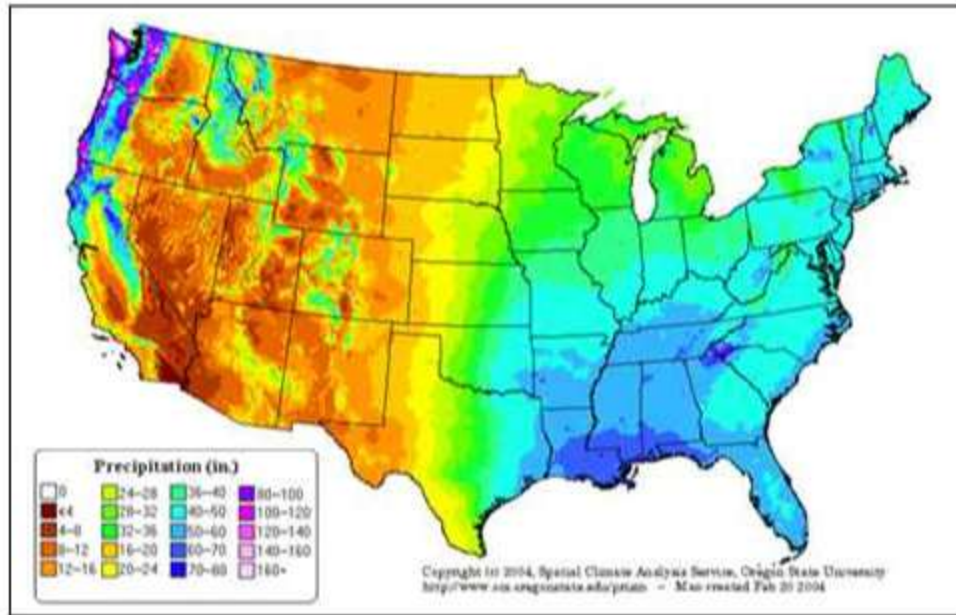


According to a NOAA Flood Risk Map (see map below), the majority of Tennessee was located in an "above average" risk of flooding zone during spring 2010. This proposed vulnerability is coupled with the fact that on average Tennessee usually acquires over 50-60 inches of rainfall a year (see following map).

U.S. Flood Risk (2010)



Average Annual Precipitation per Year (1971-2000)



Source: Spatial Climate Analysis Service, Oregon State University

Shelby County uses a ranking system to determine each jurisdiction's vulnerability to flooding events. This system is based off simple arithmetic which analyzes potential impacts to determine vulnerabilities and then analyzes the probability of a flood event occurring to calculate a flood risk ranking for each jurisdiction.

Flooding

Jurisdiction/Applicant	Human	Impacts Property	Business	Vulnerability $H+P+B=\#$; $\#/3=V$
Shelby County	2	4	3	3.0
Memphis	3	3	3	3.0
Arlington	2	4	2	2.7
Bartlett	2	4	2	2.7
Collierville	1	1	1	1.0
Germantown	1	5	2	2.7
Lakeland	3	4	1	2.7
Millington	4	5	2	3.7
Arlington Community Schools	1	2	1	1.3
Bartlett City Schools	1	2	1	1.3
Collierville Schools	1	1	1	1.0
Lakeland School System	3	4	1	2.7
Millington Municipal Schools	4	5	2	3.7
Shelby County Schools	4	5	4	4.3

Section 3: Risk Assessment

Jurisdiction/ Applicant	Vulnerability	Probability		Risk <i>V+P=R</i>
Shelby County	3.0	3	6.0	Medium
Memphis	3.0	3	6.0	Medium
Arlington	2.7	3	5.7	Medium
Bartlett	2.7	2	4.7	Moderate
Collierville	1.0	3	4.0	Moderate
Germantown	2.7	2	4.7	Moderate
Lakeland	2.7	2	4.7	Moderate
Millington	3.7	2	5.7	Medium
Arlington Community Schools	1.3	2	3.3	Low
Bartlett City Schools	1.3	2	3.3	Low
Collierville Schools	1.0	1	2.0	Low
Lakeland School System	2.7	2	4.7	Moderate
Millington Municipal Schools	3.7	2	5.7	Medium
Shelby County Schools	4.3	4	8.3	High
			Risk	
			Low	2-3.6
			Moderate	3.7-5.2
			Medium	5.3-6.8
			High	6.9-8.4
			Severe	8.5-10

Human	
<i>Risk of Injuries and Death from the Hazard</i>	
1	Death very unlikely, injuries are unlikely
2	Death unlikely, injuries are minimal
3	Death unlikely, injuries may be substantial
4	Death possible, injuries may be substantial
5	Deaths probable, injuries will likely be substantial

Property	
<i>Amount of Residential Property Damage Associated from Hazard</i>	
1	Less than \$500 in damages
2	\$500-\$10,000 in damages
3	\$10,000-\$500,000 in damages
4	\$500,000-\$2,000,000 in damages
5	More than \$2,000,000 in damages

Business	
<i>Amount of Business Damage Associated from the Hazard</i>	
1	Less than 3 businesses closed for only a day
2	More than 3 businesses closed for a week
3	More than 3 businesses closed for a few months
4	More than 3 businesses closed indefinitely or relocated
5	A top-10 local employer closed indefinitely

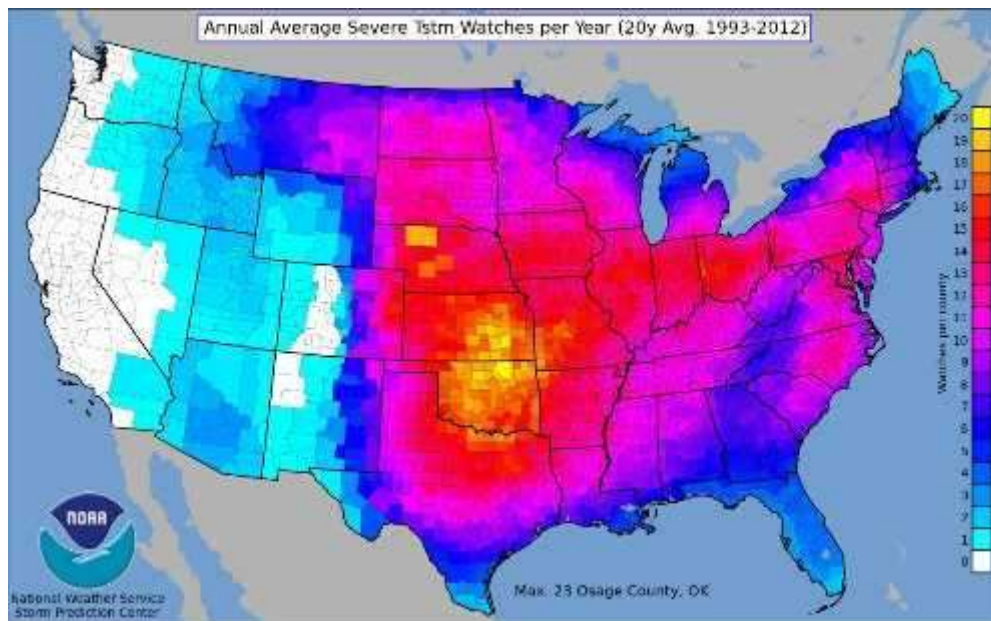
Probability	
<i>Amount of Residential Property Damage Associated from Hazard</i>	
1	Less than once every 10 years
2	About once every 5-10 years
3	About once every 2-5 years
4	About once a year
5	More than once a year

For further information about flooding hazards in Shelby County, see the HAZUS vulnerability study in [Appendix 5](#).

Severe Weather

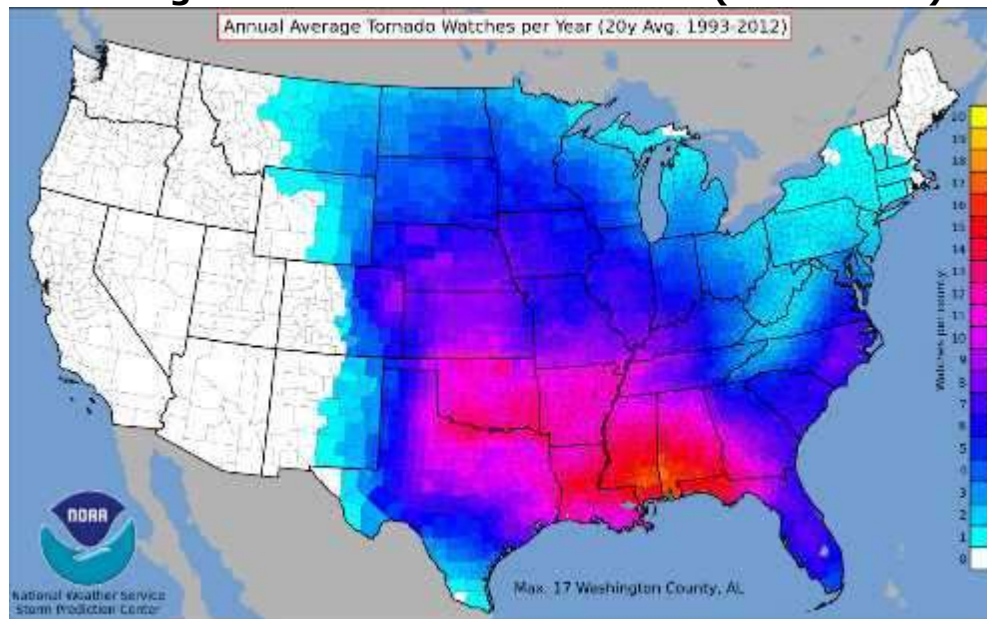
According to the National Weather Service, to consider a storm severe it must encompass one of three traits: produce winds greater than 58 miles per hour (50.4 knots), produce hail $\frac{3}{4}$ of an inch or greater in diameter, or produce tornadoes. On average, a typical county in Tennessee has about 10 severe storm watches per year (see map below).

Average Severe Storm Watches Per Year (1993-2012)



Source: NOAA/NWS Storm Prediction Center

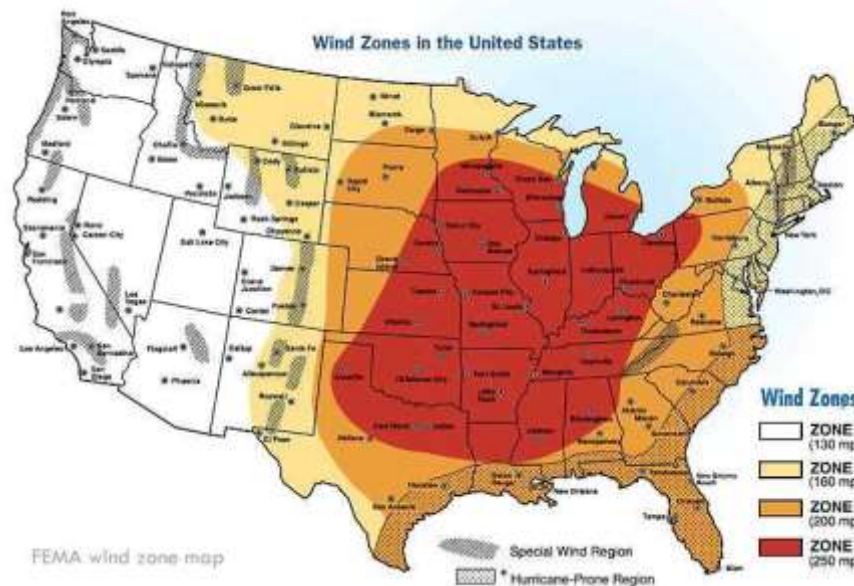
Average Tornado Watches Per Year (1993-2012)



Source: NOAA/NWS Storm Prediction Center

A tornado is a violently rotating column of air that extends from a thunderstorm, etc. down to the ground, and can reach wind speeds of 40 mph to 250 mph and higher. Tornadoes paths, lengths, and widths can vary greatly. In Shelby County, all jurisdictions are vulnerable to tornado threats. The following map places much of Tennessee in the highest wind zone (see following map).

Wind Zones in the United States



Source: FEMA

Section 3: Risk Assessment

Shelby County historically has had several tornado events in the past. Based on NOAA NCDC data, the following chart provides a list of tornado events occurring in Shelby County from January 1950 to present.

Tornado Events in Shelby County: January 1950–Present

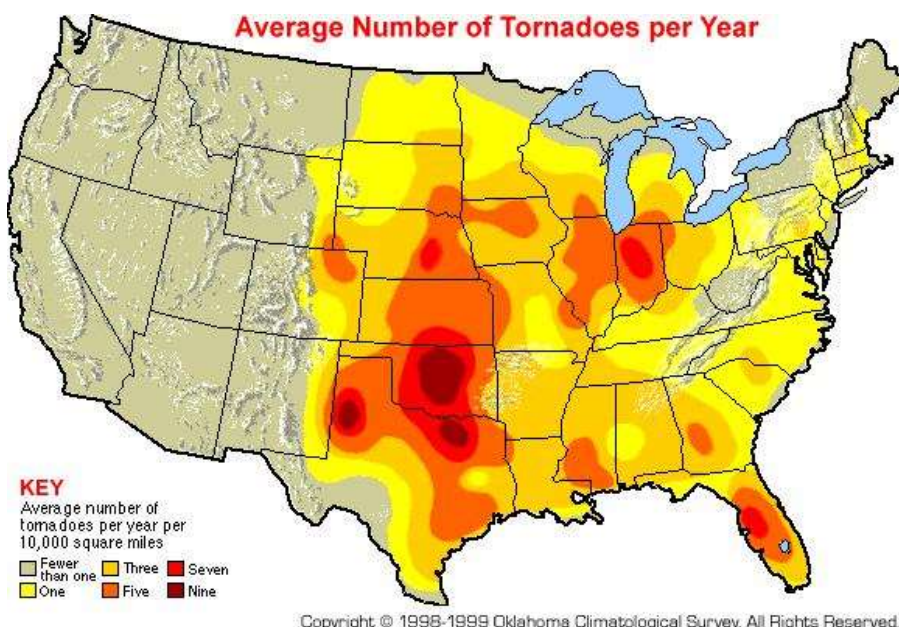
Location	Date	Magnitude	Deaths	Injuries	Property Damage
SHELBY CO.	10/28/1955	F2	0	0	250.00K
SHELBY CO.	7/21/1956	F1	0	0	2.50K
SHELBY CO.	3/4/1964	F2	0	3	25.00K
SHELBY CO.	7/11/1964	F1	0	0	250.00K
SHELBY CO.	5/16/1966	F1	0	0	25.00K
SHELBY CO.	4/23/1967	F1	0	2	250.00K
SHELBY CO.	4/23/1967	F1	0	0	25.00K
SHELBY CO.	5/14/1967	F1	0	0	2.500M
SHELBY CO.	7/5/1967	F1	0	0	25.00K
SHELBY CO.	4/3/1968	F3	0	4	2.500M
SHELBY CO.	5/15/1968	F1	0	0	0.00K
SHELBY CO.	5/16/1968	F1	0	0	25.00K
SHELBY CO.	5/16/1968	F1	0	0	0.00K
SHELBY CO.	5/25/1968	F1	0	0	0.00K
SHELBY CO.	9/17/1968	F2	0	0	2.50K
SHELBY CO.	6/24/1969	F1	0	0	25.00K
SHELBY CO.	4/1/1970	F1	0	0	25.00K
SHELBY CO.	4/19/1970	F2	0	0	250.00K
SHELBY CO.	4/24/1970	F3	0	5	2.500M
SHELBY CO.	4/24/1970	F3	0	13	2.500M
SHELBY CO.	4/24/1970	F3	0	3	2.500M
SHELBY CO.	6/19/1970	F1	0	1	2.50K
SHELBY CO.	4/21/1972	F1	0	0	0.00K
SHELBY CO.	4/19/1973	F1	0	0	25.00K
SHELBY CO.	5/11/1973	F1	0	0	25.00K
SHELBY CO.	5/22/1973	F1	0	0	2.50K
SHELBY CO.	5/27/1973	F2	0	0	25.00K
SHELBY CO.	8/29/1978	F2	0	26	2.500M
SHELBY CO.	3/22/1979	F2	0	3	25.00K
SHELBY CO.	12/25/1982	F2	0	0	250.00K

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SHELBY CO.	11/23/1983	F1	0	0	250.00K
SHELBY CO.	4/21/1984	F3	0	3	2.500M
SHELBY CO.	12/14/1987	F3	0	21	2.500M
SHELBY CO.	5/22/1988	F0	0	0	2.50K
SHELBY CO.	6/4/1989	F2	0	0	250.00K
SHELBY CO.	6/4/1989	F1	0	0	25.00K
SHELBY CO.	11/7/1989	F0	0	0	25.00K
SHELBY CO.	3/27/1991	F1	0	0	0.25K
SHELBY CO.	11/19/1991	F1	0	0	2.500M
SHELBY CO.	3/18/1992	F0	0	0	25.00K
Memphis	6/9/1994	F0	0	0	5.00K
Memphis	6/9/1994	F1	0	0	500.00K
SHELBY AND FAYETTE CO.	11/27/1994	F3	3	25	50.000M
SHELBY CO.	5/15/1995	F0	0	0	5.00K
CORDOVA	1/22/1999	F1	0	0	300.00K
FISHERVILLE	4/22/2004	F0	0	0	25.00K
CORDOVA	6/17/2006	F1	0	0	100.00K
BOLTON	2/5/2008	EF2	0	1	1.000M
WHITEHAVEN	2/5/2008	EF2	3	13	100.000M
EADS	2/5/2008	EF0	0	0	25.00K
BARTLETT	6/12/2009	EF1	0	0	25.00K
SHELBY CENTER	7/30/2009	EF1	0	0	250.00K
LUCY	5/1/2010	EF1	0	0	10.00K
ROSEMARK	4/28/2014	EF0	0	0	25.00K
(MEM)MEMPHIS INTL AR	10/21/2019	EF1	0	0	1.500M

The above list represents all listed incidents from the NCDC site for a given time period. If a jurisdiction or district is not listed, there is not a recorded incident of this nature.

Average Number of Tornadoes per Year



Source: Oklahoma Climatological Survey

Tornadoes occur approximately once every six years in Shelby County over the time period of records being kept. The severity of tornadoes that may occur in the county is measured using the Fujita/Enhanced Fujita Scale for tornadoes (see chart below). Based on historical events, it is possible for the extent of a tornado to reach an F3 magnitude, as demonstrated on November 27th, 1994. This tornado resulted in 3 deaths, 25 injuries, and \$50 million (\$90.5 million when adjusted for inflation) in property damage.

Fujita Scale/Enhanced Fujita Scale for Tornadoes

Fujita / Enhanced Fujita Scale for Tornadoes				
F-Scale	Fastest Quarter Mile Wind Speed	Typical Impacts	Enhanced Scale: 3 Sec Wind Gust Speed	Enhanced F-Scale
F0	40-72 MPH	Some damage to chimney; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.	65-85 MPH	EF0
F1	73-112 MPH	Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.	86-110 MPH	EF1
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.	111-135 MPH	EF2
F3	158-206 MPH	Roof and some walls torn off well-constructed homes; trains overturned; most trees in forest uprooted.	136-165 MPH	EF3

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F4	207-260 MPH	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.	166-200 MPH	EF4
F5	261-318 MPH	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel reinforced concrete structures badly damaged.	Over 200 MPH	EF5

Source: NOAA National Weather Service; The Tornado Project

Severe storm winds most commonly occur as straight-line winds; a downburst of wind created by an area of significantly rain-cooled air that spreads out in all directions after hitting the ground. All jurisdictions are vulnerable to receiving damage from these severe storm winds.

The following chart provides severe storm wind event information for Shelby County from January 2000 to present.

Wind Events in Shelby County: January 2000 – Present

Location	Date	Type	Extent	Deaths	Injuries	Property Damage
MEMPHIS	7/20/2000	Thunderstorm Wind	55 kts. M	0	0	0.00K
MILLINGTON	9/14/2000	Thunderstorm Wind		0	0	5.00K
SHELBY (ZONE)	11/24/2000	High Wind	34 kts. E	0	0	1.00K
MEMPHIS	2/24/2001	Thunderstorm Wind		0	0	5.00K
MEMPHIS	2/24/2001	Thunderstorm Wind		0	0	5.00K
MEMPHIS	4/15/2001	Thunderstorm Wind		0	0	10.00K
MILLINGTON	5/11/2001	Thunderstorm Wind		0	2	1.00K
MEMPHIS	5/20/2001	Thunderstorm Wind		0	0	5.00K
MEMPHIS	5/23/2001	Thunderstorm Wind	75 kts. E	0	0	50.00K
WHITEHAVEN	6/4/2001	Thunderstorm Wind		0	0	5.00K
MEMPHIS	7/5/2001	Thunderstorm Wind		0	0	10.00K
BARTLETT	7/10/2001	Thunderstorm Wind		0	0	5.00K
BARTLETT	7/21/2001	Thunderstorm Wind		0	0	10.00K

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MEMPHIS	7/30/2001	Thunderstorm Wind		0	0	1.00K
MEMPHIS	10/24/2001	Thunderstorm Wind		0	0	10.00K
COLLIERVILLE	11/24/2001	Thunderstorm Wind		0	0	100.00K
COLLIERVILLE	11/26/2001	Thunderstorm Wind		0	0	10.00K
MEMPHIS	11/29/2001	Thunderstorm Wind		0	0	5.00K
MEMPHIS	11/29/2001	Thunderstorm Wind		0	0	5.00K
COUNTYWIDE	1/31/2002	Thunderstorm Wind		0	0	10.00K
ARLINGTON	7/2/2002	Thunderstorm Wind		0	0	10.00K
MEMPHIS	7/10/2002	Thunderstorm Wind		0	0	10.00K
(MEM)MEMPHIS INTL AR	8/13/2002	Thunderstorm Wind	51 kts. M	0	0	1.00K
FRAYSER	8/24/2002	Thunderstorm Wind		0	0	5.00K
MEMPHIS	9/19/2002	Thunderstorm Wind		0	0	5.00K
SHELBY (ZONE)	9/26/2002	High Wind	35 kts. E	0	0	10.00K
SHELBY (ZONE)	10/4/2002	High Wind		0	0	5.00K
MEMPHIS	11/10/2002	Thunderstorm Wind	55 kts. E	0	0	10.00K
ARLINGTON	11/10/2002	Thunderstorm Wind		0	0	5.00K
MEMPHIS	12/18/2002	Thunderstorm Wind		0	0	5.00K
ARLINGTON	12/18/2002	Thunderstorm Wind		0	0	5.00K
MEMPHIS	4/20/2003	Thunderstorm Wind	65 kts. EG	0	0	75.00K
MEMPHIS	5/1/2003	Thunderstorm Wind	50 kts. EG	0	0	1.00K
MEMPHIS	5/6/2003	Thunderstorm Wind	55 kts. EG	0	0	1.00K
MEMPHIS	5/11/2003	Thunderstorm Wind	50 kts. EG	0	0	1.00K
MILLINGTON	5/16/2003	Thunderstorm Wind	65 kts. EG	0	0	15.00K
MILLINGTON	5/16/2003	Thunderstorm Wind	50 kts. EG	0	0	5.00K

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MILLINGTON	5/16/2003	Thunderstorm Wind	55 kts. EG	0	0	10.00K
COUNTYWIDE	7/22/2003	Thunderstorm Wind	95 kts. EG	1	3	40.000M
MEMPHIS	8/3/2003	Thunderstorm Wind	50 kts. EG	0	0	5.00K
ARLINGTON	8/22/2003	Thunderstorm Wind	50 kts. EG	0	0	5.00K
MEMPHIS	8/22/2003	Thunderstorm Wind	50 kts. EG	0	0	1.00K
MEMPHIS	4/22/2004	Thunderstorm Wind	60 kts. EG	0	0	15.00K
COUNTYWIDE	5/30/2004	Thunderstorm Wind	55 kts. EG	0	0	20.00K
MILLINGTON	7/4/2004	Thunderstorm Wind	60 kts. EG	0	0	5.00K
ARLINGTON	7/4/2004	Thunderstorm Wind	50 kts. EG	0	0	15.00K
MEMPHIS	7/16/2004	Thunderstorm Wind	50 kts. EG	0	0	5.00K
EADS	10/18/2004	Thunderstorm Wind	60 kts. EG	0	0	10.00K
BARTLETT	1/13/2005	Thunderstorm Wind	50 kts. EG	0	0	10.00K
MEMPHIS	4/22/2005	Thunderstorm Wind	60 kts. EG	0	0	900.00K
GERMANTOWN	4/22/2005	Thunderstorm Wind	50 kts. EG	0	0	15.00K
MEMPHIS	7/19/2005	Thunderstorm Wind	50 kts. EG	0	0	5.00K
ARLINGTON	8/6/2005	Thunderstorm Wind	50 kts. EG	0	0	5.00K
MEMPHIS	9/25/2005	Thunderstorm Wind	50 kts. EG	0	0	1.00K
MEMPHIS	11/15/2005	Thunderstorm Wind	55 kts. EG	0	0	10.00K
GERMANTOWN	4/7/2006	Thunderstorm Wind	50 kts. EG	0	0	5.00K
BARTLETT	5/31/2006	Thunderstorm Wind	50 kts. EG	0	0	3.00K
GERMANTOWN	6/17/2006	Thunderstorm Wind	50 kts. EG	0	0	2.00K
WHITEHAVEN	6/17/2006	Thunderstorm Wind	50 kts. EG	0	0	2.00K
CORDOVA	6/17/2006	Thunderstorm Wind	55 kts. MG	0	0	2.00K

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BARTLETT	4/3/2007	Thunderstorm Wind	50 kts. EG	0	0	2.00K
WEST JCT	5/3/2007	Thunderstorm Wind	50 kts. EG	0	0	2.00K
MEMPHIS	5/15/2007	Thunderstorm Wind	52 kts. EG	0	0	4.00K
COLLIERVILLE	6/25/2007	Thunderstorm Wind	50 kts. EG	0	0	2.00K
GERMANTOWN	6/25/2007	Thunderstorm Wind	50 kts. EG	0	0	2.00K
BARTLETT	6/30/2007	Thunderstorm Wind	50 kts. EG	0	0	2.00K
BARTLETT	6/30/2007	Thunderstorm Wind	50 kts. EG	0	0	2.00K
FRAYSER	7/26/2007	Thunderstorm Wind	50 kts. EG	0	0	3.00K
BARTLETT	8/18/2007	Thunderstorm Wind	50 kts. EG	0	0	2.00K
MEMPHIS	8/18/2007	Thunderstorm Wind	50 kts. EG	0	0	6.00K
BARTLETT	8/18/2007	Thunderstorm Wind	50 kts. EG	0	0	4.00K
ROSEMARK	11/14/2007	Thunderstorm Wind	50 kts. EG	0	0	20.00K
MEMPHIS	1/8/2008	Thunderstorm Wind	50 kts. EG	0	0	10.00K
BARTLETT	1/8/2008	Thunderstorm Wind	50 kts. EG	0	0	5.00K
SHELBY (ZONE)	1/29/2008	High Wind	51 kts. MG	0	0	40.00K
(MEM)MEMPHIS INTL AR	2/5/2008	Thunderstorm Wind	73 kts. MG	0	0	500.00K
CORDOVA	2/5/2008	Thunderstorm Wind	50 kts. EG	0	0	2.00K
RUGBY	4/10/2008	Thunderstorm Wind	50 kts. EG	0	0	2.00K
BARTLETT	4/25/2008	Thunderstorm Wind	50 kts. EG	0	0	2.00K
MILLINGTON	5/10/2008	Thunderstorm Wind	52 kts. EG	0	0	0.00K
WHITEHAVEN	5/10/2008	Thunderstorm Wind	52 kts. EG	0	1	15.00K
MEMPHIS	5/24/2008	Thunderstorm Wind	50 kts. EG	0	0	2.00K
SHELBY (ZONE)	6/1/2008	Strong Wind	40 kts. EG	0	0	10.00K

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SHELBY (ZONE)	2/11/2009	Strong Wind	44 kts. EG	0	0	10.00K
MEMPHIS	6/11/2009	Thunderstorm Wind	50 kts. EG	0	0	5.00K
NONCONNAH	6/12/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K
NORTH	6/12/2009	Thunderstorm Wind	52 kts. EG	0	1	0.00K
BINGHAMTON	6/12/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K
GERMANTOWN	6/12/2009	Thunderstorm Wind	61 kts. EG	0	0	0.00K
BARTLETT	6/12/2009	Thunderstorm Wind	61 kts. EG	0	0	0.00K
CORDOVA	6/12/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K
MILLINGTON	6/12/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K
ARLINGTON	6/12/2009	Thunderstorm Wind	61 kts. EG	0	0	0.00K
EAST JCT	6/14/2009	Thunderstorm Wind	39 kts. EG	0	1	0.00K
AULON	7/26/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K
PISGAH HGTS	7/30/2009	Thunderstorm Wind	50 kts. EG	0	0	10.00K
MEMPHIS	7/30/2009	Thunderstorm Wind	50 kts. EG	0	0	0.00K
CORDOVA	3/11/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K
ARLINGTON	4/7/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K
MEMPHIS	4/24/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K
RALEIGH	4/24/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K
ELLENDAL	4/24/2010	Thunderstorm Wind	50 kts. EG	0	0	2.00K
EADS	5/1/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K
RAINES	5/2/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K
CORDOVA	5/2/2010	Thunderstorm Wind	52 kts. EG	0	0	0.00K
FOREST HILL	6/16/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K

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LENOW	6/18/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K
PISGAH	6/18/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K
COLLIERVILLE ARPK	6/18/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K
OAKVILLE	7/26/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K
OAKVILLE	8/3/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K
EAST ACRES	8/21/2010	Thunderstorm Wind	50 kts. EG	0	0	0.00K
SHELBY (ZONE)	10/26/2010	Strong Wind	48 kts. EG	0	0	10.00K
SHELBY (ZONE)	2/1/2011	High Wind	50 kts. EG	0	0	3.00K
BENJESTOWN	2/24/2011	Thunderstorm Wind	83 kts. EG	0	0	0.00K
GERMANTOWN	2/24/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K
GERMANTOWN	4/4/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K
(MEM)MEMPHI S INTL AR	4/4/2011	Thunderstorm Wind	56 kts. MG	0	0	0.00K
FRAYSER	4/19/2011	Thunderstorm Wind	65 kts. EG	0	0	2.470M
GERMANTOWN	4/19/2011	Thunderstorm Wind	61 kts. EG	0	0	0.00K
SHELBY CENTER	4/25/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K
GERMANTOWN	4/25/2011	Thunderstorm Wind	52 kts. EG	0	0	1.00K
COLLIERVILLE	4/26/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K
SHELBY FARMS	5/25/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K
SHELBY CENTER	6/13/2011	Thunderstorm Wind	52 kts. MG	0	0	0.00K
GERMANTOWN	6/13/2011	Thunderstorm Wind	61 kts. EG	0	0	0.00K
(MEM)MEMPHI S INTL AR	6/16/2011	Thunderstorm Wind	63 kts. MG	0	0	0.00K
(NQA)NAS MEMPHIS MIL	6/16/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K
CORDOVA	6/16/2011	Thunderstorm Wind	52 kts. MG	0	0	0.00K

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ELLEDALE	6/16/2011	Thunderstorm Wind	56 kts. EG	0	0	0.00K
FRAYSER	6/28/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K
MEMPHIS	6/28/2011	Thunderstorm Wind	50 kts. EG	0	0	0.00K
BRUNSWICK	8/20/2011	Thunderstorm Wind	61 kts. EG	0	0	0.00K
WHITEHAVEN	1/22/2012	Thunderstorm Wind	91 kts. EG	0	0	75.00K
SHELBY FARMS	1/22/2012	Thunderstorm Wind	56 kts. EG	0	0	0.00K
RAMSEY	5/31/2012	Thunderstorm Wind	50 kts. EG	0	1	0.00K
ARLINGTON	6/3/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K
EGYPT	6/11/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K
MEMPHIS	8/13/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K
MEMPHIS	8/31/2012	Thunderstorm Wind	50 kts. EG	0	0	45.00K
MADGE	9/1/2012	Thunderstorm Wind	50 kts. EG	0	0	10.00K
COLLIERVILLE	9/5/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K
WOODSTOCK	9/7/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K
MEMPHIS	10/5/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K
MILLINGTON	10/17/2012	Thunderstorm Wind	70 kts. EG	0	0	25.00K
MEMPHIS	12/20/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K
FOREST HILL	12/20/2012	Thunderstorm Wind	50 kts. EG	0	0	0.00K
(MEM)MEMPHIS INTL AR	1/29/2013	Thunderstorm Wind	53 kts. MG	0	0	0.00K
CORDOVA	6/19/2013	Thunderstorm Wind	50 kts. EG	0	0	0.00K
EAST JCT	6/27/2013	Thunderstorm Wind	50 kts. EG	0	0	0.00K
RALEIGH	6/28/2013	Thunderstorm Wind	50 kts. EG	0	0	0.00K
CORDOVA	7/18/2013	Thunderstorm Wind	50 kts. EG	0	0	0.00K

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SHELBY CENTER	9/10/2013	Thunderstorm Wind	50 kts. EG	0	0	0.00K
MILLINGTON	6/5/2014	Thunderstorm Wind	61 kts. EG	0	0	0.00K
EAST JCT	7/14/2014	Thunderstorm Wind	50 kts. EG	0	0	5.00K
FOREST HILL	7/14/2014	Thunderstorm Wind	50 kts. EG	0	0	0.00K
BARTLETT	7/14/2014	Thunderstorm Wind	50 kts. EG	0	0	0.00K
(MEM)MEMPHIS INTL AR	10/2/2014	Thunderstorm Wind	53 kts. MG	0	0	0.00K
AULON	10/2/2014	Thunderstorm Wind	50 kts. EG	0	0	0.00K
MILLINGTON	4/19/2015	Thunderstorm Wind	50 kts. EG	0	0	10.00K
ARLINGTON	6/8/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K
BUNTYN	6/8/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K
ROSEMARK	6/26/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K
MILLINGTON	7/14/2015	Thunderstorm Wind	61 kts. EG	0	0	20.00K
BARTLETT	7/14/2015	Thunderstorm Wind	52 kts. EG	0	0	0.00K
FRAYSER	7/14/2015	Thunderstorm Wind	56 kts. EG	0	0	0.00K
GERMANTOWN	7/14/2015	Thunderstorm Wind	56 kts. MG	0	0	0.00K
SPRING LAKE	8/5/2015	Thunderstorm Wind	50 kts. EG	0	0	0.00K
WHITE STATION	8/5/2015	Thunderstorm Wind	61 kts. EG	0	0	0.00K
SHELBY (ZONE)	11/17/2015	Strong Wind	41 kts. MG	0	0	25.00K
SHELBY (ZONE)	12/13/2015	Strong Wind	39 kts. MG	0	0	1.00K
KERRVILLE	3/31/2016	Thunderstorm Wind	50 kts. EG	0	0	0.00K
SHELBY (ZONE)	4/30/2016	Strong Wind	47 kts. MG	0	0	50.00K
GERMANTOWN	6/15/2016	Thunderstorm Wind	50 kts. EG	0	0	0.00K
OAKVILLE	7/15/2016	Thunderstorm Wind	50 kts. EG	0	0	20.00K

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(MEM)MEMPHI S INTL AR	7/20/2016	Thunderstorm Wind	57 kts. MG	0	0	5.00K
BERCLAIR	7/20/2016	Thunderstorm Wind	50 kts. EG	0	0	5.00K
GOODMAN	7/29/2016	Thunderstorm Wind	50 kts. EG	0	0	20.00K
SHELBY (ZONE)	11/28/2016	Strong Wind	46 kts. EG	0	0	20.00K
MILLINGTON	12/17/2016	Thunderstorm Wind	50 kts. EG	0	0	0.00K
RALEIGH	3/9/2017	Thunderstorm Wind	75 kts. EG	0	0	30.00K
RALEIGH	3/9/2017	Thunderstorm Wind	78 kts. EG	0	0	150.00K
AULON	3/9/2017	Thunderstorm Wind	50 kts. EG	0	0	0.00K
SHELBY (ZONE)	3/29/2017	High Wind	51 kts. MG	0	0	0.00K
SHELBY (ZONE)	3/29/2017	High Wind	50 kts. EG	0	0	60.00K
SHELBY (ZONE)	4/2/2017	Strong Wind	43 kts. EG	0	0	20.00K
MEMPHIS	4/30/2017	Thunderstorm Wind	50 kts. EG	0	0	15.00K
WHITE STATION	4/30/2017	Thunderstorm Wind	50 kts. EG	0	0	0.00K
WHITE STATION	4/30/2017	Thunderstorm Wind	50 kts. EG	0	0	50.00K
ELLENDAL	4/30/2017	Thunderstorm Wind	50 kts. EG	0	0	100.00K
ELLENDAL	4/30/2017	Thunderstorm Wind	50 kts. EG	0	0	0.00K
ELLENDAL	4/30/2017	Thunderstorm Wind	50 kts. EG	0	0	20.00K
ELLENDAL	4/30/2017	Thunderstorm Wind	50 kts. EG	0	0	0.00K
BARTLETT	4/30/2017	Thunderstorm Wind	50 kts. EG	0	0	0.00K
SHELBY (ZONE)	5/5/2017	Strong Wind	40 kts. MG	0	0	2.00K
SHELBY (ZONE)	5/5/2017	Strong Wind	40 kts. MG	0	0	10.00K
SHELBY (ZONE)	5/5/2017	Strong Wind	40 kts. MG	0	0	2.00K
WEST UNION	5/27/2017	Thunderstorm Wind	70 kts. EG	0	0	50.00K

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MEMPHIS DEWITT SPAIN	5/27/2017	Thunderstorm Wind	70 kts. EG	0	0	20.00K
FRAYSER	5/27/2017	Thunderstorm Wind	70 kts. EG	0	0	100.00K
NORTH	5/27/2017	Thunderstorm Wind	65 kts. EG	0	0	5.00K
BERCLAIR	5/27/2017	Thunderstorm Wind	70 kts. EG	0	0	9.000M
BINGHAMTON	5/27/2017	Thunderstorm Wind	70 kts. EG	0	0	200.00K
MEMPHIS	5/27/2017	Thunderstorm Wind	60 kts. MG	0	0	0.00K
CORDOVA	5/27/2017	Thunderstorm Wind	65 kts. EG	0	0	100.00K
SHELBY FARMS	5/27/2017	Thunderstorm Wind	65 kts. EG	0	0	50.00K
(MEM)MEMPHI S INTL AR	5/27/2017	Thunderstorm Wind	53 kts. MG	0	0	0.00K
MEMPHIS	6/18/2017	Thunderstorm Wind	50 kts. EG	0	0	2.00K
MEMPHIS	6/18/2017	Thunderstorm Wind	50 kts. EG	0	0	80.00K
GERMANTOWN	6/18/2017	Thunderstorm Wind	50 kts. EG	0	0	10.00K
BARTLETT	6/23/2017	Thunderstorm Wind	50 kts. EG	0	0	2.00K
BENJESTOWN	7/8/2017	Thunderstorm Wind	50 kts. EG	0	0	1.00K
CORONA	8/11/2017	Thunderstorm Wind	50 kts. EG	0	0	0.00K
MALLORY	8/11/2017	Thunderstorm Wind	50 kts. EG	0	0	0.00K
ELLENDAL	8/11/2017	Thunderstorm Wind	50 kts. EG	0	0	0.00K
PIPER	8/11/2017	Thunderstorm Wind	50 kts. EG	0	0	50.00K
SHELBY (ZONE)	8/31/2017	Strong Wind	39 kts. EG	0	0	15.00K
LENOW	5/19/2018	Thunderstorm Wind	52 kts. EG	0	0	0.00K
LENOW	6/12/2018	Thunderstorm Wind	50 kts. EG	0	0	0.50K
ST PAUL	6/21/2018	Thunderstorm Wind	50 kts. EG	0	0	3.00K
SLOANVILLE	6/21/2018	Thunderstorm Wind	50 kts. EG	0	0	3.00K

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KERRVILLE	6/21/2018	Thunderstorm Wind	50 kts. EG	0	0	3.00K
ARLINGTON	6/21/2018	Thunderstorm Wind	50 kts. EG	0	0	3.00K
PERSEY	6/23/2018	Thunderstorm Wind	56 kts. EG	0	0	3.00K
(MEM)MEMPHIS INTL AR	6/23/2018	Thunderstorm Wind	56 kts. MG	0	0	0.00K
GERMANTOWN	6/23/2018	Thunderstorm Wind	55 kts. EG	0	0	5.00K
BAILEY	6/23/2018	Thunderstorm Wind	55 kts. EG	0	0	5.00K
RUGBY	6/24/2018	Thunderstorm Wind	50 kts. EG	0	0	3.00K
BERCLAIR	7/5/2018	Thunderstorm Wind	50 kts. EG	0	0	0.50K
AULON	7/5/2018	Thunderstorm Wind	50 kts. EG	0	0	10.00K
WHITE STATION	7/5/2018	Thunderstorm Wind	50 kts. EG	0	0	10.00K
MEMPHIS	7/5/2018	Thunderstorm Wind	50 kts. EG	0	0	20.00K
LEEWOOD	7/15/2018	Thunderstorm Wind	50 kts. EG	0	0	5.00K
SHELBY FARMS	7/15/2018	Thunderstorm Wind	50 kts. EG	0	0	2.00K
FRAYSER	7/15/2018	Thunderstorm Wind	55 kts. EG	0	0	15.00K
BINGHAMTON	7/15/2018	Thunderstorm Wind	55 kts. EG	0	0	30.00K
WHITE STATION	7/15/2018	Thunderstorm Wind	50 kts. EG	0	0	0.50K
SHELBY (ZONE)	3/9/2019	Strong Wind	45 kts. EG	0	0	25.00K
SHELBY (ZONE)	3/14/2019	Strong Wind	46 kts. EG	0	0	1.00K
SHELBY (ZONE)	3/14/2019	Strong Wind	40 kts. EG	0	0	50.00K
CORDOVA	4/6/2019	Thunderstorm Wind	50 kts. EG	0	0	2.00K
MALLORY	5/18/2019	Thunderstorm Wind	51 kts. MG	0	0	3.00K
AULON	5/18/2019	Thunderstorm Wind	45 kts. EG	0	0	1.00K
RALEIGH	5/18/2019	Thunderstorm Wind	50 kts. EG	0	0	5.00K

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NATIONAL CEMETERY	5/18/2019	Thunderstorm Wind	45 kts. EG	0	0	0.50K
RUGBY	5/18/2019	Thunderstorm Wind	50 kts. EG	0	0	0.50K
(MEM)MEMPHIS INTL AR	6/19/2019	Thunderstorm Wind	58 kts. EG	0	0	0.00K
GRIFFIN CORNER	6/19/2019	Thunderstorm Wind	50 kts. EG	0	0	0.50K
FOREST HILL	6/23/2019	Thunderstorm Wind	50 kts. EG	0	0	15.00K
WHITE STATION	7/15/2019	Thunderstorm Wind	50 kts. EG	0	0	1.00K
(MEM)MEMPHIS INTL AR	8/13/2019	Thunderstorm Wind	50 kts. EG	0	0	10.00K
(MEM)MEMPHIS INTL AR	8/13/2019	Thunderstorm Wind	50 kts. MG	0	0	0.00K
WEST JCT	8/13/2019	Thunderstorm Wind	50 kts. MG	0	0	0.00K
FELTS	10/21/2019	Thunderstorm Wind	50 kts. EG	0	0	0.00K
GERMANTOWN	10/21/2019	Thunderstorm Wind	50 kts. EG	0	0	50.00K
NEW SOUTH MEMPHIS	1/11/2020	Thunderstorm Wind	60 kts. EG	0	0	15.00K
MEMPHIS	1/11/2020	Thunderstorm Wind	50 kts. EG	0	0	2.00K
BINGHAMTON	1/11/2020	Thunderstorm Wind	60 kts. EG	0	0	50.00K
BINGHAMTON	1/11/2020	Thunderstorm Wind	60 kts. EG	0	0	50.00K
MILLINGTON	1/11/2020	Thunderstorm Wind	56 kts. EG	0	0	2.00K
SHELBY CENTER	3/28/2020	Thunderstorm Wind	50 kts. EG	0	0	10.00K
BERCLAIR	4/12/2020	Thunderstorm Wind	50 kts. EG	0	0	0.00K
BARTLETT	4/28/2020	Thunderstorm Wind	50 kts. EG	0	0	0.00K

Historically, severe storm wind events occur approximately 13 times per year in Shelby County. The severity of severe storm winds is commonly measured by wind speed (knots or mph). The strongest severe storm wind event within Shelby County in recent years was recorded July 22nd, 2003 (DR-1482-TN) . Dubbed "Hurricane Elvis" by locals, the event was a strong derecho that yielded winds up to 108 mph. Per the NCDC, impacts were as follows:

- Numerous trees, power lines and power poles were blown down.
- Some of the trees fell on houses producing some major damage.
- At least 20 buildings collapsed.
- Numerous homes and buildings were damaged and a few were destroyed. Among the damaged buildings was the Gibson Guitar Factory in downtown Memphis.
- One person was killed when a tree fell on his house crushing him.
- Over 300,000 homes in the county were without electricity. Most were without power for anywhere from 2 days to 2 weeks.
- Several people were killed due to post storm related issues such as carbon monoxide poisoning from improperly using generators.
- Property damage exceeded \$40 million.

