

# 1 INTRODUCTION AND PLANNING PROCESS

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## 1.1 PURPOSE

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Hazard mitigation is “any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards.” The work done to minimize the impact of natural hazard events to life and property is called Hazard Mitigation. Warren County and its six participating jurisdictions and four school districts developed the multi-jurisdictional local hazard mitigation plan update to reduce losses from future hazard events and to ensure that the county and its participating jurisdictions remain eligible for mitigation grants. Jurisdictions and school districts that choose not to participate will not be eligible for mitigation planning and pre-disaster planning grants.

This document is the 5-year update of a plan that was approved on November 21, 2016. The plan and the update were prepared pursuant to the requirements of the [Robert T. Stafford Disaster Relief and Emergency Act \(Public Law 93-288\) as amended by the Disaster Mitigation Act of 2000 \(Public Law 106-390\)](#) and the implementing regulations set forth by the Interim Final Rule published in the *Federal Register* on February 26, 2002, ([44 CFR §201.6](#)) and finalized on October 31, 2007. (Hereafter, these requirements will be referred to collectively as the Disaster Mitigation Act, or DMA.) This plan update results in eligibility for the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant programs. Additional guidance was provided by FEMA’s [Local Mitigation Planning Handbook, March 2013](#) and FEMA’s [Local Mitigation Plan Review Guide, October 1, 2011](#).

## 1.2 BACKGROUND AND SCOPE

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The following local governments and school districts participated in both the original plan as well as the plan update, which allows them to adopt the plan and secure eligibility for Hazard Mitigation Grant funding they could not otherwise obtain. Only the assets located in the county of multiple county entities are considered part of that county’s plan.

Warren County	
Village of Innsbrook	City of Marthasville
Village of Pendleton	City of Truesdale
City of Warrenton	City of Wright City
Warren County R-III School District	Wright City R-II School District

In addition to protecting life and property and securing grant funding eligibility, the plan is useful for incorporating hazard mitigation planning and principles into other documents such as zoning regulations and land use plans.

### 1.3 PLAN ORGANIZATION

This update, the 2021 Hazard Mitigation Plan, involved review, evaluation, and amendment of the prior plan updated in 2016. It addresses the same natural hazards that were addressed in the 2016 plan. The select few man-made hazards that were included in the 2016 plan are carried forward into this plan.

- Chapter 1: Introduction and Planning Process
- Chapter 2: Planning Area Profile and Capabilities
- Chapter 3: Risk Assessment
- Chapter 4: Mitigation Strategy
- Chapter 5: Plan Implementation and Maintenance
- Appendices

It should be noted that the Missouri State Emergency Management Agency; SEMA, directed a new formatting style for the updated plan which required significant content to be rewritten and reorganized. However, this resulted in no significant changes to the content of the plan from the 2016 Hazard Mitigation plan. The table below illustrates only the significant changes made to the content of the plan.

**Table 1.1. Changes Made to Plan Update**

Plan Section	Summary of Updates
<b>Chapter 1 - Introduction and Planning Process</b>	Updated members of the Mitigation Planning Committee (MPC).
<b>Chapter 2 - Planning Area Profile and Capabilities</b>	Updated demographics for planning area.
<b>Chapter 3 - Risk Assessment</b>	Updated demographics, related data and future development for planning area. Combined extreme heat and extreme cold into one hazard; extreme temperatures.
<b>Chapter 4 - Mitigation Strategy</b>	The mitigation category of each action was added to the action worksheets. Many action plans were deleted.
<b>Chapter 5 - Plan Implementation and Maintenance</b>	Updated MPC meetings for evaluating and updating the plan and added quantifiable measures to ensure progress is tracked from year to year.

# 1.4 PLANNING PROCESS

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Warren County contracted with the Boonslick Regional Planning Commission (BRPC) through SEMA’s Scope of Work agreement and participated fully in the preparation of the 2016 and the 2021 Hazard Mitigation Plans. BRPC’s responsibilities under the scope of work include the following:

- Assist in establishing a Mitigation Planning Committee (MPC) as defined by the Disaster Mitigation Act (DMA) and assist Warren County in keeping the committee membership current.
- Assess the adherence to the process set forth in the previously approved plan for maintenance, that is, did the MPC meet regularly as specified in the prior plan and did a standing committee meet in the interim to set forth any changes in the MPC membership and procedures since adoption of the previous plan.
- Ensure the updated plan meets the DMA requirements as established by federal regulations and follows the most current planning guidance of the Federal Emergency Management Agency (FEMA).
- Facilitate the entire plan development process.
- Identify the data that MPC participants could provide and conduct the research and documentation necessary to augment that data.
- Assist in soliciting public input.
- Produce the draft and final plan update in a FEMA-approvable document and coordinate the Missouri State Emergency Management Agency (SEMA) and (FEMA) plan reviews.
- Ensure that all participating jurisdictions, including school and special districts, are represented on the MPC, whether it’s by direct or indirect participation. If indirect participation is used, set forth the parameters established for ensuring that the jurisdiction represented is kept apprised of MPC events and milestones. Active participation in the plan development effort is of paramount importance.

