# MITIGATION STRATEGY

[4 MITIGATION STRATEGY 4.1](#_Toc526523735)

[4.1 Goals 4.1](#_Toc526523736)

[4.2 Identification and Analysis of Mitigation Actions 4.2](#_Toc526523737)

[4.3 Implementation of Mitigation Actions 4.4](#_Toc526523738)

**44 CFR Requirement §201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction’s blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.**

Sample language follows in blue. This section presents the mitigation strategy updated by the Mitigation Planning Committee (MPC) based on the [updated] risk assessment. The mitigation strategy was developed through a collaborative group process. The process included review of [updated] general goal statements to guide the jurisdictions in lessening disaster impacts as well as specific mitigation actions to directly reduce vulnerability to hazards and losses. The following definitions are taken from FEMA’s *Local Mitigation Planning Policy Guide (2023)*

* **Goals** are broad, long-term policy and vision statements that explain what is to be achieved by implementing the mitigation strategy.
* A **mitigation action** is a measure, project, plan or activity proposed to reduce current and future vulnerabilities described in the risk assessment.

## Goals6(a)

**44 CFR Requirement §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.**

This planning effort is an update to County A’s existing hazard mitigation plan approved by FEMA on \_\_\_\_\_\_\_\_\_. Therefore, the goals from the [year of prior approval] County A Hazard Mitigation Planwere reviewed to see if they were still valid, feasible, practical, and applicable to the defined hazard impacts. The MPC conducted a discussion session during their second meeting to review and update the plan goals. To ensure that the goals developed for this update were comprehensive and supported State goals, the 2023 State Hazard Mitigation Plan goals were reviewed. The MPC also reviewed the goals from current surrounding county plans.

For the plan update, include information about the MPC discussion of the previously approved goals. Discuss the reasons for changing one or more goals or reasons for keeping them the same. For example, perhaps there was goal revision to incorporate language about lessons learned from disaster declarations or exercises. List the plan update goals.

## Identification and Analysis of Mitigation Actions

**44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.**

Some specific sources for mitigation action ideas include the following:

* FEMA’s Mitigation Ideas Publication, <https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf>
* FEMA’s Climate Resilient Activities for Hazard Mitigation Assistance, <https://www.fema.gov/media-library/assets/documents/110202>
* FEMA Resources for Climate Resilience, <https://www.fema.gov/sites/default/files/documents/fema_resources-climate-resilience.pdf>
* EPA’s Hazard Mitigation for Natural Disasters Publication, <https://www.epa.gov/waterutilityresponse/hazard-mitigation-natural-disasters>
* EPAs Planning for an Emergency Drinking Water Supply Publication, <https://www.epa.gov/waterutilityresponse/water-utility-planning-emergency-drinking-water-supply>

As planners assist local planning committees with the update of existing actions and the development of new actions, be sure to clarify for them the difference between mitigation actions and response actions. The plan must include a mitigation strategy that 1) analyzes actions and/or projects that the jurisdiction considered to reduce the impacts of hazards identified in the risk assessment, and 2) identifies the actions and/or projects that the jurisdiction intends to implement. Mitigation actions and projects means a hazard mitigation action, activity or process (for example, adopting a building code) or it can be a physical project (for example, elevating structures or retrofitting critical infrastructure) designed to reduce or eliminate the long-term risks from hazards. This sub‐element can be met with either actions or projects, or a combination of actions and projects.

Each jurisdiction **must** consider actions that reduce risk to **existing** buildings and infrastructure, as well as, limit risk to **future** development and redevelopment. Each plan participant **must** identify **one or more** mitigation actions the participant(s) intends to implement **for each hazard** addressed in the risk assessment. The actions must be achievable and demonstrate how the mitigation activities reduce the risks identified in the risk assessment. A mitigation action is a measure, project, plan or activity proposed to reduce current *and* future vulnerabilities described in the risk assessment. As presented in the various guidance documents, jurisdictions should consider actions that address each of the mitigation categories: prevention, structure and infrastructure projects, natural systems protection, emergency services, and education and outreach7(a).