The above list represents all listed incidents from the NCDC site for a given time period. If a jurisdiction or district is not listed, there is not a recorded incident of this nature.

Hail is the frozen form of precipitation, falling as small spheres of solid ice. Even though the risk from hail is relatively low, all jurisdictions have the possibility of hail causing some window and roof damage.

TORRO Hail Index

TORRO Hail Index			
Scale	Max Diameter	Comparisons	Typical Impacts
H0	5-9 MM	Pea	No damage.
H1	10-15 MM	Mothball	Slight general damage to plants, crops.
H2	16-20 MM	Marble	Significant damage to fruit, crops, vegetation.
H3	21-30 MM	Walnut	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored.
H4	31-40 MM	Pigeon's Egg	Widespread glass damage, vehicle bodywork damage.
H5	41-50 MM	Golf Ball	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries.
H6	51-60 MM	Hen's Egg	Bodywork of grounded aircraft dented, brick walls pitted.
H7	61-75 MM	Tennis Ball	Severe roof damage, risk of serious injuries.
H8	76-90 MM	Soft Ball	Severe damage to aircraft bodywork.
H9	91-100 MM	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open.

Source: The Tornado & Storm Research Organization

The following chart provides hail event information for Shelby County.

Hail Events in Shelby County: January 2000 – Present

Location	Date	Extent	Deaths	Injuries	Property Damage
FRAYSER	2/13/2000	0.88 in.	0	0	0.05K
MEMPHIS	2/13/2000	0.75 in.	0	0	0.01K
WHITEHAVEN	2/18/2000	0.75 in.	0	0	0.01K
MEMPHIS	2/18/2000	0.88 in.	0	0	0.06K
CORDOVA	7/29/2000	0.75 in.	0	0	0.01K

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CORDOVA	8/4/2000	0.75 in.	0	0	0.01K
MEMPHIS	2/24/2001	1.00 in.	0	0	0.10K
RALEIGH	3/3/2001	1.75 in.	0	0	0.75K
BARTLETT	3/29/2002	1.00 in.	0	0	0.22K
MILLINGTON	3/30/2002	0.88 in.	0	0	0.05K
MEMPHIS	4/24/2002	0.75 in.	0	0	0.01K
MILLINGTON	4/30/2002	0.75 in.	0	0	0.01K
MEMPHIS	4/30/2002	0.88 in.	0	0	0.10K
CORDOVA	5/25/2002	0.75 in.	0	0	0.01K
BARTLETT	5/28/2002	0.75 in.	0	0	0.50K
RALEIGH	5/28/2002	0.75 in.	0	0	0.01K
MEMPHIS	11/10/2002	0.75 in.	0	0	0.01K
BARTLETT	4/6/2003	0.75 in.	0	0	0.01K
GERMANTOWN	4/20/2003	1.00 in.	0	0	0.15K
COLLIERVILLE	4/20/2003	0.75 in.	0	0	0.01K
MEMPHIS	5/3/2003	0.75 in.	0	0	0.01K
MEMPHIS	5/16/2003	1.75 in.	0	0	1.15K
CORDOVA	5/16/2003	1.00 in.	0	0	0.11K
FRAYSER	8/27/2003	0.75 in.	0	0	0.01K
CORDOVA	10/7/2003	1.00 in.	0	0	0.15K
MILLINGTON	3/20/2004	1.00 in.	0	0	0.15K
MEMPHIS	4/23/2004	1.00 in.	0	0	0.20K
MEMPHIS	7/14/2004	1.00 in.	0	0	0.10K
GERMANTOWN	7/14/2004	0.75 in.	0	0	0.01K
CORDOVA	8/28/2004	0.75 in.	0	0	0.01K
ARLINGTON	9/12/2004	0.75 in.	0	0	0.01K
MEMPHIS	10/18/2004	1.50 in.	0	0	0.50K
MILLINGTON	2/21/2005	0.75 in.	0	0	0.01K
BARTLETT	2/21/2005	0.75 in.	0	0	0.01K
MEMPHIS	3/22/2005	1.00 in.	0	0	0.16K
MILLINGTON	4/6/2005	0.75 in.	0	0	0.01K
GERMANTOWN	7/19/2005	0.88 in.	0	0	0.05K
MEMPHIS	11/15/2005	1.75 in.	0	0	1.62K
MEMPHIS	11/15/2005	1.00 in.	0	0	0.11K
MEMPHIS	4/2/2006	1.75 in.	0	0	12.00K
MEMPHIS	4/2/2006	1.75 in.	0	0	15.00K
MEMPHIS	4/2/2006	1.00 in.	0	0	5.00K
WHITEHAVEN	4/7/2006	0.88 in.	0	0	4.00K
CORDOVA	4/7/2006	1.75 in.	0	0	15.00K
GERMANTOWN	4/7/2006	1.75 in.	0	0	11.00K
BARTLETT	4/7/2006	1.00 in.	0	0	7.50K
GERMANTOWN	4/7/2006	2.75 in.	0	0	75.00K
BARTLETT	4/20/2006	1.00 in.	0	0	6.00K
FRAYSER	4/25/2006	0.88 in.	0	0	2.50K
BARTLETT	4/25/2006	0.88 in.	0	0	2.50K
GERMANTOWN	5/4/2006	0.75 in.	0	0	1.00K

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MEMPHIS	5/9/2006	0.88 in.	0	0	2.50K
ELLEDALE	5/31/2006	1.00 in.	0	0	5.00K
BARTLETT	6/17/2006	1.00 in.	0	0	5.00K
MILLINGTON	4/3/2007	1.75 in.	0	0	2.00K
GERMANTOWN	4/3/2007	0.75 in.	0	0	1.00K
COLLIERVILLE	4/13/2007	0.75 in.	0	0	1.00K
GERMANTOWN	4/13/2007	0.75 in.	0	0	1.00K
MEMPHIS	5/15/2007	0.75 in.	0	0	1.00K
MILLINGTON	6/26/2007	0.75 in.	0	0	1.00K
BARTLETT	6/30/2007	0.75 in.	0	0	1.00K
COLLIERVILLE	11/14/2007	0.75 in.	0	0	1.00K
MEMPHIS	1/8/2008	0.75 in.	0	0	1.00K
BARTLETT	1/8/2008	1.00 in.	0	0	2.00K
GILDFIELD	2/5/2008	0.75 in.	0	0	1.00K
SHELBY FARMS	3/14/2008	0.75 in.	0	0	1.00K
COLLIERVILLE	3/14/2008	1.75 in.	0	0	5.00K
BARTLETT	3/14/2008	1.00 in.	0	0	2.00K
ELLEDALE	3/14/2008	0.75 in.	0	0	1.50K
LENOW	3/14/2008	0.88 in.	0	0	1.50K
GILES TOWN	3/15/2008	0.88 in.	0	0	1.50K
SPRING LAKE	3/15/2008	0.88 in.	0	0	1.50K
WHITEHAVEN	4/4/2008	0.88 in.	0	0	1.50K
CAPLEVILLE	4/22/2008	0.88 in.	0	0	1.50K
GERMANTOWN	5/2/2008	1.00 in.	0	0	2.00K
CAPLEVILLE	5/10/2008	1.00 in.	0	0	2.00K
(MEM)MEMPHIS INTL AR	5/22/2008	0.88 in.	0	0	1.50K
COLLIERVILLE ARPK	5/22/2008	0.75 in.	0	0	1.00K
OAKVILLE	2/17/2009	0.75 in.	0	0	0.00K
OAKVILLE	2/17/2009	1.00 in.	0	0	0.00K
AULON	2/17/2009	1.00 in.	0	0	0.00K
OVERTON	6/12/2009	1.00 in.	0	0	0.00K
FOREST HILL	6/12/2009	0.88 in.	0	0	0.00K
ARLINGTON MUNI ARPT	6/12/2009	1.75 in.	0	0	0.00K
GRIFFIN CORNER	3/25/2010	0.88 in.	0	0	0.00K
CAPLEVILLE	3/25/2010	0.75 in.	0	0	0.00K
GERMANTOWN	4/24/2010	1.25 in.	0	0	0.00K
CORDOVA	4/24/2010	1.75 in.	0	0	0.00K
GERMANTOWN	4/24/2010	1.75 in.	0	0	0.00K
PIPER	4/24/2010	1.75 in.	0	0	0.00K
ARLINGTON	4/24/2010	1.75 in.	0	0	0.00K
MILLINGTON	5/1/2010	1.75 in.	0	0	0.00K
OAKVILLE	5/14/2010	0.88 in.	0	0	0.00K
OAKVILLE	5/14/2010	0.88 in.	0	0	0.00K
WHITE STATION	5/14/2010	1.75 in.	0	0	0.00K

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ARLINGTON MUNI ARPT	5/14/2010	1.00 in.	0	0	0.00K
ARLINGTON	5/14/2010	1.75 in.	0	0	0.00K
CORDOVA	5/14/2010	0.75 in.	0	0	0.00K
CORDOVA	5/14/2010	1.00 in.	0	0	0.00K
ARLINGTON MUNI ARPT	5/14/2010	1.25 in.	0	0	0.00K
CORDOVA	5/24/2010	1.75 in.	0	0	0.00K
CORDOVA	5/24/2010	1.00 in.	0	0	0.00K
SHELBY CENTER	5/24/2010	0.88 in.	0	0	0.00K
CORDOVA	5/24/2010	0.88 in.	0	0	0.00K
COLLIERVILLE ARPK	5/24/2010	0.75 in.	0	0	0.00K
COLLIERVILLE	5/24/2010	1.00 in.	0	0	0.00K
MILLINGTON	10/12/2010	0.88 in.	0	0	0.00K
LENOW	3/4/2011	0.75 in.	0	0	0.00K
(NQA)NAS MEMPHIS MIL	3/26/2011	0.75 in.	0	0	0.00K
ARLINGTON	4/20/2011	1.25 in.	0	0	0.00K
MILLINGTON	4/20/2011	0.75 in.	0	0	0.00K
PISGAH	4/25/2011	0.75 in.	0	0	0.00K
CAPLEVILLE	4/26/2011	1.00 in.	0	0	0.00K
BARTLETT	4/26/2011	1.00 in.	0	0	0.00K
ARLINGTON MUNI ARPT	4/26/2011	1.75 in.	0	0	0.00K
MILLINGTON	4/26/2011	1.00 in.	0	0	0.00K
MEMPHIS	4/27/2011	1.75 in.	0	0	0.00K
MILLINGTON	4/27/2011	0.75 in.	0	0	0.00K
MILLINGTON	5/1/2011	0.88 in.	0	0	0.00K
ARLINGTON MUNI ARPT	5/1/2011	1.75 in.	0	0	0.00K
CAPLEVILLE	5/22/2011	0.88 in.	0	0	0.00K
FOREST HILL	5/22/2011	1.00 in.	0	0	0.00K
COLLIERVILLE	5/22/2011	1.00 in.	0	0	0.00K
MADGE	5/25/2011	1.00 in.	0	0	0.00K
BRUNSWICK	5/25/2011	1.00 in.	0	0	0.00K
CORDOVA	6/16/2011	2.25 in.	0	0	0.00K
BARTLETT	6/16/2011	0.88 in.	0	0	0.00K
MEMPHIS	8/18/2011	1.00 in.	0	0	0.00K
COLLIERVILLE	8/20/2011	1.00 in.	0	0	0.00K
FRAYSER	9/25/2011	1.25 in.	0	0	0.00K
MILLINGTON	9/25/2011	1.75 in.	0	0	0.00K
BOLTON	9/25/2011	1.00 in.	0	0	0.00K
BOLTON	2/1/2012	0.88 in.	0	0	0.00K
MADGE	3/31/2012	1.00 in.	0	0	0.00K
BERCLAIR	4/5/2012	0.75 in.	0	0	0.00K
NATIONAL CEMETERY	5/6/2012	0.75 in.	0	0	0.00K

Attachment: Shelby County Hazard Mitigation Plan 2021- Approved (2018) : Res. 18-21, to adopt Hazards Mitigation Plan)

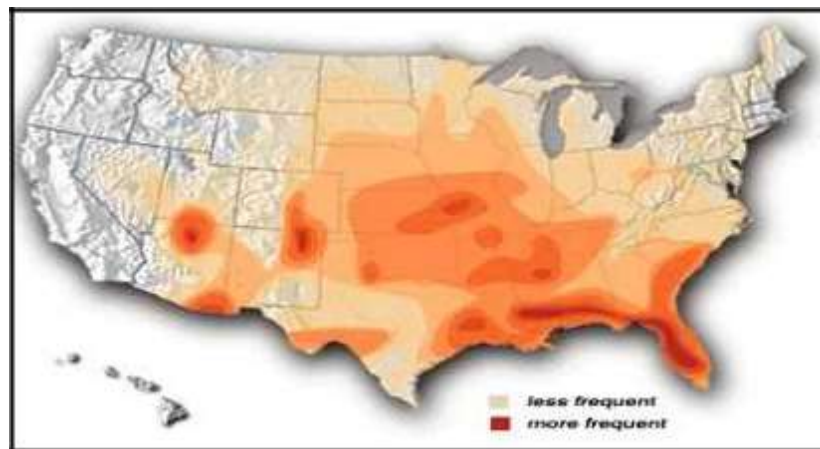
Section 3: Risk Assessment

SHELBY CENTER	6/11/2012	1.75 in.	0	0	0.00K
WHITEHAVEN	7/7/2012	1.00 in.	0	0	0.00K
SHELBY FARMS	9/5/2012	1.00 in.	0	0	0.00K
MILLINGTON	10/17/2012	1.00 in.	0	0	0.00K
BARTLETT	11/3/2012	1.75 in.	0	0	0.00K
NEW SOUTH MEMPHIS	11/3/2012	1.00 in.	0	0	0.00K
COLLIERVILLE	5/21/2013	1.00 in.	0	0	0.00K
COLLIERVILLE ARPK	12/21/2013	1.00 in.	0	0	0.00K
MILLINGTON	4/28/2014	1.75 in.	0	0	0.00K
CORDOVA	4/28/2014	0.75 in.	0	0	0.00K
SHELBY FARMS	10/2/2014	1.75 in.	0	0	0.00K
FRAYSER	10/7/2014	1.00 in.	0	0	0.00K
BRUNSWICK	4/1/2015	1.00 in.	0	0	0.00K
ARLINGTON	4/1/2015	1.00 in.	0	0	0.00K
LENOW	6/29/2015	1.00 in.	0	0	0.00K
RAINES	6/29/2015	1.00 in.	0	0	0.00K
BARTLETT	12/23/2015	1.00 in.	0	0	0.00K
MILLINGTON	3/31/2016	0.88 in.	0	0	0.00K
BRUNSWICK	5/2/2016	0.75 in.	0	0	0.00K
GERMANTOWN	7/15/2016	0.88 in.	0	0	0.00K
ROSEMARK	7/15/2016	1.00 in.	0	0	0.00K
LENOW	12/28/2016	0.88 in.	0	0	0.00K
ARLINGTON MUNI ARPT	12/28/2016	1.00 in.	0	0	0.00K
BARTLETT	3/1/2017	1.00 in.	0	0	0.00K
SHELBY CENTER	3/1/2017	0.88 in.	0	0	0.00K
MEMPHIS	6/1/2017	0.88 in.	0	0	0.00K
FISHERVILLE	7/4/2017	1.00 in.	0	0	0.00K
BRUNSWICK	5/19/2018	1.00 in.	0	0	0.00K
HOLLADAY	5/19/2018	1.00 in.	0	0	0.00K
BARTLETT	5/20/2018	1.00 in.	0	0	0.00K
CORDOVA	7/19/2018	1.00 in.	0	0	0.00K
BRUNSWICK	5/15/2019	1.00 in.	0	0	0.00K
SHELBY CENTER	5/15/2019	0.75 in.	0	0	0.00K
LENOW	5/15/2019	1.00 in.	0	0	0.00K

Shelby County experiences 8 to 9 hail events annually. As illustrated on April 7th, 2006, hail can be as large as 2.75" (H7), or roughly the size of a tennis ball. Per the NCDC, this incident resulted in extensive damage to several vehicles. The above list represents all listed incidents from the NCDC site for a given time period. If a jurisdiction or district is not listed, there is not a recorded incident of this nature.

Lightning is an enormous electrical discharge that is caused by an imbalance between positive and negative charges. During a storm, colliding particles of rain, ice, or snow increase this imbalance and often negatively charge the lower reaches of storm clouds. Objects on the ground, like steeples, trees, and the Earth itself, become positively charged—creating an imbalance that nature seeks to remedy by passing current between the two charges. Lightning events may affect the entire area of Shelby County any time of the year, though they are more numerous in spring and summer.

**Lightning Probability Incidence Map:
Annual Frequency of Cloud-to-Ground Lightning**



The following chart provides lightning event information for Shelby County. Per the NCDC, lightning strikes occur approximately once every six to seven years in Shelby County, yet are often not captured in NCDC data. During the first meeting, several participants indicated that number is much higher. The severity of damages depends on what the lightning strikes, as illustrated on March 31st, 2007. In this incident, a lightning strike caused a fire at a house on Shea Road. The fire caused substantial damage to the home. Four firefighters were treated for heat exhaustion and two other firefighters were treated for other injuries. The fire took 4 to 5 hours to put out.

**Recorded Lightning Impacts in Shelby County:
January 2000 – Present**

Location	Date	Deaths	Injuries	Property Damage
MEMPHIS	11/10/2002	0	1	0.00K
ARLINGTON	5/30/2004	0	0	1.00K
ARLINGTON	9/12/2004	1	0	0.00K
BARTLETT	4/25/2006	0	0	150.00K
COLLIERVILLE	3/31/2007	0	0	500.00K

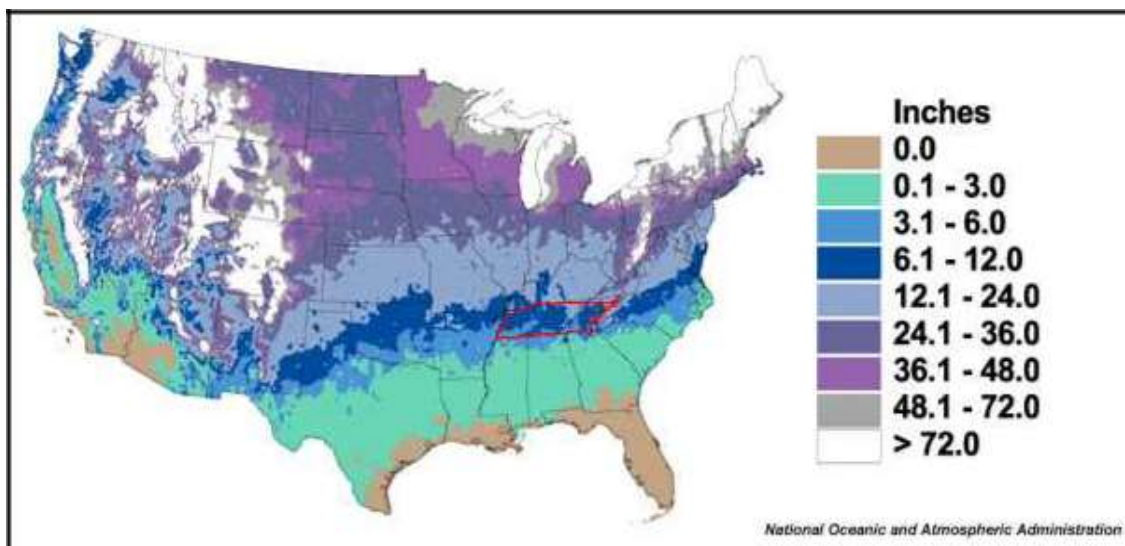
Section 3: Risk Assessment

BARTLETT	6/28/2007	0	0	145.00K
GERMANTOWN	7/26/2009	0	0	50.00K
WHITE STATION	7/26/2009	0	0	25.00K
SHELBY CENTER	7/26/2009	0	0	25.00K
NORTH	8/5/2009	0	0	50.00K
SHELBY FARMS	4/24/2010	0	0	5.00K
FOREST HILL	8/9/2010	0	1	0.00K
MILLINGTON	10/12/2010	0	0	30.00K
OAKVILLE	4/6/2016	0	2	0.00K
BRUNSWICK	6/30/2017	0	0	0.00K
LENOW	6/1/2018	0	0	200.00K
FOREST HILL	4/12/2020	0	0	35.00K
OAKVILLE	4/28/2020	0	0	10.00K

The above list represents all listed incidents from the NCDC site for a given time period. If a jurisdiction or district is not listed, there is not a recorded incident of this nature.

A freeze occurs when temperatures are below 32 degrees Fahrenheit for a period of time. These temperatures can damage agricultural crops, burst water pipes, and create layers of "black ice." Winter storms are events that can range from a few hours of moderate snow to blizzard-like circumstances that can affect driving conditions and impact communications, electricity, and other services. In Shelby County, all jurisdictions are vulnerable to freezes and moderate winter storms in varying degrees, but not to the severity level seen in much of the northern U.S. Mean snowfall per year is from 3-6" annually

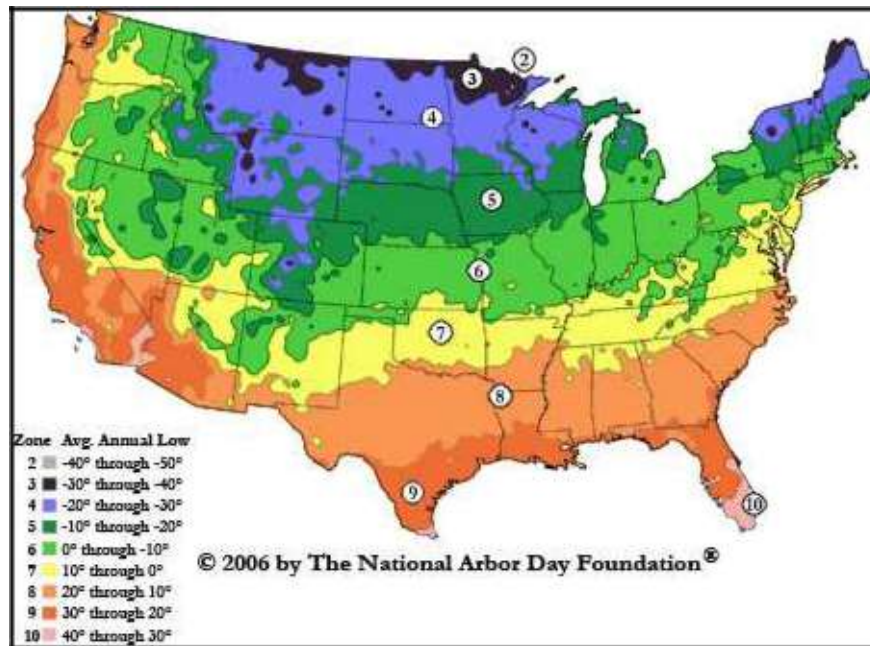
Average Mean Snowfall Per Year



Source: NOAA

Shelby County can experience temperatures between 15 to 5 degrees Fahrenheit, thus causing multiple freeze conditions during the winter months (see the following map for other average lows).

Average Annual Low Temperatures



Source: NOAA

The following chart provides winter storm event information for Shelby County. Based on previous occurrences, Shelby County experiences winter weather one to two times per year. Winter weather can occasionally be severe, as illustrated in the ice storm on February 11th, 1994. Per multiple members of the hazard mitigation committee, up to 2" of ice fell over Shelby County. Nearly the entire county was impassable for two days. Power outages lasted in some areas for up to two weeks.

Winter Events in Shelby County: January 2000 – Present

Jurisdiction	Date	Type	Deaths	Injuries	Property Damage
SHELBY (ZONE)	1/27/2000	Heavy Snow	0	0	0.00K
SHELBY (ZONE)	12/13/2000	Winter Storm	0	0	20.00K
SHELBY (ZONE)	2/5/2002	Winter Storm	0	0	0.00K
SHELBY (ZONE)	2/6/2003	Heavy Snow	0	0	1.00K
SHELBY (ZONE)	2/25/2003	Heavy Snow	0	0	1.00K
SHELBY (ZONE)	12/22/2004	Winter Storm	0	0	1.00K
SHELBY (ZONE)	2/10/2006	Winter Storm	0	0	1.00K
SHELBY (ZONE)	2/18/2006	Winter Storm	0	0	1.00K
SHELBY (ZONE)	2/1/2007	Winter Weather	0	0	0.00K
SHELBY (ZONE)	1/25/2008	Winter Weather	0	0	0.00K

Section 3: Risk Assessment

SHELBY (ZONE)	3/7/2008	Winter Storm	0	0	0.00K
SHELBY (ZONE)	1/5/2009	Winter Weather	0	0	0.00K
SHELBY (ZONE)	2/28/2009	Winter Storm	0	0	0.00K
SHELBY (ZONE)	3/1/2009	Winter Storm	0	0	0.00K
SHELBY (ZONE)	1/29/2010	Winter Storm	0	0	0.00K
SHELBY (ZONE)	2/8/2010	Winter Storm	0	0	0.00K
SHELBY (ZONE)	2/15/2010	Winter Weather	0	0	0.00K
SHELBY (ZONE)	12/15/2010	Winter Weather	0	0	0.00K
SHELBY (ZONE)	1/9/2011	Winter Storm	0	0	0.00K
SHELBY (ZONE)	1/20/2011	Winter Weather	0	0	0.00K
SHELBY (ZONE)	1/25/2011	Winter Weather	0	0	0.00K
SHELBY (ZONE)	2/7/2011	Winter Weather	0	0	0.00K
SHELBY (ZONE)	2/9/2011	Winter Storm	0	0	0.00K
SHELBY (ZONE)	11/28/2011	Winter Weather	0	0	0.00K
SHELBY (ZONE)	12/7/2011	Winter Weather	0	0	0.00K
SHELBY (ZONE)	12/25/2012	Winter Weather	0	0	0.00K
SHELBY (ZONE)	1/15/2013	Winter Weather	0	0	0.00K
SHELBY (ZONE)	12/5/2013	Winter Storm	0	0	0.00K
SHELBY (ZONE)	12/7/2013	Winter Weather	0	0	0.00K
SHELBY (ZONE)	2/2/2014	Winter Storm	0	0	0.00K
SHELBY (ZONE)	2/4/2014	Winter Storm	0	0	0.00K
SHELBY (ZONE)	3/2/2014	Winter Storm	0	0	0.00K
SHELBY (ZONE)	11/13/2014	Winter Weather	0	0	0.00K
SHELBY (ZONE)	2/16/2015	Winter Storm	0	0	0.00K
SHELBY (ZONE)	2/20/2015	Winter Storm	0	0	0.00K
SHELBY (ZONE)	2/25/2015	Winter Weather	0	0	0.00K
SHELBY (ZONE)	3/4/2015	Winter Storm	0	0	0.00K
SHELBY (ZONE)	1/20/2016	Winter Weather	0	0	0.00K
SHELBY (ZONE)	1/22/2016	Winter Storm	0	0	0.00K
SHELBY (ZONE)	1/6/2017	Winter Weather	0	0	0.00K
SHELBY (ZONE)	1/12/2018	Winter Storm	0	0	0.00K
SHELBY (ZONE)	1/15/2018	Winter Storm	0	0	0.00K
SHELBY (ZONE)	11/14/2018	Winter Weather	0	0	0.00K
SHELBY (ZONE)	12/8/2018	Winter Weather	0	0	0.00K

The above list represents all listed incidents from the NCDL site for a given time period. If a jurisdiction or district is not listed, there is not a recorded incident of this nature.

Throughout the county all buildings and infrastructure are vulnerable to tornadoes and severe storm impacts. Shelby County's building stock can be broken down into the following percentage categories: 74% residential, 18% commercial, 4% industrial, <1% agricultural, 2% religious, <1% governmental, and 1% educational. In the county, manufactured homes, electrical lines, and older barns are some of the most vulnerable features. Many of these structures wouldn't receive

direct impacts from winter storms but they could receive indirect impacts such as downed electrical lines that cut off electricity to the structures, frozen pipelines that crack, destroyed agriculture crops, and customers not being able to access travels to the structures due to ice covered roads. In the county, road traveling conditions, electrical lines, and agricultural functions are some of the most vulnerable features.

Shelby County uses a ranking system to determine each jurisdiction's vulnerability to freezes/winter storm events. This system is based off simple arithmetic which analyzes potential impacts to determine vulnerabilities and then analyzes the probability of a freeze/winter storm event occurring to calculate a risk ranking for each jurisdiction.

In evaluating the risk of winter storms, jurisdictions viewed incidents that impacted day-to-day business as opposed to all incidents indicated by the NCDC. Additionally, Shelby County Schools views the threat as impacting the ability to transport school children as opposed to a direct threat to infrastructure.

Severe Weather

Jurisdiction/Applicant	<i>Human</i>	<i>Impacts Property</i>	<i>Business</i>	<i>Vulnerability H+P+B=#; #/3=V</i>
Shelby County	3	3	2	2.7
Memphis	4	4	4	4.0
Arlington	3	2	3	2.7
Bartlett	4	5	3	4.0
Collierville	4	4	3	3.7
Germantown	1	5	2	2.7
Lakeland	4	4	3	3.7
Millington	4	4	2	3.3
Arlington Community Schools	2	3	2	2.3
Bartlett City Schools	4	4	3	3.7
Collierville Schools	3	4	4	3.7
Lakeland School System	4	4	3	3.7
Millington Municipal Schools	4	4	2	3.3
Shelby County Schools	4	5	4	4.3

Section 3: Risk Assessment

Jurisdiction/ Applicant	Vulnerability	Probability		Risk <i>V+P=R</i>
Shelby County	2.7	5	7.7	High
Memphis	4.0	4	8.0	High
Arlington	2.7	2	4.7	Moderate
Bartlett	4.0	3	7.0	High
Collierville	3.7	2	5.7	Medium
Germantown	2.7	2	4.7	Moderate
Lakeland	3.7	2	5.7	Medium
Millington	3.3	5	8.3	High
Arlington Community Schools	2.3	4	6.3	Medium
Bartlett City Schools	3.7	3	6.7	Medium
Collierville Schools	3.7	5	8.7	Severe
Lakeland School System	3.7	2	5.7	Medium
Millington Municipal Schools	3.3	5	8.3	High
Shelby County Schools	4.3	4	8.3	High
			Risk	
			Low	2-3.6
			Moderate	3.7-5.2
			Medium	5.3-6.8
			High	6.9-8.4
			Severe	8.5-10

Human	
<i>Risk of Injuries and Death from the Hazard</i>	
1	Death very unlikely, injuries are unlikely
2	Death unlikely, injuries are minimal
3	Death unlikely, injuries may be substantial
4	Death possible, injuries may be substantial
5	Deaths probable, injuries will likely be substantial

Property	
<i>Amount of Residential Property Damage Associated from Hazard</i>	
1	Less than \$500 in damages
2	\$500-\$10,000 in damages
3	\$10,000-\$500,000 in damages
4	\$500,000-\$2,000,000 in damages
5	More than \$2,000,000 in damages

Business	
<i>Amount of Business Damage Associated from the Hazard</i>	
1	Less than 3 businesses closed for only a day
2	More than 3 businesses closed for a week
3	More than 3 businesses closed for a few months
4	More than 3 businesses closed indefinitely or relocated
5	A top-10 local employer closed indefinitely

Probability	
<i>Amount of Residential Property Damage Associated from Hazard</i>	
1	Less than once every 10 years
2	About once every 5-10 years
3	About once every 2-5 years
4	About once a year
5	More than once a year

Extreme Temperatures

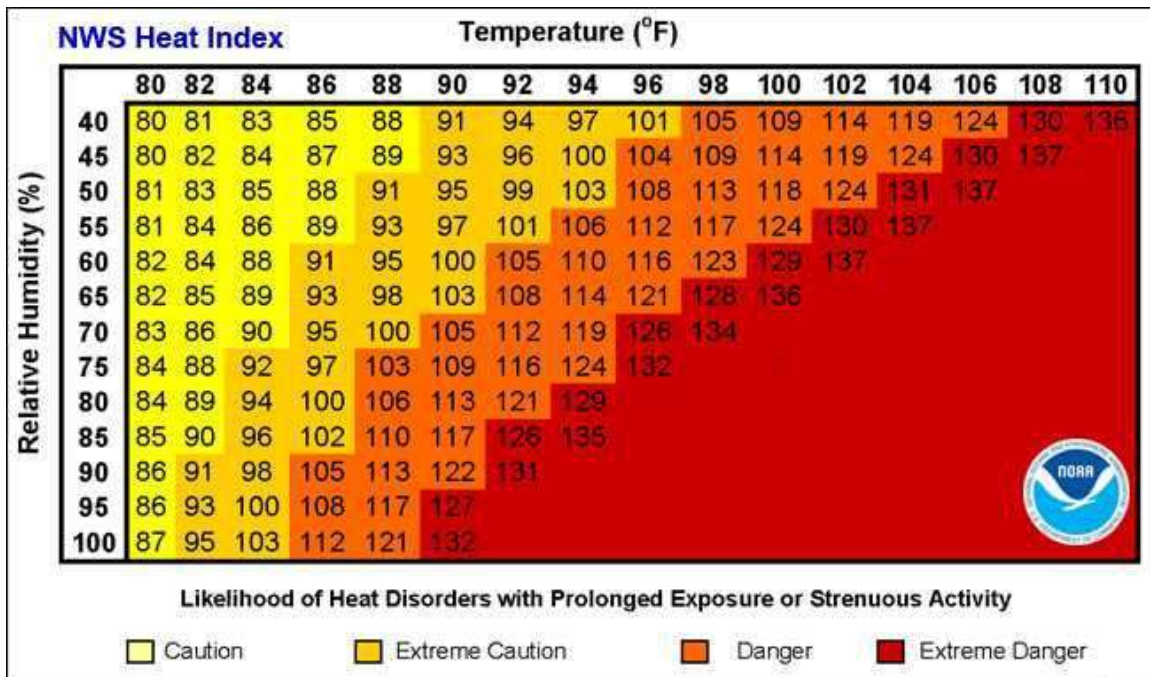
An extreme temperature event occurs when the temperature is exceptionally hotter or colder than the geographic norm and persists long enough to affect the life of the community.

Extreme heat is defined as temperatures which hover 10 degrees or more above the average high temperature for a region and last for several weeks, and though the event may not be as notable as other hazards, its effects can have devastating consequences. While it is hard to quantify the exact total number of deaths that are advanced by heat wave weather, in a normal year, about 175 Americans succumb to the demands of summer heat.

The term "Heat Index" was created by the NWS to measure apparent temperature of the air as it increases with the relative humidity. This was done to help the public understand that a lower temperature with a high relative humidity can be just as dangerous as a hotter, dryer day. The Heat Index can be used to determine what effects the temperature and humidity can have on the population. It is important to know that the Heat Index (HI) values are devised for shady, light wind conditions. Exposure to full sunshine can increase HI values by up to 15 degrees. Also, strong winds, particularly with very hot, dry, air can be extremely hazardous to individuals.

Extreme heat is not a hazard that responds to the traditional mitigation measures of building codes or land use restrictions. Heat is the number 1 weather related killer in the United States, resulting in roughly 175 fatalities each year. In fact, on average, excessive heat claims more lives each year than floods, lightning, tornadoes and hurricanes combined.

National Weather Service Heat Index Chart



Source: National Weather Service

While not as clearly defined as extreme heat, extreme cold can be just as problematic and deadly for a jurisdiction that encounters this hazard. Extreme cold conditions typically accompany winter storm events but may occur on beautiful, sunny days as well. Exposure to cold can cause frostbite or hypothermia and become life-threatening. Infants and elderly people are most susceptible.

The term wind chill, much like the term heat index is not the actual temperature but rather how wind and cold feel on exposed skin. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature.

What constitutes extreme cold varies in different parts of the country. In the southern United States, near freezing temperatures are considered extreme cold. Freezing temperatures can cause severe damage to citrus fruit crops and other vegetation. Pipes may freeze and burst in homes that are poorly insulated or without heat. Most people judge extreme cold by the problems it causes rather than just by a temperature or a wind chill factor. In the northern areas of the country, extreme cold means temperatures well below zero.

Extreme cold events are typically associated with the winter months while extreme heat is associated with the summer months. Please see the chart below depicting the seasonal differences in extreme heat and extreme cold.

Extreme Temperatures In Tennessee By Month: 1996-2017



Source: NOAA

The speed of onset of extreme temperatures, both hot and cold, is fairly slow and predictable from short and long term weather forecasts. The scale of measurement for this hazard is temperature and departure from normal temperature.

Public information campaigns are designed to remind citizens to hydrate and avoid direct exposure to the elements during the time of temperature extremes. Typical medical problems caused by extreme temperatures include the following:

- Heatstroke is a life threatening condition that requires immediate medical attention. It exists when the body's core temperature rises above 105 degrees F as a result of environmental temperatures. Patients may be delirious, stuporous, or comatose. The death-to-care ratio in reported cases in the U.S. 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 because 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.

- Frostbite is one of the many problems caused by exposure to extreme cold. It is damage to body tissue caused by extreme cold. A wind chill of -20 degrees Fahrenheit (F) will cause frostbite in just 30 minutes. Frostbite causes a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes or the tip of the nose.
- Hypothermia is a condition brought on when the body temperature drops to less than 95 degrees Fahrenheit (F). Hypothermia is deadly and for those who survive, there are likely to be lasting kidney, liver and pancreas problems. Warning signs include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness and apparent exhaustion. Immediate critical care is essential to save the victim's life.

Shelby County typically experiences 2 to 3 extreme temperature events per year (2010 to present) . As illustrated on August 1st, 2010, heat index measurements can exceed 115 degrees, which led to 7 deaths and 1 injury. By it's nature, extreme temperatures occur regionally throughout the planning area and is not jurisdictionally specific.

Extreme Temperature in Shelby County: January 2000–Present

Jurisdiction	Date	Type	Deaths	Injuries	Property Damage
SHELBY (ZONE)	12/16/2000	Extreme Cold/wind Chill	1	0	0.00K
SHELBY (ZONE)	1/2/2010	Cold/wind Chill	3	0	0.00K
SHELBY (ZONE)	8/1/2010	Excessive Heat	7	1	0.00K
SHELBY (ZONE)	8/10/2010	Excessive Heat	4	0	0.00K
SHELBY (ZONE)	8/21/2010	Excessive Heat	0	0	0.00K
SHELBY (ZONE)	12/13/2010	Cold/wind Chill	0	0	0.00K
SHELBY (ZONE)	7/10/2011	Excessive Heat	1	0	0.00K
SHELBY (ZONE)	8/3/2011	Excessive Heat	1	0	0.00K
SHELBY (ZONE)	8/7/2011	Excessive Heat	2	0	0.00K
SHELBY (ZONE)	7/19/2012	Excessive Heat	0	0	0.00K
SHELBY (ZONE)	2/17/2015	Cold/wind Chill	3	0	0.00K
SHELBY (ZONE)	7/28/2015	Excessive Heat	2	0	0.00K
SHELBY (ZONE)	6/16/2016	Excessive Heat	0	0	0.00K
SHELBY (ZONE)	7/22/2016	Excessive Heat	0	0	0.00K
SHELBY (ZONE)	8/4/2016	Excessive Heat	0	0	0.00K
SHELBY (ZONE)	8/5/2016	Excessive Heat	1	0	0.00K
SHELBY (ZONE)	7/21/2017	Excessive Heat	0	0	0.00K
SHELBY (ZONE)	7/26/2017	Excessive Heat	0	0	0.00K
SHELBY (ZONE)	7/20/2018	Excessive Heat	0	0	0.00K
SHELBY (ZONE)	7/17/2019	Excessive Heat	0	0	0.00K

Section 3: Risk Assessment

SHELBY (ZONE)	8/12/2019	Excessive Heat	0	0	0.00K
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Extreme Temperatures

Jurisdiction/Applicant	<i>Human</i>	<i>Impacts Property</i>	<i>Business</i>	<i>Vulnerability H+P+B=#; #/3=V</i>
Shelby County	4	2	2	2.7
Memphis	4	3	1	2.7
Arlington	2	1	1	1.3
Bartlett	4	1	1	2.0
Collierville	4	3	2	3.0
Germantown	1	5	2	2.7
Lakeland	3	3	1	2.3
Millington	2	1	1	1.3
Arlington Community Schools	1	1	1	1.0
Bartlett City Schools	1	2	1	1.3
Collierville Schools	2	2	1	1.7
Lakeland School System	3	3	1	2.3
Millington Municipal Schools	2	1	1	1.3
Shelby County Schools	4	4	2	3.3

Section 3: Risk Assessment

Jurisdiction/ Applicant	Vulnerability	Probability		Risk <i>V+P=R</i>												
Shelby County	2.7	5	7.7	High												
Memphis	2.7	5	7.7	High												
Arlington	2.3	1	3.3	Low												
Bartlett	2.0	5	7.0	High												
Collierville	3.0	4	7.0	High												
Germantown	2.7	2	4.7	Moderate												
Lakeland	2.3	4	6.3	Medium												
Millington	1.3	5	6.3	Medium												
Arlington Community Schools	1.0	1	2.0	Low												
Bartlett City Schools	1.3	1	2.3	Low												
Collierville Schools	1.7	4	5.7	Medium												
Lakeland School System	2.3	4	6.3	Medium												
Millington Municipal Schools	1.3	5	6.3	Medium												
Shelby County Schools	3.3	3	6.3	Medium												
			<table><tr><th colspan="2">Risk</th></tr><tr><td>Low</td><td>2-3.6</td></tr><tr><td>Moderate</td><td>3.7-5.2</td></tr><tr><td>Medium</td><td>5.3-6.8</td></tr><tr><td>High</td><td>6.9-8.4</td></tr><tr><td>Severe</td><td>8.5-10</td></tr></table>		Risk		Low	2-3.6	Moderate	3.7-5.2	Medium	5.3-6.8	High	6.9-8.4	Severe	8.5-10
Risk																
Low	2-3.6															
Moderate	3.7-5.2															
Medium	5.3-6.8															
High	6.9-8.4															
Severe	8.5-10															

Human	
<i>Risk of Injuries and Death from the Hazard</i>	
1	Death very unlikely, injuries are unlikely
2	Death unlikely, injuries are minimal
3	Death unlikely, injuries may be substantial
4	Death possible, injuries may be substantial
5	Deaths probable, injuries will likely be substantial

Property	
<i>Amount of Residential Property Damage Associated from Hazard</i>	
1	Less than \$500 in damages
2	\$500-\$10,000 in damages
3	\$10,000-\$500,000 in damages
4	\$500,000-\$2,000,000 in damages
5	More than \$2,000,000 in damages

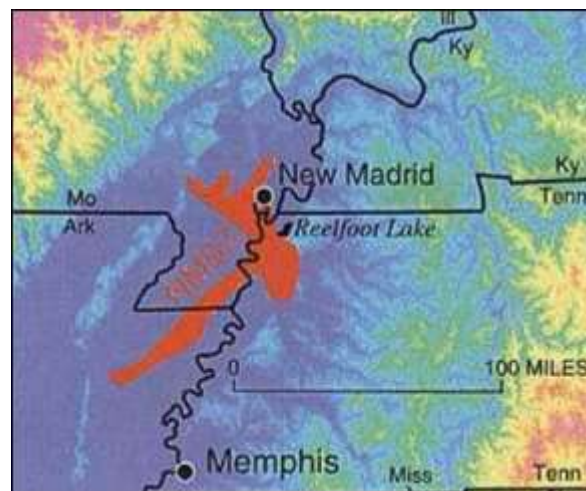
Business	
<i>Amount of Business Damage Associated from the Hazard</i>	
1	Less than 3 businesses closed for only a day
2	More than 3 businesses closed for a week
3	More than 3 businesses closed for a few months
4	More than 3 businesses closed indefinitely or relocated
5	A top-10 local employer closed indefinitely

Probability	
<i>Amount of Residential Property Damage Associated from Hazard</i>	
1	Less than once every 10 years
2	About once every 5-10 years
3	About once every 2-5 years
4	About once a year
5	More than once a year

Earthquakes

Shelby County is in close proximity to the major intraplate (within a tectonic plate) seismic zone known as the New Madrid Seismic Zone. The New Madrid Seismic Zone (NMSZ) is an approximately 120-mile long fault system that stretches across five states including Western Tennessee. While Shelby County has experienced no significant earthquakes since 1812, the historical seismic activity in the NMSZ, as well as the population of Shelby County, makes the potential for catastrophic effects from severe earthquakes highly likely.