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**Table 1.2. Jurisdictional Representatives of Warren County MPC**

<b>Name</b>	<b>Title</b>	<b>Department</b>	<b>Agency</b>
Rainwater, Mary Lou	Clerk	City	Truesdale
Watson, Chris	Mayor	City	Mayor
Berger, Chris	Superintendent	Schools	Wright City R-II District
Klinginsmith, Gregg	Superintendent	Schools	Warren County R-III District
Pottebaum, Chris	Chairperson	City	Pendleton
Elizabeth Wilson	Clerk	City	Pendleton
Stotler, Denise	Clerk	County	Warren County
Vohsen, Vickie	County Zoning administrator	County	Warren County
Schuchmann, Jim	Project manager	City	Wright City
Hampson, Daniel	Commissioner	County	Warren County

Name	Title	Department	Agency
Harrison, Kevin	Sheriff	County	Warren County Sheriff's Department
Ayala, Carla	Clerk	City	Innsbrook
Clark, Rhiannan	Clerk	City	Marthasville
Rowden, Dan	Mayor	City	Wright City
Jones, Aaron	Assistant Superintendent	Schools	Warren County R-III District
Kluesner, Hubert	Commissioner	County	Warren County Commission
McColloch, John	Assistant Superintendent	Schools	School District of Washington
Gildehaus, Joe	Presiding Commissioner	County	Warren County
Way, Jeremy	Assistant Superintendent	Schools	Wright City R-II District
Schleuter, Eric	Mayor	City	City of Warrenton
Walter, Brandie	Director of Operations	City	City of Warrenton
Smith, Scott	Superintendent	School	Gasconade County R-I School District

Jurisdictional representatives each bring a particular area of expertise to the team in the Six Mitigation Categories; Prevention, Property Protection, Natural Resource Protection, Emergency Services, Structural Flood Control Projects, and Public Information. Team members and their respective areas of expertise are listed on the following table which is consolidated from team member tables in Executive Summary.

**Table 1.3. MPC Capability with Six Mitigation Categories**

Community Department/Office	Prevention	Structure and Infrastructure Projects		Natural Systems Protection	Education and Awareness Programs	Emergency Services
		Property Protection	Structural Flood Control Projects			
Warren County EMD	✓	✓	✓	✓	✓	✓
County Floodplain Manager	✓	✓	✓	✓	✓	
Warren County R-III	✓	✓	✓		✓	
Wright City R-II	✓	✓	✓		✓	
Gasconade County R-I	✓	✓	✓		✓	
Washington School District	✓	✓	✓		✓	
County Commissioners	✓	✓	✓	✓	✓	
County 911		✓			✓	✓
Village Clerk - Innsbrook					✓	
City Clerk – Marthasville					✓	
Village Clerk – Pendleton					✓	
City Clerk - Truesdale					✓	
City Clerk – Warrenton					✓	
City Clerk – Wright City					✓	
County Clerk – Warren					✓	
Mayor – Village of Innsbrook					✓	

Community Department/Office	Prevention	Structure and Infrastructure Projects		Natural Systems Protection	Education and Awareness Programs	Emergency Services
		Property Protection	Structural Flood Control Projects			
Mayor – Village of Pendleton					✓	
Police department	✓	✓			✓	✓
Mayor – Marthasville					✓	
Mayor – Truesdale					✓	
Mayor – Wright City					✓	
Mayor – Warrenton					✓	
Area Engineer - MoDOT	✓	✓		✓	✓	✓
Montgomery County EMA	✓	✓	✓	✓	✓	✓
Lincoln County EMA	✓	✓	✓	✓	✓	✓
Gasconade County EMA	✓	✓	✓	✓	✓	✓
Fire districts	✓	✓		✓	✓	✓