The mitigation plan may include non‐mitigation actions, such as actions that are emergency response or operational preparedness in nature. These will not be accepted as hazard mitigation actions, but neither will FEMA require these to be removed from the plan prior to approval. For example, a response action might be to purchase and develop procedures for placement of barricades at a low water crossing while a related mitigation action would be to elevate the low water crossing. In a perfect world, mitigation would eliminate the need for response. A comprehensive range consists of different hazard mitigation alternatives that address the vulnerabilities to the hazards that the jurisdiction(s) determine are most important. Additionally, all actions should be SMART actions:

* Specific
* Measurable
* Achievable
* Relevant
* Time Bound

Mitigation actions should be as specific as possible including specific locations for actions to occur. Avoid mitigation actions that include the words “considering, ensuring, encouraging, continuing”. These actions are not usually measurable.

Sample language follows in blue. Revise as appropriate if the plan is not an update. During the second MPC meeting, the results of the risk assessment update were provided to the MPC members for review and the key issues were identified for specific hazards. Changes in risk since adoption of the previously approved plan were discussed. Actions from the previous plan included completed actions, on-going actions, and actions upon which progress had not been made. The MPC discussed SEMA’s identified funding priorities and the types of mitigation actions generally recognized by FEMA.

The MPC included problem statements in the plan update at the end of each hazard profile. The problem statements summarize the risk to the planning area presented by each hazard and include possible methods to reduce that risk. Use of the problem statements allowed the MPC to recognize new and innovative strategies for mitigating risks in the planning area.

The focus of Meeting #3 was update of the mitigation strategy. For a comprehensive range of mitigation actions to consider7(a), the MPC reviewed the following information during Meeting #3:

* A list of actions proposed in the previous mitigation plan, the current State Plan, and approved plans in surrounding counties,
* Key issues from the risk assessments, including the problem statements concluding each hazard profile and vulnerability analysis,
* State priorities established for HMA grants, and
* Public input during meetings, responses to data collection questionnaires, and other efforts to involve the public in the plan development process.

For Meeting #3, individual jurisdictions, including school and special districts, developed final mitigation strategy for submission to the MPC. They were encouraged to review the details of the risk assessment vulnerability analysis specific to their jurisdiction. They were also provided a link to the FEMA’s publication, *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013).* This document was developed by FEMA as a resource for identification of a range of potential mitigation actions for reducing risk to natural hazards and disasters.

The MPC reviewed the actions from the previously approved plan for progress made since the plan had been adopted, using worksheets included in Appendix \_\_ of this plan. Prior to Meeting #3, the list of actions for each jurisdiction was emailed to that jurisdiction’s MPC representative along with the worksheets. Each jurisdiction was instructed to provide information regarding the “Action Status” with one of the following status choices:

* Completed, with a description of the progress;
* Ongoing, with a description of the progress made to date; or
* Not Yet Started, with a discussion of the reasons for lack of progress.

Additionally, the future inclusion of each mitigation action in the plan update was identified as either keep, delete, or modify. Based on the status updates, there were xx completed actions,
xx continuing actions (either ongoing or modified), and xx deleted actions.

Table 4.1 provides a summary of the action statuses for each jurisdiction:

1. Action Status Summary

|  |  |  |  |
| --- | --- | --- | --- |
| Jurisdiction | Completed Actions | Continuing Actions (ongoing or modify) | Deleted Actions |
| County A | 3 | 10 | 1 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

[**Table 4.**](#_bookmark5)**2** provides a summary of the completed and deleted actions from the previous plan.

1. Summary of Completed and Deleted Actions from the Previous Plan

|  |  |
| --- | --- |
| **Completed Actions** | **Completion Details (date, amount, funding source)** |
| Acquire Repetitive Loss Property on Elm Street | 05/01/2017; $150,000; HMGP with local fund match |
| Prepare and distribute Outreach flyer for Real Estate Agents and Lenders | 03/01/2016; $600; General fund for printing and staff time for development of flyer, posting to community website, and mailing |
| Post elevation certificates to local website | 09/09/2018; N/A; Staff time for scanning elevation certificates and posting to community website |
|  |  |
| **Deleted Actions** | **Reason for Deletion** |
| Implement a stormwater utility to maintain drainage infrastructure. | No political support at this time. |
|  |  |
|  |  |
|  |  |

Source: Previously approved County Hazard Mitigation Plan; Data Collection Questionnaires.