New Madrid Seismic Zone



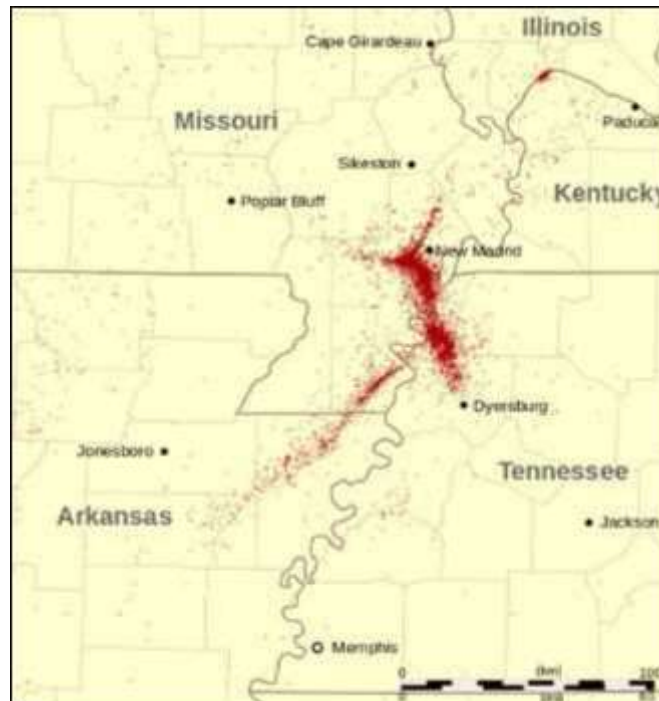
Historically, the zone is known for producing four of the largest North American earthquakes in recorded history, all in which would have had been felt in Shelby County. This includes the noted three-month period between December 1811 and February 1812 that had quakes reaching Richter Scale magnitudes into the 7.0 through 7.6 ranges, which created Reelfoot Lake in Lake County, Tennessee.

Richter Scale for Earthquakes		
Magnitudes	Description	Typical Impacts
< 2.0	Micro	Not felt.
2.0-2.9	Slight	Generally not felt, but recorded.
3.0-3.9	Minor	Often felt, but rarely causes damage.
4.0-4.9	Light	Noticeable shaking of indoor items, rattling noises. Significant damage likely.
5.0-5.9	Moderate	Can cause major damage to poorly constructed building over small regions. At most slight damage to well-designed buildings.
6.0-6.9	Strong	Can be destructive in areas up to about 100 miles across populated areas.
7.0-7.9	Major	Can cause serious damage over larger areas.
8.0-8.9	Great	Can cause serious damage in areas several hundred miles across.
9.0-9.9	Epic	Devastating in areas several thousand miles across.

Source: USGS

Since the 1812 earthquakes, the largest recorded quakes from this zone were the October 1895, 6.6 magnitude quake (epicenter Charleston, MO) and the November 1968, 5.5 magnitude quake (epicenter in Dale, IL). From the time when seismic measurement instruments were installed in and around the zone in the 1970's, more than 4,000 small earthquakes have been recorded, with the vast majority being too small to be felt.

NMSZ Earthquakes Recorded Since 1974

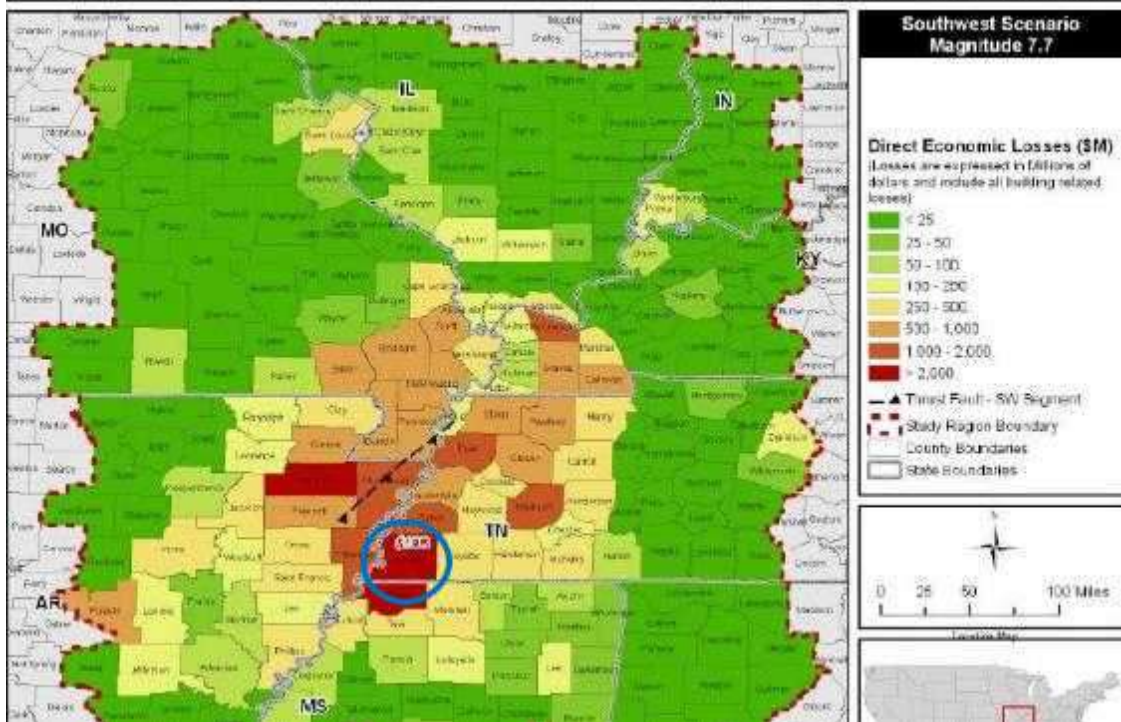


Source: USGS

According to a FEMA report filed in 2008, a serious earthquake in the NMSZ could result in the highest economic loss due to a natural disaster in U.S. history, causing widespread and catastrophic damage across a seven-state radius with most of the worst impacts taking place in Western Tennessee (includes Shelby County). Based on this report, a 7.7 magnitude quake in the NMSZ would result in thousands of fatalities, hundreds- of- millions of dollars in damages to structures, and total disruption of vital infrastructure in Western Tennessee.

Estimated Building Losses – Catastrophic Earthquake Scenario

Estimated Total County Building Loss - Earthquake Scenario: New Madrid Region



Source: USGS

Shelby County sits in what FEMA/TEMA considers the 20-county New Madrid Impact Zone. Statistical earthquake vulnerability studies from FEMA show that out of these 20 counties that Shelby County will receive moderate to severe impacts because of its close proximity to the NMSZ. As indicated in the above map, building damage will exceed \$2 billion in a catastrophic earthquake event.

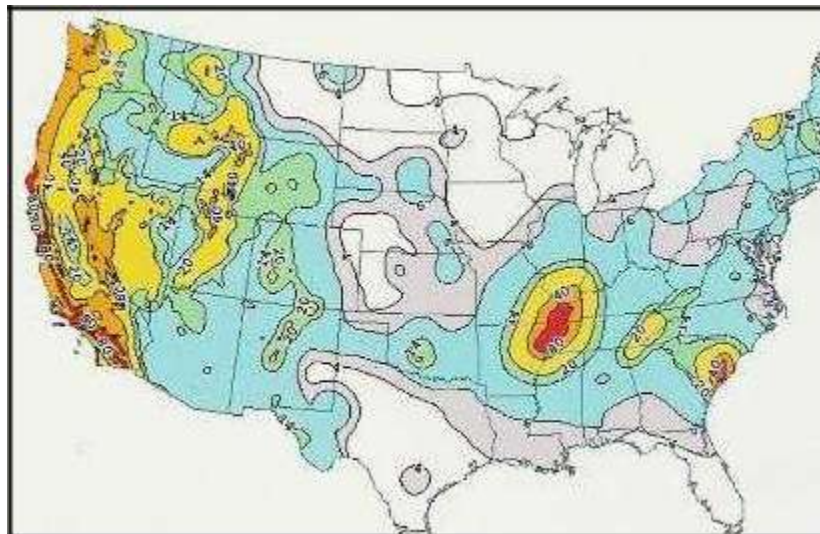
Furthermore, according to the 2007 Mid-American Earthquake (MAE) Center Study, Shelby County will experience the following in a catastrophic earthquake scenario:

- 2,225 fatalities

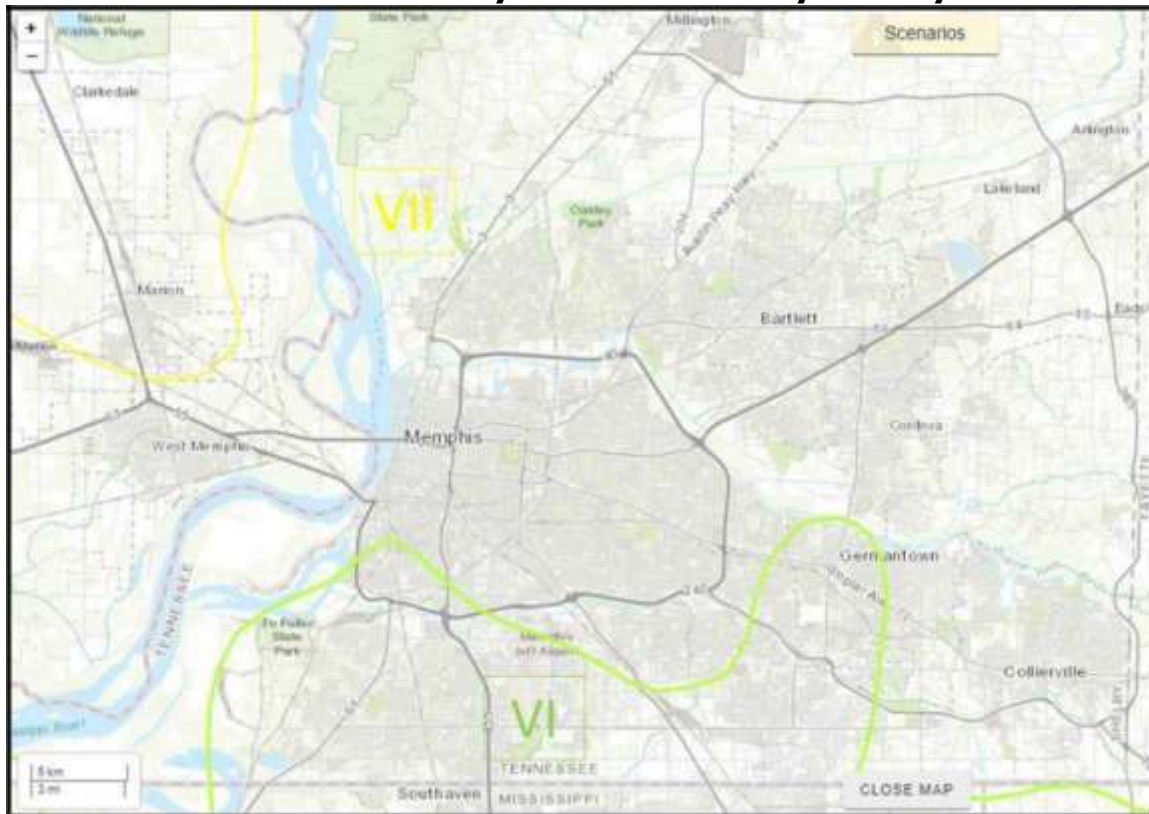
- 34,605 casualties
- 161,189 displaced residents, of which 45,466 will require shelter
- >14,310 thousand tons of debris
- >84% of households without power on day 1
- >131,000 residences with moderate or greater damage
- >42,900 residences completely destroyed
- <1% police station functionality on day 1
- <1% fire station functionality on day 1
- 4.4% hospital functionality on day 1
- <1% school functionality on day 1
- >94% of households without potable water
- 45% communications functionality on day 1
- >24% of bridges with moderate or greater damage

Throughout the county many buildings and the majority of infrastructure networks could be vulnerable to earthquake impacts. Shelby County's building stock can be broken down into the following percentage categories: 74% residential, 18% commercial, 4% industrial, <1% agricultural, 2% religious, <1% governmental, and 1% educational. Throughout the county all buildings and infrastructure are vulnerable to earthquake impacts.

**National Seismic Hazard Map
Ground Motions with a 2% Chance of Occurring in 50 Years**



Mercali Intensity Zones In Shelby County



Source: USGS

As indicated in the above maps, all of Shelby County's jurisdictions and districts sit within intensity zones VII (very strong) to VI (strong) of the Modified Mercali Intensity Scale due to its proximity to the New Madrid Seismic Zone.

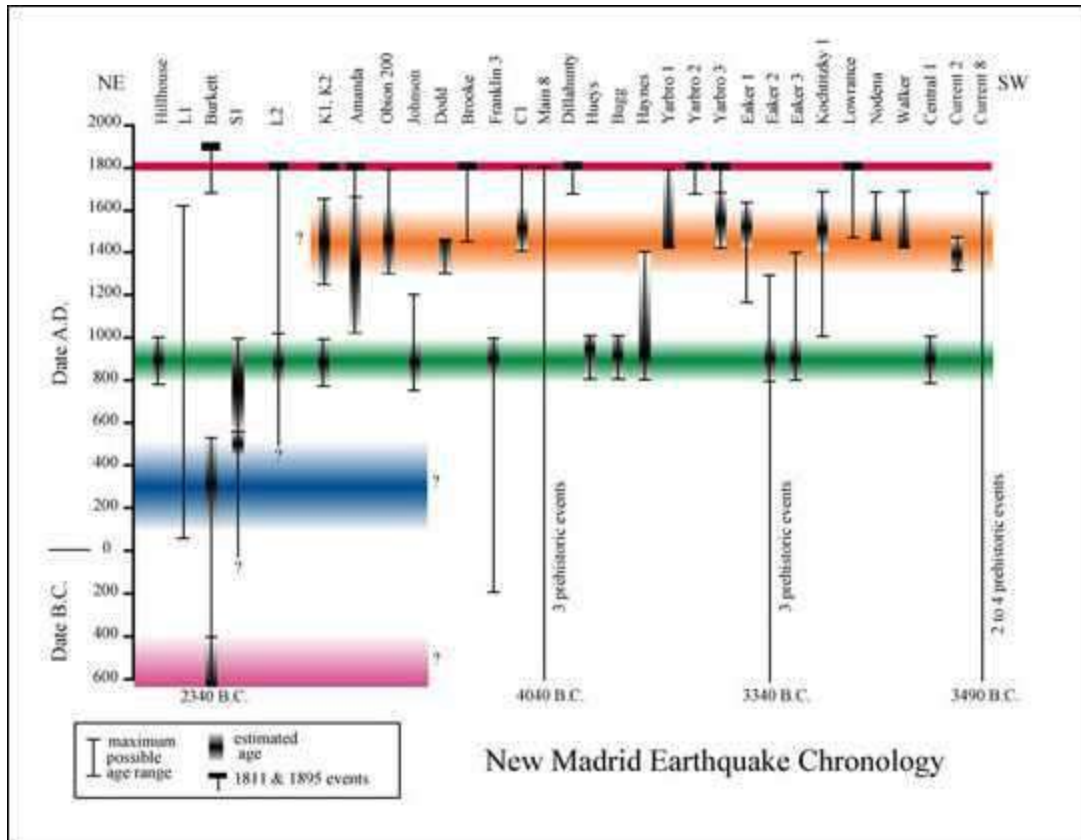
Section 3: Risk Assessment

The following is an abbreviated description of the levels of Modified Mercalli intensity.

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	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.
IV	Light	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 rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all; many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Very strong	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.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Felt of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	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.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

The current lack of apparent land movement along the NMSZ has long puzzled scientists. Currently, GPS measurements show that the NMSZ faults are moving no more than 0.0079 inches a year. In contrast the San Andreas Fault in California moves up to 1.5 inches a year. This has led some researchers to believe that the fault may be “shutting down” while others say it is a “sleeping giant.” These differing views have made it difficult for public policy makers to decide on if, how, and how much to prepare for and spend on mitigating a potential large-scale earthquake.

New Madrid Seismic Zone Earthquake Liquefaction Chronology



Source: USGS

Over the past decade, paleoseismic studies have begun to unravel the earthquake history of the New Madrid seismic zone. Studies focusing on earthquake-induced liquefaction features utilized archaeology and radiocarbon dating to estimate the ages of liquefaction features, and thus, the timing of the earthquakes that caused them. In this way, sand blows across the New Madrid region were found to have formed during earthquakes about 1450 A.D., 900 A.D., 300 A.D., and 2350 B.C.

In addition, the size and spatial distributions of historic and sand blows that formed about 1450 A.D. and 900 A.D. were determined to be strikingly similar to each other, suggesting that the prehistoric earthquakes had similar locations and magnitudes to the 1811-1812 earthquakes. Furthermore, sand blows attributed to the 1450 A.D., 900 A.D., and 2350 B.C. earthquakes are composed of multiple, fining upward layers similar in thickness to those that formed in 1811-1812. These observations support the interpretation that the prehistoric events were similar in location and magnitude to the 1811-1812 earthquakes, and also suggest that they too were earthquake sequences. Paleoseismic studies

concluded that the New Madrid seismic zone generated magnitude 7 to 8 earthquakes about every 500 years during the past 1,200 years.

Shelby County uses a ranking system to determine each jurisdiction's vulnerability to a large NMSZ earthquake. This system is based off simple arithmetic which analyzes potential impacts to determine vulnerabilities and then analyzes the probability of an earthquake event occurring to calculate a risk ranking for each jurisdiction.

Earthquake

Jurisdiction/Applicant	<i>Human</i>	<i>Impacts Property</i>	<i>Business</i>	<i>Vulnerability H+P+B=#; #/3=V</i>
Shelby County	5	4	4	4.3
Memphis	5	5	3	4.3
Arlington	3	3	3	3.0
Bartlett	5	5	3	4.3
Collierville	5	5	4	4.7
Germantown	5	5	4	4.7
Lakeland	4	5	2	3.7
Millington	5	3	3	3.7
Arlington Community Schools	4	4	4	4.0
Bartlett City Schools	4	4	3	3.7
Collierville Schools	2	2	1	1.7
Lakeland School System	4	5	2	3.7
Millington Municipal Schools	5	5	3	4.3
Shelby County Schools	4	5	4	4.3

Section 3: Risk Assessment

Jurisdiction/ Applicant	Vulnerability	Probability		Risk <i>V+P=R</i>
Shelby County	4.3	1	5.3	Medium
Memphis	4.3	2	6.3	Medium
Arlington	3.0	1	4.0	Moderate
Bartlett	4.3	1	5.3	Medium
Collierville	4.7	1	5.7	Medium
Germantown	4.7	1	5.7	Medium
Lakeland	3.7	1	4.7	Moderate
Millington	3.7	1	4.7	Moderate
Arlington Community Schools	4.0	1	5.0	Moderate
Bartlett City Schools	3.7	1	4.7	Moderate
Collierville Schools	1.7	2	3.7	Moderate
Lakeland School System	3.7	1	4.7	Moderate
Millington Municipal Schools	4.3	1	5.3	Medium
Shelby County Schools	4.3	2	6.3	Medium
			Risk	
			Low	2-3.6
			Moderate	3.7-5.2
			Medium	5.3-6.8
			High	6.9-8.4
			Severe	8.5-10

Human	
<i>Risk of Injuries and Death from the Hazard</i>	
1	Death very unlikely, injuries are unlikely
2	Death unlikely, injuries are minimal
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4	Death possible, injuries may be substantial
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Property	
<i>Amount of Residential Property Damage Associated from Hazard</i>	
1	Less than \$500 in damages
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Section 3: Risk Assessment

Business	
<i>Amount of Business Damage Associated from the Hazard</i>	
1	Less than 3 businesses closed for only a day
2	More than 3 businesses closed for a week
3	More than 3 businesses closed for a few months
4	More than 3 businesses closed indefinitely or relocated
5	A top-10 local employer closed indefinitely

Probability	
<i>Amount of Residential Property Damage Associated from Hazard</i>	
1	Less than once every 10 years
2	About once every 5-10 years
3	About once every 2-5 years
4	About once a year
5	More than once a year

Shelby County Declared Disasters 2011 – 2020

Year	Disaster Recovery Number(s)	Hazard(s)
2011	DR-1974-TN	Tennessee Severe Storms, Tornadoes, Straight-line Winds, And Associated Flooding
	DR-1978-TN	Tennessee Severe Storms, Flooding, Tornadoes, And Straight-line Winds
	DR-1979-TN	Tennessee Severe Storms, Tornadoes, Straight-line Winds, And Flooding
	EM-3321-TN	Tennessee Flooding
2012		
2013		
2014	DR-4171-TN	Severe Winter Storm
2015		
2016		
2017	DR-4320-TN	Tennessee Severe Storms, Straight-line Winds, And Flooding
2018		
2019		
2020	DR-4514-TN	Pandemic

Section 4: Mitigation Strategy

Mitigation Goals

The purpose for developing a set of goals is to clearly state the community's overall vision for hazard mitigation and to provide a path towards building a safer, more resilient community. The Shelby County Hazard Mitigation Committee identified the following goals to be the forefront in the overall development of this plan update. All actions/projects recommended as mitigation efforts for the Hazard Mitigation Plan must first meet or further at least one of these goals. The goals are provided in a ranked order where the first goal is paramount. There have been no changes to the goals and priorities from the previous plan.

Mitigation Goals

Goal 1: Protect the lives and health of citizens from the effects of natural and man-made hazards.

Goal 2: Minimize future loss from all hazardous incidents by reducing the vulnerability of public and private property.

Goal 3: Encourage public and commitment to hazard mitigation, by communication mitigation benefits.

Goal 4: Strive to protect business and industry by reducing their economic vulnerability.

Goal 5: Acquire vulnerable properties to prevent future losses.

Identification and Prioritization of Mitigation Projects

Shelby County has developed a comprehensive range of mitigation projects. These projects were solicited and identified by the different entities that make up the Shelby County Hazard Mitigation Committee. Once the proposed projects attained a sponsoring agency and the details of the projects were discussed by the committee, the committee then proceeded to prioritize the mitigation projects.

The prioritization process was important since most mitigation projects represent a large investment of financial and personal resources. By evaluating each project's degree of feasibility and the level of costs versus

benefits, Shelby County was able to determine when and which projects should be implemented based on available funding and time.

For the plan update, the Shelby County Hazard Mitigation Committee used the SAFE-T method to prioritize these projects. This approach was adopted from the successful methodology used by other counties in FEMA Region 4. This rating system uses five variables to evaluate the overall feasibility and appropriateness: Societal, Administrative, Financial, Environmental, and Technical. A focus on this methodology emphasizes the use of a cost-benefit review to maximize benefits.

Project Prioritization Method: SAFE-T			
Variable		Value	Description
S	Societal: The public must support the overall implementation strategy and specified mitigation actions. The projects will be evaluated in terms of community acceptance and societal	1	Low community priority, few societal benefits
		2	Moderate community acceptance / priority
		3	High community acceptance / priority
A	Administrative: The projects will be evaluated for anticipated staffing and maintenance requirements to determine if the jurisdiction has the personnel and administrative capabilities necessary to implement the project or whether outside help will be needed.	1	High staffing, outside needed
		2	Some staffing, help may be needed
		3	Low staffing, no outside help needed
F	Financial: The projects will be evaluated on their general cost-effectiveness and whether additional outside funding will be required	1	Somewhat cost-effective
		2	Moderately cost-effective
		3	Very cost-effective
E	Environmental: The projects will be evaluated for any immediate or long-term environmental impacts caused by their construction or operation	1	Many environmental impacts, possibly long term
		2	Some environmental impacts, some possibly long term
		3	Few, if any, environmental impacts
T	Technical: the projects will be evaluated on their ability to reduce losses in the long-term, whether there are secondary impacts, and whether the proposed project solves the associated problem or if additional components are necessary.	1	Other actions are needed or short-term fix
		2	Other actions may be needed for long-term fix
		3	Other actions not needed, long-term fix

Committee members ranked the projects as a group by determining the value for each variable and then by adding the variables rates up for a project sum value. All the project rankings can be seen on the Shelby County Hazard Mitigation Project List.

Shelby County Project List

The following Project List provides an overview of all projects decided on by the Shelby County Hazard Mitigation Committee. This includes potential funding sources, implementation timeframes, the project's responsible agency, and other information. This list is to remain active

Section 4: Mitigation Strategy

and updated. Additionally, any hazard determined to be “low” by a jurisdiction was determined by the committee to not necessitate a corresponding project.

Shelby County Project List

Shelby County																
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
SC1	15	H	Automate Circuits to modernize the grid and reduce outage time	X	X	X	X	Both	\$15,000,000	MLGW		X	X	X	50,000	1-4 Years
SC2	15	H	Leak Mitigation due to Seismic Shifts- Cast Iron				X	Existing	\$3,000,000	MLGW		X		X	24,300	1 Years
SC3	15	H	Increased monitoring and reaction time using Supervisory Control and Data Acquisition (SCADA) Communication of Gas System & Regulator Stations	X	X	X	X	Existing	\$1,125,000	MLGW		X	X	X	937,200	5 Years

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SC4	15	L	Seismic Hazard Mitigation to Regulator & Gate Stations				X	Existing	\$300,000	MLGW		X		X	937,200	5 Years
SC5	15	H	Seismic Mitigation of Transmission Line				X	New & Existing	\$13,500,000	MLGW		X		X	937,200	10 Years
SC6	15	H	Seismic Mitigation of Service Taps				X	Existing	\$21,500,000	MLGW		X		X	937,200	5 Years
SC7	15	H	Convert all External Sirens to Solar Power Source	X	X			Existing	\$100,000	Shelby County EMHS	X	X	X	X	900,000	2 years
SC8	15	H	Property Protection Regulation - Perform comprehensive review of subdivision regulations and developer fee structure to discourage/provide incentive for development that increases/decreases storm water runoff and flooding potential	x				New	\$300,000	Shelby County Division of Planning and Development	x	x			10,000	3 years
SC9	15	H	Education and Training - Develop and distribute educational materials to high risk residents, as well as, conduct informational meetings	x	x	x	x	Both	\$15,000	Shelby County EMHS	x	x			100,000	1 year

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SC10	14	M	Flood Mitigation for Below grade Regulator stations	X				Existing	\$3,000,000	MLGW		X	X	X	937,200	10 Years
SC11	14	L	Seismic Mitigation of Pipe on Bridges				X	Existing	\$5,000,000	MLGW		X		X	937,200	10 Years
SC12	14	H	Hardening of Distribution System in High Risk Neighborhoods - Glenview	X	X	X	X	Existing	\$8,333,333	MLGW		X	X	X	2,929	4 Years
SC13	14	H	Hardening of Distribution System in High Risk Neighborhoods - Orange Mound	X	X	X	X	Existing	\$8,333,333	MLGW		X	X	X	14,586	4 Years
SC14	14	H	Hardening of Distribution System in High Risk Neighborhoods - Whitehaven	X	X	X	X	Existing	\$8,333,333	MLGW		X	X	X	36,998	4 Years
SC15	14	H	Community Safe Rooms	X	X	X		New	\$2,000,000	Shelby EMHS					200,000	2 years
SC16	14	H	Raise and Seal Sewer Manholes - Elevate and flood proof sewer manholes that are located in low lying flood plains and ditches	x				Existing	\$250,000	Shelby County Public Works	x	x			100,000	1 year
SC17	14	H	Advance Acquisition and Land Banking - Purchase and reserve properties within the	x				Both	\$1,000,000	Shelby County Division of Planning	x	x			100,000	2 years

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			Floodway and other developable land that would impact downstream development							and Development						
SC18	14	H	Flood Protection - Flood proof high-risk and repeat structures	x				Existing	\$1,000,000	Shelby County Division of Planning and Development	x	x			100,000	2 years
SC19	13	H	Interstate Streetlight Retrofit	x	x	x	x	Both	\$3,500,000	MLGW		x	x	x	1,000,000	5 Years
SC20	13	H	Dams and Reservoirs - Purchase agricultural and vacant properties in flood zones and construct levees to store flood waters	x				Existing	\$300,000	Shelby County Division of Planning and Development	x	x	x		10,000	2-3 Years
SC21	12	M	Backup Emergency Power Generation Projects (New and Upgrades) for Water Pumping/Treatment Facilities		x		x	Existing	\$5,000,000	MLGW		x		x	775,000	2-5 Years
SC22	12	M	Improve Reliability and Capacity of Water Supply in North Shelby County		x		x	New	\$75,000,000	MLGW		x		x	125,750	5-10 Years
SC23	12	H	Install New Water Wells to Increase Raw Water Availability to Pumping Stations		x		x	Existing	\$50,000,000	MLGW		x		x	775,000	2-10 Years

Section 4: Mitigation Strategy

SC24	12	H	Water Station Control System Upgrades		X		X	Existing	\$10,000,000	MLGW		X		X	775,000	2-10 Years
SC25	12	H	Upgraded Seismic performance level for new building to replace the current Transformer, Fabrication Shops and the Heavy Equipment Repair Facility				X	New	\$1,350,000	MLGW, Facilities Dept.		X		X	450,000	1-5 Years
SC26	12	M	Seismic Retrofit of non-structural components for an existing building to house the Builder Services Department and all existing Electric, Gas and Water Meter Shops.				X	Existing	\$150,000	MLGW, Facilities Dept.		X		X	200,000	1-5 Years
SC27	12	H	Seismic Retrofit of Non-structural elements - South Service Center				X	Existing	\$150,000	MLGW, Facilities Dept.		X		X	200,000	1-5 Years
SC28	12	H	Seismic Retrofit of Non-structural elements - Brunswick Service Centers				X	Existing	\$150,000	MLGW, Facilities Dept.		X		X	200,000	1-5 Years
SC29	12	H	Seismic Retrofit of Non-structural elements - Hickory Hill Service Center				X	Existing	\$150,000	MLGW, Facilities Dept.		X		X	200,000	1-5 Years
SC30	12	H	Seismic Retrofit of Non-structural elements - North Services Center				X	Existing	\$150,000	MLGW, Facilities Dept.		X		X	500,000	1-5 Years

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SC31	12	H	Seismic Retrofit of Non-structural elements - Electric & System operations				X	Existing	\$150,000	MLGW, Facilities Dept.		X		X	200,000	1-5 Years
SC32	12	H	Seismic Retrofit of Non-structural elements - Administration Building				X	Existing	\$150,000	MLGW, Facilities Dept.		X		X	200,000	1-5 Years
SC33	12	H	Seismic Mitigation at LNG Plant				X	Existing	\$120,000	MLGW		X		X	937,200	10 Years
SC34	12	H	Earthquake vulnerability assessment for Shelby County buildings and critical elements of infrastructure				x	Both	\$275,000	University of Memphis Center for Earthquake Research and Information (CERI)	x	x			900,000	2-3 Years
SC35	12	H	Raise Roadbed Elevations - Elevate roadways that frequently are crossed by flood waters.	x				Existing	\$4,000,000	Shelby County Roads and Bridges	x	x			100,000	3 year
SC36	12	H	Stream Restoration - Purchase property and redirect channelized streams to restore them with USCOE projects meandering and flood stage protection	x				Both	\$1,000,000	Shelby County Division of Planning and Development	x	x			100,000	2 years
SC37	12	H	Storm Drain System Management - Clean culverts and remove debris from the storm	x				Existing	\$300,000	Shelby County Public Works	x	x			100,000	3 years

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			water collection system													
SC38	12	H	Streambank Protection - Install weirs inside channels to prevent future bank erosion and scour from head-cutting	x				Both	\$1,000,000	Shelby County Division of Planning and Development	x	x			100,000	2 years
SC39	12	H	Porous Pavement - Design and install porous pavement systems for County buildings and projects	x				Existing	\$1,000,000	Shelby County Roads and Bridges	x	x			100,000	2 years
SC40	12	H	Storm Water Basin - Design and install a regional storm water detention basin	x				Both	\$1,000,000	Shelby County Roads and Bridges	x	x			100,000	2 years
SC41	12	H	Mapping Hazards - Produce highly accurate storm drainage system information	x				Both	\$500,000	Shelby County Roads and Bridges	x	x			100,000	2 years
SC42	12	H	Mapping Hazards - Identify and graph areas with high liquefaction/damage potential				x	Both	\$500,000	Shelby County Roads and Bridges	x	x			100,000	2 years
SC43	12	M	Small Business Audits - Perform structural inspections of heavy impact/high risk businesses in Shelby County	x	x		x	New	\$20,000	University Of Memphis Center for Earthquake Research Institute	x	x			100,000	1 year

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SC44	12	New	Big Creek Basin Stabilization	x				Existing		Shelby County Planning and Development	x	x				2 years
SC45	12	M	Traffic Lights/Traffic Control	x	x	x	x	Both	\$300,000	Shelby County Roads and Bridges	x	x			500,000	2 years
SC46	12	M	Community Awareness Program	x	x	x	x	Both	\$100,000	Shelby County EMHS	x	x			1,000,000	1 year
SC47	12	New	Stationary Generators	x	x	x	x	Existing		Shelby County EMHS	x	x				
SC48	12	H	Tree Limb Removal Program		x			Existing	\$300,000	Shelby County Public Works	x	x			50,000	1 year
SC49	12	H	Seismic Retrofit Bridges - Upgrade at-risk structures				x	Both	\$2,500,000	Shelby County Roads and Bridges	x	x			800,000	2 years
SC50	12	H	Seismic Retrofit Fire station - Upgrade at-risk buildings and install emergency generators				x	Both	\$2,000,000	Shelby County Fire	x	x			100,000	2 years
SC51	12	H	Emergency Portable Generator - Purchase an emergency portable generator to operate sewer lift stations during	x	x			Both	\$20,000	Shelby County Public Works	x	x			100,000	1 year

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			extended power outages													
SC52	12	H	Bonus and Incentive Zoning - Install a system allowing developers to exceed limitations of current regulations, such as density or building height, in return for specific concessions	x				New	\$20,000	Shelby County Division of Planning and Development	x	x			100,000	1 year
SC53	12	H	Education and Training - Train code enforcement, law enforcement, disaster responders and citizens in earthquake response. Develop a community awareness program	x	x		x	Both	\$15,000	Shelby County EMHS	x	x			100,000	1 year
SC54	12	H	Home Inspection Program - Complete hazard susceptibility checklists to offer personalized vulnerability assessments	x	x		x	Existing	\$100,000	Shelby County Code Enforcement	x	x			1,000,000	1 year
SC55	12	H	Community Awareness Program - Develop real estate disclosure information and educate homebuyers and the general public of hazard risks	x		x	x	Both	\$100,000	Shelby County Assessors Office	x	x			1,000,000	1 year

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SC56	12	H	Education and Training - Generate awareness of hazards, mitigation steps and disaster response for Shelby County employees	x	x	x	x	Both	\$100,000	Shelby County EMHS	x	x			1,000,000	1 year
SC57	12	H	Traffic Lights and other Traffic Controls - Protect traffic lights and other traffic controls. Install resilient street signs for navigation in an emergency	x	x	x	x	Both	\$300,000	Shelby County Roads and Bridges	x	x			500,000	2 years
SC58	12	H	Vegetation - Identify locations for and install dense vegetative strips or buffers or reestablishment of removed vegetation	x				Existing	\$100,000	Shelby County Division of Planning and Development	x	x			1,000,000	1 year
SC59	12	H	Wind Proofing - Modify at-risk structures to be able to withstand high winds and tornados		x			Existing	\$300,000	Shelby County Public Works	x	x			500,000	2 years
SC60	12	H	Tie-Down Program - Mandate and retrofit propane tank tie-downs and mobile homes		x			Both	\$100,000	Shelby County Code Enforcement	x	x			1,000	2 years
SC61	12	H	Protect water supply - Install shut-off valves and emergency connector hoses where water meters connect		x		x	Existing	\$100,000	Shelby County Public Works	x	x			1,000,000	1 year

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SC62	12	H	Utility Line Relocation - Bury electric, telephone and cable lines and/or reinforce the connections on existing utility lines		x			Both	\$3,000,000	MLGW	x	x			50,000	3 years
SC63	12	H	Tree Limb Removal Program - Develop and enact project to clear tree limbs in the right-of-way and threatening utility lines	x	x			Existing	\$300,000	MLGW	x	x			50,000	1 year
SC64	11	H	Variable Frequency Drive Motor & Transformer Upgrades. Include backup motor control and environmentally stable enclosures.		X	X	X	Existing	\$20,000,000	MLGW		X		X	775,000	2-5 Years
SC65	11	H	Sheahan Wash Water Recovery Basin Upgrade				X	Existing	\$8,000,000	MLGW		X		X	650,000	4-7 Years
SC66	11	M	Seismic Upgrades to Water Facilities		X		X	Existing	\$30,000,000	MLGW		X		X	775,000	5-10 Years
SC67	11	H	Add/Upgrade Water Distribution Facilities for better seismic and storm resilience		X		X	Both	\$50,000,000	MLGW		X		X	775,000	2-15 Years
SC68	11	H	Add/Upgrade Water Production Facilities for better seismic and storm resilience		X		X	Both	\$70,000,000	MLGW		X		X	775,000	2-15 Years

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SC69	11	M	Upgrade/Repair Network Vaults	X	X	X	X	Both	\$2,500,000	MLGW		X	X	X	3,000	5 Years
SC70	11	M	Update/Replace Network Protectors	X	X	X	X	Both	\$6,500,000	MLGW		X	X	X	3,000	5 Years
SC71	11	H	Seismic retrofits distribution transformers and switch gear.				X	Existing	\$60,000,000	MLGW		X		X	937,200	Annual
SC72	11	H	Generator- Location 3- 6235 Haley Road	x	x	x		Existing	\$100,000	Shelby County Roads and Bridges	x	x	x	x	900,000	2 years
SC73	11	H	Generator- Location 4Election Commission 980 Nixon Drive	x	X	x	X	Existing	\$100,000	Shelby County Roads and Bridges	x	x	x	x	900,000	2 years
SC74	11	H	Big Creek CN Bridge Damn Blowout Mitigation	x			X	Existing	\$7,000,000	Shelby County Division of Planning and Development		X	X	X	100,000	2 years
SC75	11	H	Damage Assessment Software	X	X	X	X	Existing	\$60,000	Shelby County EMHS	X	X	X	X	900,000	1 year
SC76	11	H	Mass Communication/ Notification System	X	X	X	X	New	\$1,000,000	Shelby County EMHS	X		X	X	900,000	2 years

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SC77	11	H	Stream Restoration	x				Existing	\$1,000,000	Shelby County Division of Planning and Development	x	x			100,000	2 years
SC78	11	H	Purchase Streambank Easements - Purchase easements on high flow at risk streambeds to allow the County the rights to clear and maintain debris which causes flooding	x				Both	\$1,000,000	Shelby County Roads and Bridges	x	x			100,000	2 years
SC79	11	H	Drainage system upgrade - Design and install larger or parallel drainage pipe in locations that bottleneck and cause upstream flooding	x				Both	\$150,000	Shelby County Division of Planning and Development	x	x			100,000	5 years
SC80	11	H	Green Infrastructure - Install regional green infrastructure projects in locations with large flow generators or conveyances			x		Both	\$1,000,000	Shelby County Division of Planning and Development	x	x			100,000	2 years
SC81	11	H	Community Safe Rooms - Build shelter areas at key locations throughout Shelby County to allow residents a place to go in freezing, high-heat and high-wind situations			x	x	Existing	\$3,000,000	Shelby County EMHS	x	x			50,000	2 years

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SC82	11	H	Dredge Behind Levee of Dam #5 - Remove siltation deposits to increase capacity and clear wooded area to improve flow	x				Both	\$500,000	Shelby County Division of Planning and Development	x	x			50,000	1 year
SC83	10	H	Seismic retrofits of highly vulnerable electrical substation equipment and control buildings.				X	Existing	\$9,700,000	MLGW		X		X	937,166	Annual
SC84	10	H	Seismic retrofits of highly vulnerable electrical substation equipment and control buildings.				X	Existing	\$9,700,000	MLGW		X		X	937,200	Annual
SC85	10	M	Generator- Location 2-140 Adams Ave #106, Memphis, TN 38103	x	x	x		Existing	\$100,000	Shelby County Public Works	x	x	x	x	900,000	2 years
SC86	10	H	Widening of Big Creek Floodplain - Design and construct overflow floodplain areas for the Big Creek Drainage canal between Singleton Parkway and Highway 51	x				Both	\$50,000,000	Shelby County Division of Planning and Development	x	x			50,000	3 years
SC87	9	M	Stationary Generators at critical infrastructure locations, tasked with performing essential functions	X	X	X	X	Existing	\$100,000	Shelby County Public Works	X	X	X	X	900,000	2 years

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SC88	9	M	Location 1- Generator 584 Adams Ave, Memphis, TN 38103	x	x	x		Existing	\$100,000	Shelby County Public Works	x	x	x	x	900,000	2 years
SC89	9	M	Stationary Generators at critical infrastructure locations, tasked with performing essential functions Location 1- Generator 584 Adams Ave, Memphis, TN 38103	x	x	x		Existing	\$100,000.00	Shelby County Public Works	x	x	x	x	900,000	2 years
SC90	10	M	Stationary Generators at critical infrastructure locations, tasked with performing essential functions Location 2- 140 Adams Ave #106, Memphis, TN 38103	x	x	x		Existing	\$100,000.00	Shelby County Public Works	x	x	x	x	900,000	2 years
SC91	11	H	Stationary Generators at critical infrastructure locations, tasked with performing essential functions Location 3- 6235 Haley Road	x	x	x		Existing	100,000.00	Shelby County Public Works	x	x	x	x	900,000	2 years
SC92	11	H	Stationary Generators at critical infrastructure locations, tasked with performing essential functions Location 4 Election Commission 980 Nixon Drive	x	X	x	X	Existing	100,000.00	Shelby County Public Works	x	x	x	x	900,000	2 years

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SC93	11	H	Big Creek CN Bridge Damn Blowout Mitigation	x			X	Existing	7,000,000.0 0	Shelby County Roads and Bridges		X	X	X	100,000	2 years
SC94	13	H	Basin study of Long Creek area from East Holmes Road to Nonconnah Creek	X				Exisiting	250,000	Shelby County Planning and Developmen t	X	X	X	X	5000	1-2 years
SC95	13	H	North Shelby County- Loosehatchie River Basin	X				Existing	450,000	Shelby County Planning and Developmen t	X	X	X	X	50,000	1 year

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Memphis																
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
ME1	15	H	Stormwater Program Manager	x				New	\$20,000,000	Public Works	x	x	x	x	685,000	1-5 Years
ME2	15	H	Memphis Fire Stations Uninterruptible Power Supply		x		x	Existing	\$2,300,000	Memphis Fire	x	x	x	x	685,000	1-5 Years
ME3	15	H	Revise emergency response routes incorporating bridges which have been replaced or retrofitted since the previous routes established in 1991	x	x		x	Both	\$5,000	Memphis OEM	x	x			600,000	1-5 Years
Me4	14	H	Implementation of Stormwater Program Manager/Drainage Master Plan(s) Recommendation(s)	x				Both	\$20,000,000	Public Works	x	x	x	x	1,000,000	1-5 Years

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ME5	14	H	Acquisition and Demolition or Relocation of Flood Prone Structures	x				Existing	\$2,000,000	Planning and Development	x	x	x	x	2,000	1-5 Years
ME6	14	H	Outdoor Warning Siren Upgrade	x	x	x		Both	\$650,000	Memphis OEM	x	x	x	x	1,000,000	3-5 Years
ME7	14	H	Designated shelter/warming/ cooling center	x	x	x	x	Both	\$650,000	Memphis OEM	x	x	x	x	685,000	2-4 Years
ME8	14	H	Mitigation Planning	x	x	x	x	Existing	\$650,000	Memphis OEM	x	x	x	x	300,000	1-2 Years
ME9	14	H	Scour/Flood Prevention of Existing Bridges/Structures	x				Existing	\$10,000,000	Engineering	x	x	x	x	685,000	1-3 Years
ME10	14	H	Create New Hazmat Plan Reviewing All Projects For Cost/Benefit Analysis And Update Hazmat Plan		x		x	Existing	\$2,000,000	Memphis Fire	x	x		x	1,200,000	1-5 Years
ME11	13	H	Develop Multijurisdictional Comprehensive Earthquake Hazard Management Plan				x	Existing	\$1,700,000	Memphis OEM	x			x	1,000,000	1-3 Years
ME12	13	H	Flood Control Improvements utilizing local detention systems	x				Existing	\$2,000,000	Public Works	x	x	x	x	685,000	<1-3 Years