### 1.4.1 Multi-Jurisdictional Participation

The Disaster Mitigation Act requires that each jurisdiction participate in the planning process and officially adopt the multi-jurisdictional hazard mitigation plan. A Hazard Mitigation Planning Committee (MPC) was created that includes representatives from each participating jurisdiction, departments of the county, school districts, and other agencies responsible for making decision in the plan and agreeing upon the final content. The Warren County Emergency Management Director, along with BRPC staff, solicited membership with the MPC through updated distribution lists of jurisdictional representatives and stakeholders, and advertised for additional stakeholders through display ads in local newspapers. In addition, BRPC staff and the Warren County Emergency Management Director reached out through press releases to local newspapers and posted bulletins at strategic locations. The updates on the plan have been discussed at several Warren County team meeting and Boonslick RPC board meetings.

Once formed, the MPC contributed to the planning process by providing facilities for meetings, attending and participating in meetings, collecting and reporting data and progress of current mitigation actions, determining new mitigation strategies, reviewing drafts, and coordinating and assisting with public involvement and plan adoptions. Jurisdictions are also required to eliminate from further consideration those actions from the previously approved plan that were not implemented because they were impractical, inappropriate, not cost-effective, or were otherwise not feasible.

Minimum participation of each jurisdiction represented requires that the participant provide information to support the plan update through one or more of the following methods;

- Appoint a representative to attend scheduled meetings and act in his or her stead when necessary and/or schedule meetings with BRPC staff for data collection, risk assessment, and mitigation strategy updates when necessary.
- Communicate with BRPC staff through email, phone, fax, or other electronic measures concerning data collection, risk assessment, and mitigation strategy updates.
- Participate in at least one meeting, by either direct participation, authorized representation, or by face to face or electronic communications with BRPC staff;
- Provide to the MPC sufficient information to support plan development by completion and

return of Data Collection Questionnaires and validating/correcting critical facility inventories;

- Provide progress reports on mitigation actions from the previously approved plan and identify additional mitigation actions for the plan;
- Review and comment on plan drafts;
- Actively solicit input from the public, local officials, and other interested parties about the planning process and provide an opportunity for them to comment on the plan;
- Provide documentation to show time donated to the planning effort (if a FEMA planning grant was awarded to the County); and
- Act with their respective jurisdiction to formally adopt the mitigation plan.

A few of the Warren County jurisdictions are staffed by part-time employees and volunteers whose busy schedules make meeting attendance difficult. While it is important to have full and active participation during meetings, it is equally important to ensure that all jurisdictions and stakeholders have an opportunity to be heard. To that end, Warren County, BRPC, and the MPC make every attempt to allow for alternate methods of participation, many of which are listed above.

**Table 1.4. Jurisdictional Participation in Planning Process**

Jurisdiction	Meeting January 19, 2021	Warren County team meetings (some in-person, some via phone) November 12, 2020	Data Collection Questionnaire Response	Update / Develop Mitigation Actions	Formal Plan Adoption
Warren County	X	X	X	X	X
Innsbrook	X	X	X	X	X
Marthasville	X	X	X	X	X
Pendleton	X	X	X	X	X
Truesdale	X	X	X	X	X
Warrenton	X	X	X	X	X
Wright City	X	X	X	X	X
Warren County R-III	X	X	X	X	X
Wright City R-II	X	X	X	X	X
Gasconade County R-I	X		X	X	X
Washington School	X		X	X	X

### 1.4.2 The Planning Steps

FEMA’s Community Rating System (CRS) planning steps, shown in Table 1.5, were used as a template for planning by the MPC. The 10-step CRS process allows the plan to meet funding eligibility requirements of the Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and Flood Mitigation Assistance Program as well as qualify for points under Activity 510 for Mitigation Plans, under the Community Rating System.

Throughout the planning process the MPC utilized FEMA’s Local Mitigation Planning Handbook (March 2013), Local Mitigation Plan Review Guide (October 1, 2011), and Integrating Hazard Mitigation Into Local Planning: Case Studies and Tools for Community Officials (March 1, 2013).

The following table shows how the CRS process aligns with the Nine Task Process outlined in the

2013 *Local Mitigation Planning Handbook*. Actions taken during the 10-step process are detailed following the table.