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ME13	13	H	Reduce or eliminate erosion due to flooding	x				Existing	\$750,00.00	Public Works	x	x	x	x	685,000	1-4 Years
ME14	13	M	Reflective Warning System(s)	x	x	x	x	New	\$2,000,000	Memphis OEM	x	x	x	x	685,000	1-5 Years
ME15	13	L	Memphis Fire Stations 30 and 36 Structural Retrofits		x		x	Existing	\$1,500,000	Memphis Fire	x	x	x	x	685,000	1-5 Years
ME16	13	H	Buyouts 2 Property Buyouts 2 Houses Contracted To Buyout (Honeybrook, Princeton)	x				Existing	\$500,000	Planning and Development	x	x	x		20	2 years
ME17	13	H	Bartlett Road and Shelby Oaks over Fletcher Creek, Construction Only	x				Existing	\$1,800,000	Engineering	x	x			90,000	1-5 Years
ME18	13	H	Apply For Buyout Program For 7 Units Along Barr Av. Nonconnaah Floodplain	x				Existing	\$500,000	Planning and Development	x	x			50	1-5 Years
ME19	13	H	N Watkins Over N. Cypress Creek Scheduled To Be Replaced In Next 5-10 Years	x				Existing	\$1,000,000	Engineering	x	x			120,000	1-5 Years
ME20	12	H	Flood Control Rehabilitation and Improvements for local drainageway conveyance systems	x				Existing	\$2,500,000	Public Works	x	x	x	x	685,000	2-4 Years

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ME21	12	L	Increase Drain Maintenance Inspections	x	x			Existing	\$1,000,000	Public Works	x	x	x	x	685,000	1-5 Years
ME22	12	M	Major Flood Control Pumping Station(s) upgrade	x				Existing	\$500,000	Public Works	x	x	x	x	685,000	1-5 Years
ME23	12	L	Mississippi River Floodgate Upgrade	x			x	Existing	\$1,000,000	Engineering	x	x	x	x	1,000,000	1-5 Years
ME24	12	M	McKellar Lake Facilities	x				Existing	\$5,500,000	Public Works	x	x	x	x	685,000	1-5 Years
ME25	12	H	MFD- Public Safety (PS) Communications Center Resiliency Project		x		x	New	\$2,500,000	Memphis Fire	x	x	x	x	685,000	1-5 Years
ME26	12	L	MFD- PS Maritime Division Operations Center Flood & Storm Precautions	x	x		x	Existing	\$1,900,000	Memphis Fire	x	x	x	x	685,000	1-5 Years
ME27	12	M	Audubon Park basin	x				Existing	\$100,000	Public Works	x	x	x	x	20,000	2-4 Years
ME28	12	M	South Cypress Creek flood control	x				Existing	\$500,000	Public Works	x	x	x		25,000	2-4 Years
ME29	12	M	Black Bayou flood control	x				Existing	\$750,000	Public Works	x	x	x		35,000	2-4 Years

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ME30	12	M	Huling Basin flood control	x				Existing	\$5,000,000	Public Works	x	x	x		40,000	1-3 years
ME31	12	M	Fontaine Basin flood control	x				Existing	\$2,500,000	Public Works	x	x	x		45,000	1-3 years
ME32	12	M	Fletcher Creek Basin flood control	x				Existing	\$5,000,000	Public Works	x	x	x		90,000	0-2 years
ME33	12	M	Massey Basin flood control	x				Existing	\$1,500,000	Public Works	x	x			30,000	1-5 Years
ME34	12	M	Sophia Bayou flood control	x				Existing	\$1,000,000	Public Works	x	x			30,000	1-5 Years
ME35	12	M	Gayoso Bayou Basin flood control	x				Existing	\$300,000	Public Works	x	x			70,000	1-5 Years
ME36	12	M	White Station Basin flood control	x				Existing	\$5,000,000	Public Works	x	x			45,000	1-5 Years
ME37	12	H	Promote Public Awareness And Education Programs Focusing On The Ability To Plan And Respond To A Catastrophic Earthquake.				x	Both	\$7,500,000	Memphis OEM	x	x			1,200,000	1-5 Years

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ME38	12	M	Royster Bayou Basin flood control	x				Existing	\$100,000	Public Works	x	x			20,000	1-5 Years
ME39	12	M	Quince Road flood control	x				Existing	\$120,000	Public Works	x	x			30,000	1-5 Years
ME40	12	M	Harrison Creek flood control	x				Existing	\$5,000,000	Public Works	x	x			45,000	1-5 Years
ME41	11	H	Seismic retro fit of City owned or operated buildings/structures/b ridges				x	Existing	\$20,000,000	Engineering	x	x	x	x	6,000	2-5 Years
ME42	11	L	Bellevue Solid Waste Transfer Facility				x	Existing	\$9,000,000	Public Works	x	x	x	x	325,000	1-5 Years
ME43	11	M	Memphis Fire Training Center and USAR Warehouse Flood Mitigation	x				Existing	\$3,000,000	Memphis Fire	x	x	x	x	685,000	1-5 Years
ME44	11	H	Sam Cooper Bridges from Holmes Road to I-40, Design & Construction				x	Existing	\$800,000	Engineering	x	x			150,000	1-5 Years
ME45	11	H	Seismically Retrofit 3 Water Treatment Plants				x	Existing	\$2,000,000	Engineering	x	x			300,000	1-5 Years
ME46	11	L	Drainage Manual Revisions					Existing		Public Works	x	x			900,000	1-5 Years

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ME47	10	L	Drainage Manual Revisions	x				Existing	\$1,000,000	Public Works	x	x	x	x	685,000	1-5 Years
ME48	10	L	Re-establish Roadway surface for proper drainage conveyance	x				Existing	\$5,000,000	Public Works	x	x	x	x	685,000	1-5 Years
ME49	10	H	Memphis Area Transit Authority (MATA)				x	New	\$65,022,899	MATA	x	x	x	x	1,000,000	1-5 Years
ME50	8	M	Multi-Purpose Facility (Coliseum)	x	x	x	x	Existing	\$500,000	Engineering	x	x	x	x	1,000,000	1-5 Years

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Arlington																
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
AR1	12	Low	Develop CERT Program	x	x	x	x	Both	\$2,500	Fire Chief				x	13,000	Annual
AR2	11	High	Drainage Improvements Quintard Street to Depot Square	x	x			Existing	\$80,000	Dir. Of Public Works	x	x	x	x	250 homes	2 yr
AR3	11	High	Drainage Improvements Walker Street to Depot Square	x	x			Existing	\$50,000	Dir. Of Public Works	x	x	x	x	250 homes	2 yr
AR4	11	High	Drainage Improvements Chester Street to Walker Street	x				Existing	\$45,000	Dir. Of Public Works	x	x	x	x	250 homes	2 yr
AR5	11	High	Drainage Improvements Campbell Street to Brown Street	x	x			Existing	\$100,000	Dir. Of Public Works	x	x	x	x	250 homes	2 yr

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AR6	11	Moderate	Equipment for Right of Way cleaning; Gradall	x	x		x	Both	\$265,000	Dir. Of Public Works	x	x		x	13,000	10 yr
AR7	11	High	Increase culvert Size on Highway 70. Possible State project	x				Existing	\$240,000	Dir. Of Public Works	x	x	x	x	250 homes	2 yr
AR8	11	High	Drainage Improvement on Airline Road near Otto Lane. Provide regional draining structure	x	x			Existing	\$30,000	Dir. Of Public Works	x	x	x	x	250 homes	2 yr
AR9	11	High	Drainage Improvements west of Airline Road in the Industrial Park	x	x			Existing	\$3,000,000	Dir. Of Public Works	x	x	x	x	250 homes	2 yr
AR10	10	Moderate	Provide increase in water service to Mary Alice subdivision		x		x	Existing	\$180,000	Dir. Of Public Works	x	x	x	x	25 homes	2 yr
AR11	9	High	Retrofit Town Hall for Earthquake					Existing	\$75,000	Town Administrator	x	x		x	50	5 yr
AR12	9	High	Retrofit Fire Station 1 for Earthquake				x	Existing	\$75,000	Fire Chief	x	x		x	50	5 yr
AR13	9	Moderate	Removal of unsafe buildings		x		x	Existing	\$350,000	Town Administrator	x	x		x	150	Annual

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Bartlett																
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
BA1	15	H	Backup generator for water plants	X	X		X	Existing	\$300,000	Public Works	x	x			60,000	3 years
BA2	15	H	Backup generator for High Service Pumps	X	X		X	Existing	\$100,000	Public Works	x	x			10,000	3 years
BA3	15	H	Backup generator for Solid Waste Complex and Fuel Pumps 5250 Shelter Run Lane	X	X		X	Existing	\$150,000	Public Works	x	x			60,000	3 years
BA4	15	M	Repetitive Loss Home Buyout	X				Existing	\$500,000	Planning and Economic Development	X		X		20	5 years

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BA5	15	L	Clear Row to prevent down trees in ice storm		X	X		Existing	\$500,000	Public Works				X	5,000	5 years
BA6	13	M	Backup generator for City Hall Annex 6382 Stage Rd.	X	X		X	Existing	\$100,000	Engineering	x	x			60,000	3 years
BA7	13	M	Backup generator for Public Works General Maintenance Building 3587 Altruria Road	X	X		X	Existing	\$150,000	Public Works	x	x			60,000	3 years
BA8	13	M	Mobile Command Center	X	X	X	X	New	\$400,000	Bartlett Fire	x	x			60,000	2 years
BA9	13	M	Bartlett Boulevard Detention Basin construction	X				New	\$500,000	Engineering	X		x		20,000	5 years
BA10	12	M	Civil Defense Sirens: upgrade, replace or new install		X			Both	\$100,000	Bartlett Fire	x	x			30,000	3 years
BA11	12	H	Retrofit Wells and Water Plant				X	Existing	\$100,000	Public Works	X	x			60,000	5 years
BA12	12	H	Training/Storage Building at Fire Training Facility for Training and safe storage of Disaster Preparedness equipment	X	X		X	Existing	\$500,000	Bartlett Fire	X	x			60,000	3 years

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BA13	12	H	Mitigate Flooding of Sub Bus etc.	X				Existing	\$1,000,000	Public Works	X		x		10,000	5 years
BA14	12	M	Fiske Detention Basin	X				Existing	\$250,000	Engineering	X		x		500	5 years
BA15	12	L	Yale Road and Bypass Channel construction	X				New	\$250,000	Engineering	X		x		25,000	5 years
BA16	11	M	Backup generator for Animal Shelter, 5220 Shelter Run Lane	X	X		X	Existing	\$125,000	Public Works	x	x			15,000	3 years
BA17	11	M	Easthill Detention Basin	X				New	\$400,000	Engineering	x		x		2,000	2 years
BA18	10	M	Prosperity Point Drainage Project	X				New	\$500,000	Engineering	x		x		20	2 years
BA19	10	H	Public Building Seismic Study				X	Existing	\$100,000	Engineering	x	x			60,000	5 years
BA20	10	M	Seismic Retrofit of Fire Stations				X	Existing	\$300,000 Each @ 5 Stations	Bartlett Fire	X	x			60,000	5 years
BA21	10	L	Reduce Heat Island Effect/Green Roof			X		Existing	\$500,000	Planning	X				5,000	5 years

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Collierville																
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
CO1	14	H	Downtown Drainage Basin	x				New	\$550,000	Collierville Division of Engineering	x	x	x		Over 450 Homes and businesses	1-2 years
CO2	13	M	Replacement emergency generator for Fire House #2	x	x	x	x	Existing	\$75,000	Collierville Fire Department	x	x			1 fire house continuation of services	3-5 Years
CO3	11	M	Review The Options To Raise Finished Floor Elevations In The Flood Plain	x				Existing	\$500,000	Collierville Division of Engineering	x			x	200	3-5 Years

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CO4	11	M	Review Ways To Retrofit Existing Structures/Infrastructure For Greater Resistance		x		x	Both	\$1,000,000	Collierville Division of Engineering	x	x		x	5,000	3-5 Years
CO5	11	H	Public outreach all hazards	X	X	X	X	Both	\$500	Collierville Fire Department				X	45,000	Annually

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Germantown																
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
GE1	15	H	English Meadows drainage improvement (phase 1)	x	x			Existing	\$900,000	Public Works	x			x	87	2 Years
GE2	15	H	Miller Farms Area drainage improvements (phase 1)	x	x			Existing	\$3,000,000	Public Works	x			x	200	2 Years
GE3	15	H	Wildwood Farms detention basin	x	x			Existing	\$1,000,000	Public Works	x		x	x	100	3 years
GE4	15	H	Stout road drainage and widening improvments	x	x			Existing	\$700,000	Public Works	x		x	x	41,000	4 Years
GE5	15	H	Miller Farms Area drainage improvements (phase 2)	x	x			Existing	\$3,000,000	Public Works	x		x	x	200	4 Years

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GE6	15	H	Miller Farms Area drainage improvements (phase 3)	x	x			Existing	\$3,000,000	Public Works	x		x	x	200	4 Years
GE7	15	H	McVay Bridge update				x	Both	\$3,000,000	Engineering	x			x	100,000	4 Years
GE8	14	M	Fire station 2 & 3 retrofits				x	Both	\$1,000,000	Germantown Fire	x				41,000	4 Years
GE9	14	M	Crestwyn area drainage improvements	x	x			Both	\$750,000	Public Works	x				15	3 years
GE10	11	L	Community safe room (Riverdale elementary)		x	x		New	\$900,000	Germantown City Schools	x				41,000	2 Years
GE11	10	L	Add more green space and tree space to existing parking lots			x		Existing	\$600,000	Public Works	x				41,000	4 Years
GE12	9	L	Add green roof to public building			x		New	\$1,000,000	Public Works	x				41,000	2 Years

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Lakeland																
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
LA1	13	H	Backup generator at city hall	X	X	X	X	Both	\$23,000	Engineering	X	X			12,605	1-3 years
LA2	13	H	Install backup generator for one lift station	X	X		X	Both	\$23,000	Engineering	X	X			12,605	1-3 years
LA3	13	H	Seismic evaluation and earthquake retrofit of city hall, if required				X	Both	\$300,000	Engineering	X	X			12,605	1-3 years
LA4	13	H	Seismic evaluation and earthquake retrofit of fire station, if required				X	Both	\$300,000	Engineering	X	X			12,605	1-3 years
LA5	13	H	Backup generator at fire station	X	X	X	X	Both	\$23,000	Engineering	X	X			12,605	1-3 years

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LA6	13	H	Install backup generator for Monroe LS#3	X	X		X	Both	\$23,000	Engineering	X	X			12,605	1-3 years
LA7	13	H	Rocky Branch Creek Regional Detention Facility, 9599 Blue Spruce Drive	X				Both	\$600,000	Engineering			X		12,605	1-3 years
LA8	13	H	Tornado Siren Upgrades and Additions		X			Both	\$10,000	Shelby County EMHS			X	X	12,606	1-3 years
LA9	12	H	Maintain sewer right of way and access road	X	X	X		Both	\$10,000	Water, Sewer, & Trash				X	12,605	Annually
LA10	12	H	Provide reinforced hallways in public buildings for tornados		X		X	Both	\$100,000	Engineering	X	X			12,605	1-3 years
LA11	12	H	Anchor bookcases and filing cabinets to walls in public buildings for earthquake mitigation				X	Both	\$5,000	Engineering	X	X			12,605	1-3 years
LA12	11	H	Clear stream crossing of tress/debris	X	X			Both	\$25,000	Engineering				X	12,605	Annually
LA13	11	M	Channel improvements	x				Existing	\$100,000	Engineering	x	x	x		12,605	2-3 Years

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Millington																	
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe	
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local			
MI1	15	H	Stabilization of Big Creek to prevent failure of CN Railroad and Raleigh-Millington bridges. Stabilization to prevent failure of levee control system	x				Existing	\$8,500,000	Engineering	x	x	x		47,000	24 months	
MI2	15	H	Big Creek Resiliency Project	x				Existing	\$40,000,000	Engineering	x		x	x	47,000	36 months	
MI3	13	H	Royster Creek bank and Shelby Rd. bridge stabilization	x				Existing	\$8,000,000	Engineering	x		x	x	47,000	24 months	
MI4	12	M	Generator for Emergency Operations Center	x	x	x	x	Existing	\$70,000	Millington Fire	x		x	x	12,000	2 months	

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MI5	13	H	Community Safe Room	x	x	x	x	New	\$1,000,000	Millington Fire	x		x	x	12,000	12 months
MI6	13	H	Navy Rd. drainage improvements	x				Existing	\$750,000	Engineering	x		x	x	47,000	24-36 months
MI7	14	H	Newport Channel improvements	x				Existing	\$250,000	Engineering	x		x	x	1,500	12-18 months
MI8	12	H	Sanitary System Repairs	x				Existing	\$50,000	Public Works	x		x	x	12,000	12-18 months
MI9	10	H	Public Works facility relocation	x	x	x	x	Existing	\$2,500,000	Public Works	x		x	x	12,000	24 months
MI10	12	H	Emergency Flood Relief Pumping Station	x				Existing	\$500,000	Public Works	x		x	x	10,200	2-3 Years
MI11	11	L	Local Underground Detention	x				Existing	\$225,000	Public Works	x		x	x	500	2-3 Years
MI12	13	H	Emergency Operations Center (EOC)	x	x	x	x	Existing	\$75,000	Millington Fire	x			x	10,200	2-3 Years
MI13	10	M	Emergency Warning Devices	x	x	x	x	Existing	\$50,000	Shelby County EMHS	x			x	3,000	2-3 Years

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MI14	10	L	Water Plant Seismic Retrofit				x	New	\$200,000	Engineering	x			x	10,200	2-3 Years
MI15	11	H	Regional Detention Pond	x				New	\$500,000	Public Works	x		x	x	3,500	2-3 Years

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Arlington Community Schools																
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
AS1	10	H	Safe Space with generator near Arlington Middle		x	x		Existing	\$1,600,000	School Superintendent	x	x		x	1,500	5 yr
AS2	10	H	Safe Space with generator near Donelson Elementary		x	x		Existing	\$1,600,000	School Superintendent	x	x		x	1,500	5 yr
AS3	10	H	Bi-Directional Amplifier for Arlington Elementary School	x	x	x	x	New	\$125,000	School Superintendent	x			x	1,000	4 yr
AS4	10	H	Bi-Directional Amplifier for Arlington Middle School	x	x	x	x	New	\$125,000	School Superintendent	x			x	1,000	4 yr
AS5	10	H	Bi-Directional Amplifier for Donelson Elementary School	x	x	x	x	New	\$125,000	School Superintendent	x			x	1,000	4 yr

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AS6	10	H	Bi-Directional Amplifier for Arlington Highy School	x	x	x	x	New	\$125,000	School Superintend ent	x			x	1,500	4 yr
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Bartlett City Schools																
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
BS1	12	M	Generator @ Oak Elementary and Update Sprinkler System		x	x	x	E	\$130,000	Operations Department		x			1,000	1-3yrs
BS2	12	M	Generator @ Bartlett Elementary		x	x	x	E	\$50,000	Operations Department		x			1,000	1-3 yrs
BS3	12	M	Generator @ Ellendale Elementary and Update Sprinkler System		x	x	x	E	\$130,000	Operations Department		x			850	3-5 yrs
BS4	12	M	Update sprinkler system @ Altruria Elementary		x	x	x	E	\$80,000	Operations Department		x			1,000	3-5 yrs

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Collierville Schools																
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
CS1	15	High	Communication for staff, students, and stakeholders in emergency situations in all buildings through 2 way radio systems.	X	X	X	X	Both	\$65,000	Operations				x	10,000	2 years
CS2	15	High	Upgrade emergency notification system for external communication	X	X	X	X	Both	\$50,000	Operations				X	10,000	2 Years

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Lakeland School System																
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
LS1	13	High	Backup generatory at Lakeland Elementary School	X	X	X	X	Both	\$23,000	School Superintendent	X	X			1,900	1-3 years
LS2	13	High	Backup generator at Lakeland Preparatory School	X	X	X	X	Both	\$23,000	School Superintendent	X	X			1,900	1-3 years
LS3	12	High	Tornado proof safe room at Lakeland Elementary School		X			Both	\$5,000,000	School Superintendent	x	x			1,900	1-3 years
LS4	12	High	Tornado proof safe room at Lakeland Preparatory School		X			Both	\$5,000,000	School Superintendent	x	x			1,900	1-3 years

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**Millington Municipal Schools rated flooding as a medium threat due to the drainage problems at EA Harrold Elementary, as well as the threat to bus route interruptions. There is no other direct threat to school-owned infrastructure from flooding.

Millington Municipal Schools																
Project Number	Priority Score	Jurisdiction Priority Rank (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
MS1	14	High	E.A. Harrold Elementary School drainage project to prevent building from flooding in heavy rains	x				Existing	\$850,000	Operations	x		x	x	1,500	24-36 months
MS2	12	High	Millington Central High School Stadium Press Box Project, structural upgrade project				x	Existing	\$250,000	Operations	x		x	x	2,600	24-36 months
MS3	13	High	Millington Elementary School severe storm tornado shelter project		x	x		Existing	\$700,000	Operations	x		x	x	1,000	24-36 months

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MS4	13	High	Millington middle school severe storm tornado project		x	x		Existing	\$700,000	Operations	x		x	x	1,000	24-36 months
MS5	12	Medium	Structural upgrades for seismic and severe storm at Millington High School, Performing Arts Center, Gymnasium, and Athletic Facilities		x		X	Existing	\$7,500	Operations				X	1,000	24-36 Months

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Shelby County Schools																
Project Number	Priority Score (Lowest Priority, Low)	Risk Level (High, Medium, Low)	Action/Project	Hazard Mitigated				Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Funding Sources				Population Affected	Timeframe
				Flood	Severe Storm	Extreme Temperature	Earthquake				HMGP	BRIC	FMA	Local		
SS1	13	Low	Cummings K-8 Gym/ Safe Building		X	X	X	Existing	\$3.5 Million	Director of Construction		X		X	627	2 years
SS2	13	Low	Kingsbury HS Gym/ Safe Building		X	X	X	Existing	\$4.5 Million	Director of Construction		X		X	1,457	5 years
SS3	13	Low	Grahamwood ES Gym/ Safe Building		X	X	X	Existing	\$3.5 Million	Director of Construction		X		X	1,095	5 years
SS4	13	Low	Downtown ES Classroom Addition		X	X	X	Existing	\$3.3 Million	Director of Construction		X		X	665	5 years

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SS5	13	Low	Richland ES Gym/ Safe Building		X	X	X	Existing	\$3.5 Million	Director of Constructio n		X		X	906	5 years
SS6	13	Low	Delano ES Gym/ Safe Building		X	X	X	Existing	\$3.5 Million	Director of Constructio n		X		X	341	5 years
SS7	12	Low	Germantown ES Classroom Addition		X	X	X	Existing	\$4.0 Million	Director of Constructio n		X		X	748	2 years
SS8	12	Low	Willow Oaks ES Classroom Addition		X	X	X	Existing	\$3.5 Million	Director of Constructio n		X		X	799	5 years
SS9	12	Low	Brownsville Road ES Classroom Addition		X	X	X	Existing	\$3.3 Million	Director of Constructio n		X		X	653	5 years
SS10	12	Low	La Rose ES Classroom Addition		X	X	X	Existing	\$3.3 Million	Director of Constructio n		X		X	412	5 years
SS11	12	Low	Grandview Heights MS Classroom Addition		X	X	X	Existing	\$3.3 Million	Director of Constructio n		X		X	547	5 years
SS12	12	Low	Lucie Campbell ES Classroom Addition		X	X	X	Existing	\$3.3 Million	Director of Constructio n		X		X	675	5 years
SS13	12	Low	Snowden K-8 Classroom Addition		X	X	X	Existing	\$3.3 Million	Director of Constructio n		X		X	1,482	5 years

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SS14	12	Low	White Station HS Classroom Addition		X	X	X	Existing	\$3.3 Million	Director of Construction		X		X	2,305	5 years
SS15	12	Low	Whitehaven ES Classroom Addition		X	X	X	Existing	\$3.3 Million	Director of Construction		X		X	559	5 years
SS16	12	Low	Ross ES Classroom Addition		X	X	X	Existing	\$3.3 Million	Director of Construction		X		X	869	5 years
SS17	12	Low	Shelby Oaks ES Classroom Addition		X	X	X	Existing	\$3.3 Million	Director of Construction		X		X	1,024	5 Years
SS18	12	Low	Macon Hall ES Classroom Addition		X	X	X	Existing	\$3.3 Million	Director of Construction		X		X	1,269	5 Years

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Project List Update

The following chart shows the status of each approach/project from the previous plan:

Action/Project	Project Status
Dispatch Relocation	Complete
Public Works Emergency Response Building	Complete
Emergency Operations Center (EOC)	Carried Forward
Replace Generators	Carried Forward
800 Mgz Radio System	Complete - system upgraded county wide
Emergency Warning Devices	Carried Forward
Public Works Relocation	Carried Forward
Safe Rooms	Carried Forward
Update EOP	Complete
"Create New EOP RFP for Basic Plan"	Complete
"Create New Hazmat Plan	Ongoing
Reviewing All Projects For Cost/Benefit Analysis And Update Hazmat Plan By Mid-2014	Ongoing
"	Ongoing
Update Crisis Mgmt Plan	Complete
Purchase Substantial Damage Estimator & Command Pro Incident Mgmt Software	Complete
Update Hazmat Plan	Carried Forward
Sam Cooper Bridges from Holmes Road to I-40, Design & Construction	Carried Forward
Fire Station retrofit	Carried Forward
Bridge Upgrade	Carried Forward-remove
Develop Multijurisdictional Comprehensive Earthquake Hazard Management Plan	Carried Forward
Fire Station Retrofits	Complete
Bridge Upgrade	Delete
Water Plant Seismic Retrofit	Carried Forward
75,000 and 500,000 Gallon Water Tank Upgrades	Complete
Consider adopting IBC 2003 Code with more strict seismic criteria. All public buildings would be designed accordingly.	Complete
Revise emergency response routes incorporating bridges which have been replaced or retrofitted since the previous routes established in 1991	Carried Forward
Promote Public Awareness And Education Programs Focusing On The Ability To Plan And Respond To A Catastrophic Earthquake.	Carried Forward
Seismically Retrofit 3 Water Treatment Plants	Carried Forward
Amend Zoning Ordinance To Reflect High Levels Of Seismic Standards	Complete
Seismic Retrofit Bridges - Upgrade at-risk structures	Carried Forward
Seismic Retrofit Fire station - Upgrade at-risk buildings and install emergency generators	Carried Forward
Emergency Portable Generator - Purchase an emergency portable generator to operate sewer lift stations during extended power outages	Carried Forward

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Bonus and Incentive Zoning - Install a system allowing developers to exceed limitations of current regulations, such as density or building height, in return for specific concessions	Carried Forward
Small Business Audits - Perform structural inspections of heavy impact/high risk businesses in Shelby County	Carried Forward
Mapping Hazards - Identify and graph areas with high liquefaction/damage potential	Pending
Dams and Reservoirs - Retrofit dam and levee structures on Mary's creek	Complete
Education and Training - Train code enforcement, law enforcement, disaster responders and citizens in earthquake response. Develop a community awareness program	Carried Forward
"Earthquake Vulnerability Assessment for Shelby County Buildings and Critical Elements of Infrastructure"	Carried Forward
Review Ways To Retrofit Existing Structures/Infrastructure For Greater Resistance	Carried Forward
Emergency Flood Relief Pumping Station	Ongoing
Stream Restoration	Ongoing
English Meadows Drainage Improvements (Phase II)	Complete
Lateral J (Queen Oaks Ditch)	Complete
Channel Improvements - Hayes Road	Complete
Dams and Reservoirs	Complete
Miller Farms Area Drainage Improvements (Phase II)	Delete
Alcorn Village (Concrete Channel)	Complete
Channel Improvements	Carried Forward
Culvert Replacement - Highway 70	Complete
Regional Detention Pond	Carried Forward
Downtown Drainage Basin	Ongoing
Shady Creek Weir	Complete
Crestwyn Area Drainage Improvements	Carried Forward
Wildwood Farms Detention Basin	Complete
Alcorn Village (Detention Area)	Complete
Massey Basin	Carried Forward
Detention Ponds (Davies area/Harrington Creek)	Complete
Royster Bayou Basin	Carried Forward
Sanitary Sewer System Repairs	Carried Forward
South Rex Road	Complete
Massey Basin	Ongoing
Bank Stabilization and Channel Improvements	Carried Forward
Audubon Park Basin	Ongoing
Quince Road	Carried Forward
South Cypress Creek	Ongoing
Sophia Bayou	Ongoing
Newport Channel Improvements	Complete
Gayoso Bayou Basin	Ongoing
Black Bayou	Ongoing
Huling Basin	Ongoing
Fontaine Basin	Ongoing
Harrison Creek	Carried Forward
White Station Basin	Ongoing
Re-establish Roadway Surface Drainage	Carried Forward
Fletcher Creek Basin	Ongoing
Increase Drain Maintenance Inspections	Carried Forward
Navy Road Drainage Improvements	Ongoing
Local Underground Detention	Ongoing
Upper Newport Channel Improvements	Ongoing
Drainage Manual Revisions	Carried Forward

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Bartlett Blvd Rd Slope Failure	Complete
Alleviate Yard & Road Flooding On Cedar Rd.	Complete
Prevent Outbuilding Flooding On Elmore Park @ 2600 Block.	Complete
Prevent Garage Flooding Oak Forrest Dr	Scrap
Prevent Yard Flooding Broadway @ 3200 Block	Complete
Prevent House Flooding On Coral Hill Cove	Ongoing
Replacement Of Shady Creek Weir	Complete
2 Property Buyouts, 2 Houses Contracted To buyout (Honeybrook, Princeton)	Ongoing
Apply For Buyout Program For 7 Units Along Barr Av.	Carried Forward
Nonconnah Floodplain	Carried Forward
Big Creek Basin Stabilization	Carried Forward
"Buyout & Demo Kerrville-Rosemark Property	
"	Complete
Build Regional Detention Basin @ Woodland Hills	Complete
Review The Options To Raise Finished Floor Elevations In The Flood Plain	Ongoing
Widening of Big Creek Floodplain - Design and construct overflow floodplain areas for the Big Creek Drainage canal between Singleton Parkway and Highway 51	Ongoing
Dredge Behind Levee of Dam #5 - Remove siltation deposits to increase capacity and clear wooded area to improve flow	Ongoing
Dams and Reservoirs - Purchase agricultural and vacant properties in flood zones and construct levees to store flood waters	Ongoing
Raise and Seal Sewer Manholes - Elevate and flood proof sewer manholes that are located in low lying flood plains and ditches	Ongoing
Raise Roadbed Elevations - Elevate roadways that frequently are crossed by flood waters.	Ongoing
Stream Restoration - Purchase property and redirect channelized streams to restore them with USCOE projects meandering and flood stage protection	Ongoing
Purchase Streambank Easements - Purchase easements on high flow at risk streambeds to allow the County the rights to clear and maintain debris which causes flooding	Ongoing
Storm Drain System Management - Clean culverts and remove debris from the storm water collection system	Ongoing
Streambank Protection - Install weirs inside channels to prevent future bank erosion and scour from head-cutting	Ongoing
Drainage system upgrade - Design and install larger or parallel drainage pipe in locations that bottleneck and cause upstream flooding	Ongoing
Advance Acquisition and Land Banking - Purchase and reserve properties within the Floodway and other developable land that would impact downstream development	Ongoing
Flood Protection - Flood proof high-risk and repeat structures	Ongoing
Property Protection Regulation - Perform comprehensive review of subdivision regulations and developer fee structure to discourage/provide incentive for development that increases/decreases storm water runoff and flooding potential	Ongoing
Green Infrastructure - Install regional green infrastructure projects in locations with large flow generators or conveyances	Ongoing
Porous Pavement - Design and install porous pavement systems for County buildings and projects	Ongoing
Storm Water Basin - Design and install a regional storm water detention basin	Ongoing

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Mapping Hazards - Produce highly accurate storm drainage system information	Ongoing
Education and Training - Develop and distribute educational materials to high risk residents, as well as, conduct informational meetings	Ongoing
Airways Bridge over Nonconnah Creek, Construction Only	Completed
Bartlett Road and Shelby Oaks over Fletcher Creek, Construction Only	Ongoing
Raleigh-Millington Bridge over Loosahatchie, Construction Only	Complete
N Watkins Over N. Cypress Creek Scheduled To Be Replaced In Next 5-10 Years	Carried Forward
Home Inspection Program - Complete hazard susceptibility checklists to offer personalized vulnerability assessments	Carried Forward
Community Awareness Program - Develop real estate disclosure information and educate homebuyers and the general public of hazard risks	Carried Forward
Education and Training - Generate awareness of hazards, mitigation steps and disaster response for Shelby County employee	Carried Forward
Traffic Lights and other Traffic Controls - Protect traffic lights and other traffic controls. Install resilient street signs for navigation in an emergency	Carried Forward
Vegetation - Identify locations for and install dense vegetative strips or buffers or reestablishment of removed vegetation	Carried Forward
Wind Proofing - Modify at-risk structures to be able to withstand high winds and tornados	Carried Forward
Tie-Down Program - Mandate and retrofit propane tank tie-downs and mobile homes	Carried Forward
Protect water supply - Install shut-off valves and emergency connector hoses where water meters connect	Carried Forward
Utility Line Relocation - Bury electric, telephone and cable lines and/or reinforce the connections on existing utility lines	Carried Forward
Tree Limb Removal Program - Develop and enact project to clear tree limbs in the right-of-way and threatening utility lines	Carried Forward
Additional Sirens (Davies/Wolfchase Farms)	Complete
3 Community Safe Rooms	1 Complete-
Traffic Lights/Traffic Control	Carried Forward
Community Awareness Program	Carried Forward
Stationary Generators	Carried Forward
Convert All Sirens To Solar Power	Complete
New Sirens Lambuth Campus	Complete
Community Safe Rooms - Build shelter areas at key locations throughout Shelby County to allow residents a place to go in freezing, high-heat and high-wind situations	Carried Forward
Electrical Backup Generator @ City Hall	Carried Forward
Sewage Lift Station Backup Generator	Carried Forward
Community Safe Room (Riverdale Elementary-7931 Miller Farms Road)	Carried Forward
Community Safe Room	Complete
Tree Limb Removal Program	Carried Forward
Community Safe Room	Ongoing
E.A. Harrold Elementary School drainage project to prevent building from flooding in heavy rains	Carried Forward

The following definitions apply to the status as listed in the above chart:

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- Completed-All work on the project complete
- Carried Forward-Project was not funded from the previous plan, and has been added to the new project list
- Deleted-Project has been deemed unqualified, unnecessary, or infeasible

National Flood Insurance Program Compliance

The National Flood Insurance Program (NFIP) is a pre-disaster flood hazard mitigation and insurance protection program which has reduced the increasing cost of disasters. The intent of the program is to: require new and substantially improved structures be designed and constructed to minimize or eliminate future flood damage; provide floodplain residents and business owners with financial insurance assistance in the form of insurance after floods; and it transfers most of the cost of private property flood losses from the taxpayers to floodplain property owners through flood insurance premiums. Participation in the NFIP is based on an agreement between communities and FEMA.

Currently, all jurisdictions are NFIP participants. None of the school systems are NFIP participants as it is not required. FEMA has listed these jurisdictions to have a current effective map date as of 2/2013. Below are three charts that give an overview of NFIP policy and loss data for Shelby County. This data represents the most recent data available to the State of Tennessee regarding NFIP policy and loss data.

NFIP Policy Data for Shelby County			
Jurisdiction	Policies In-Force	Insurance In-Force Whole \$	Written Premium In-Force
Shelby County	508	\$148,04,000	\$310,607
Memphis	1,264	\$386,061,600	\$910,260
Arlington	81	\$26,907,400	\$48,466
Bartlett	234	\$67,168,300	\$132,784
Collierville	387	\$126,568,000	\$212,142
Germantown	654	\$209,588,000	\$357,539
Lakeland	56	\$17,321,000	\$30,452
Millington	129	\$31,729,600	\$81,783

Policies In-force: number of NFIP flood insurance policies

Insurance In-force whole \$: value of building and contents insured by the NFIP

Written Premium In-force: total premiums paid for NFIP insurance policies

Section 4: Mitigation Strategy

NFIP Loss Data for Shelby County		
Jurisdiction	Total Claims	Total Payments
Shelby County	166	\$5,001,589
Memphis	515	\$9,513,520
Arlington	9	\$367,060
Bartlett	75	\$1,446,234
Collierville	33	\$766,347
Germantown	62	\$1,836,103
Lakeland	10	\$320,553
Millington	79	\$3,401,255

Total Losses: number of flood insurance claims filled by policyholders

Closed Losses: number of flood insurance claims paid to policyholders

CWOP Losses: claims that were "closed without payment"

Total Payments: total dollars paid to policyholders

Repetitive Loss/Severe Repetitive Loss Properties				
Location	Dwelling Type	Flood Zone	Total Losses	Total Payout
ARLINGTON	OTHR-NONRES	X	2	\$106,455
BARTLETT	SINGLE FMLY	AE	2	\$78,917
MEMPHIS	SINGLE FMLY	EMG	3	\$18,191
BARTLETT	2-4 FAMILY	EMG	2	\$7,439
BARTLETT	SINGLE FMLY	X	2	\$22,031
BARTLETT	SINGLE FMLY	X	2	\$22,350
MEMPHIS	2-4 FAMILY	X	3	\$92,230
BARTLETT	SINGLE FMLY	AE	2	\$69,096
BARTLETT	SINGLE FMLY	X	2	\$137,813
BARTLETT	SINGLE FMLY	A	3	\$12,133
BARTLETT	SINGLE FMLY	AE	3	\$72,266
COLLIERVILLE	SINGLE FMLY	AE	3	\$23,746
COLLIERVILLE	2-4 FAMILY	A02	2	\$11,921
COLLIERVILLE	2-4 FAMILY	A02	2	\$12,012
GERMANTOWN	SINGLE FMLY	A04	3	\$10,433
GERMANTOWN	SINGLE FMLY	X	2	\$56,997
GERMANTOWN	SINGLE FMLY	X	2	\$23,933
GERMANTOWN	SINGLE FMLY	B	4	\$140,203
BARTLETT	SINGLE FMLY	EMG	2	\$7,174
MEMPHIS	SINGLE FMLY	X	2	\$27,684
MEMPHIS	SINGLE FMLY	AE	3	\$33,485
MEMPHIS	SINGLE FMLY	X	5	\$104,262
MEMPHIS	SINGLE FMLY	EMG	3	\$44,764
MEMPHIS	SINGLE FMLY	X	3	\$96,007
MEMPHIS	SINGLE FMLY	EMG	2	\$12,335
MEMPHIS	OTHER RESID	X	2	\$239,716
MEMPHIS	OTHER RESID	X	2	\$223,723
MEMPHIS	OTHER RESID	X	2	\$336,638
MILLINGTON	SINGLE FMLY	A	3	\$135,883
MEMPHIS	OTHR-NONRES	X	2	\$358,947
MEMPHIS	SINGLE FMLY	EMG	2	\$2,974

Section 4: Mitigation Strategy

MEMPHIS	SINGLE FMLY	EMG	3	\$14,519
MEMPHIS	SINGLE FMLY	X	3	\$27,391
MEMPHIS	SINGLE FMLY	X	3	\$137,743
MEMPHIS	OTHR-NONRES	X	2	\$92,144
MEMPHIS	2-4 FAMILY	A	2	\$10,094
MEMPHIS	OTHR-NONRES	A	4	\$6,227
MEMPHIS	SINGLE FMLY	EMG	2	\$4,852
MEMPHIS	SINGLE FMLY	EMG	3	\$13,872
MEMPHIS	OTHR-NONRES	EMG	3	\$10,622
MEMPHIS	SINGLE FMLY	X	6	\$105,083
MEMPHIS	SINGLE FMLY	X	2	\$142,111
MEMPHIS	SINGLE FMLY	AE	3	\$10,515
MEMPHIS	SINGLE FMLY	EMG	3	\$7,120
MEMPHIS	SINGLE FMLY	X	4	\$68,154
MEMPHIS	SINGLE FMLY	EMG	2	\$8,769
MEMPHIS	SINGLE FMLY	X	2	\$35,994
MEMPHIS	SINGLE FMLY	X	2	\$11,041
MEMPHIS	SINGLE FMLY	X	2	\$27,283
MEMPHIS	OTHER RESID	X	2	\$203,706
MEMPHIS	SINGLE FMLY	X	3	\$11,780
MEMPHIS	SINGLE FMLY	X	2	\$57,852
MEMPHIS	OTHR-NONRES	AE	3	\$590,359
MEMPHIS	SINGLE FMLY	X	2	\$88,432
MEMPHIS	SINGLE FMLY	X	2	\$103,420
MEMPHIS	SINGLE FMLY	X	2	\$12,358
MEMPHIS	2-4 FAMILY	A	2	\$8,221
MEMPHIS	2-4 FAMILY	A	3	\$10,160
MEMPHIS	2-4 FAMILY	A	3	\$10,452
MEMPHIS	2-4 FAMILY	A	3	\$10,245
MEMPHIS	2-4 FAMILY	A	4	\$12,584
MEMPHIS	2-4 FAMILY	A	4	\$12,049
MEMPHIS	2-4 FAMILY	A	6	\$14,662
MEMPHIS	2-4 FAMILY	A	4	\$12,754
MEMPHIS	2-4 FAMILY	A	4	\$12,408
MEMPHIS	2-4 FAMILY	A	3	\$11,036
MEMPHIS	SINGLE FMLY	EMG	3	\$24,328
MEMPHIS	SINGLE FMLY	C	2	\$64,074
MEMPHIS	SINGLE FMLY	EMG	5	\$18,162
MEMPHIS	SINGLE FMLY	X	2	\$23,564
CORDOVA	OTHR-NONRES	X	2	\$634,551
MEMPHIS	SINGLE FMLY	X	2	\$5,057
MEMPHIS	OTHR-NONRES	X	2	\$32,853
MEMPHIS	SINGLE FMLY	A	3	\$9,873
MEMPHIS	2-4 FAMILY	A	5	\$13,476
NASHVILLE	SINGLE FMLY	A	2	\$4,861
MILLINGTON	SINGLE FMLY	X	2	\$11,065
MILLINGTON	SINGLE FMLY	X	2	\$18,499
MILLINGTON	SINGLE FMLY	X	3	\$66,566
MEMPHIS	ASSMD CONDO	C	6	\$237,453
MEMPHIS	SINGLE FMLY	X	2	\$6,112
MEMPHIS	SINGLE FMLY	X	2	\$29,185

Section 4: Mitigation Strategy

GERMANTOWN	SINGLE FMLY	X	2	\$9,818
MEMPHIS	SINGLE FMLY	X	5	\$62,955
MILLINGTON	SINGLE FMLY	X	5	\$302,482
MILLINGTON	SINGLE FMLY	X	2	\$247,630
ARLINGTON	SINGLE FMLY	C	3	\$155,442
MILLINGTON	SINGLE FMLY	AE	2	\$54,678
MILLINGTON	SINGLE FMLY	AE	3	\$9,908
MILLINGTON	SINGLE FMLY	X	5	\$175,937
MILLINGTON	SINGLE FMLY	B	4	\$104,767

To continue compliance with the NFIP, the jurisdictions have identified, analyzed, and prioritized three mitigation strategies to stay active with the program.

1. Continue to evaluate improved standards that are proven to reduce flood damage.
2. Maintaining supplies of FEMA/NFIP materials to help homeowners evaluate measures to reduce damage.
3. Maintaining a map of areas that flood frequently and prioritizing those areas for inspection immediately following heavy rains or flooding event.
4. Develop GIS system that will assist in flooding preparedness.

Section 5: Plan Maintenance

Monitoring, Evaluating, and Updating

The Shelby County Hazard Mitigation Committee is designated to monitor and evaluate the mitigation plan. This committee is chaired by Shelby County Emergency Management Agency who leads the monitoring, evaluating, and updating process.

Monitoring of the previous mitigation plan, progress and projects occurred informally over the life-cycle of the previous plan.

Monitoring activities will involve Shelby County Emergency Management Agency setting up a committee meeting to be held on a quarterly basis in conjunction with the Local Emergency Planning Committee meetings. Shelby County Emergency Management Agency will prepare a brief annual report of the meeting's findings by addressing mitigation progress and shortfalls within the county.

The plan is to be evaluated annually and after any significant disaster causing human, infrastructure, and property losses. Following each annual informal evaluation of the plan by emergency management staff, any proposed revisions or recommendations will be brought before the Mitigation Committee to be incorporated into the plan. Potential updates to the plan will address changes to the hazard assessment, the repetitive loss list, the committee membership list, and the project priority list.

The plan will be formally updated every five-years in accordance to 44 CFR 201.6(d)3, which states that the plan shall be reviewed, revised, and resubmitted for approval within five-years to continue eligibility for hazard mitigation grant funding. For the five-year update, Shelby County Emergency Management Agency will notify the jurisdictional governments and the Shelby County Hazard Mitigation Committee approximately one year prior to the plan's expiration date. The review of the plan will include updating the planning process, the County profile, the hazard profiles, the risk assessment, the vulnerability assessment, the mitigation strategies, and the plan maintenance descriptions.

The five-year plan update will also include soliciting other interested persons/agencies to join the Mitigation Committee and a review of what has been accomplished in the past 5 years. The Shelby County Hazard Mitigation Committee's goal is to have at least 5 meetings within this time span; dates, public notices, and objectives for these meetings will be determined by Shelby County Emergency Management Agency.

Five months prior to the plan's expiration date, Shelby County Emergency Management Agency will submit the revised plan to the Tennessee Emergency Management Agency for preliminary review. Upon approval by the state, TEMA will submit the updated plan to FEMA for review.

Once Shelby County has attained the designation of the plan's approval pending adoption, each jurisdiction will adopt the plan through a resolution within a year.

Incorporation into Planning Cycle

In the previous planning cycle, Shelby County and its jurisdictions/school districts did not have a systematic process for incorporating mitigation into other planning mechanisms, and instead left it up to individual entities and agencies to review and incorporate as necessary.

By incorporating the Shelby County Hazard Mitigation Plan into the planning cycle, information contained in the mitigation plan can help fill-in missing gaps in existing documents, can contribute to already existing mitigation -based projects, and can create a strengthen stance of mitigation implementation and awareness within the county and its jurisdictions.

Some of the mechanisms that the Shelby County Hazard Mitigation Plan could be incorporated into include:

- Shelby County BEOP
- Shelby County Schools Emergency Plans
- Shelby County Highway Department Plan
- County & Jurisdictional Public Works Development Plans
- County & Jurisdictional Fire Department 5 Year Plans
- Jurisdictional Plans, SOP's, & SOG's

The process of incorporating the hazard mitigation plan into other plans will begin during the other plan's update cycles. All jurisdictions will first review the plans side-by- side to make applicable notes on how mitigation concepts and actions can be incorporated into the other plans. These recommendations will be submitted to the lead agencies of the other planning mechanisms for them to place relevant information within the documents.

Continued Public Participation

The Shelby County Mitigation Committee will strive to involve the public in future mitigation activities. This will be accomplished by continuing to post Mitigation Committee Meeting dates in the local newspaper, by attempting to have a public mitigation meeting once a year, by providing public access to copies of the Shelby County Hazard Mitigation Plan in the local emergency management office, and by soliciting other interested persons to participate in the mitigation planning process. By implementing these methods, the public will have an opportunity to comment on the plan during the update drafting stage and prior to plan approval.

Appendix 1

Attendance Sheet – Committee Meeting #1

August 26, 2020 from Shannon Towery to everyone: 9:33 AM testing chat- hello

August 26, 2020 from Shannon Towery to everyone: 9:44 AM are you angry at the keyboard?

August 26, 2020 from Brandon Carpenter to everyone: 9:55 AM Brandon Carpenter

August 26, 2020 from Greg Waymon to everyone: 9:56 AM Greg Waymon, Planning, Memphis Fire Office of Emergency Management

August 26, 2020 from Shannon Towery to everyone: 9:56 AM Shannon Towery- Shelby County Emergency Management and Homeland Sec,, Planning Coordinator

August 26, 2020 from Brandon Carpenter to everyone: 9:56 AM Brandon Carpenter, Planning, Memphis Office of Emergency Management

August 26, 2020 from Brent Phillips to everyone: 9:56 AM When you type in your name, please also include your official title and department/jurisdiction/district. Thank you!

August 26, 2020 from Glen F. Kneeland to everyone: 9:56 AM Glen Kneeland-Shelby County Fire Deputy Chief

August 26, 2020 from Jane Waldrop to everyone: 9:57 AM Jane Waldrop TEMA West Regional Director

August 26, 2020 from LaTonya McGowan to everyone: 9:58 AM LaTonya McGowan , Emergency Management Specialist, Shelby County Schools

August 26, 2020 from Quentin Reed to everyone: 9:59 AM SCS Emergency Management - Special Project Assistant

August 26, 2020 from Robert Rehkopf to everyone: 9:59 AM Robert Rehkopf consultant City of memphis

August 26, 2020 from Dennis Wolf to everyone: 10:01 AM Dennis Wolf, Fire Management Consultant, Lakeland

August 26, 2020 from Cliff Norville to everyone: 10:01 AM Cliff Norville, Shelby County Public Works Director

August 26, 2020 from Gary Graves (privately): 10:01 AM Gary Graves; City of Millington

August 26, 2020 from tbierdz to everyone: 10:01 AM Tim Bierdz - Stormwater Engineer City of Germantown

August 26, 2020 from Gary Graves to everyone: 10:02 AM Gary Graves; Public Safety Director; City of Millington

August 26, 2020 from Nancy Kelley (privately): 10:02 AM Nancy Kelley, Collierville Schools

August 26, 2020 from Jimmy Tuggers to everyone: 10:05 AM Jimmy Tuggers- Shelby County Schools Emergency Management

August 26, 2020 from Cliff Norville to everyone: 10:09 AM I am unable to unmute my mic to ask questions

August 26, 2020 from Robert Rehkopf to everyone: 10:15 AM I lost audio.

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Attachment: Shelby County Hazard Mitigation Plan 2021- Approved (2018-21, to adopt Hazards Mitigation Plan)

August 26, 2020 from laTonya McGowan to everyone: 10:16 AM Will this powerpoint be emailed to participants

August 26, 2020 from Brent Phillips to everyone: 10:16 AM Yes.

August 26, 2020 from Gary Rikard to everyone: 10:16 AM Gary Rikard/Security Manager/Bartlett City Schools

August 26, 2020 from Cliff Norville to everyone: 10:17 AM FYI...the slides are approximately 30 seconds behind your speech.

August 26, 2020 from Robert Rehkopf to everyone: 10:22 AM How much allowed to TN, audio was off

August 26, 2020 from chris.masin to everyone: 10:24 AM Is the decicson of what projects get funded for a BRIC done by the state or national?

August 26, 2020 from Robert Rehkopf to everyone: 10:28 AM no audio again

August 26, 2020 from Shelby County - EOC to everyone: 10:31 AM Misty Haley Emergency Operations Manager Shelby County EMHS

August 26, 2020 from James Harvill to everyone: 10:40 AM James Harvill-Fire Chief Arlington Fire Department

August 26, 2020 from Robert Rehkopf to everyone: 10:42 AM Freeboard requirement for essential structures and land protected by levees?

August 26, 2020 from tkelley (privately): 10:47 AM Chief of Operations Collierville Fire Department / Emergency Mgt. Coordinator

August 26, 2020 from Jared.Darby to everyone: 10:48 AM Shannon, I would like that earthquake study please

August 26, 2020 from Shannon Towery to everyone: 10:48 AM Will do

August 26, 2020 from Nancy Kelley (privately): 10:56 AM Brent, can you say that one more time for the schools and sorry - maybe the last part...owning versus something

August 26, 2020 from Nancy Kelley (privately): 10:58 AM gotcha

August 26, 2020 from Brandon Carpenter to everyone: 10:58 AM Mr. Rehkopf, can you please contact me at 901-208-0386, Thanks.

August 26, 2020 from Robert Rehkopf to everyone: 10:59 AM Yes

August 26, 2020 from James Harvill to everyone: 11:00 AM I will need to get with our planning department to get more exacting information for the Growth Trends portion of the form.

August 26, 2020 from Jared.Darby to everyone: 11:01 AM Jared Darby

August 26, 2020 from Quentin Reed to everyone: 11:02 AM Quentin Reed, SCS Emergency Management - Special Project Assistant

August 26, 2020 from Jared.Darby to everyone: 11:02 AM Jared Darby, Senior Manager, Shelby County, Office of Resilience and Sustainability

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August 26, 2020 from Rick.Stieg to everyone: 11:02 AM Rick Stieg, GIS Administrator

August 26, 2020 from Gary Patterson to everyone: 11:02 AM Gary Patterson,

August 26, 2020 from Manny Belen to everyone: 11:02 AM Manny Belen, City Engineer - City of Memphis

August 26, 2020 from Gary Patterson to everyone: 11:02 AM Gary Patterson

August 26, 2020 from tkelley (privately): 11:02 AM Brent, Sorry I forgot my name, Tommy Kelley Collierville Fire Department Chief of Operations / Emergency Mgt. Coordinator for Collierville

August 26, 2020 from Robin Berzins to everyone: 11:02 AM Robin Berzins, FEMA R-IV, TN FIT

August 26, 2020 from John Fox to everyone: 11:02 AM John Fox, Public Works Manager, Town of Collierville

August 26, 2020 from chris.masin to everyone: 11:02 AM Chriss Masin, Senior Engineer, Shelby County Roads, Bridges and Engineering

August 26, 2020 from Gary Patterson (privately): 11:03 AM Gary Patterson University of Memphis, CERI

August 26, 2020 from Terry Wiggins to everyone: 11:03 AM Rick McClanahan City Engineer City of Bartlett

August 26, 2020 from John Selberg to everyone: 11:03 AM John Selberg, City of Germantown, Fire Chief/Emergency Manager

August 26, 2020 from Steve Fort to everyone: 11:03 AM Steve Fort, Emergency Response Coordinator, Manager - Public Health Emergency Preparedness - Shelby County Health Department

August 26, 2020 from Terry Wiggins to everyone: 11:04 AM Terry Wiggins, City of Bartlett Fire Chief

August 26, 2020 from philip leblanc (privately): 11:06 AM Philip Leblanc, Millington Municipal Schools, Director of Operations and Transportation , pleblanc@millingtonschools.org

August 26, 2020 from Shannon Towery (privately): 11:09 AM Had a question from Roads/Bridges for Shelby Co. They do not need to complete a separate questionnaire?

August 26, 2020 from Shannon Towery (privately): 11:10 AM gotcha. ty

August 26, 2020 from Mack Green to everyone: 11:23 AM Mack Green, TEMA District Coordinator

August 26, 2020 from James Harvill to everyone: 11:25 AM You may have already mentioned this but could I get a copy of this Power Point for a reference?

August 26, 2020 from Gary Patterson to everyone: 11:26 AM You can download the referenced MAE Center EQ study by googling "Impact of Earthquakes on the Central USA"

August 26, 2020 from James Harvill to everyone: 11:39 AM Works for me

August 26, 2020 from Rick.Stieg to everyone: 11:40 AM Rick Stieg GIS Administrator Shelby County

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Appendices

August 26, 2020 with me from Gary Patterson to everyone: 11:40 AM September 30 at 10 AM is ok

August 26, 2020 from Robert Rehkopf to everyone: 11:40 AM works for me

August 26, 2020 from Brandon Carpenter to everyone: 11:40 AM Sounds Good

August 26, 2020 available from Dennis Wolf to everyone: 11:40 AM Dennis from Lakeland will not be

August 26, 2020 from Gary Graves to everyone: 11:40 AM Millington OK

August 26, 2020 from tbierdz to everyone: 11:40 AM that works for me

August 26, 2020 from laTonya McGowan to everyone: 11:40 AM works for me

August 26, 2020 management Advisor-Shelby County Schools from Jimmy Tuggers to everyone: 11:41 AM Jimmy Tuggers-Emergency

August 26, 2020 from Terry Wiggins to everyone: 11:42 AM Date good with Bartlett

August 26, 2020 during the week, from Robert Rehkopf to everyone: 11:43 AM Brent, thanks I'm sure well talk

August 26, 2020 from Gary Patterson (privately): 11:43 AM Great job Brent....talk soon

August 26, 2020 from George Boyington to everyone: 11:44 AM George Boyington
Intergovernmental Affairs & Special Projects Manager
Shelby County Assessor of Property

August 26, 2020 from Angela Hill to everyone: 11:45 AM Angela Hill, Adminstrator Parks and
Neighborhood- Shelby County TN Govt

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Attachment: Shelby County Hazard Mitigation Plan 2021- Approved (2018-21, to adopt Hazards Mitigation Plan)

Appendix 2

Attendance Sheet – Committee Meeting #2

September 30, 2020	9:49 AM	from Shannon Towery to everyone: Shannon Towery Shelby County Emergency Management and Homeland Security Office, Planning Coordinator
September 30, 2020	9:51 AM	from Robin Berzins (privately): Good morning, Brent.
September 30, 2020	9:51 AM	from Gary Rikard to everyone: Gary Rikard
September 30, 2020	9:52 AM	from Rick.Stieg to everyone: richard stieg shelby county ITS, Regis Administrator
September 30, 2020	9:52 AM	from Brandon Carpenter to everyone: Brandon Carpenter, Emergency Operations Officer, City of Memphis Office of Emergency Management
September 30, 2020	9:52 AM	from Gary Rikard to everyone: Gary Rikard, Bartlett Schools, Security Manager
September 30, 2020	9:53 AM	from Robin Berzins to everyone: Robin Berzins, FEMA Integration Team TN, Mitigation Spc
September 30, 2020	9:56 AM	from James Harvill to everyone: James Harvill- Town of Arlington-Fire Chief
September 30, 2020	9:56 AM	from Gary Graves to everyone: Gary Graves: City of Millington; Public Safety Director
September 30, 2020	9:57 AM	from LaTonya McGowan to everyone: LaTonya McGowan Shelby County Schools - Emergency Management Specialist
September 30, 2020	9:58 AM	from Misty Haley to everyone: Misty Haley, Emergency Operations Manager, Shelby County Emergency Management Homeland Security Agency
September 30, 2020	10:01 AM	from Shane Horn to everyone: Shane Horn
September 30, 2020	10:01 AM	from Evan Boulanger to everyone: Evan Boulanger--Senior Design Engineer
September 30, 2020	10:01 AM	from Evan Boulanger to everyone: Mark McGuire--Senior Design Engineer
September 30, 2020	10:01 AM	from Ryan (privately): Ryan Groves, MLGW Regulatory Compliance Coordinator
September 30, 2020	10:01 AM	from Evan Boulanger to everyone: Lopa Naik--Senior Design Engineer
September 30, 2020	10:01 AM	from Evan Boulanger to everyone: All of us are from the City of Memphis
September 30, 2020	10:01 AM	from Greg Waymon (privately): Greg Waymon - Memphis OEM, Lieutenant - Planning
September 30, 2020	10:01 AM	from Jeremy Yow to everyone: Jeremy Yow Supervisor-Student Services and HR for Arlington Community Schools Arlington, TN
September 30, 2020	10:01 AM	from Chris Favaloro Memphis OEM to everyone: Christopher Favaloro Memphis OEM Operations Officer

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September 30, 2020	10:02 AM	from Oussama Terrab to everyone: Oussama Terrab (901-412-3506) - Memphis Light Gas & Water - Crisis Management / Shelby County
September 30, 2020	10:02 AM	from Jeff Cox, et. al. (privately): Jeff Cox, City of Bartlett Chief of Police
September 30, 2020	10:02 AM	from chris.masin to everyone: chris masin, Senior Engineer, Shelby County Govt.
September 30, 2020	10:02 AM	from brenda.jones@shelbycountyttn.gov (privately): Brenda Jones - Director - Shelby County Emergency Management & Homeland Security Agency
September 30, 2020	10:02 AM	from Benjamin Hamilton to everyone: Ben Hamilton - Memphis Light, Gas & Water; Asset Management Engineer
September 30, 2020	10:02 AM	from Shane Horn to everyone: Shane Horn - City Manager- City of Lakeland
September 30, 2020	10:02 AM	from Daniel Hochstein to everyone: Daniel Hochstein - Memphis Light, Gas and Water - Lead Project Engineer
September 30, 2020	10:03 AM	from philip leblanc (privately): Philip Leblanc Millington Municipal Schools, operations and transportation.
September 30, 2020	10:04 AM	from Jonathan Haley to everyone: Jonathan Haley CoM MFD- Administrative Lieutenant
September 30, 2020	10:04 AM	from Robert Rehkopf to everyone: RRobert Rehkopf Consultant City of Memphis
September 30, 2020	10:11 AM	from Jeremy Yow to everyone: Tim Ruff Director of Operations Arlington Community Schools
September 30, 2020	10:18 AM	from Madelyn to everyone: Madelyn Lukens Project Engineer at Memphis Light, Gas and Water
September 30, 2020	10:32 AM	from tkelley (privately): Tommy Kelley, Chief of Operations, Collierville Fire Department, Town of Collierville
September 30, 2020	10:34 AM	from Jeff Cox, et. al. (privately): Is this presentation available, or can it be emailed to us?
September 30, 2020	10:40 AM	from Erin Stirgus to everyone: Erin Stirgus
September 30, 2020	10:40 AM	from Erin Stirgus to everyone: Erin Stirgus, MLGW, Project Engineer
September 30, 2020	10:41 AM	from Miracle Roberts to everyone: Miracle Roberts, Chief Financial Officer, Arlington Community Schools
September 30, 2020	10:41 AM	from Brian to everyone: Brian Waldron - University of Memphis CAESER supporting UASI
September 30, 2020	10:41 AM	from Jane Waldrop to everyone: Jane Waldrop, Regional Director TEMA West
September 30, 2020	10:42 AM	from Terry Wiggins to everyone: Terry Wiggins, City of Bartlett

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Fire Chief

September 30, 2020 10:43 AM from Patrina Chambers to everyone: Patrina Chambers Memphis Area Transit Authority (MATA) Director of Grants and Procurement

September 30, 2020 10:46 AM from Robert Rehkopf to everyone: Sorry, Done

September 30, 2020 11:00 AM from Jeff Cox, et. al. (privately): Steve Sones, Assistant Chief Bartlett Police

September 30, 2020 11:00 AM from Jeff Cox, et. al. (privately): Eric Leppanen, Captain Bartlett Police Department

September 30, 2020 11:03 AM from Shannon Towery to everyone: my contact-shannon.towery@shelbycountyttn.gov or 901-222-6716

September 30, 2020 11:10 AM from Brent Phillips to everyone: Project List Deadline: Oct 16th

September 30, 2020 11:11 AM from Angela Brown to everyone: Angela Brown, Grant Manager, Shelby County Emergency Management and Homeland Security

September 30, 2020 11:12 AM from John Selberg to everyone: John Selberg, Fire Chief/Emergency Manager, City of Germantown

September 30, 2020 11:16 AM from Brian (privately): Thank soooo much, Brent!!

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Appendix 3

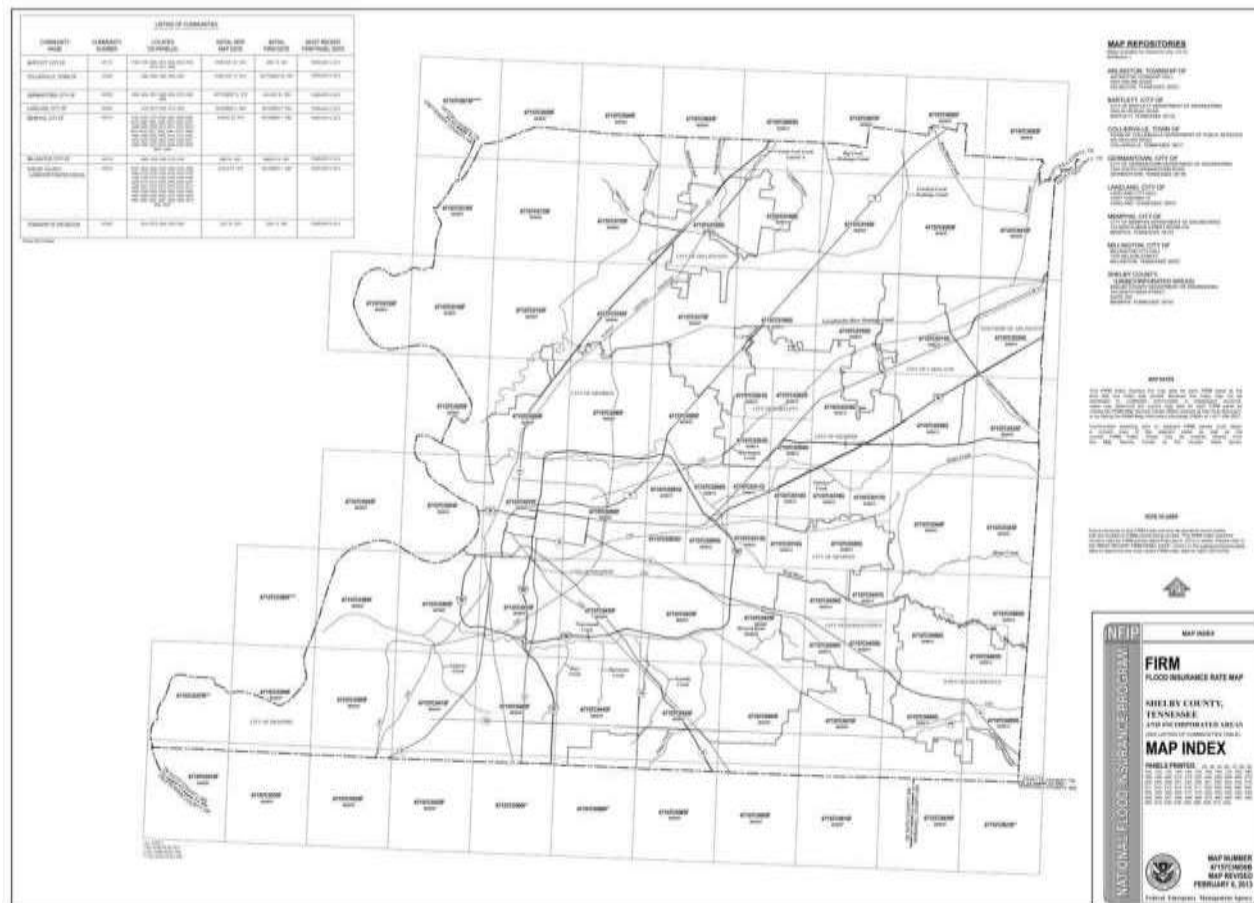
Public Notice/Meeting Minutes/Letters

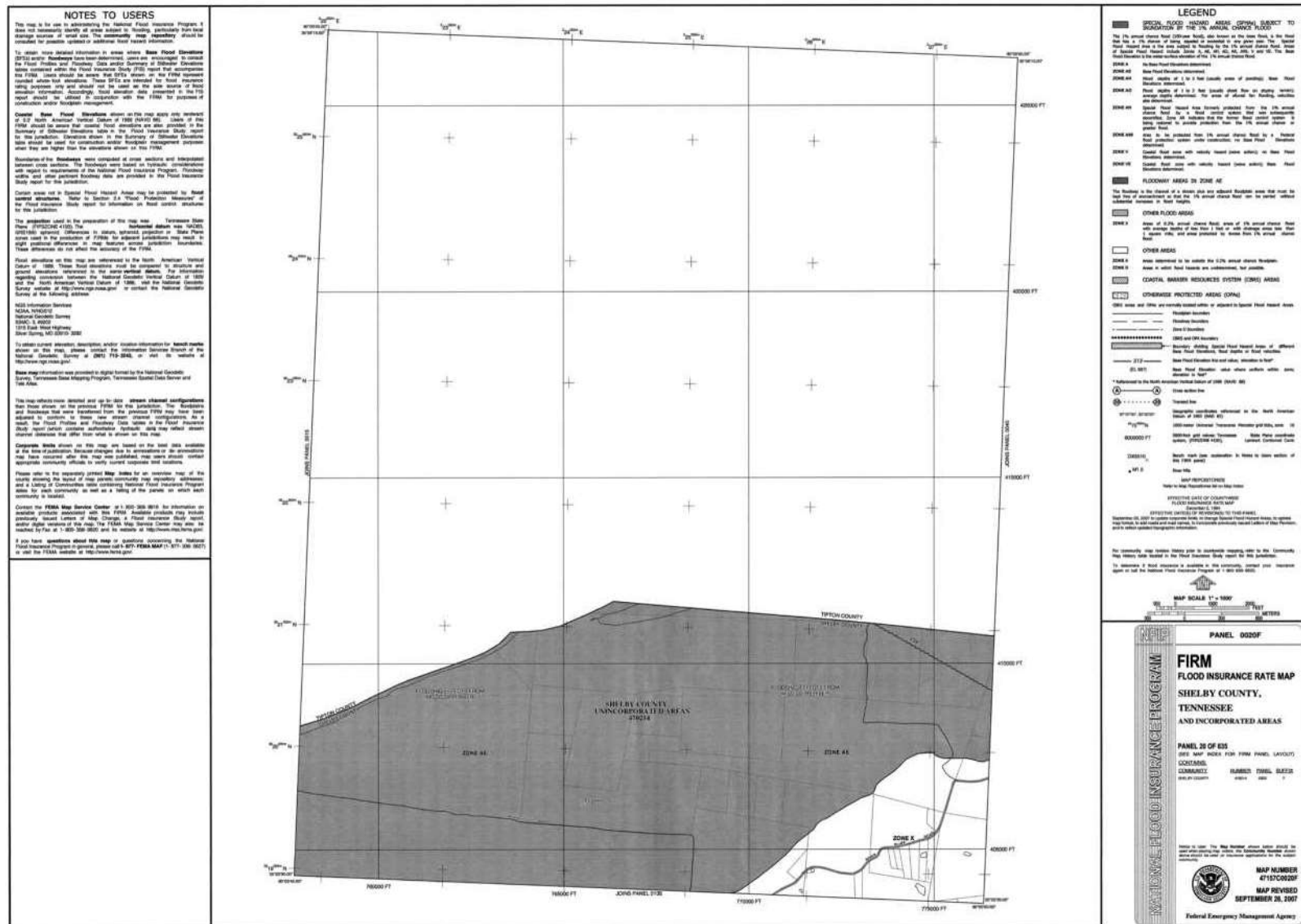


Attachment: Shelby County Hazard Mitigation Plan 2021- Approved (2987 : Res. 18-21, to adopt Hazards Mitigation Plan)



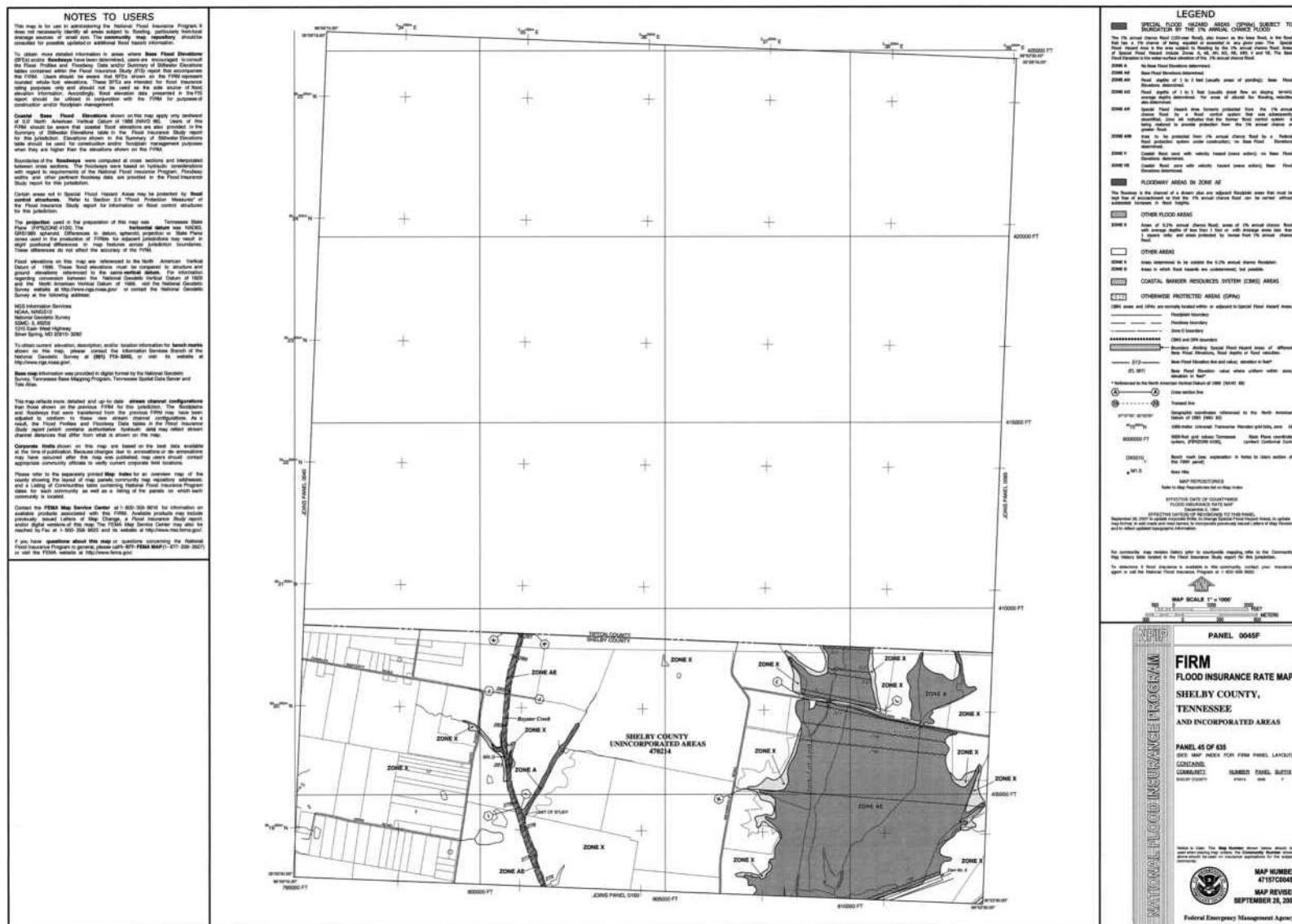
Flood Insurance Rate Maps for Shelby County