**Table 1.5. County Mitigation Plan Update Process**

Community Rating System (CRS) Planning Steps (Activity 510)	Local Mitigation Planning Handbook Tasks (44 CFR Part 201)
Step 1. Organize	Task 1: Determine the Planning Area and Resources
	Task 2: Build the Planning Team 44 CFR 201.6(c)(1)
Step 2. Involve the public	Task 3: Create an Outreach Strategy 44 CFR 201.6(b)(1)
Step 3. Coordinate	Task 4: Review Community Capabilities 44 CFR 201.6(b)(2) & (3)
Step 4. Assess the hazard	Task 5: Conduct a Risk Assessment 44 CFR 201.6(c)(2)(i) 44 CFR 201.6(c)(2)(ii) & (iii)
Step 5. Assess the problem	
Step 6. Set goals	Task 6: Develop a Mitigation Strategy 44 CFR 201.6(c)(3)(i); 44 CFR 201.6(c)(3)(ii); and 44 CFR 201.6(c)(3)(iii)
Step 7. Review possible activities	
Step 8. Draft an action plan	
Step 9. Adopt the plan	Task 8: Review and Adopt the Plan
Step 10. Implement, evaluate, revise	Task 7: Keep the Plan Current
	Task 9: Create a Safe and Resilient Community 44 CFR 201.6(c)(4)

**Step 1: Organize the Planning Team  
(Handbook Tasks 1, 2, and 4)**

- Activities began on October 26<sup>th</sup> with sending the data collection questionnaire to the jurisdictions via email and postal mail ; and then meeting with Warren County EMD, Warren County Planning & Zoning on November 12<sup>th</sup>, 2020. The meetings with City representatives were conducted via phone and email only. This meeting was used to strategize the project, organize a core team, begin to identify possible team members, and assign responsibilities. Considerable time was also spent reviewing past plans and discussing how to improve the overall process. A tentative sequence of events was discussed and approved. Refer to Appendix for Initial Meeting notes.
- A meeting was held at the Warren County Administration Building on January 19, 2021. Direct mail / email, newspaper display advertisements, and printed notices were used to announce the meeting and solicit attendance. Ultimately, there were ten members of jurisdictional and stakeholder representatives present and BRPC liaisons Krishnapriya Kunapareddy and Tim Churchill. Ms. Kunapareddy gave a brief presentation that explained the benefits of the Hazard Mitigation Planning process. She also discussed the schedule and what is expected from the team members. Refer to Appendix for Kick-Off Meeting notes.

- Data Collection Questionnaires were emailed to each jurisdiction prior to the kick-off meeting. This allowed for Ms. Kunapareddy to review the questionnaires ahead of time and to follow up during the meeting. The meeting allowed the respondents to ask follow-up questions about the questionnaires. The Data Collection Questionnaires are part of Appendix.
- Each step of the process requires an abundance of formal and informal communication requiring the most to ramp up. The BRCP staff handled many calls from invitees regarding what is required of the team. By far the most effort involves coaching the jurisdictions in how to complete the Data Collection Questionnaires which are now even more detailed. BRPC, in conjunction with the Warren County EMD, pre-loaded the questionnaires and met with each jurisdiction prior to the January 19th meeting.

**Table 1.6. Schedule of MPC Meetings**

Meeting	Topic	Date
Initial Meeting	Strategizing and planning with core team	11/12/2020
Meetings/ phone calls with jurisdictions	Data collection questionnaire and planning process	November 2020; December 2020; January 2021
Planning Meeting	Introduce MPC to the planning process, discuss deadlines and next steps	01/19/2021
EMD Meeting	Reviewed goals and action plans (one on one meeting)	11/12/2020

**Step 2: Plan for Public Involvement  
(Handbook Task 3)**

The public was encouraged to participate in all steps of the planning process. Reference Appendix for particular meeting notices, press releases, and email announcements.

- Each planning meeting was notified via newspaper display advertisements, on the BRPC and Warren County websites, and by notices posted on public bulletin boards throughout venues of Warren County and its participating jurisdictions. During the meetings, BRPC staff encouraged attendees to participate in discussion.
- Press releases were distributed to local newspapers and radio stations.
- Phone meetings were held with City Clerks to explain how the planning process works and what is expected of them to complete the Data Collection Questionnaire and adopting the final HMP.
- Press releases and meeting notices were provided to local government officials for review and distribution to their subordinates and peers.
- A concerted attempt was made to obtain public involvement. MPC meeting announcements were made in Warren County newspapers, and posted to the Warren County EMA and the Boonslick Planning Commission websites. In addition to paid display ads, roll-out news articles were published and meeting announcement publicized on participating jurisdiction’s bulletin boards. However, no member of the general public attended any meetings nor did they ask for additional information. The above channels of communication were used to advertise the public comment session as well.