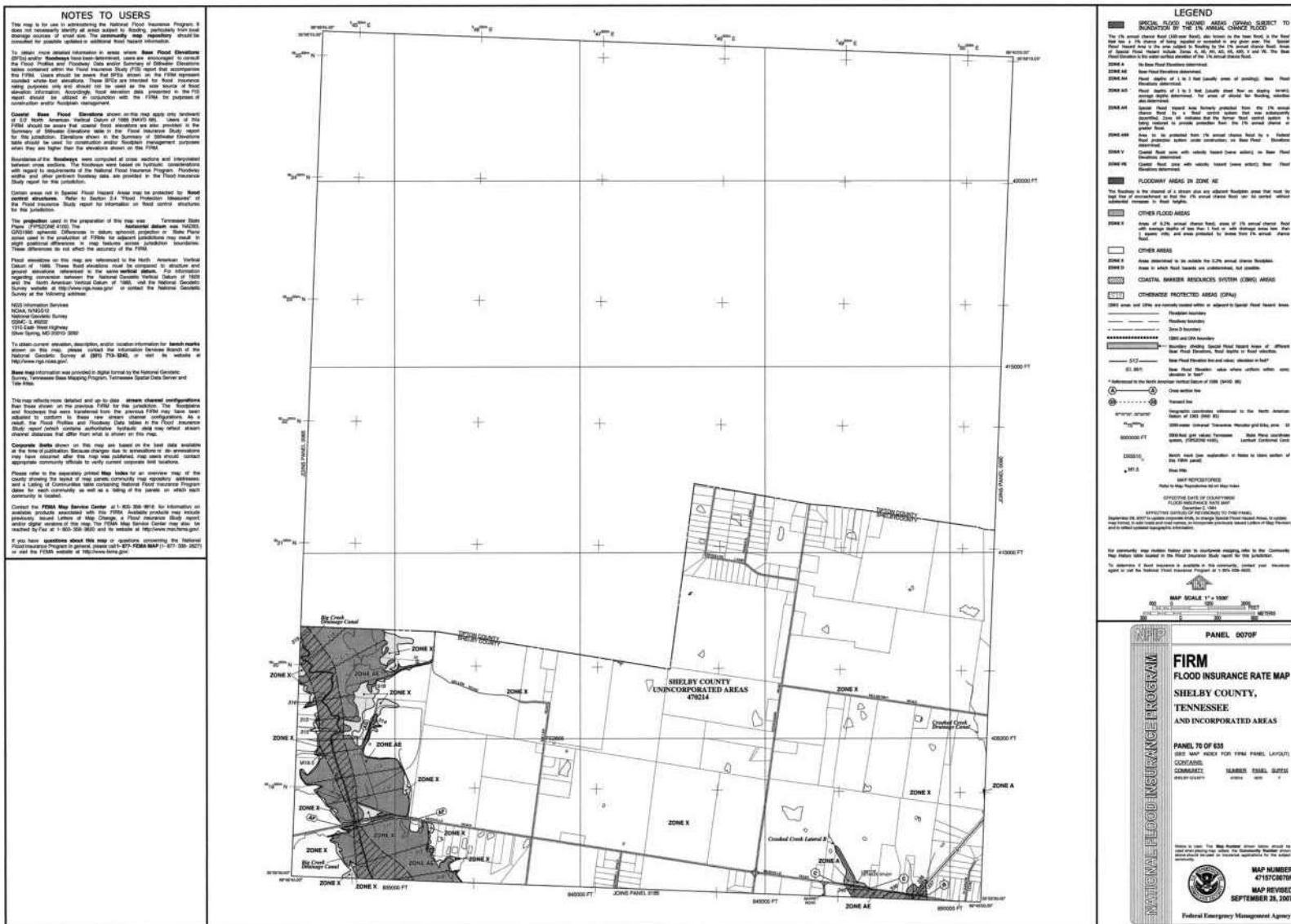


Packet Pg. 222





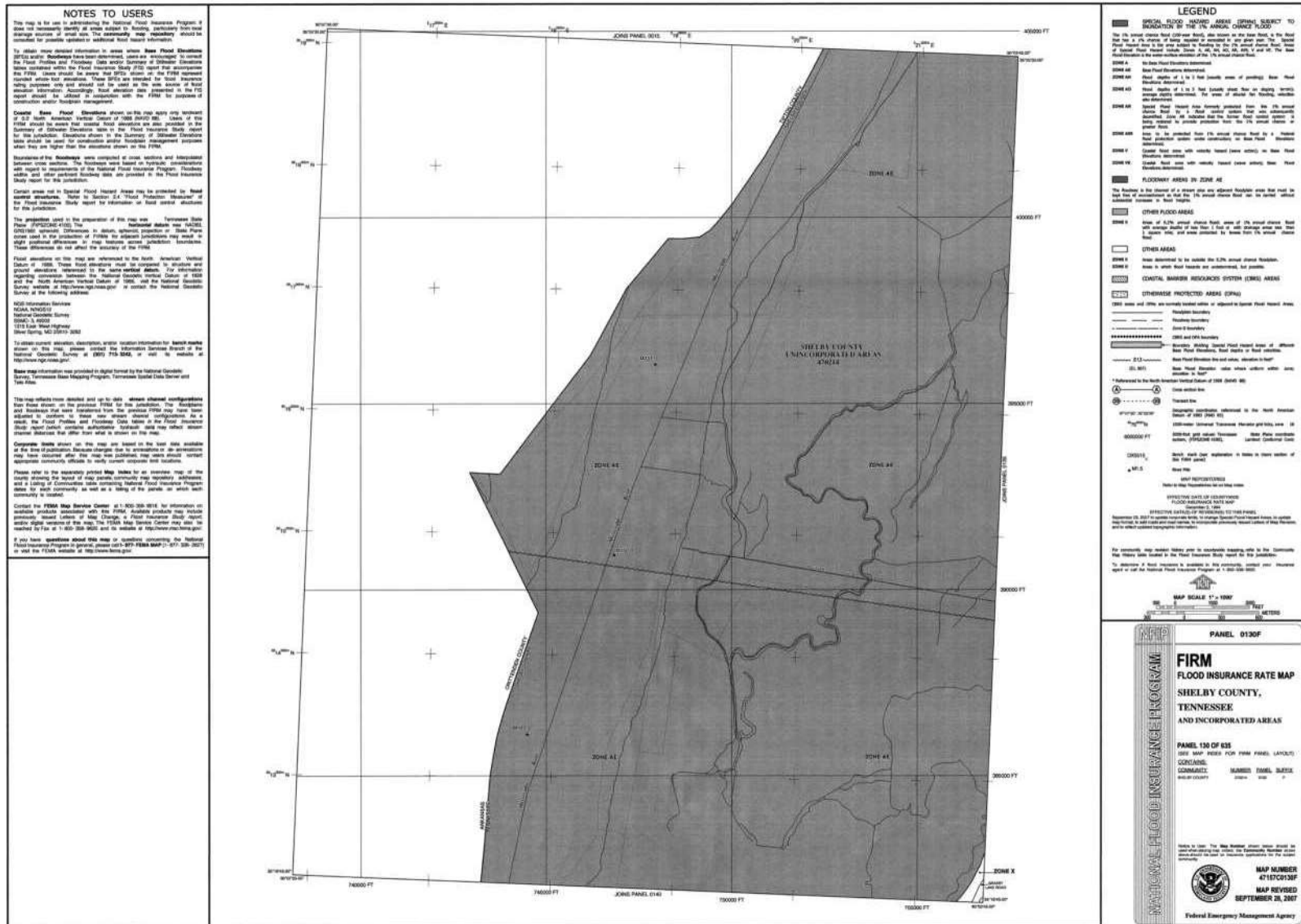


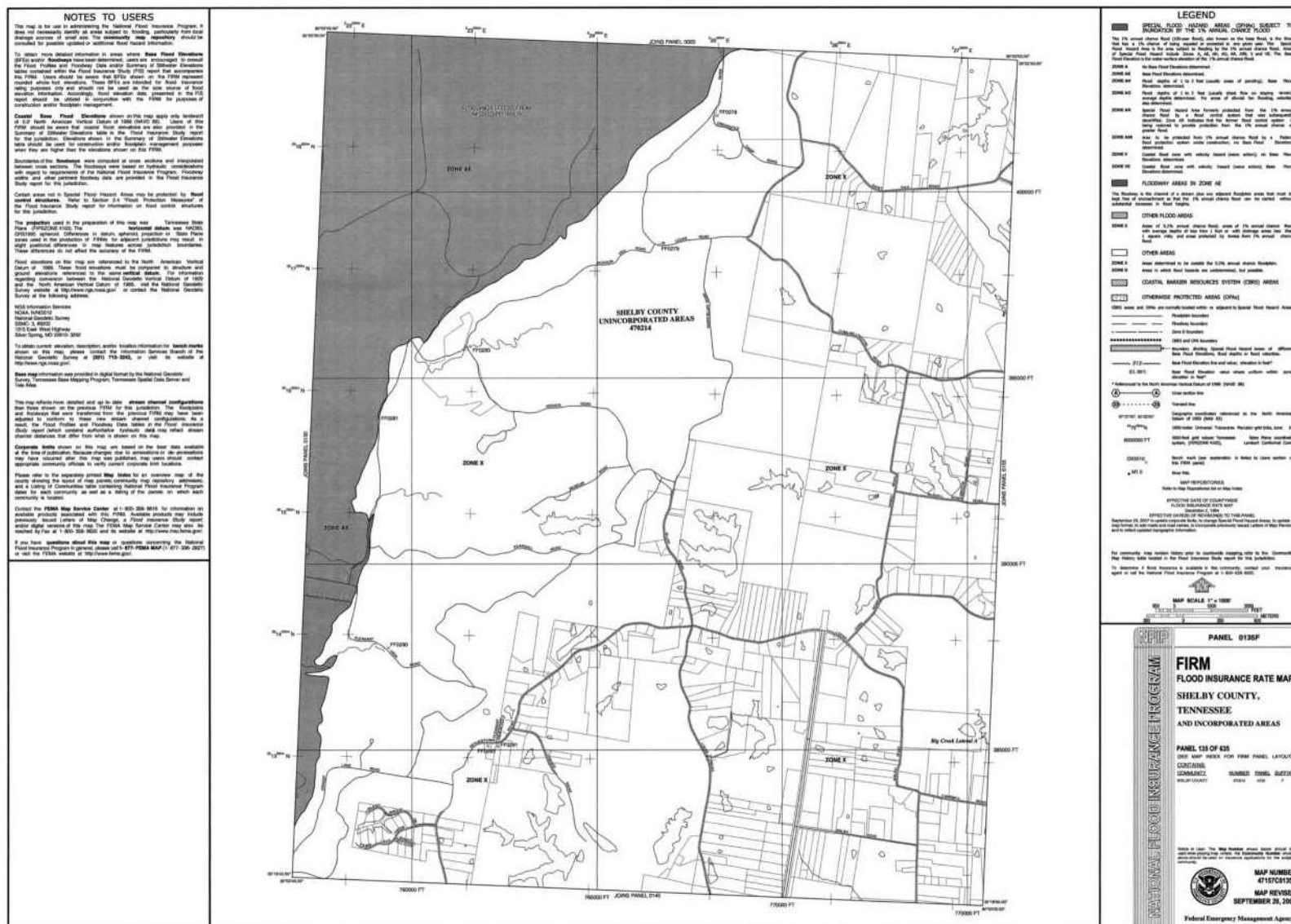




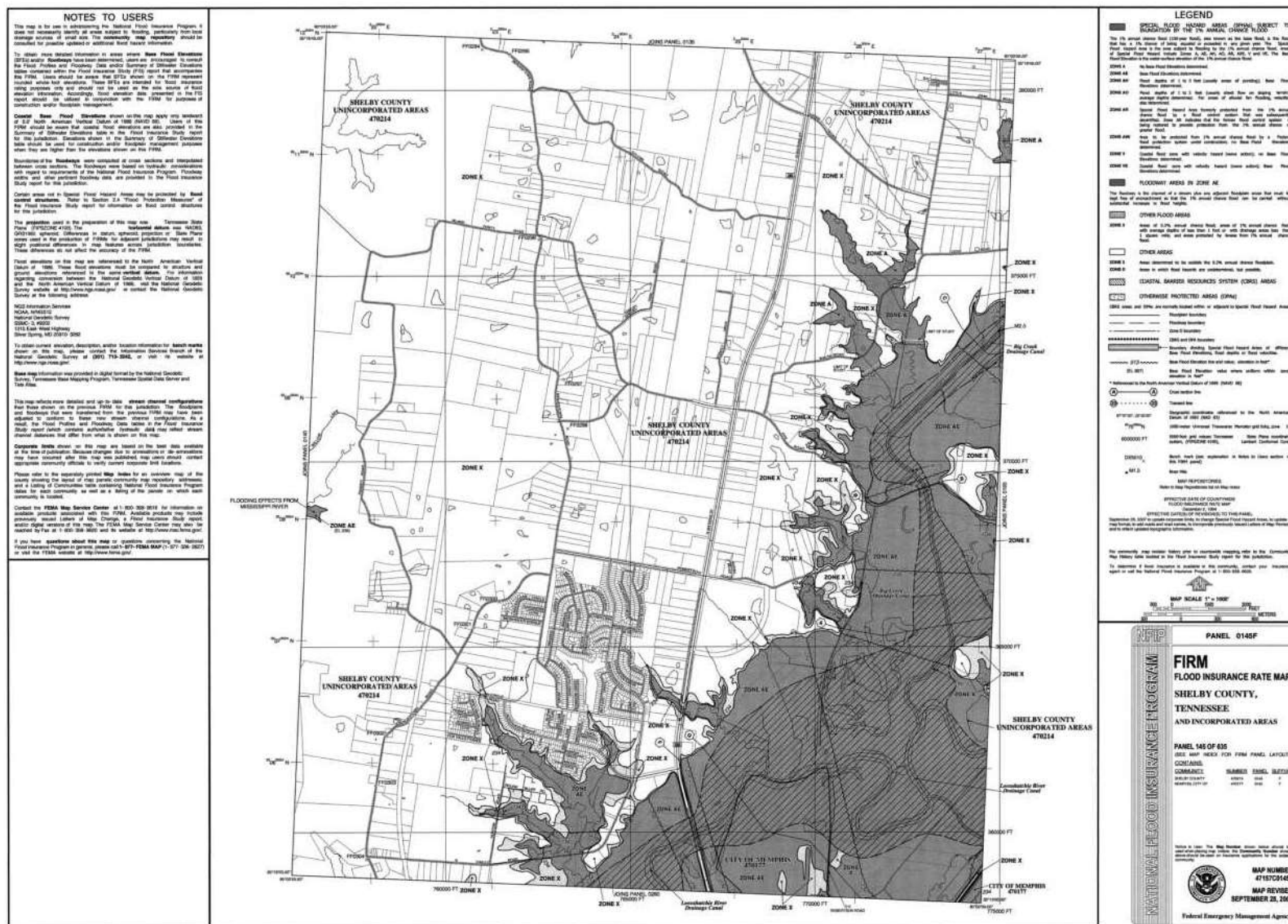




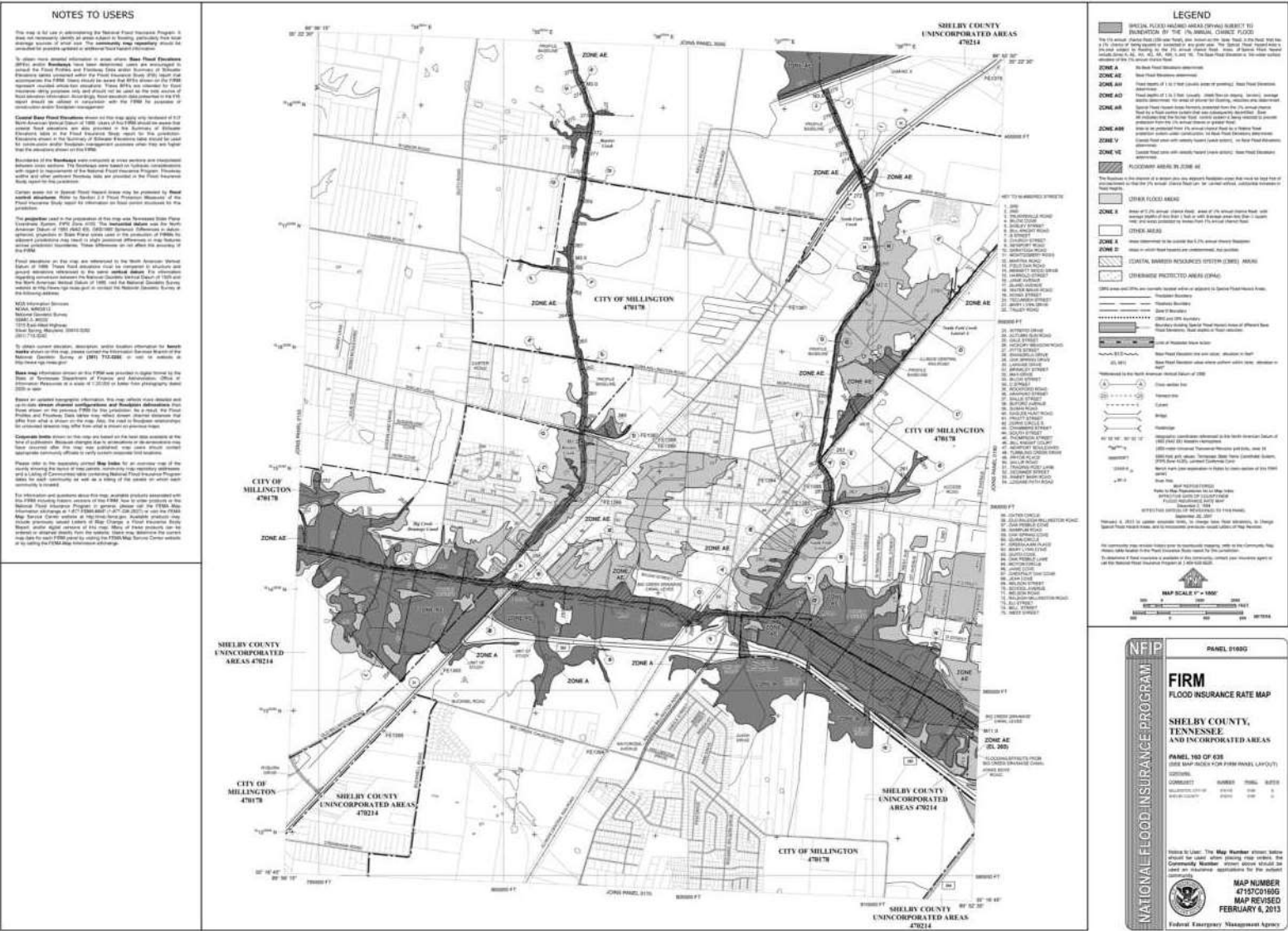


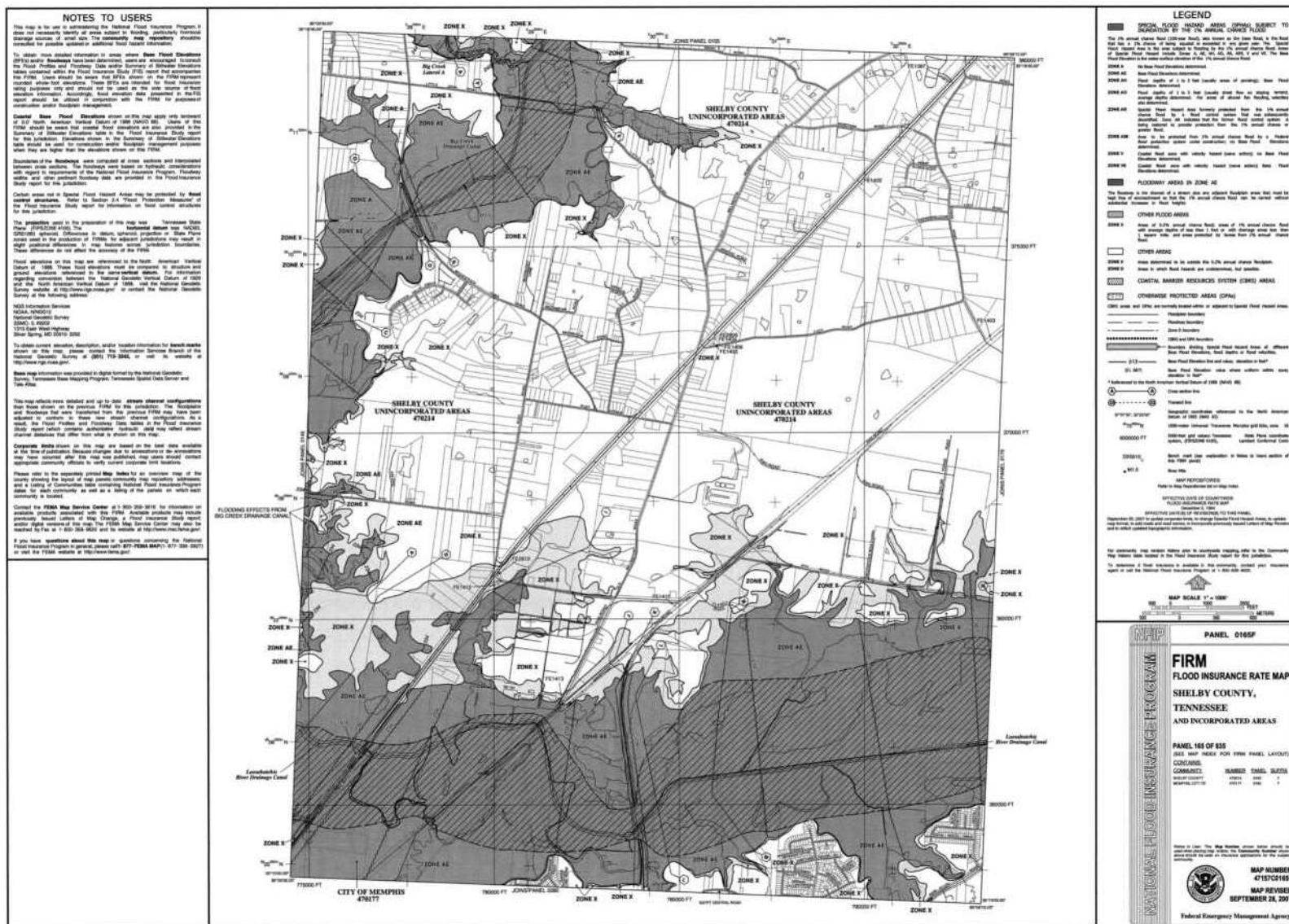




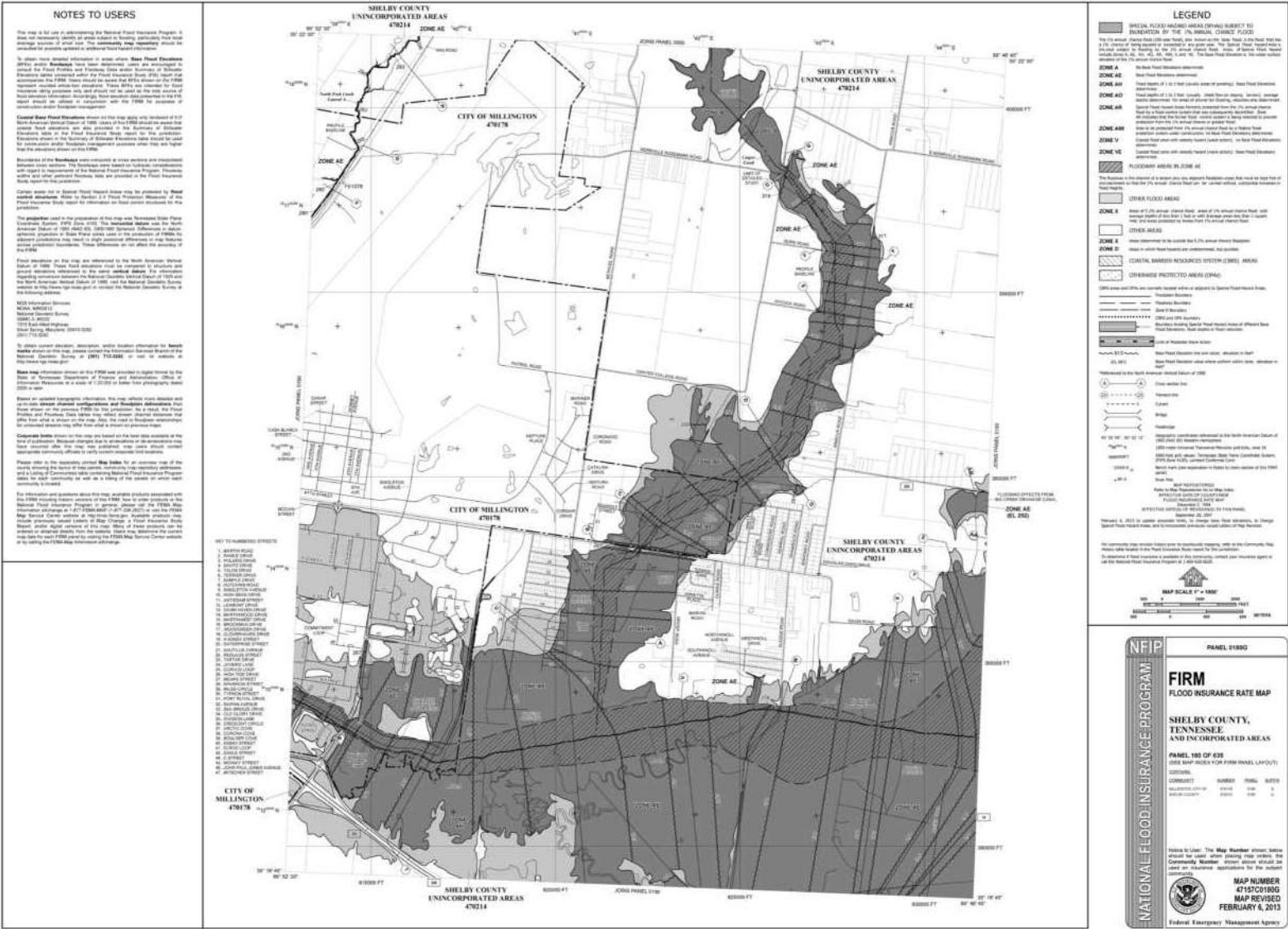










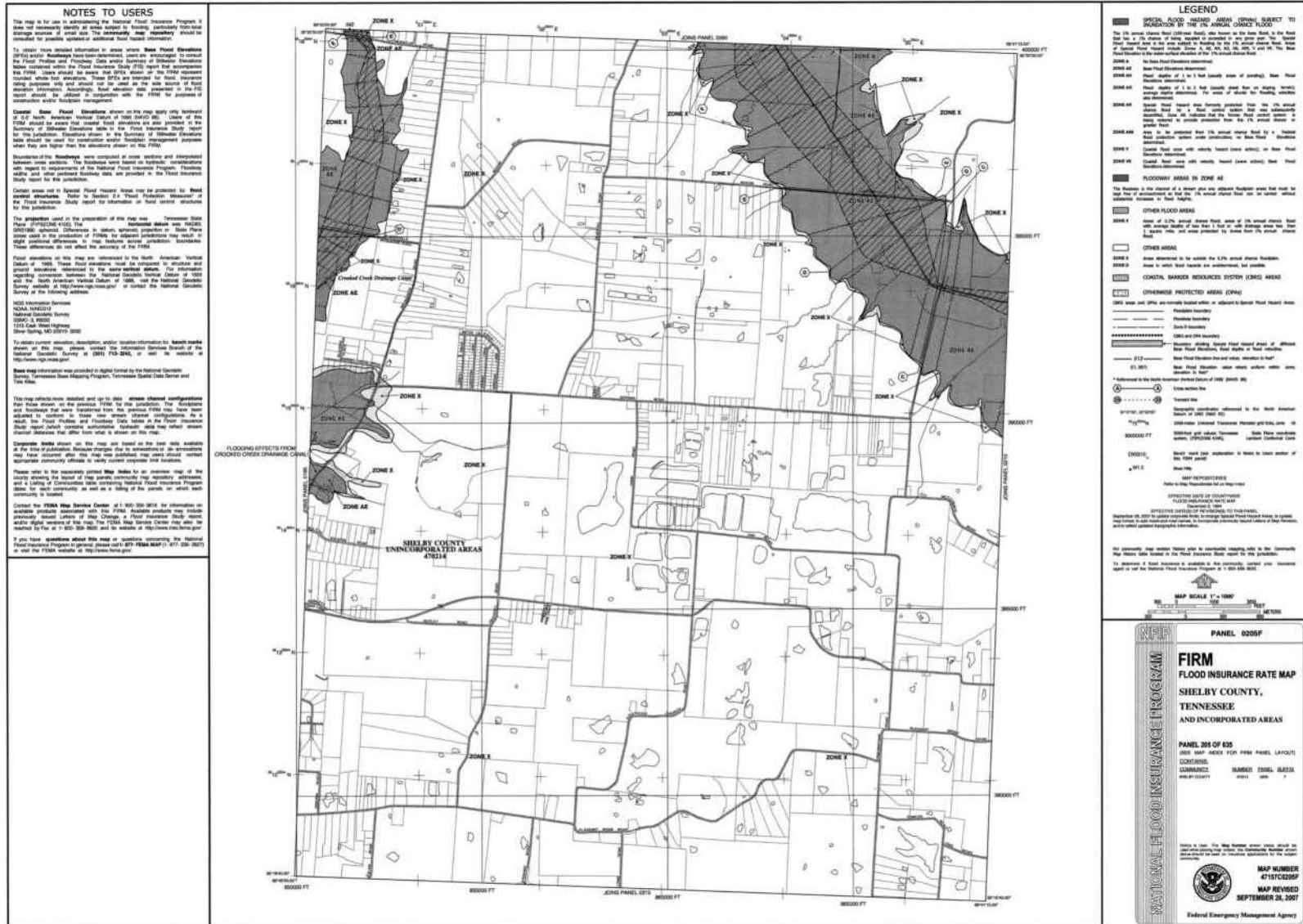


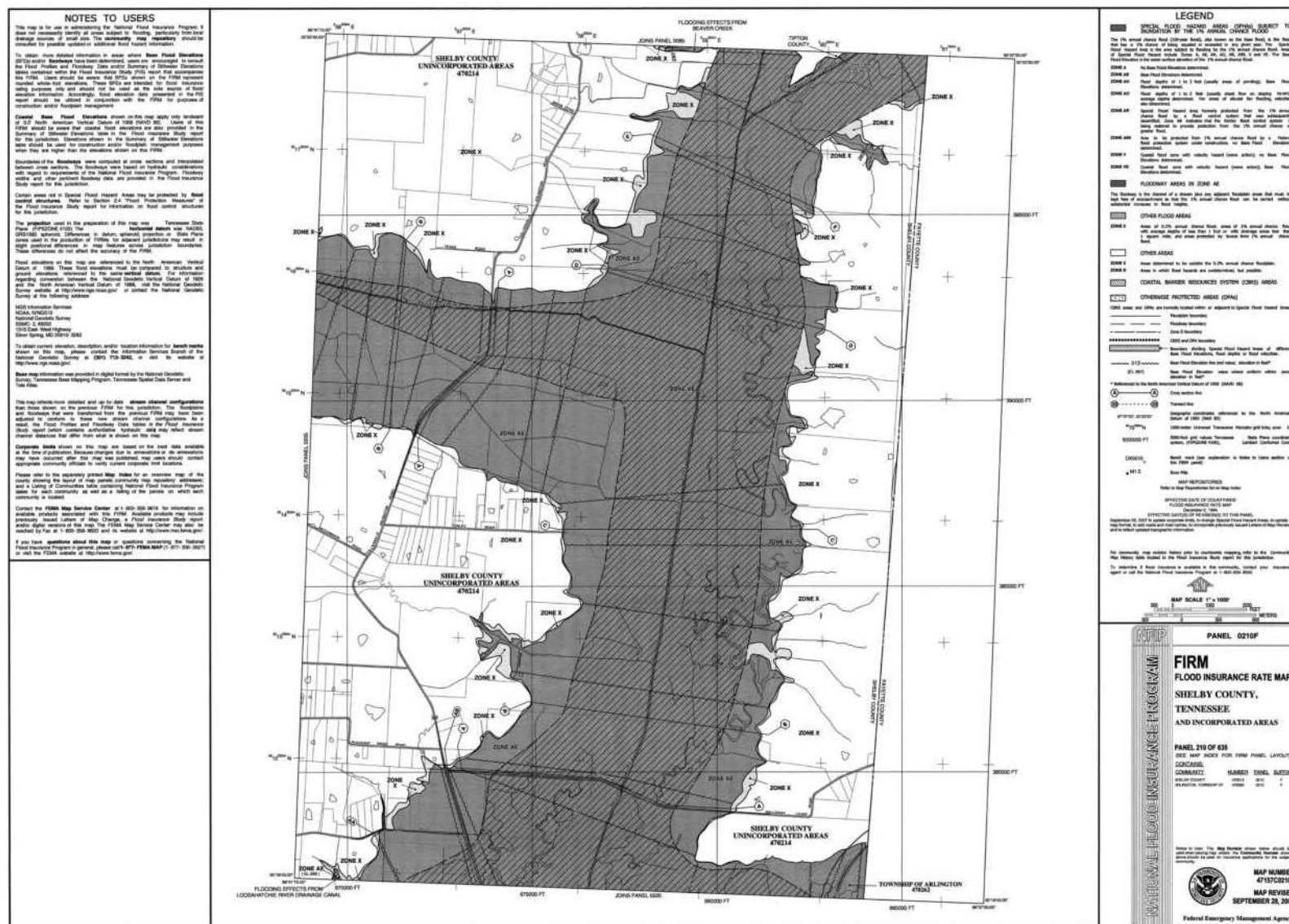
Shelby County Hazard Mitigation Plan 2020 Update
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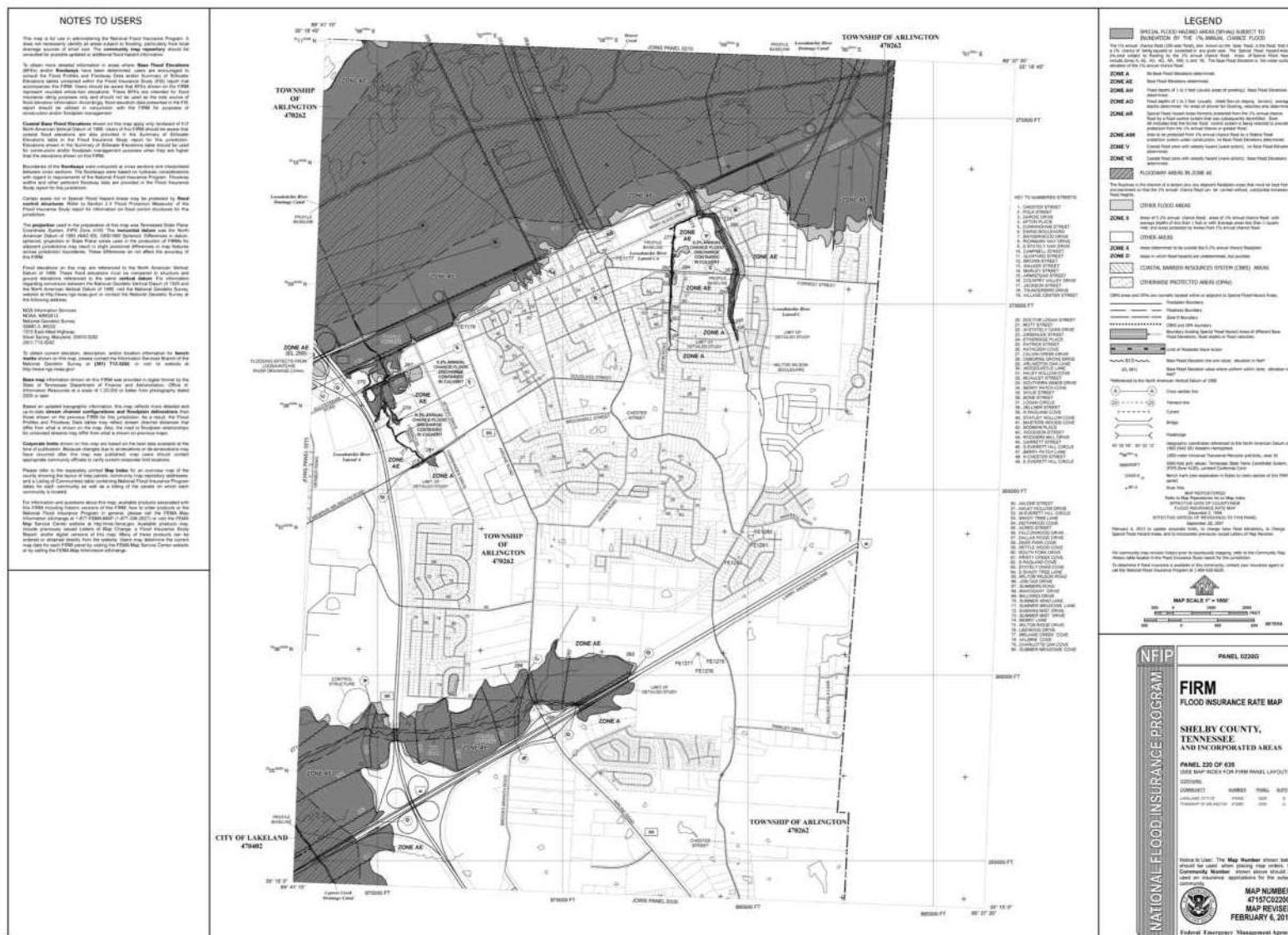














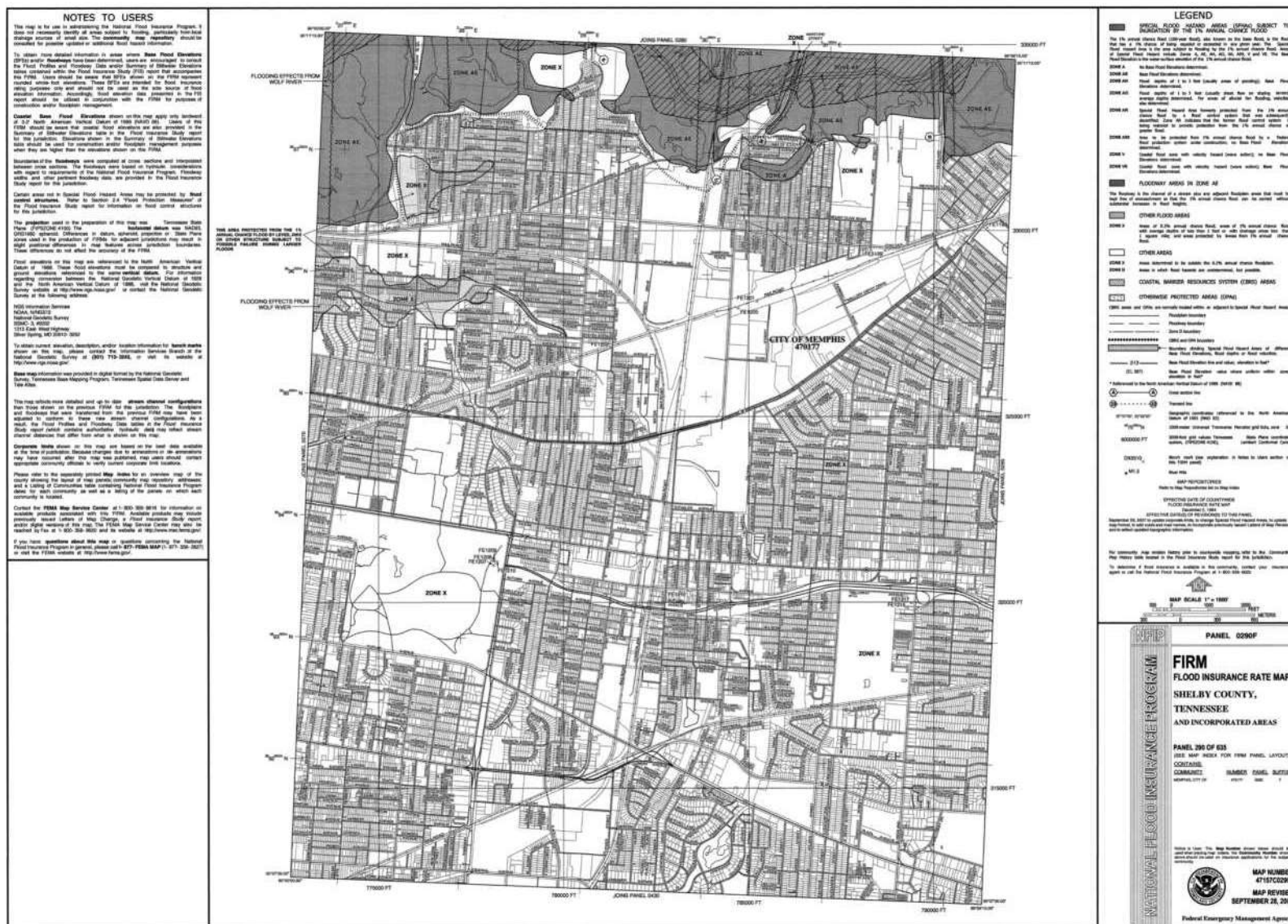










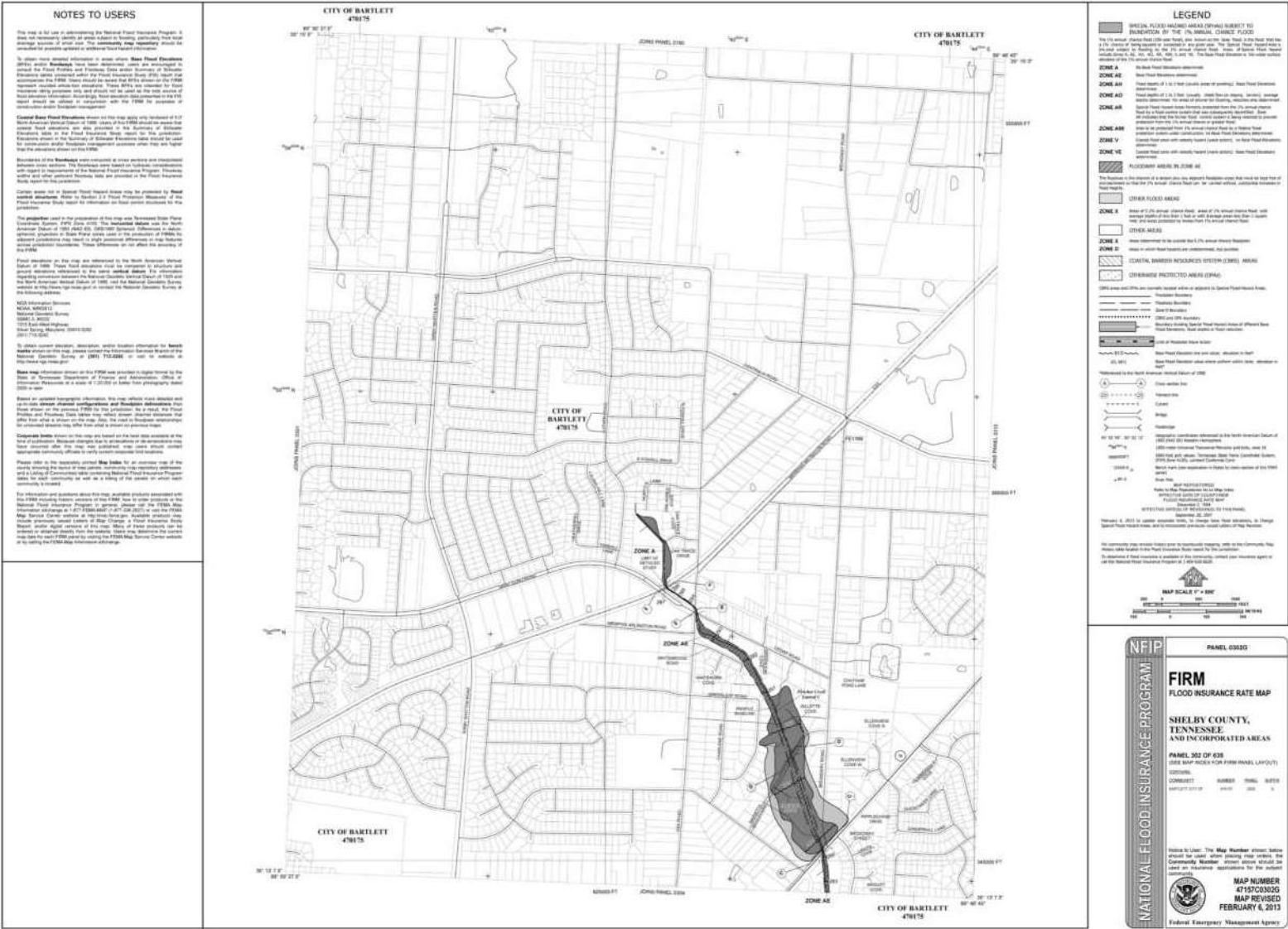






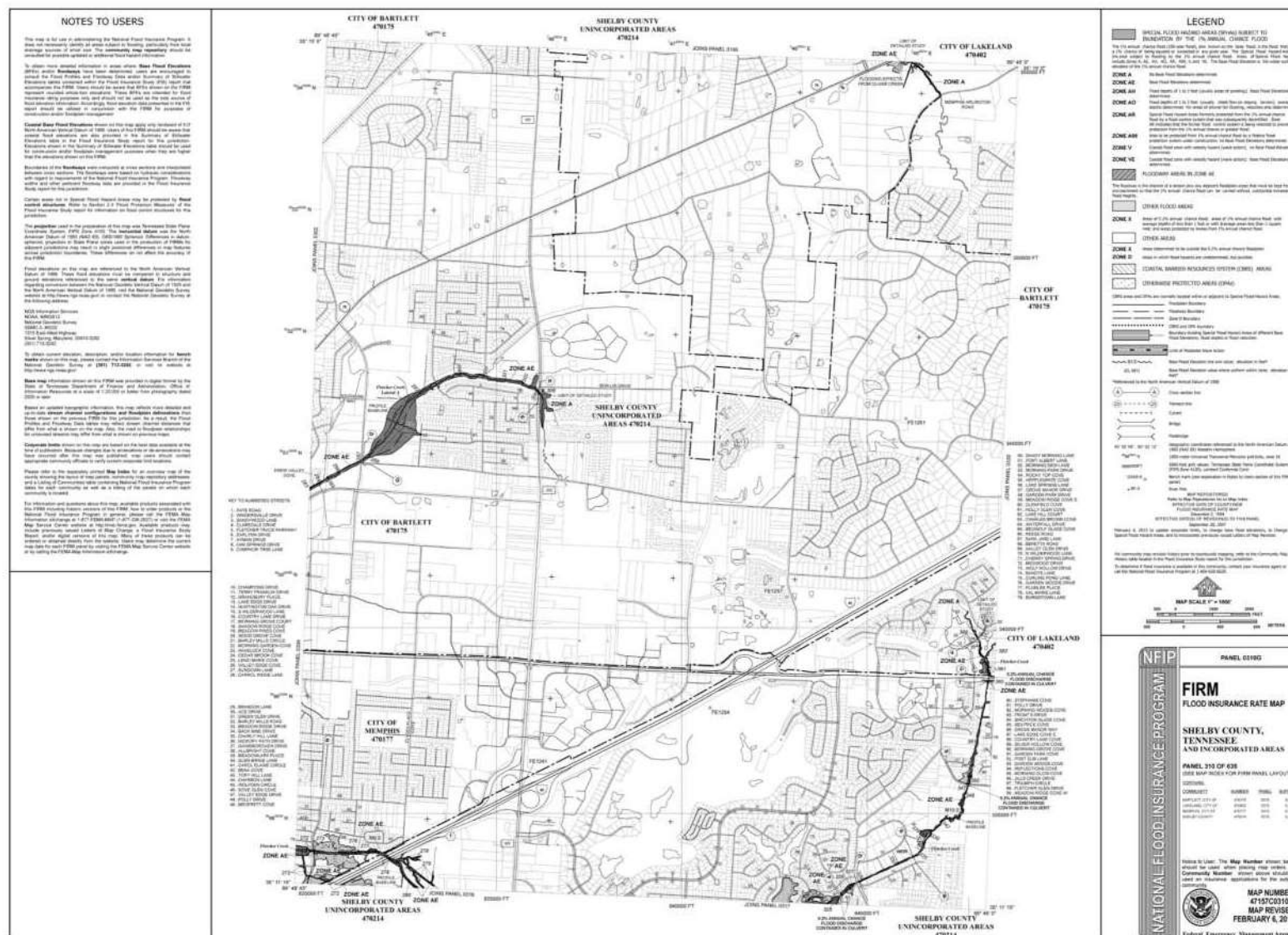


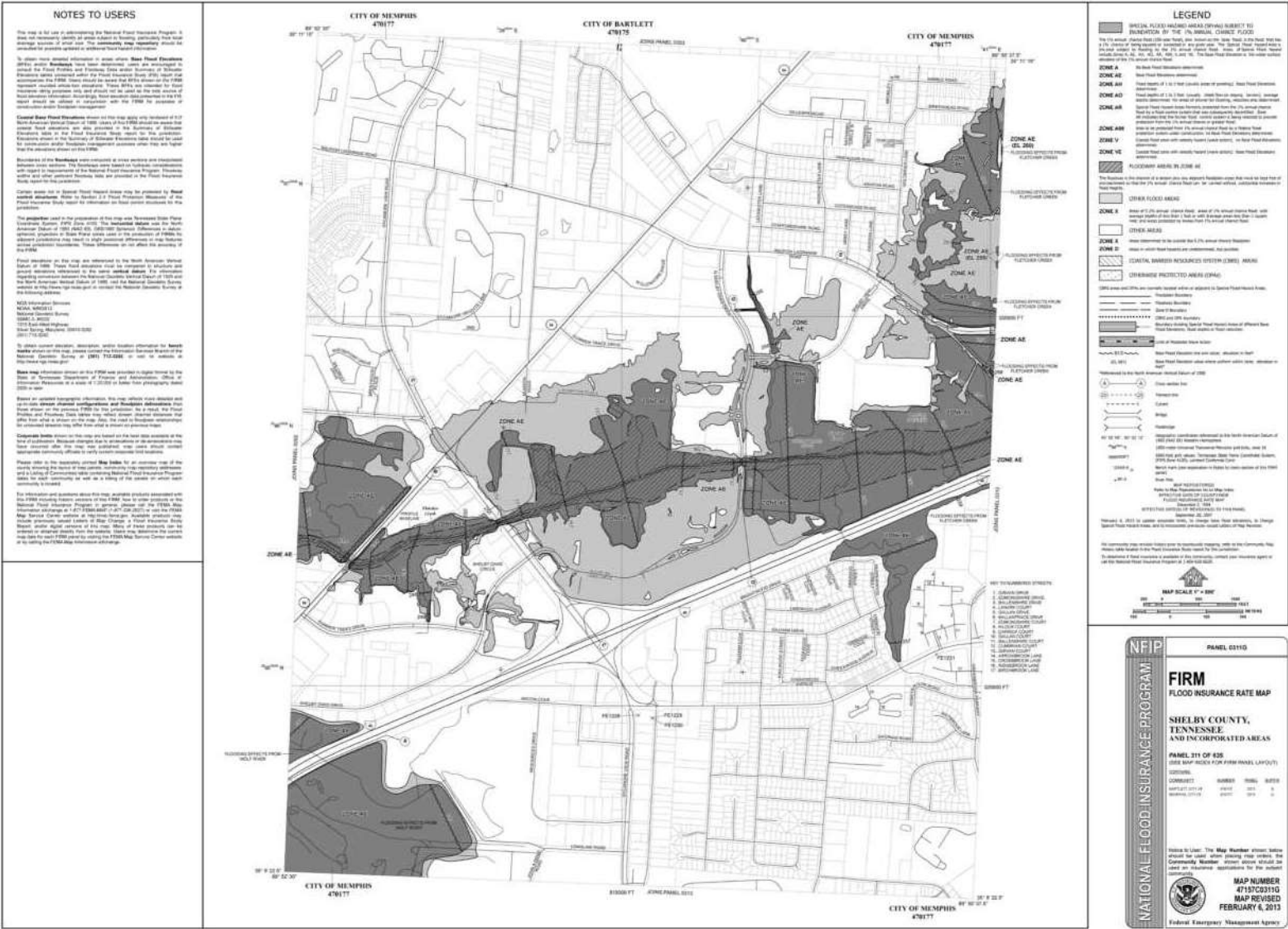










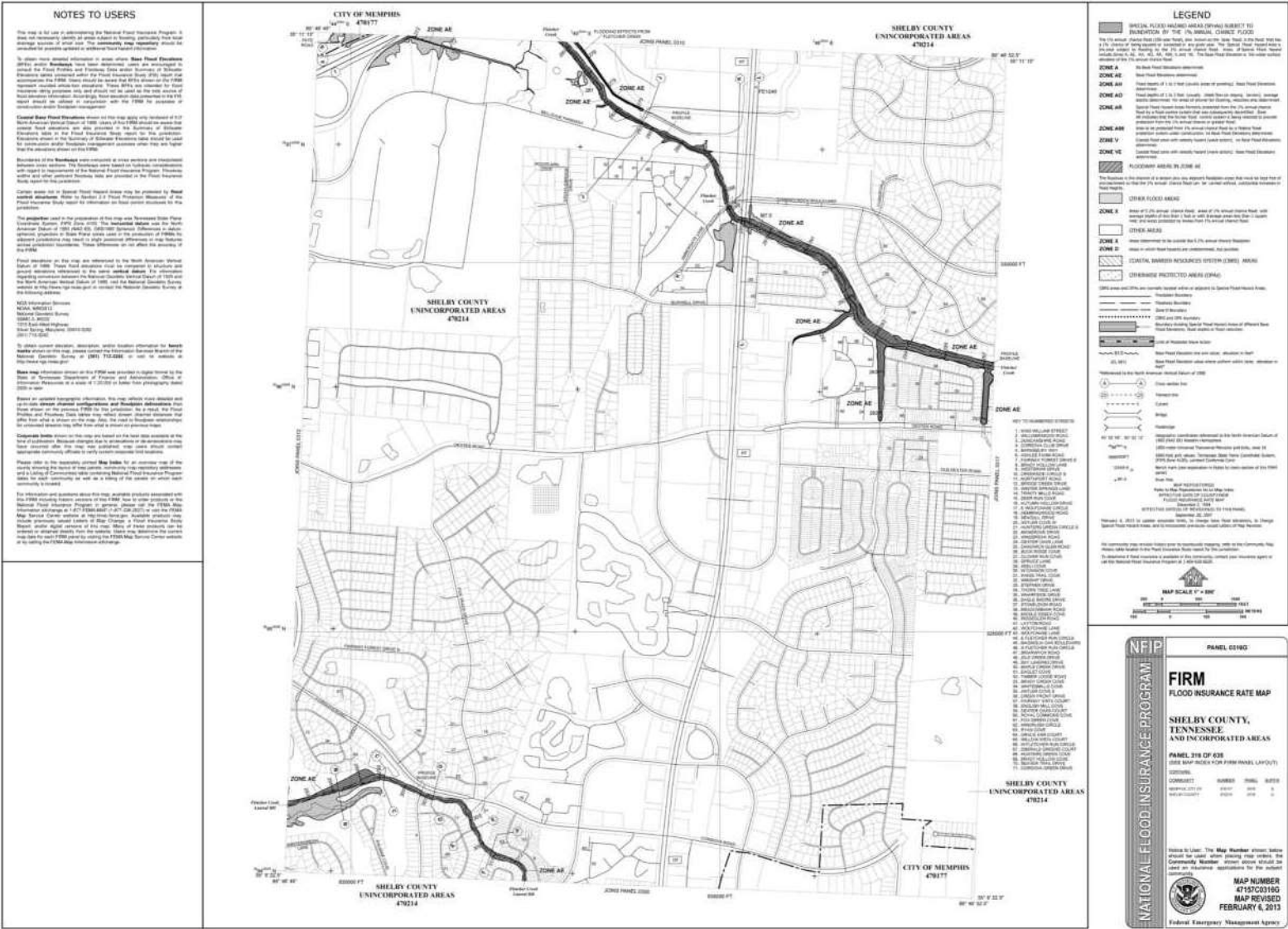




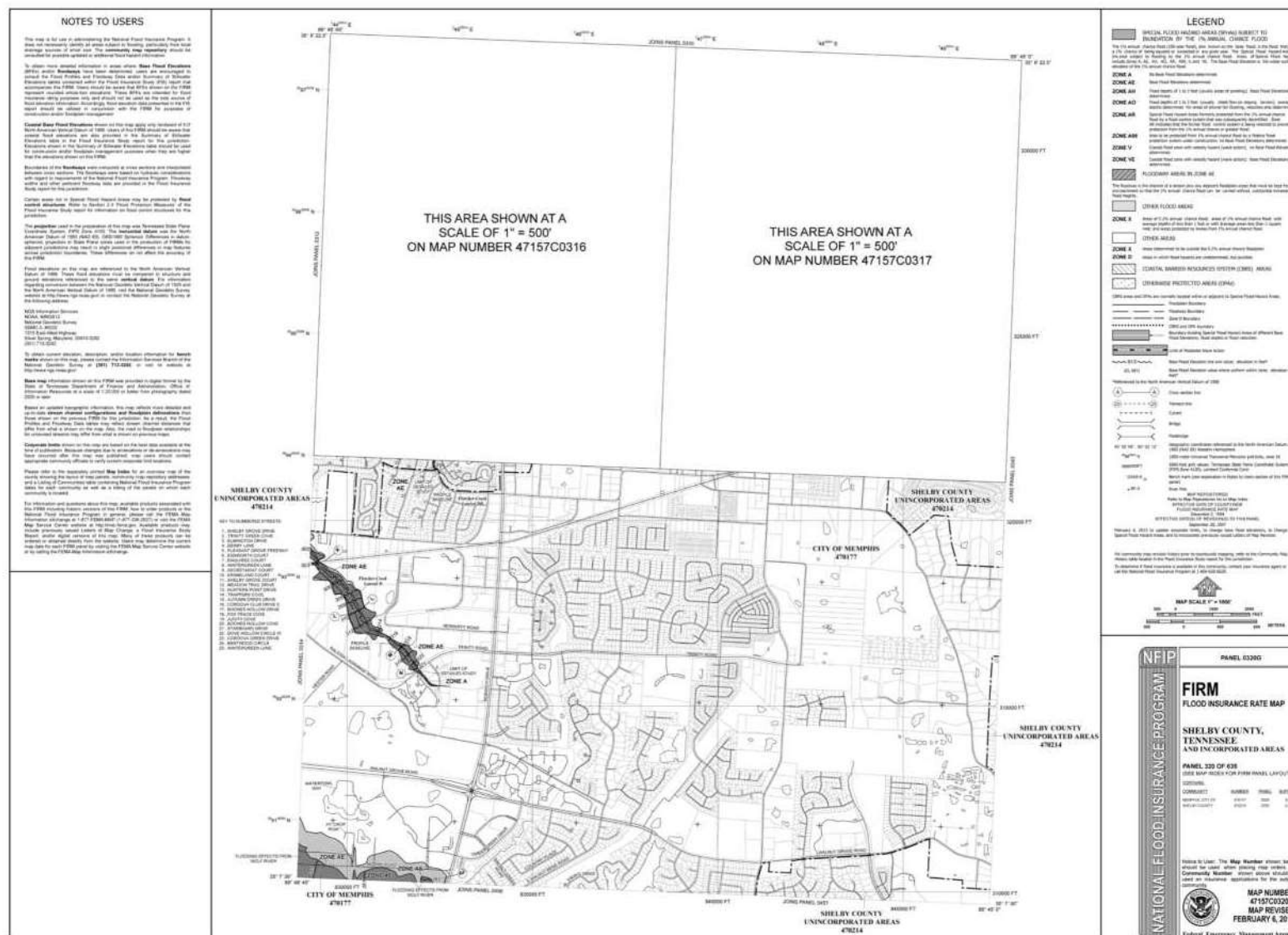


Attachment: Shelby County Hazard Mitigation Plan 2021- Approved (2087 : Res. 18-21, to adopt Hazards

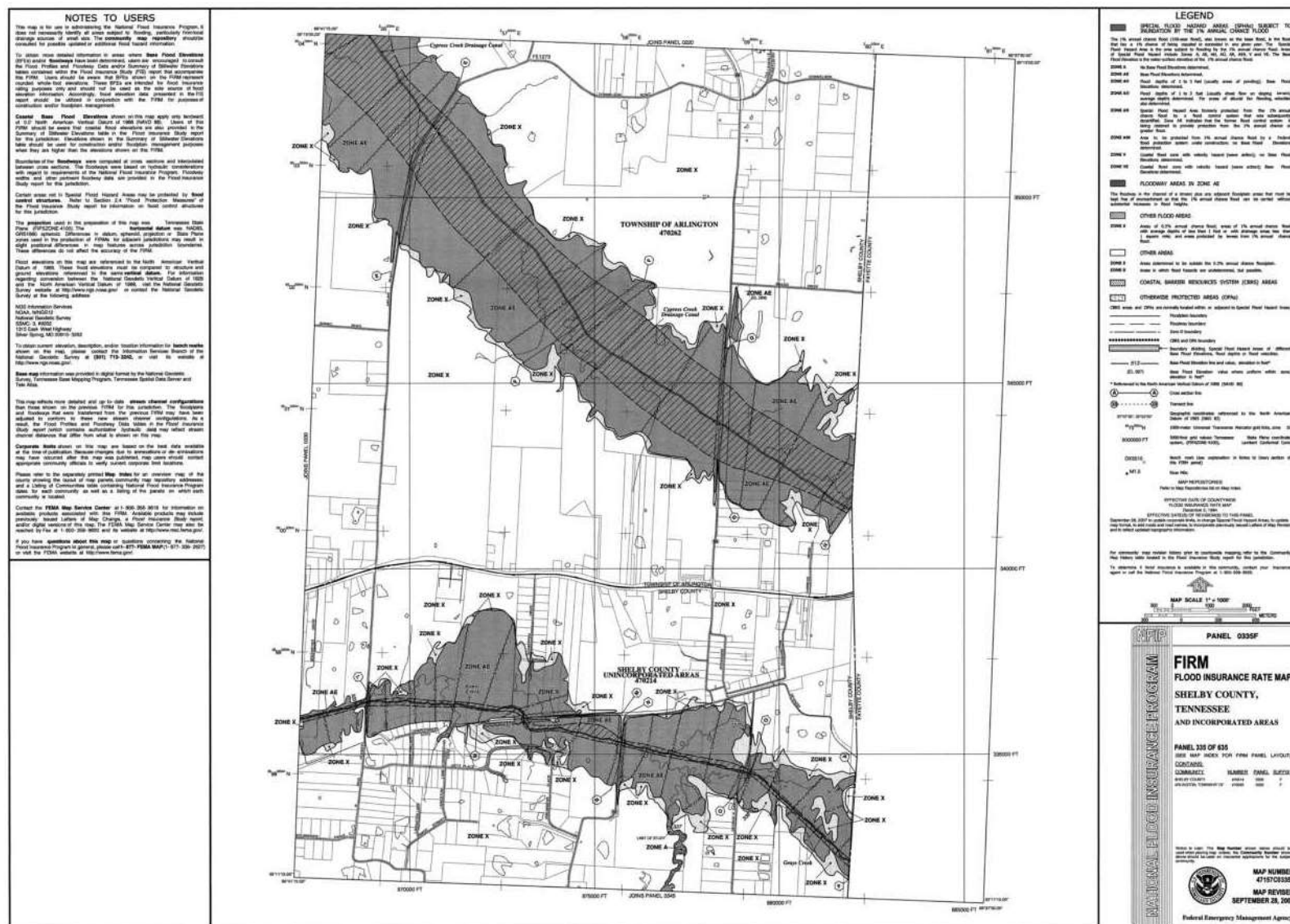


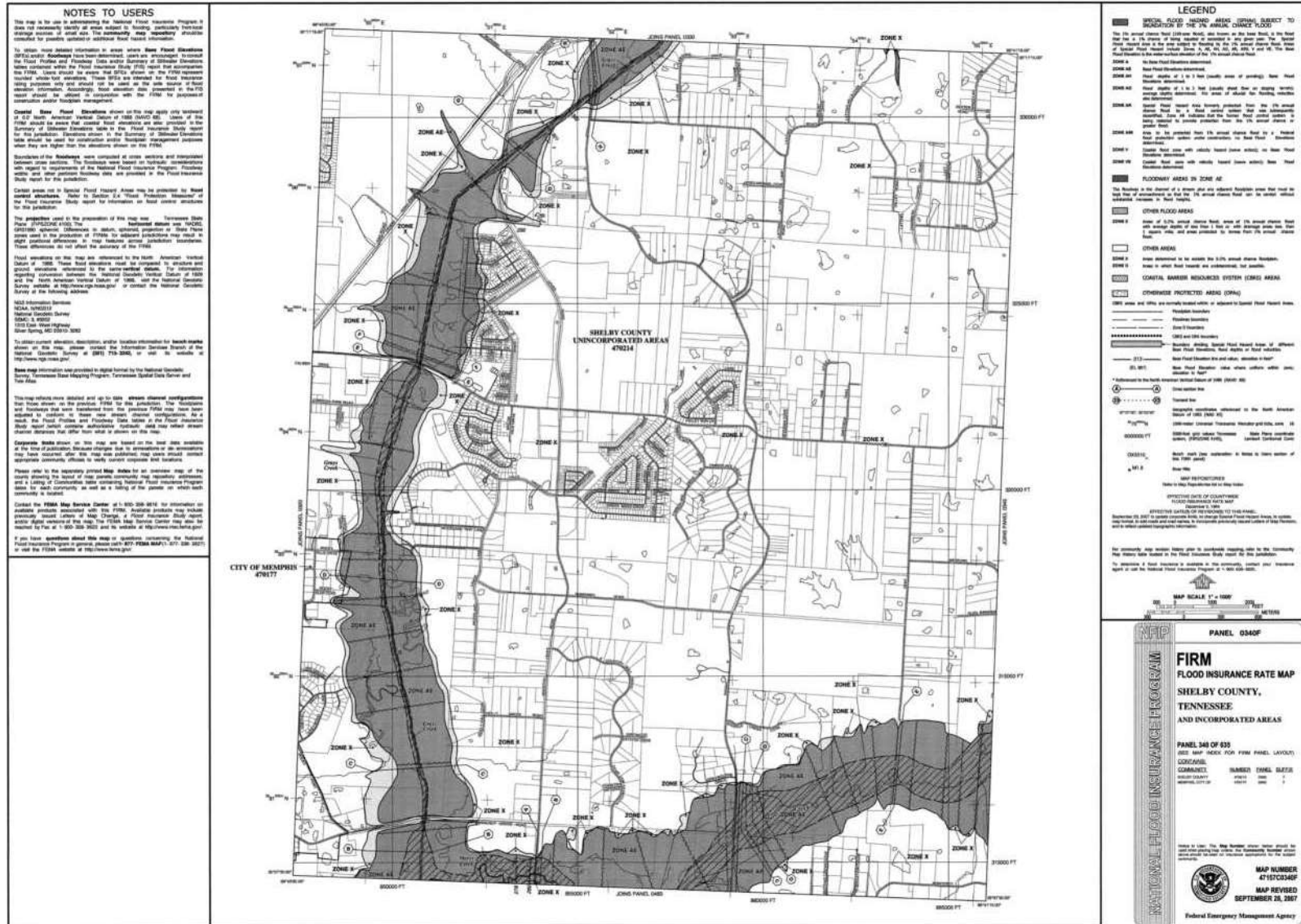






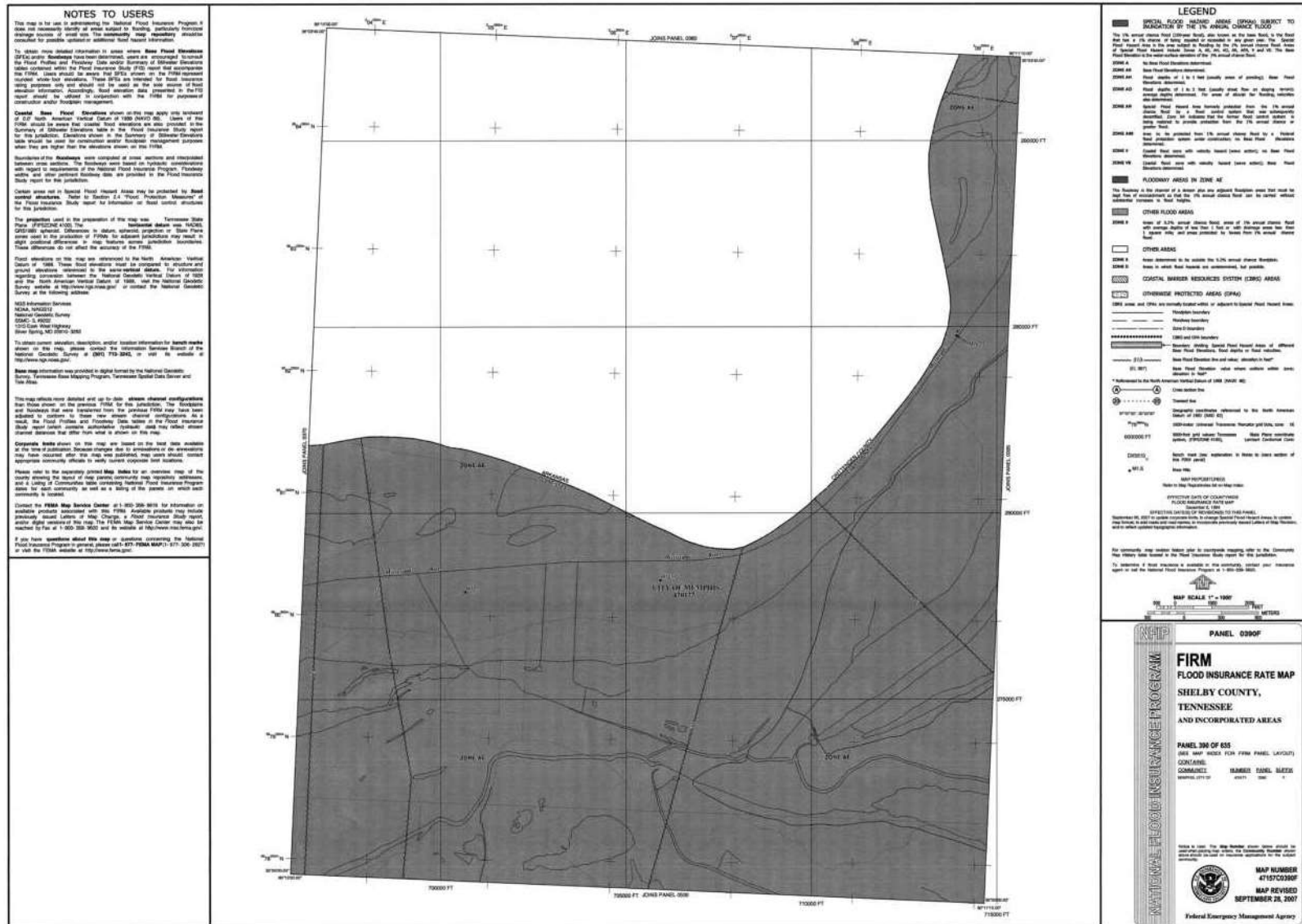


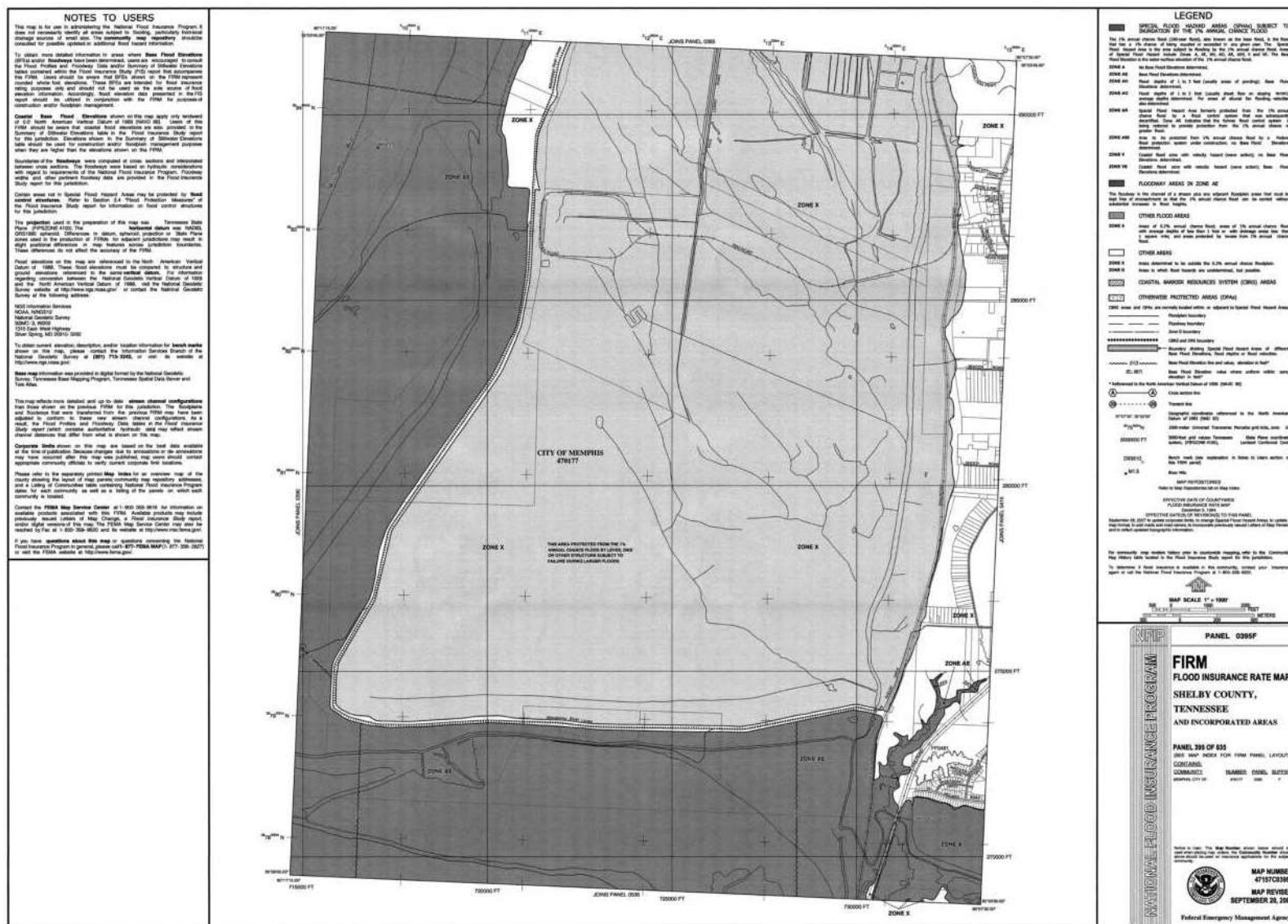








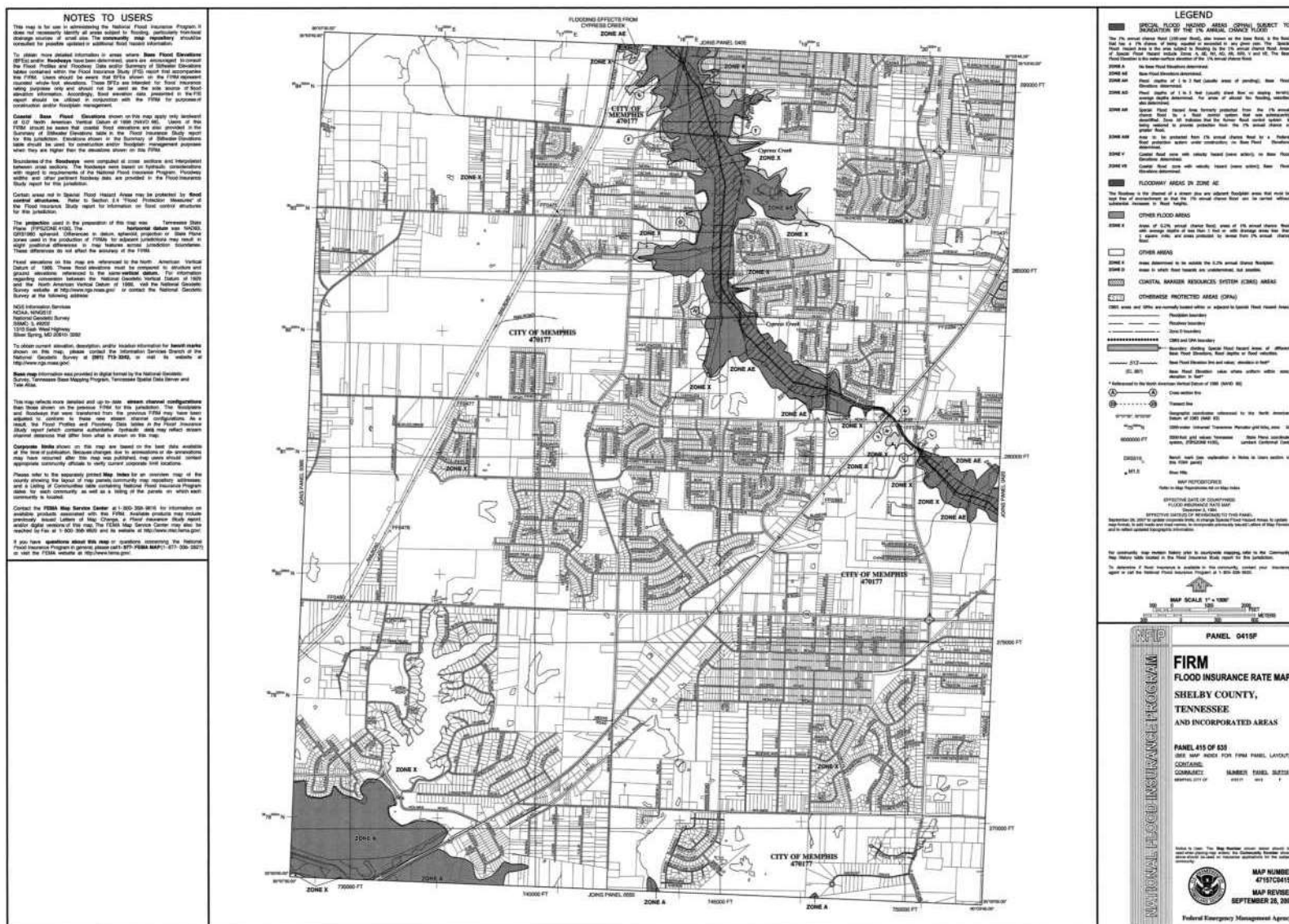




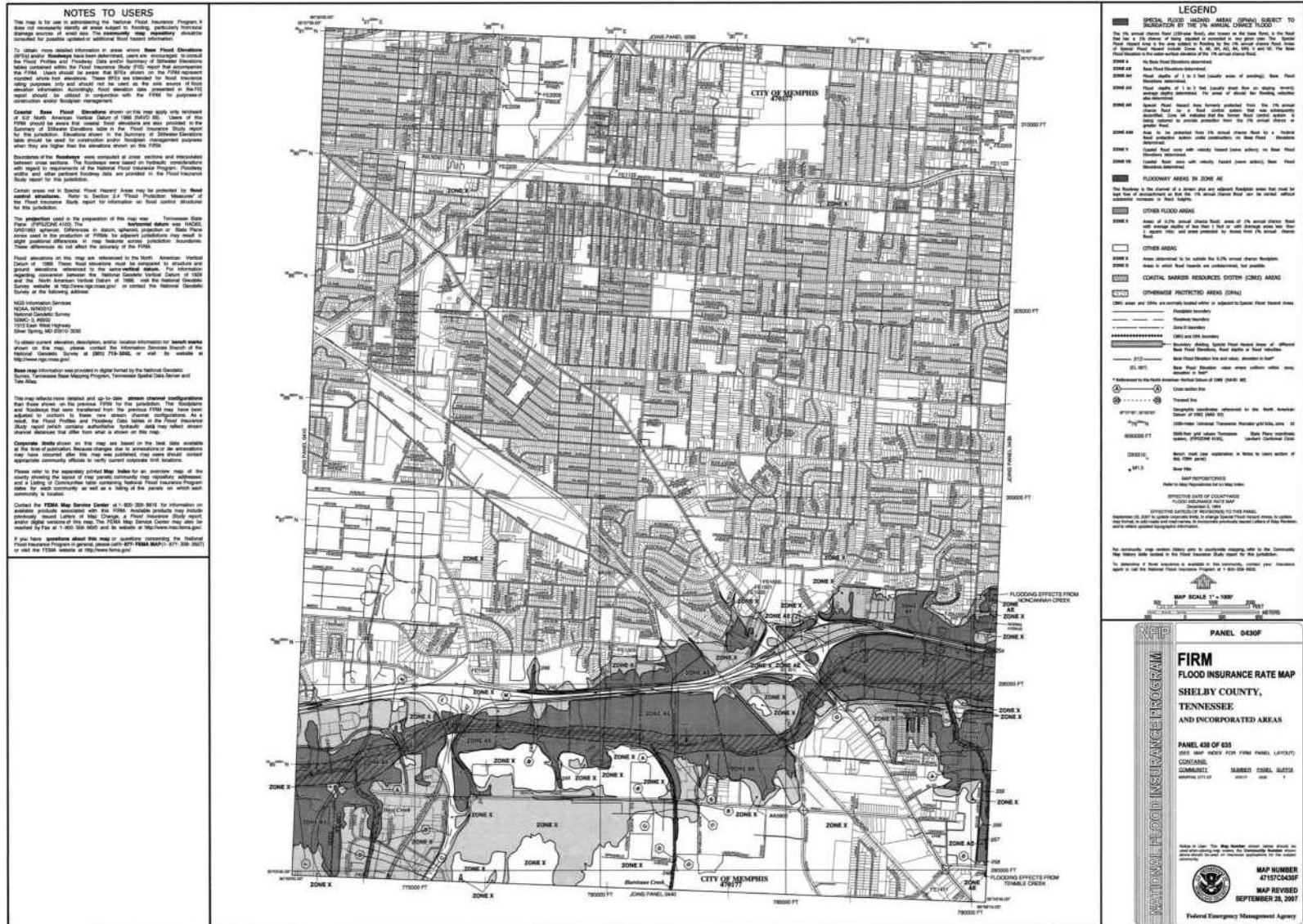




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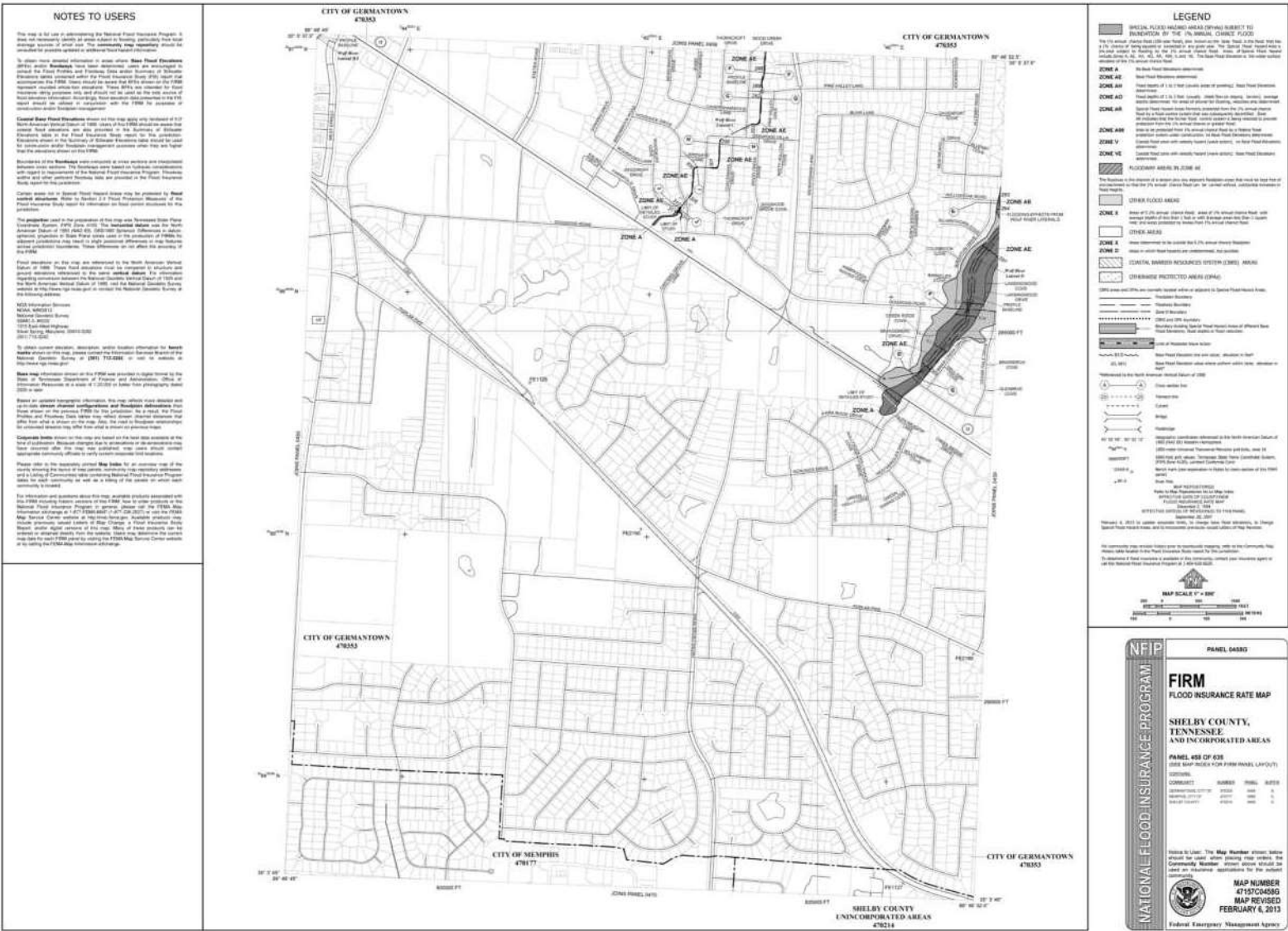




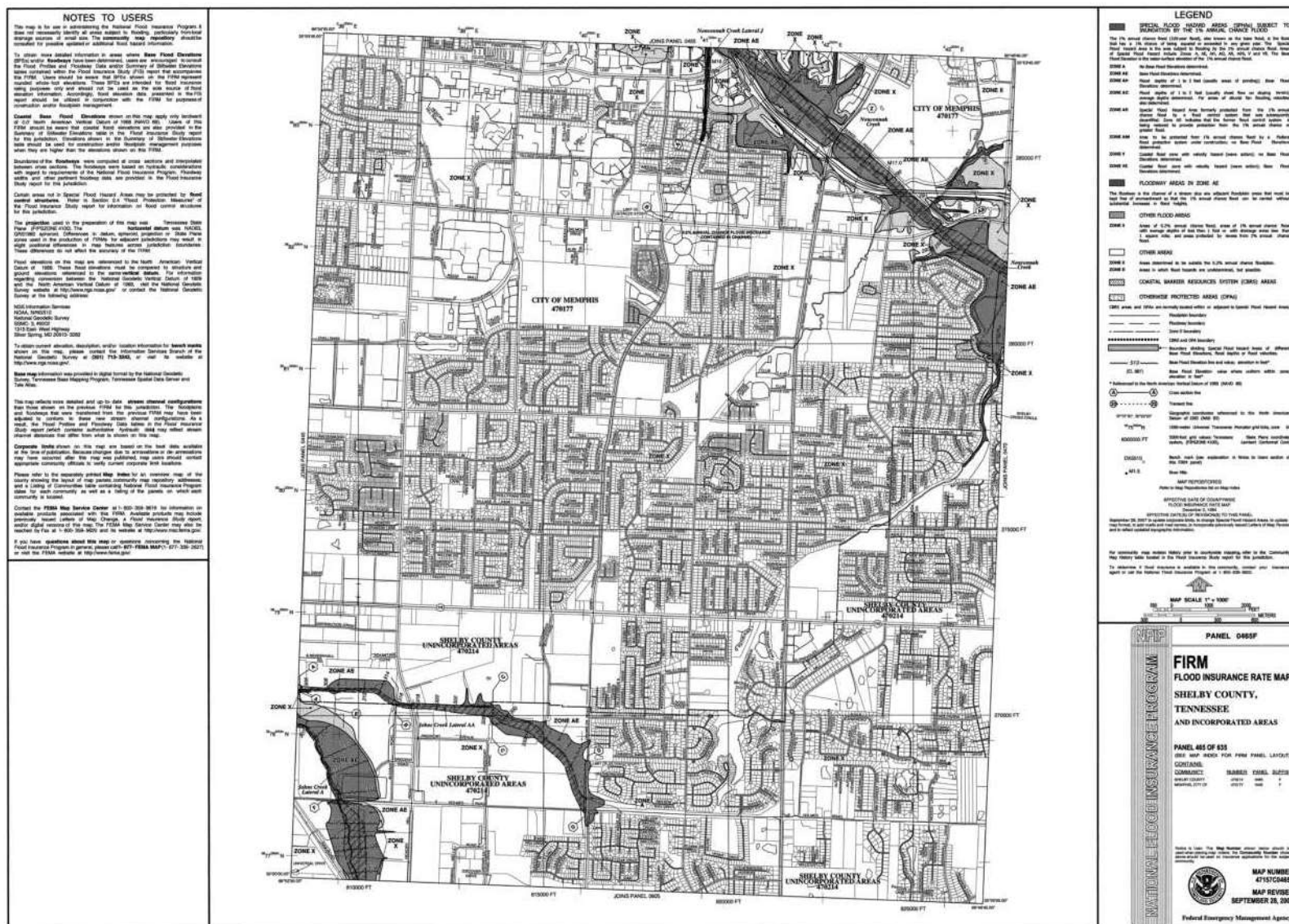




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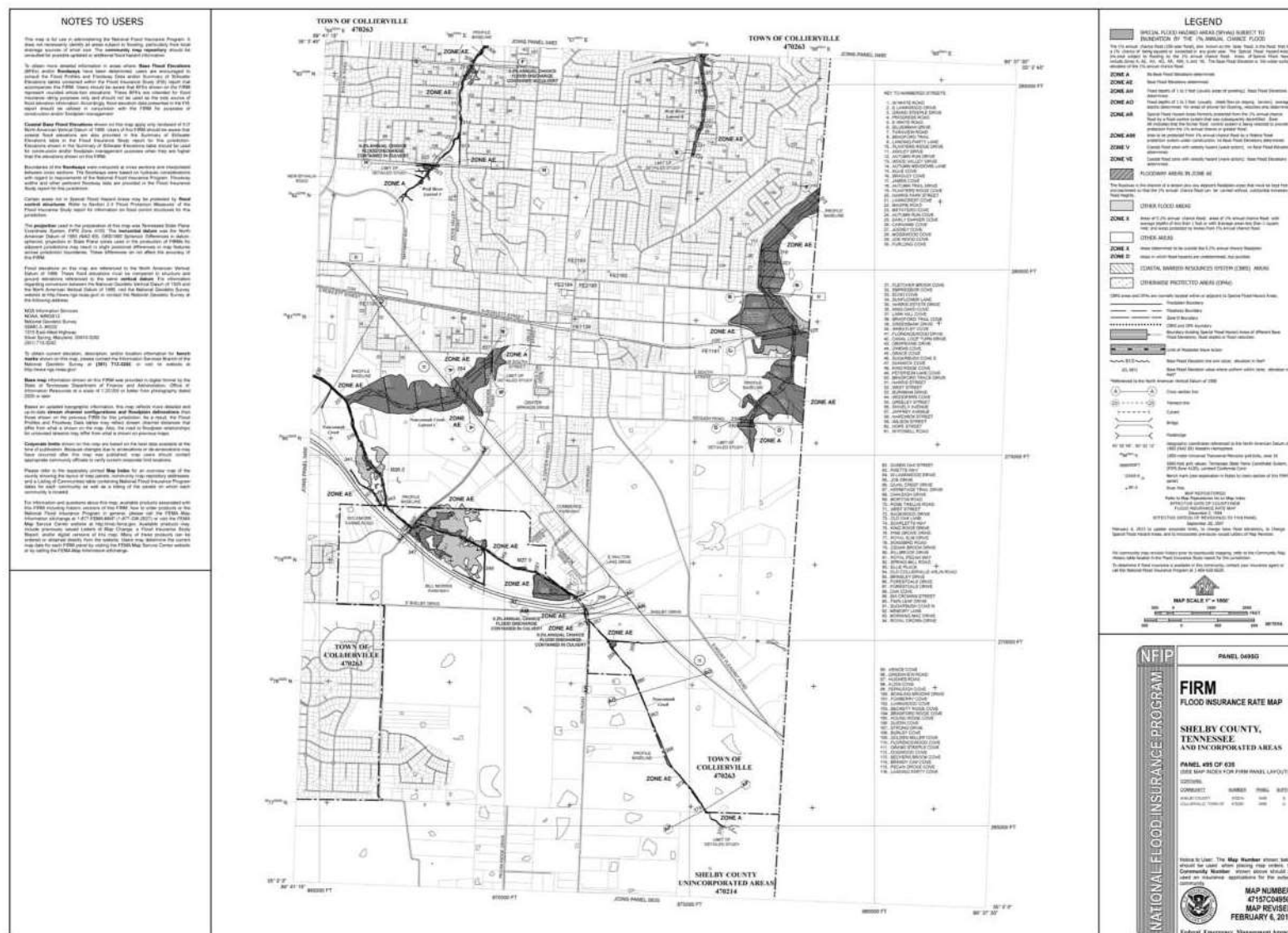






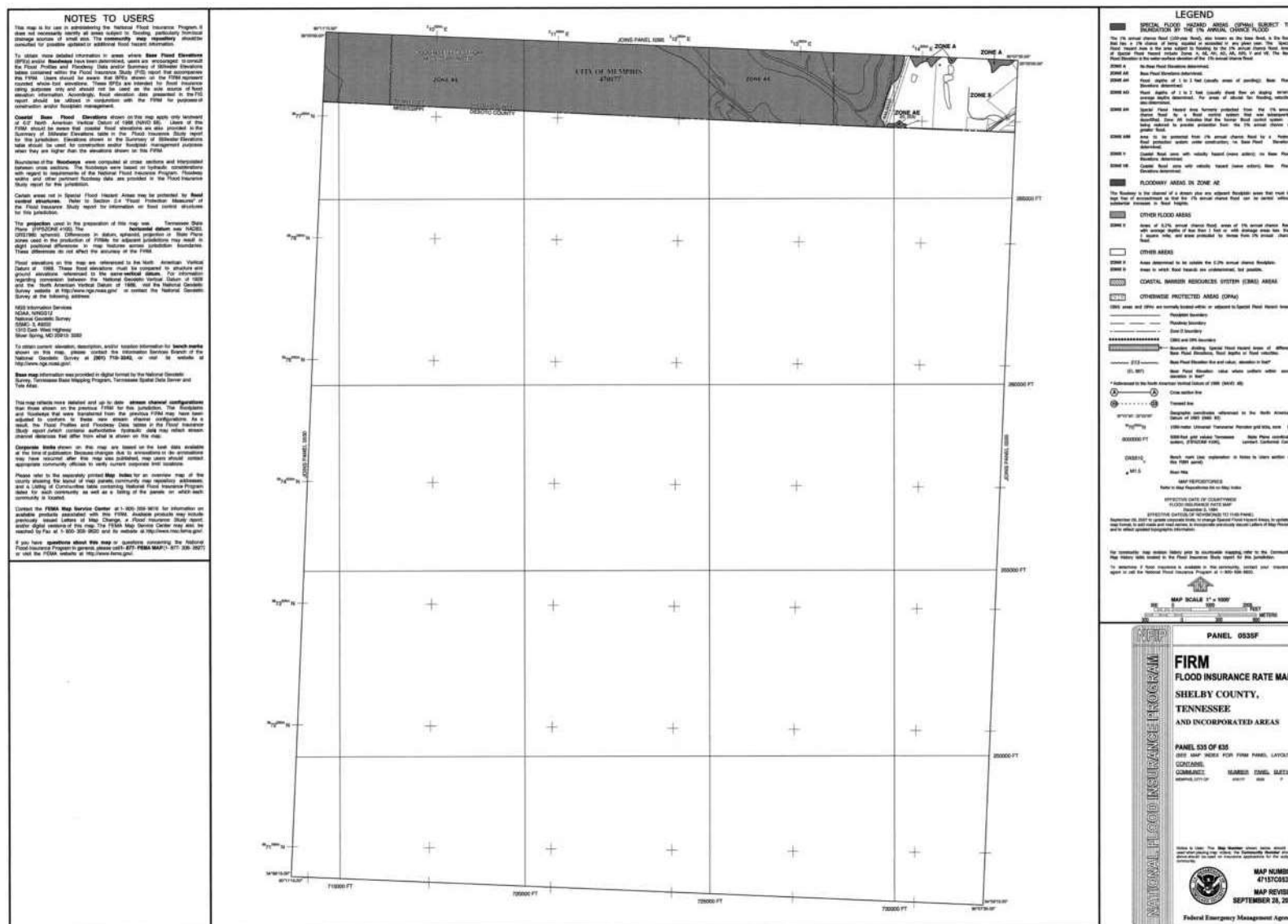


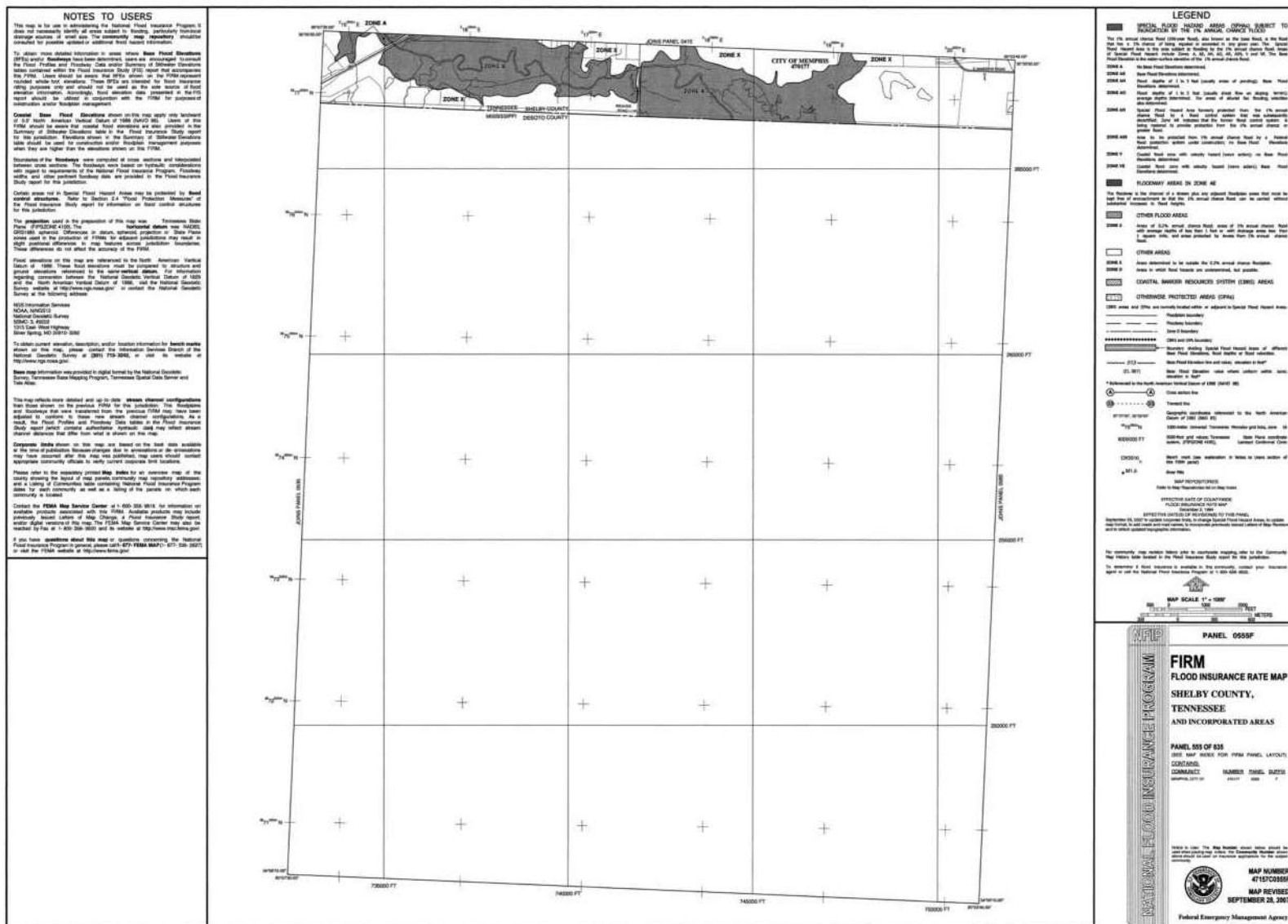






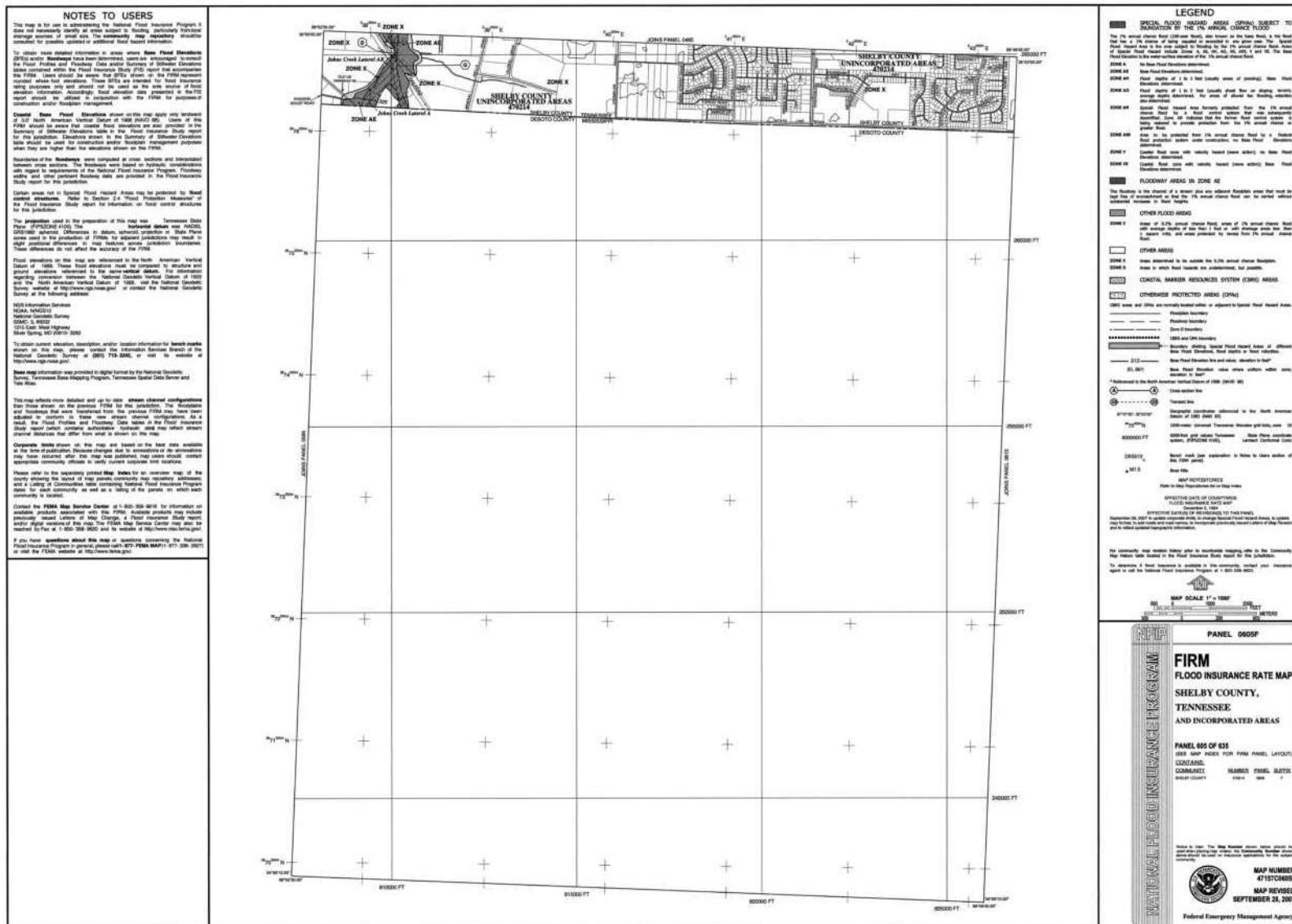




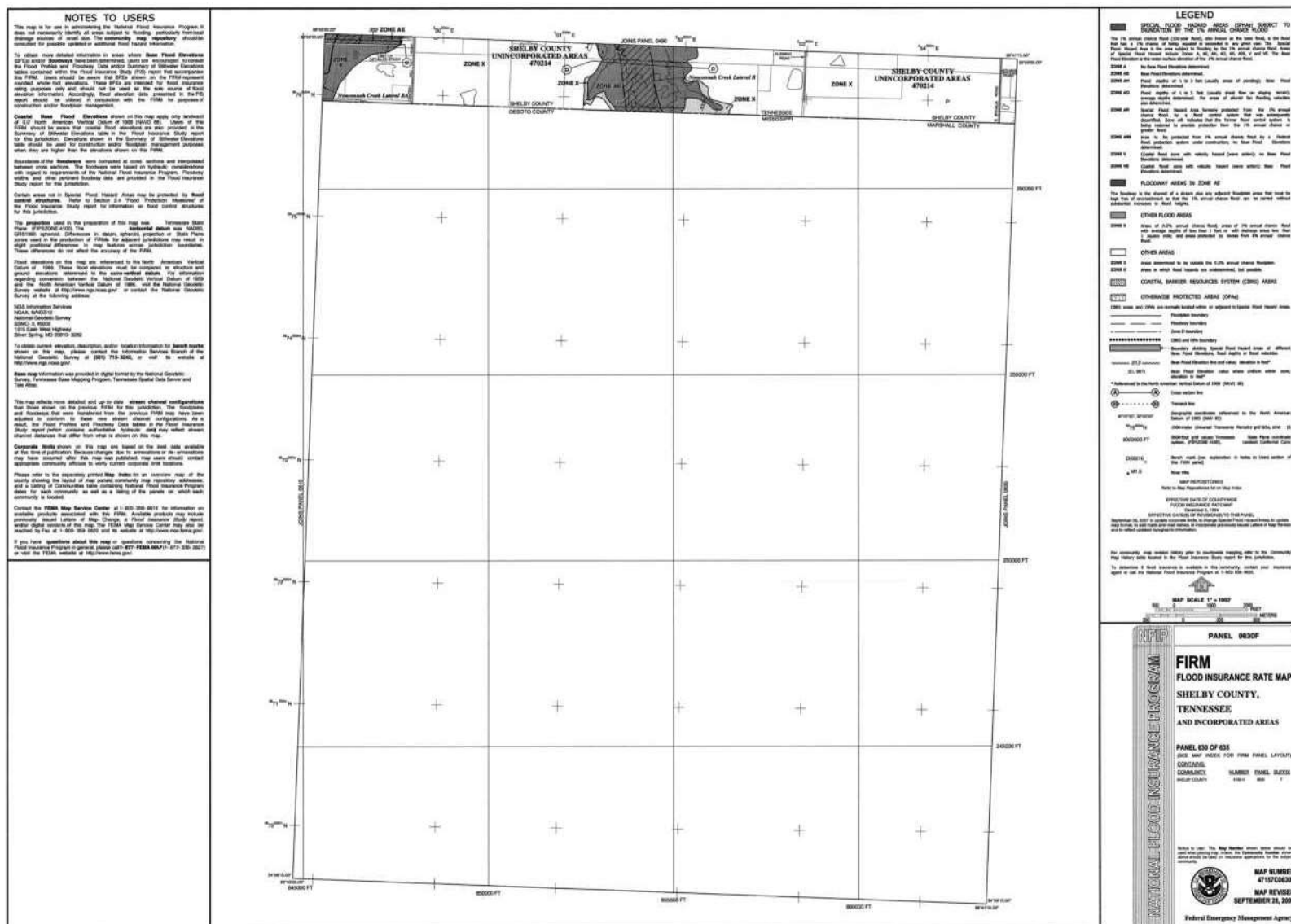


Packet Pg. 299









Appendix 5

HAZUS: 500-year Flood Study



Disclaimer:

This version of Hazus utilizes 2010 Census Data.
Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific flood. These results can be improved by using enhanced inventory data and flood hazard information.