- The final public comment period was between March and April, 2021. Newspaper display advertisements, press releases, and notices posted to websites and public bulletin boards announcement the opportunity and instructed the public on how to comment. Copies of the draft plan were available through the websites and hard copies were available at the Warren County Commissioners office, Warren County Emergency Management Agency and at the BRPC office in Warrenton. Refer to Appendix for documentation.

***Step 3: Coordinate with Other Departments and Agencies and Incorporate Existing Information (Handbook Task 3)***

There are numerous organizations whose goals and interests integrate with hazard mitigation in Warren County. These stakeholders include the following entities and the list of stakeholders can be found in the Appendix section (list of stakeholders invited to participate). This also shows how every stakeholder participated in the planning process.

- Neighboring communities
- Local and regional agencies involved in hazard mitigation activities
- Agencies with the authority to regulate development
- Businesses
- Academia
- Other private and non-profit interests

During this planning process, these stakeholders were given the opportunity to be involved. The email distribution lists and USPS mailing lists developed for this plan include representatives from all the above entities. In addition, these entities were exposed to the same press releases, display advertisements, and website notices as were the jurisdictional representatives. Moreover, the draft plan was shared with the Emergency Management Directors of the neighboring counties during the public comment period. These EMDs were asked to review and comment on the plan.

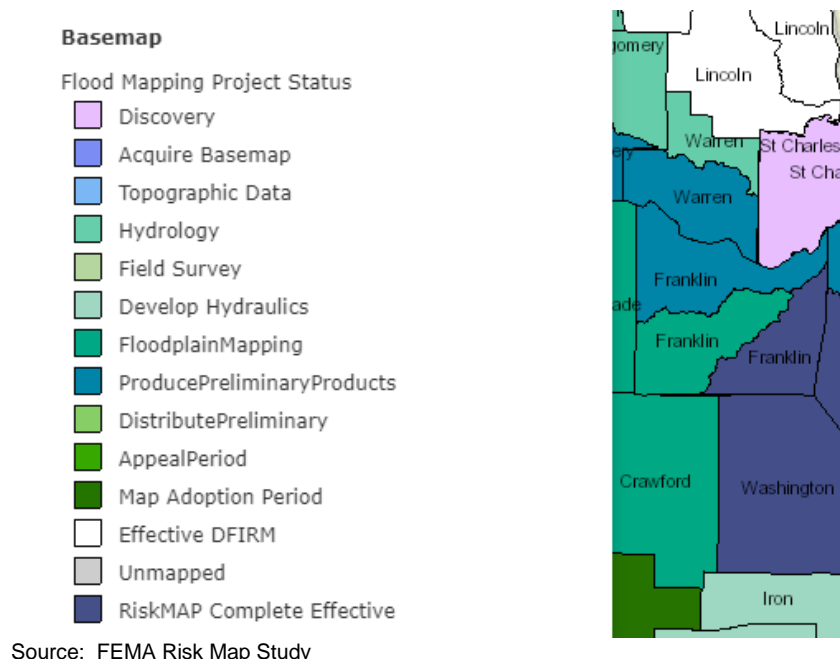
State or federal agencies that are stakeholders in hazard mitigation were also invited to the planning sessions using the same tools and resources as cited above for the other invitees. The Contributors section of this plan lists the stakeholders that participated. Refer to Appendix for a complete list of all stakeholders that were invited to participate in the planning process.

**Coordination with FEMA Risk MAP Project**

Risk Mapping, Assessment, and Planning (RiskMap) is a relatively new FEMA program that provides communities with flood information and tools they can use to enhance their mitigation plans and better protect citizens. Through more accurate flood maps, risk assessment tools, and outreach, RiskMap builds on Map Modernization and strengthens local ability to make informed decisions about reducing risks.

The following figure shows the status of Risk Mapping activity in Warren County; currently, in the data development stage as shown on the map’s legend. In the data development stage, FEMA contracts for basic and enhanced analysis, redefinition and digital conversion (where needed) DFIRM production, and RiskMap products. Following several working sessions and input from jurisdictions, RiskMap development was added as an action plan to this update.

**Figure 1.1. RiskMap Study Status Map for Warren County**



### Integration of Other Data, Reports, Studies, and Plans

Other documents critical to the formation of the plan included the Flood Insurance Rate Map for Montgomery County (FIRMS), State Department of Natural Resources (DNR) dam information, the National Inventory of Dams (NID), dam inspection reports, state fire reports, Wildlife/Urban Interface and Intermix areas from the SILVIS Lab – Department of Forest Ecology and Management – University of Wisconsin, local comprehensive plans, economic development plans, U.S. Department of Agriculture’s (USDA) Risk Management Agency Crop Insurance Statistics, and local budgets.