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General Building Stock	4
Essential Facility Inventory	5
Flood Scenario Parameters	6
Building Damage	
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Essential Facilities Damage	9
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Debris Generation	
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General Description of the Region

Hazus is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The flood loss estimates provided in this report were based on a region that included 1 county(ies) from the following state(s):

- Tennessee

Note:

Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is approximately 785 square miles and contains 17,275 census blocks. The region contains over 351 thousand households and has a total population of 927,644 people (2010 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B.

There are an estimated 335,912 buildings in the region with a total building replacement value (excluding contents) of 109,057 million dollars. Approximately 91.43% of the buildings (and 73.49% of the building value) are associated with residential housing.



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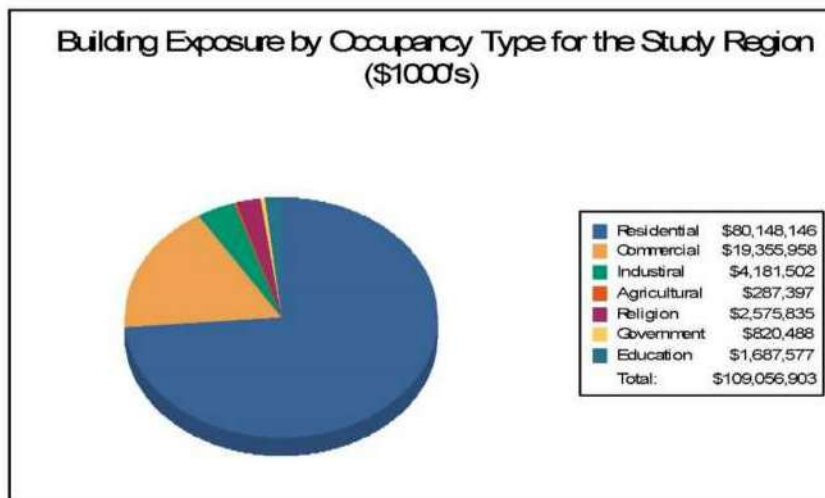
Building Inventory

General Building Stock

Hazus estimates that there are 335,912 buildings in the region which have an aggregate total replacement value of 109,057 million dollars. Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Scenario respectively. Appendix B provides a general distribution of the building value by State and County.

Table 1
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure (\$1000)	Percent of Total
Residential	80,148,146	73.5%
Commercial	19,355,958	17.7%
Industrial	4,181,502	3.8%
Agricultural	287,397	0.3%
Religion	2,575,835	2.4%
Government	820,488	0.8%
Education	1,687,577	1.5%
Total	109,056,903	100%



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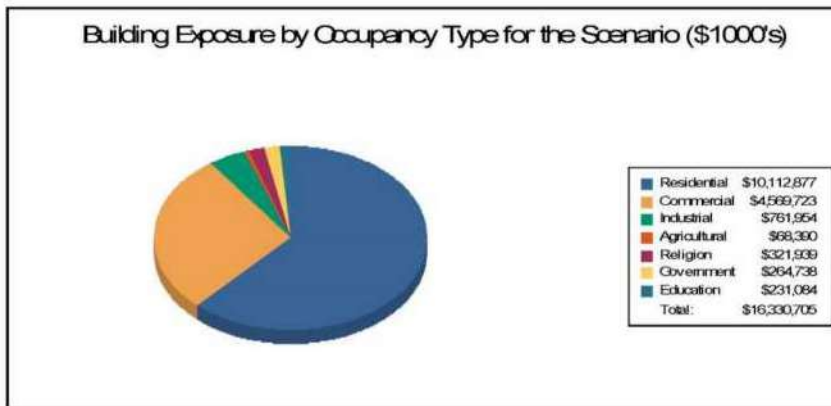


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Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure (\$1000)	Percent of Total
Residential	10,112,877	61.9%
Commercial	4,569,723	28.0%
Industrial	761,954	4.7%
Agricultural	68,390	0.4%
Religion	321,939	2.0%
Government	264,738	1.6%
Education	231,084	1.4%
Total	16,330,705	100%



Essential Facility Inventory

For essential facilities, there are 12 hospitals in the region with a total bed capacity of 4,163 beds. There are 339 schools, 11 fire stations, 36 police stations and 2 emergency operation centers.



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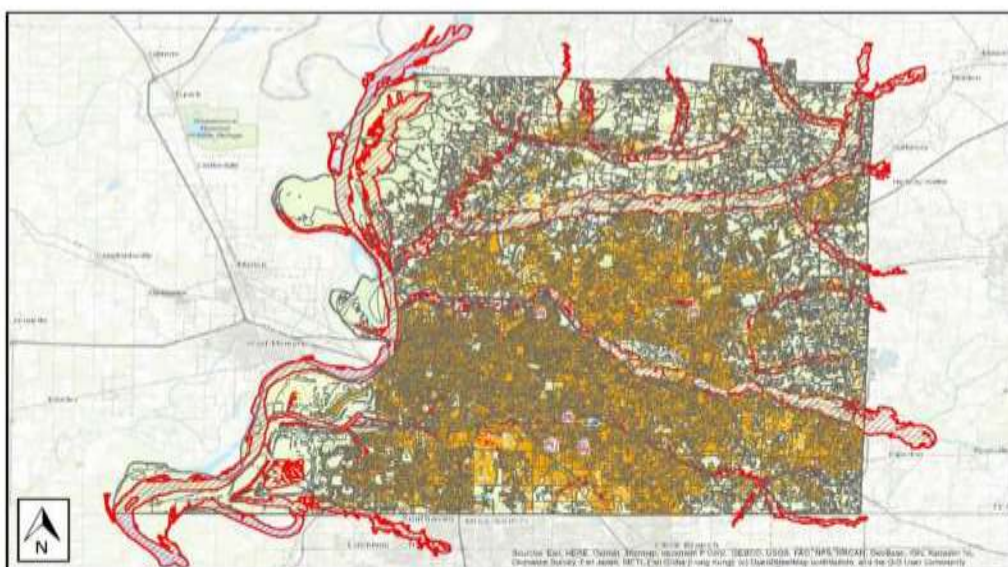
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Study Region Name:	Shelby_County
Scenario Name:	Shelby_County_50yr_Flood
Return Period Analyzed:	500
Analysis Options Analyzed:	No What-Ifs

Illustrating scenario flood extent, as well as exposed essential facilities and total exposure



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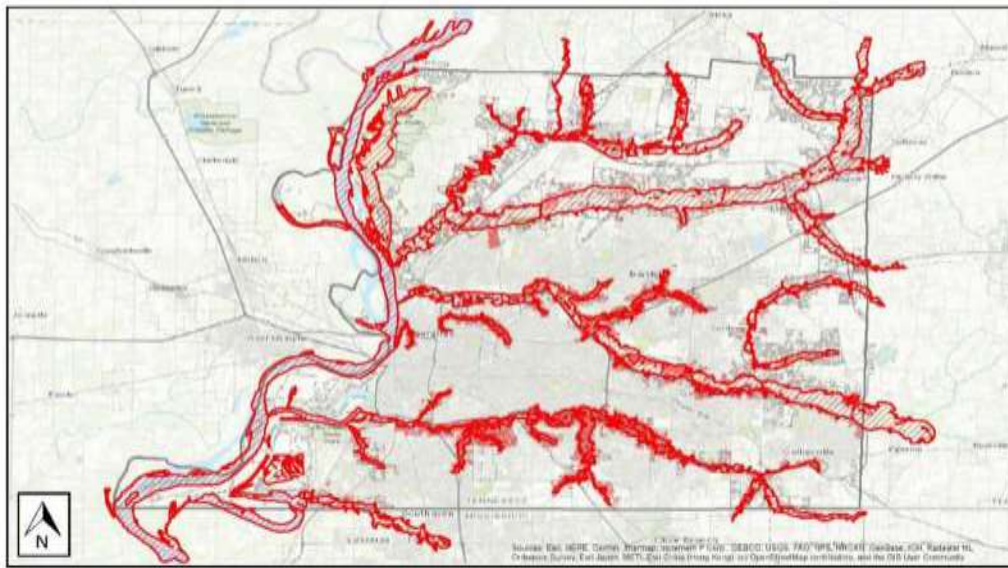


Building Damage

General Building Stock Damage

Hazus estimates that about 4,217 buildings will be at least moderately damaged. This is over 59% of the total number of buildings in the scenario. There are an estimated 504 buildings that will be completely destroyed. The definition of the 'damage states' is provided in the Hazus Flood Technical Manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

Total Economic Loss (1 dot = \$300K) Overview Map



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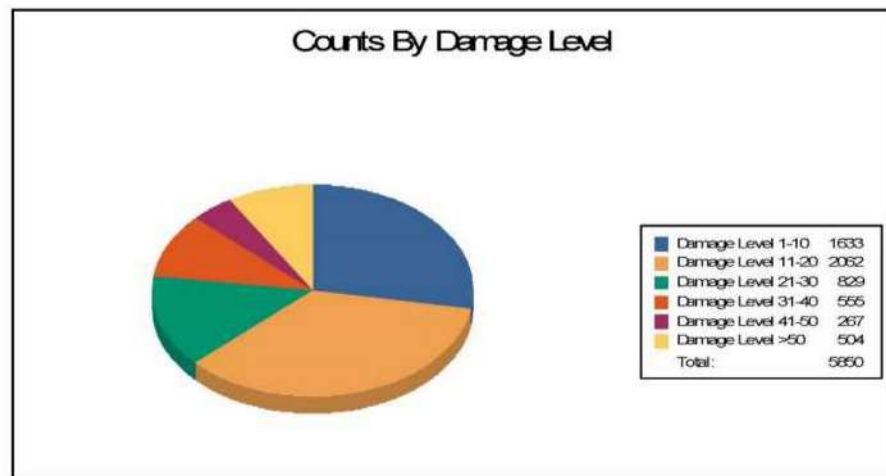


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Table 3: Expected Building Damage by Occupancy

Occupancy	1-10		11-20		21-30		31-40		41-50		>50	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	0	0	1	100	0	0	0	0	0	0	0	0
Commercial	42	42	56	57	1	1	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0	0	0
Government	10	59	6	35	1	6	0	0	0	0	0	0
Industrial	0	0	2	100	0	0	0	0	0	0	0	0
Religion	0	0	2	100	0	0	0	0	0	0	0	0
Residential	1,581	28	1,995	35	827	14	555	10	267	5	504	9
Total	1,633		2,062		829		555		267		504	



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Table 4: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		>50	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	6	50	6	50	0	0	0	0	0	0	0	0
Manuf/Housing	1	3	2	6	1	3	0	0	1	3	27	84
Masonry	140	32	188	43	47	11	33	7	13	3	20	5
Steel	12	41	17	59	0	0	0	0	0	0	0	0
Wood	1,496	28	1,881	35	790	15	530	10	254	5	463	9



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Essential Facility Damage

Before the flood analyzed in this scenario, the region had 4,163 hospital beds available for use. On the day of the scenario flood event, the model estimates that 4,163 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate	At Least Substantial	Loss of Use
Emergency Operation Centers	2	1	0	1
Fire Stations	11	0	0	0
Hospitals	12	0	0	0
Police Stations	36	1	0	1
Schools	339	8	0	8

If this report displays all zeros or is blank, two possibilities can explain this:

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.



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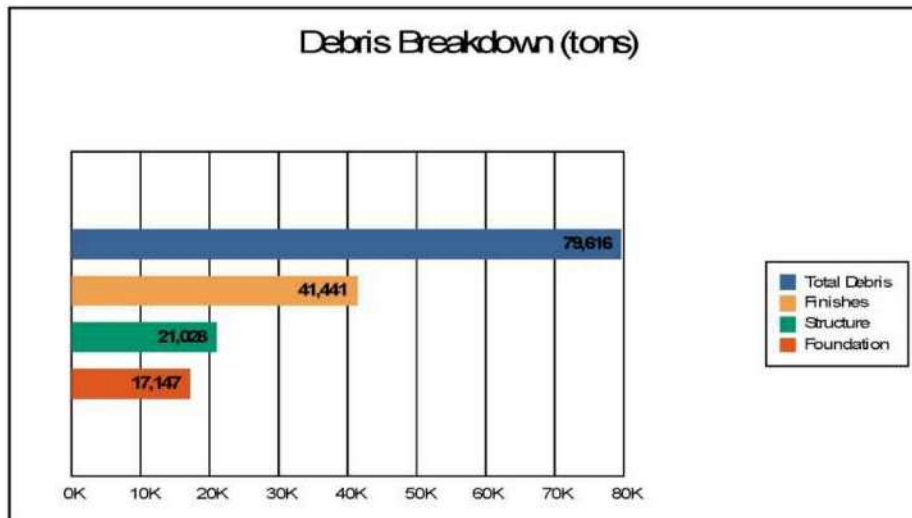
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Induced Flood Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.



The model estimates that a total of 79,616 tons of debris will be generated. Of the total amount, Finishes comprises 52% of the total, Structure comprises 26% of the total, and Foundation comprises 22%. If the debris tonnage is converted into an estimated number of truckloads, it will require 3185 truckloads (@25 tons/truck) to remove the debris generated by the flood.



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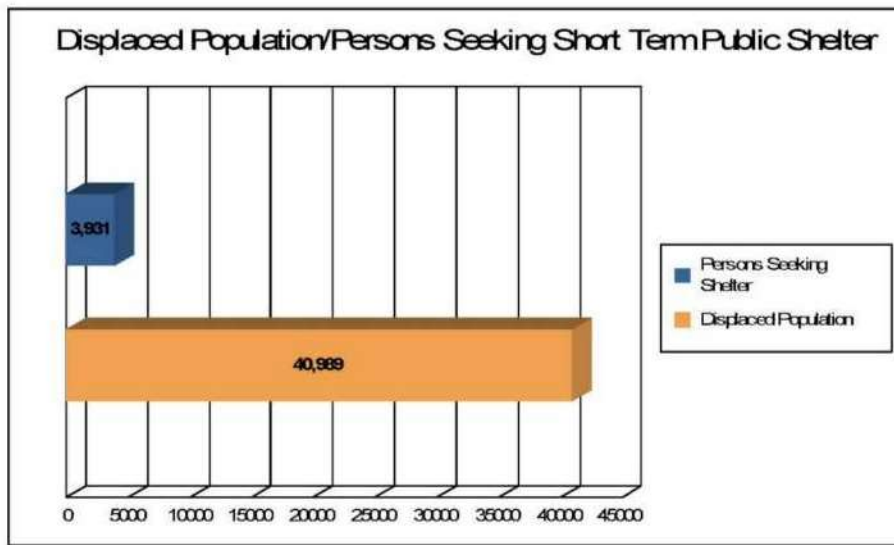
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Social Impact

Shelter Requirements

Hazus estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. Hazus also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 13,663 households (or 40,989 of people) will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 3,931 people (out of a total population of 927,644) will seek temporary shelter in public shelters.



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Economic Loss

The total economic loss estimated for the flood is 4,222.68 million dollars, which represents 25.86 % of the total replacement value of the scenario buildings.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses were 1,957.77 million dollars. 54% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 27.36% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.



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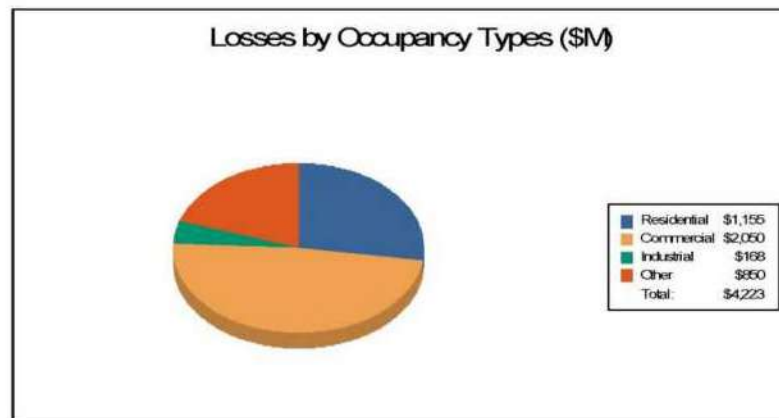
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Table 6: Building-Related Economic Loss Estimates
(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	522.73	227.24	45.36	31.24	826.57
	Content	296.09	558.32	94.07	146.55	1,095.02
	Inventory	0.00	18.34	16.32	1.52	36.18
	Subtotal	818.82	803.91	155.75	179.30	1,957.77
Business Interruption						
	Income	12.02	453.94	3.01	54.13	523.10
	Relocation	168.76	157.36	3.41	32.65	362.22
	Rental Income	107.48	100.30	0.58	4.90	213.26
	Wage	26.29	533.98	5.21	578.85	1,146.33
	Subtotal	336.57	1,245.59	12.21	670.53	2,264.90
ALL	Total	1,155.39	2,049.50	167.96	849.83	4,222.68



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Appendix A: County Listing for the Region

Tennessee
- Shelby



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Appendix B: Regional Population and Building Value Data

	Population	Building Value (thousands of dollars)		
		Residential	Non-Residential	Total
Tennessee				
Shelby	927,644	80,148,146	28,908,757	109,056,903
Total	927,644	80,148,146	28,908,757	109,056,903
Total Study Region	927,644	80,148,146	28,908,757	109,056,903



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Appendix 6

Ongoing Performance Tasks

1. The EMA will continue to educate the public on preparedness and safety.
2. The EMA will continue to participate in formal campaigns such as CUSEC's Earthquake Awareness Week.
3. The EMA will continue to coordinate activities for severe weather awareness week.
4. The EMA will continue to encourage residents to buy flood and earthquake insurance.
5. The utility companies have adopted a program to maintain right of ways. This Ongoing program will continue to keep power lines free of ground growth and tree limbs that could cause power outages during severe storms.
6. EMA will continue to monitor any flooding conditions that may arise within the county.
7. The EMA will continue working with all agencies to review and update the BEOP and other response plans.
8. The EMA will continue working with those agencies that will provide shelter during times of emergencies.
9. The mitigation committee working with the local media will provide periodic releases dealing with personal disaster plans for the general public; such as maintaining emergency supplies, family contacts, evacuation plans, shelter locations, etc.

Appendix 7

Ordinances

To be completed after FEMA approval



Board of Mayor and Aldermen

6400 Stage Road
Bartlett, TN 38134

SCHEDULED

RESOLUTION (ID # 2988)

Meeting: 07/13/21 06:00 PM

Department: Finance

Category: Presentation

Prepared By: Dick Phebus

Initiator: Dick Phebus

Sponsors:

DOC ID: 2988

Resolution 19-21, a resolution to delete uncollectable property taxes, interest, penalties, and associated costs from the City of Bartlett tax rolls in the amount of \$6,024.53.

WHEREAS, the Shelby County Trustee's office has identified delinquent property taxes that have been determined to be uncollectible and has removed all tax, interest, penalties and associated costs from the Trustee's tax system; and

WHEREAS, the City of Bartlett has determined that these taxes and property maintenance charges dating from tax year 2009 through 2019 are delinquent and uncollectible;

NOW THEREFORE BE IT RESOLVED By the BOARD OF MAYOR AND ALDERMEN that the taxes, interest, penalties, and associated costs, including property maintenance charges, on the properties listed in the attached schedule totaling \$6,024.53 are deemed uncollectible and should be removed from the City of Bartlett tax system.

Adopted this day of July 13, 2021

W.C. Pleasant, Register to the

A. Keith McDonald, Mayor

Board of Mayor and Aldermen

Attest: _____
Penny Medlock, City Clerk

BARTLETT WRITE-OFF

UNCOLLECTABLE TAXES
TO BE TAKEN BEFORE BOARD OF MAYOR AND ALDERMEN

FISCAL YEAR JULY 1, 2021
 THRU JUNE 30, 2022

PARCEL ID	BILL #	YEAR	OWNER	ADDRESS	REASON	TAX AMOUNT
PB125606	50042	2009	ADAMS & ASSOCIATES INSURANCE	2851 STAGE VILLAGE COVE STE. 334	STATUTE OF LIMITATIONS	\$149.30
PB207015	50106	2009	ANTHONY'S CLASSIC HALL	2828 STAGE CENTER STE 10	STATUTE OF LIMITATIONS	\$89.40
PB209457	50113	2009	ARCHIE'S BURGERS	5119 BRIARWIND	STATUTE OF LIMITATIONS	\$4.47
			AUTO CONNECTION / PROPERTY			
PB193575	51277	2009	MAINTENANCE SERVICE	3821 WESTRIDGE DR	STATUTE OF LIMITATIONS	\$29.06
PB208204	50596	2009	BOOKS ARE FUN BOOK FAIR	5093 FLUSS COVE	STATUTE OF LIMITATIONS	\$11.62
			CUSTOM COATING PAINTING &			
PB119253	50455	2009	HARDWARE	6066 SURREY HOLLOW COVE	STATUTE OF LIMITATIONS	\$323.63
PB200318	50461	2009	CUSTOM PAINT AND REPAIR	3355 COACHOUSE CV	STATUTE OF LIMITATIONS	\$16.09
PB198446	50558	2009	EARTHPRO	3742 CHARLESTON SQUARE	STATUTE OF LIMITATIONS	\$6.26
PB178561	50688	2009	FREELANCE JEWELRY	3723 MORNING RISE COVE	STATUTE OF LIMITATIONS	\$36.21
PB155887	50709	2009	GATOR BROWNS BAIT N TACKLE SHOP	6818 HWY 70 SUMMER AVE	STATUTE OF LIMITATIONS	\$152.87
PB183516	50733	2009	GOLDEN TOUCH	7252 SHADY OAKS DRIVE	STATUTE OF LIMITATIONS	\$4.47
PB190968	50823	2009	HOMEFRONT REALTORS	2855 STAGE	STATUTE OF LIMITATIONS	\$28.16
PB191858	50859	2009	J & B CONSTRUCTION	7263 OLD BROWNSVILLE ROAD	STATUTE OF LIMITATIONS	\$20.56
PB177467	50860	2009	J & B ELECTRONICS	6821 HWY 70 STE #2	STATUTE OF LIMITATIONS	\$61.69
PB182344	50862	2009	J & L MANAGEMENT	0 MEMPHIS	STATUTE OF LIMITATIONS	\$11.62
PB170167	50882	2009	JAMES M HOOTS ATTY	2820 SUMMER OAKS ROAD	STATUTE OF LIMITATIONS	\$9.83
			JOHNSON & JOHNSON LAWN CARE &			
PB181008	50901	2009	PAINTING	4806 KINGS FOREST DRIVE	STATUTE OF LIMITATIONS	\$25.93
PB165467	50925	2009	KELLEYS CONSTRUCTION	3583 SOUTHERN WAY	STATUTE OF LIMITATIONS	\$11.04
PB195490	50997	2009	LUXURY WHEELS	3507 APPLING ROAD	STATUTE OF LIMITATIONS	\$2.68
PB148370	51127	2009	MORGAN CONSTRUCTION CO	4529 GIVEN AVE	STATUTE OF LIMITATIONS	\$98.79
PB170973	50234	2009	MYRON J MAYS BUSINESS SOLUTIONS	5423 SUNDALE WAY	STATUTE OF LIMITATIONS	\$9.39
PB068674	51256	2009	PORTER WILLIAM RICHARD, MD PC	2743 SUMMER OAKS	STATUTE OF LIMITATIONS	\$265.07
PB157953	51160	2009	REGIONS MORTGAGE (DBA)	3180 BRIARLY LN	STATUTE OF LIMITATIONS	\$145.28
PB208964	51340	2009	RELAX DAY SPA	2965 GERMANTOWN RD STE	STATUTE OF LIMITATIONS	\$15.65
PB141401	51356	2009	RIVER CITY PLUMBING	6383 NEEDLE RIDGE DR	STATUTE OF LIMITATIONS	\$154.22
PB210504	51409	2009	SCOTT SHOP GIFTS	3978 CARLA LANE	STATUTE OF LIMITATIONS	\$4.47

Attachment: Tax Write-offs 7-13-2021 (2988 : Res. 19-21, Tax Write-offs)

BARTLETT WRITE-OFF

UNCOLLECTABLE TAXES
TO BE TAKEN BEFORE BOARD OF MAYOR AND ALDERMEN

FISCAL YEAR JULY 1, 2021
 THRU JUNE 30, 2022

PARCEL ID	BILL #	YEAR	OWNER	ADDRESS	REASON	TAX AMOUNT
PB192855	51571	2009	TATE & RICHARDSON PROPERTIES	8143 CLINTON WAY CV	STATUTE OF LIMITATIONS	\$37.55
PB208389	51631	2009	THE SILVER PYRAMID	6025 STAGE RD #42-428	STATUTE OF LIMITATIONS	\$11.62
PB165394	51774	2009	WINFREY WORKS	6055 CASCADE HILL CV	STATUTE OF LIMITATIONS	\$113.54
PB205147	51783	2009	WRANGLER'S BAR AND GRILL	4210 ALTURIA BLVD #STE 10	STATUTE OF LIMITATIONS	\$100.58
B0149P00008	4607	2009	CMH FARMS LLC	0 HAMPTON RIDGE	STATUTE OF LIMITATIONS	\$0.75
			GUFFIN NATHANAL AND SEAWARD			
B014800004		2009	GUFFIN AND	6212 GUFFIN	STATUTE OF LIMITATIONS	\$1,624.47
PB130456	52262	2017	WORD ELECTRIC COMPANY	6301 CAROLOT LANE	OUT OF BUSINESS	\$24.16
PB130456	52362	2018	WORD ELECTRIC COMPANY	6301 CAROLOT LANE	OUT OF BUSINESS	\$25.25
PB130456	52323	2019	WORD ELECTRIC COMPANY	6301 CAROLOT LANE	OUT OF BUSINESS	\$26.35
B0157HD00008	30299	2009	EDWARDS W TERRY	SUMMER OAKS DR	STATUTE OF LIMITATIONS	\$765.00
B0157HD00008	30464	2009	EDWARDS W TERRY	SUMMER OAKS DR	STATUTE OF LIMITATIONS	\$550.00
B0157HD00009	30298	2009	EDWARDS W TERRY	SUMMER OAKS DR	STATUTE OF LIMITATIONS	\$305.00
B0157HD00009	30463	2009	EDWARDS W TERRY	SUMMER OAKS DR	STATUTE OF LIMITATIONS	\$265.00
B014800437	40054	2016	ROBINSON EDDIE W & VADILA M	6757 OLD BROWNSVILLE RD	COUNTY OWNED	\$200.00
B014800437	40115	2017	ROBINSON EDDIE W & VADILA M	6757 OLD BROWNSVILLE RD	COUNTY OWNED	\$287.50
						\$6,024.53

Attachment: Tax Write-offs 7-13-2021 (2988 : Res. 19-21, Tax Write-offs)



Board of Mayor and Aldermen

6400 Stage Road
Bartlett, TN 38134

SCHEDULED

RESOLUTION (ID # 2992)

Meeting: 07/13/21 06:00 PM

Department: Finance

Category: Presentation

Prepared By: Dick Phebus

Initiator: Dick Phebus

Sponsors:

DOC ID: 2992

Resolution 20-21, a resolution to amend the Fiscal Year 2021 Bartlett City Schools Education Capital Project Fund, Federal and State Special Revenue Fund and General Purpose School Fund.

WHEREAS, the Bartlett City Board of Mayor and Aldermen is required to approve the Bartlett City Board of Education General Purpose School Fund budget and other School Special Revenue Fund budgets, as amended; and

WHEREAS, the Bartlett City Board of Education, using Resolution 8-10, has approved a budget amendment June 24, 2021 to its FY2021 Federal and State Special Revenue Fund revenues and expenditures by \$14,878,350.00, increasing its General Purpose School Fund expenditures by \$14,000,000.00 for transfers to the Education Capital Projects Fund, and to its Education Capital Projects Fund by increasing expenditures by \$14,000,000.00 for renovations and furniture to the Academy; and

WHEREAS, resolution 8-10 of the Bartlett City Board of Education is hereby attached and made a part of this resolution by reference;

NOW THEREFORE BE IT RESOLVED By the Board of Mayor and Aldermen that the amendments to the FY2021 Federal and State Special Revenue Fund, FY2021 Education Capital Projects Fund and the FY2021 General Purpose School Fund of the Bartlett City Board of Education are approved.

Adopted this day of July 13, 2021

W.C. Pleasant, Register to the

A. Keith McDonald, Mayor

Board of Mayor and Aldermen

Attest: _____
Penny Medlock, City Clerk



RESOLUTION 8-10

A RESOLUTION TO AMEND THE 2020-2021 FISCAL YEAR SPECIAL REVENUE FUND BUDGETS, GENERAL PURPOSE FUND BUDGET, AND EDUCATION CAPITAL PROJECTS FUND BUDGET OF THE BARTLETT CITY SCHOOLS AND TO APPROVE THE PLANNED USE OF GENERAL FUND BALANCE.

WHEREAS, Tennessee Code Annotated §49-2-203(a)(10)(A)(i) requires the Bartlett City Board of Education to direct the Superintendent and the Chair to prepare a budget on forms furnished by the Commissioner, and when the budget has been approved by the Board, to then submit that budget to the Bartlett Board of Mayor and Aldermen for their approval; and

WHEREAS, these amendments to the Special Revenue Fund Budgets, the General Purpose Fund Budget, and the Education Capital Projects Fund Budget change the total amount of the budget.

NOW, THEREFORE, BE IT RESOLVED BY THE BARTLETT CITY BOARD OF EDUCATION:

Section 1. That the annual Special Revenue Fund Budget, General Fund Budget, and Education Capital Projects Fund Budget for the 2020-2021 school year for the Bartlett City Schools as presented in official budget documents are hereby amended by reference in the following amounts and within the following grants referenced below:

2020-21 FEDERAL AND STATE SPECIAL REVENUE FUND REVENUES:		\$3,970,624
Revenues are amended in the following categories:		
142-47141	Title 1-A is amended from \$1,357,076 to \$2,833,349	\$1,476,273
142-47141	Title Consolidated Administration is amended from \$134,136 to \$358,732	\$224,596
142-47141	Title 1-N is amended from \$432,727 to \$961,597	\$528,870
142-47141	Title 1-D is amended from \$19,227 to \$62,712	\$43,485

142-47189	Title II-A is amended from \$319,769 to \$533,522	\$213,753
142-47146	Title III-ELA is amended from \$2,069 to \$17,106	\$15,037
142-47590	Title IV is amended from \$221,493 to \$347,293	\$125,800
142-47143	IDEA Part B is amended from \$858,902 to \$2,185,976	\$1,327,074
142-47145	IDEA Preschool is amended from \$27,876 to \$66,130	\$38,254
142-47131	Perkins Basic is amended from \$0 to \$139,964	\$139,964
142-47131	Perkins Reserve Consolidated is amended from \$0 to \$50,000	\$50,000
142-47301	ESSER1 Amended from \$0 to \$2,140,222	\$2,140,222
142-47301	ESSER2 Amended from \$0 to \$7,850,156	\$7,850,156
142-47303	LEA ReOpening is Amended from \$0 to \$125,000	\$125,000
142-47304	Remote Learning Technology is Amended from \$0 to 185,415	\$185,415
142-47305	Technology Connectivity is Amended from \$0 to \$8,100	\$8,100
142-47306	Corona Relief is Amended from \$0 to \$26,968	\$26,968
145-46590	Voluntary Pre-K is amended from \$75,967 to \$189,642	\$113,675
145-44990	First-8 Pre-K is amended from \$43,012 to \$122,000	\$78,988
145-46590	Coordinated School Health is amended from \$29,827 to \$90,000	\$60,173
145-46981	Safe Schools is amended from \$107,035 to \$261,325	\$154,290
145-46980	Arts Students Ticket Subsidy is amended from \$1,270 to \$1,029	(\$241)
145-46980	TN Arts Commission 360 is amended from \$7,699 to \$10,000	\$2,301

Attachment: BOE Resolution 8-10 Budget Amendment SIGNED (2992 : Res. 20-21, GPS Amendment #8-10)

145-46980	TN Arts Commission Teacher Training is amended from \$385 to \$0		(\$385)
145-47131	CTE Perkins Basic is amended from \$49,418 to \$0		(\$49,418)
	Amended Federal and State Special Revenue Fund Revenues		\$18,848,974
2020-21 FEDERAL AND STATE SPECIAL REVENUE FUND EXPENDITURES			\$3,970,624
Expenditures are amended in the following categories:			
1006	Title I-A is amended from \$1,357,076 to \$2,833,349		\$1,476,273
0106	Title Consolidated Administration is amended from \$134,136 to \$358,732		\$224,596
1106	Title 1-N is amended from \$432,727 to \$961,597		\$528,870
1606	Title 1-D is amended from \$19,227 to \$62,712		\$43,485
2006	Title II-A is amended from \$319,769 to \$533,522		\$213,753
3006	Title III-A is amended from \$2,069 to \$17,106		\$15,037
4400	Title IV is amended from \$221,493 to \$347,293		\$125,800
9006	IDEA Part B is amended from \$858,902 to \$2,185,976		\$1,327,074
9106	IDEA Preschool is amended from \$27,876 to \$66,130		\$38,254
8046	Voluntary Pre-K is amended from \$75,967 to \$189,642		\$113,675
8058	First-8 Pre-K is amended from \$43,012 to \$122,000		\$78,988
8706	Coordinated School Health is amended from \$29,827 to \$90,000		\$60,173
8036	Safe Schools is amended from \$107,035 to \$261,325		\$154,290
8086	Arts Students Ticket Subsidy is amended from \$1,270 to \$0		\$-1,270
8088	Arts Students Ticket Subsidy is amended from \$0 to \$1,029		\$1,029

8076	TN Arts Commission 360 is amended from \$7,699 to \$10,000	\$2,301
8075	TN Arts Teacher Training is amended from \$385 to \$0	(\$385)
8010	CTE Perkins Basic is amended from \$0 to \$139,964	\$139,964
8010	CTE Perkins Basic is amended from \$49,418 to \$0	(\$49,418)
8020	Perkins Reserve Consolidated is amended from \$0 to \$50,000	\$50,000
9310	ESSER1 is Amended from \$0 to \$2,167,190	\$2,167,190
9320	LEA Reopening is Amended from \$0 to \$125,000	\$125,000
9330	Remote Learning Technology is amended from \$0 to \$185,415	\$185,415
9340	ESSER2 is Amended from \$0 to \$7,850,156	\$7,850,156
9390	Technology Connectivity is Amended from \$0 to \$8,100	\$8,100
	Amended Federal and State Special Revenue Fund Expenditures	\$18,848,974
2020-21 GENERAL PURPOSE FUND BUDGET REVENUES		\$87,845,524.45
	Revenues are not amended	
2020-21 GENERAL PURPOSE FUND BUDGET EXPENDITURES		\$93,666,924.45
	Expenditures are amended in the following categories:	
	141-71100-42900-860-0030-0000 Summer Learning Camp - Instructional Supplies & Materials is amended from \$11,980 to \$78,612.68	\$66,632.68
	141-73100-42200-860-0030-0000 Summer Learning Camp - Food Supplies is amended from \$0 to \$25,397.60	\$25,397.60
	141-72110-20700-610-1000-0000 Attendance - Medical Insurance is amended from \$44,520 to \$74,520	\$30,000
	141-72210-18900-335-1000-0000 Regular Instruction Support - Other Salaries & Wages is amended from \$159,326 to \$229,326	\$70,000
	141-72230-20700-355-1000-0000 Vocational Education Support - Medical Insurance is amended from \$8,904 to \$16,904	\$8,000

Attachment: BOE Resolution 8-10 Budget Amendment SIGNED (2992 : Res. 20-21, GPS Amendment #8-10)

141-71100-72200-860-0030-0000 Summer Learning Camp - Reg Inst Equipment is amended from \$165,630.28 to \$73,600		(\$92,030.28)
141-72710-31200-635-1000-0000 Transportation - Contracts w/Private Agencies is amended from \$3,205,124 to \$3,097,124		(\$108,000)
Amended 2020-21 General Purpose Fund Budget Expenditures		\$93,666,924.45
2020-21 EDUCATION CAPITAL PROJECTS FUND BUDGET REVENUES		\$13,686,451.56
Revenues are amended in the following categories:		
177-49800-00000-000-0000-5480 Transfers in from General Fund-Academy Renovations is Amended from \$0 to \$14,000,000		\$14,000,000
Amended 2020-21 Education Capital Projects Fund Budget Revenues		\$27,686,451.56
2020-21 EDUCATION CAPITAL PROJECTS FUND BUDGET EXPENDITURES		\$13,686,451.56
Expenditures are amended in the following categories:		
177-91300-30400-000-0000-5480 Architects-Academy Renovations is Amended from \$0 to \$400,000		\$400,000
177-91300-70600-000-0000-5480 Building Construction – Academy Renovations is Amended from \$0 to \$13,000,000		\$13,000,000
177-91300-71100-000-0000-5480 Furniture and Fixtures – Academy Renovations is Amended from \$0 to \$600,000		\$600,000
Amended 2020-21 Education Capital Projects Fund Budget Expenditures		\$27,686,451.56
2020-21 GENERAL PURPOSE FUND BUDGET FUND BALANCE		\$32,592,155
General Purpose Fund balance is amended in the following category:		
141-34555-00000-000-0000-0000 Fund Balance is amended from \$32,592,155 to \$18,592,155		
Amended General Purpose Fund Balance		\$18,592,155

Attachment: BOE Resolution 8-10 Budget Amendment SIGNED (2992 : Res. 20-21, GPS Amendment #8-10)

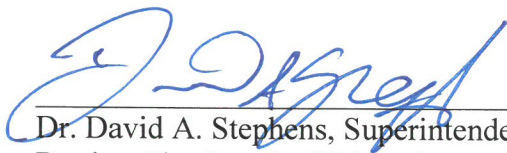
Section 2. That the budget documents required by law will be amended and submitted as required for approval to the Bartlett Board of Mayor and Aldermen, and, upon approval, shall be submitted as required to the State of Tennessee.

Section 3. That this resolution shall become effective June 24, 2021 from and after its adoption by the Bartlett City Board of Education.

Adopted this 24 day of June, 2021.



David M. Cook II, Chairman
Bartlett City Board of Education



Dr. David A. Stephens, Superintendent
Bartlett City Board of Education



APPROVED AS TO FORM:
Kari Shoopman, General Counsel