Relevant information that was incorporated into the plan include:

- FEMA FIRM maps- developing floodplain maps
- County Master Plan- future growth trends
- Comprehensive plans: future growth trends- discussion on specific hazard areas in the county
- SEMA’s Arc GIS helped with mapping for hazards
- State Hazard Mitigation Plan- building counts and content exposure
- American Factfinder and 2018 American Community survey- demographic data

### **Step 4: Assess the Hazard: Identify and Profile Hazards (Handbook Task 5)**

The BRPC staff reviewed previous disaster declarations in the planning area, along with

previously identified hazards and those included in the most recent state plan with the Warren County Emergency Management Director during Fall of 2020. Each participating jurisdiction was contacted and asked to complete a Data Collection Questionnaire. Participation was explained to those jurisdictions during the face-to-face/zoom meeting. These questionnaires were reviewed to determine if additional risks were to be incorporated. At the January 19, 2021 meeting these hazards were presented to the MPC. The MPC was previously tasked with reviewing these hazards and was asked to bring input to the January meeting. The results of this process may be reviewed in Chapter 4 of this document.

### ***Step 5: Assess the Problem: Identify Assets and Estimate Losses (Handbook Task 5)***

Assets for each jurisdiction were identified via variety of methods including; first-hand interviews, Data Collection Questionnaires, input from the county EMD and other first responders, data sources from the regional planning commission, and from the 2016 plan.

Where possible, losses were extrapolated from the most granular sources such as the 2010 census, FEMA Disaster Visualization, Missouri Department of Elementary and Secondary Education, Missouri Department of Transportation, U.S. Fish and Wildlife Department, Missouri Department of Conservation, Missouri Economic Development.ORG, USDA Census of Agriculture, Missouri GIS data, HAZUS, the Department of Agriculture Crop Losses, and the Data Collection Questionnaire. For losses not available from the above sources, exposure was taken from the 2019 State Plan.

Data Collection Questionnaires were hand delivered to city and county clerks and to school district administrators who were asked to complete the forms using first-hand knowledge and input from other most knowledgeable individuals. Information obtained from these questionnaires and from first-hand sources include regulatory, personnel, fiscal, and technical capabilities, and existing mitigation initiatives. Refer to Section 2, Planning Area Profiles and Capabilities.

### ***Step 6: Set Goals (Handbook Task 6)***

During the January 19, 2021 MPC meeting, BRPC staff 2016 plan goals with the committee who decided not to change the original three goals from the 2016 plan.

### ***Step 7: Review Possible Mitigation Actions and Activities (Handbook Task 6)***

The jurisdictions were given an opportunity to review the action plans from 2016 plans and identify new actions plans. This process was conducted via emails and phone calls. Members of the committee shared status from their jurisdictions as well. New actions were suggested. MPC members were encouraged to continue forward only those actions that substantially address long-term mitigation solutions to the risks identified in the risk assessment and that the cost versus benefit of each solution should be considered.

Subsequently, the STAPLEE method was used to analyze and prioritize proposed actions. Members were provided a copy of the STAPLEE proposed by the planning commission staff and the Montgomery County EMD in the public comment draft of the plan. In addition, the FEMA publication, "Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards" was given to the MPC at the kick-off meeting.

In summary, there are 2 to 8 completed actions depending on the jurisdictions, 24 to 32 deleted actions, and 2 to 5 continuing actions depending on the jurisdictions.

**Step 8: Draft an Action Plan**  
**(Handbook Task 6)**

Proposed actions derived from the STAPLEE methodology was incorporated into the 2021 plan and presented to the MPC for their concurrence during the plan development and public comment period. The action plan is included in Chapter 4 and the STAPLEE forms in the Appendix.

**Step 9: Adopt the Plan**  
**(Handbook Task 8)**

Following the public comment period and the review and approval of the draft by the team during the review process in March and April, 2021, the draft was finalized and presented to the city and county jurisdictions for adoption by their governing bodies.

**Step 10: Implement, Evaluate, and Revise the Plan**  
**(Handbook Tasks 7 & 9)**

Plan Maintenance, included in Chapter 5, includes the overall strategy for plan implementation and monitoring/maintenance. This was discussed with the jurisdictions.