For actions that have not been completed, the plan **must** do one of two things: (1) describe whether the action is no longer relevant; or (2) include the incomplete action as part of the updated action plan. Explain situations that impacted whether actions were implemented and barriers to implementation. Discuss lessons learned. See *Local Mitigation Plan Review Guide (October 2011)* (referenced as “*Guide*” in the rest of this section) page 27.

Discuss MPC activities involving weighing the potential cost of each project in relation to the anticipated future cost savings. Discuss how MPC members were encouraged to view proposed actions within the broad priorities of hazard mitigation.

## Implementation of Mitigation Actions

**44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include an action strategy describing how the actions identified in paragraph (c)(2)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefits review of the proposed projects and their associated costs.**

Sample language follows, which must be tailored to the specific situation of the jurisdiction. Jurisdictional MPC members were encouraged to meet with others in their community to finalize the actions to be submitted for the updated mitigation strategy. Throughout the MPC consideration and discussion, emphasis was placed on the importance of a benefit-cost analysis in determining project priority. The Disaster Mitigation Act requires benefit-cost review as the primary method by which mitigation projects should be prioritized. The MPC decided to pursue implementation according to when and where damage occurs, available funding, political will, jurisdictional priority, and priorities identified in the 2023 Missouri State Hazard Mitigation Plan. The benefit/cost review at the planning stage primarily consisted of a qualitative analysis and was not the detailed process required grant funding application. For each action, the plan sets forth a narrative describing the types of benefits that could be realized from action implementation. The cost was estimated as closely as possible, with further refinement to be supplied as project development occurs.

The plan **must** describe the criteria used for prioritizing the implementation of the actions. The criteria must include an emphasis on the extent to which benefits are maximized, in relation to the associated costs of the action. The plan must indicate if the prioritization process and/or methodology have changed since the previous plan’s adoption. If the process has changed, describe how it changed and why it changed. If the prioritization process and methodology have not changed, state this here in the plan with a description. Actions should be prioritized independently for EACH jurisdiction. For example, if two communities each have an action to acquire floodprone properties, these should be evaluated independently based on each jurisdiction’s capabilities.

Sample text if FEMA’s suggested STAPLEE methodology is used follows: FEMA’s STAPLEE methodology was used to assess the costs and benefits, overall feasibility of mitigation actions, and other issues impacting project7(a). During the prioritization process, the jurisdictions used worksheets to assign scores. The worksheets posed questions based on the STAPLEE elements as well as the potential mitigation effectiveness of each action. Scores were based on the responses to the questions as follows:

Definitely YES = 3 points

Maybe YES = 2 points

Probably NO = 1 points

Definitely NO = 0 points

The following questions were asked for each proposed action.

S: Is the action socially acceptable?

T: Is the action technically feasible and potentially successful?

A: Does the jurisdiction have the administrative capability to successfully implement this action?

P: Is the action politically acceptable?

L: Does the jurisdiction have the legal authority to implement the action?

E: Is the action economically beneficial?

E: Will the project have an environmental impact that is either beneficial or neutral? (score “3” if positive and “2” if neutral)

Will the implemented action result in lives saved?

Will the implanted action result in a reduction of disaster damage?

The final scores are listed below in the analysis of each action. The worksheets are attached to this plan as Appendix \_\_. The STAPLEE final score for each action, absent other considerations, such as a localized need for a project, determined the priority. Low priority action items were those that had a total score of between 0 and 24. Moderate priority actions were those scoring between 25 and 29. High priority actions scored 30 or above. A blank STAPLEE worksheet is shown in Figure 4.1

1. Blank STAPLEE Worksheet

|  |
| --- |
| **STAPLEE Worksheet** |
| **Name of Jurisdiction:**  |  |
| **Action or Project** |
| **Action/Project Number:** | Insert a unique action number for this action for future tracking purposes. This can be a combination of the jurisdiction name, followed by the goal number and action number (i.e. Joplin1.1) |
| **Name of Action or Project:** |  |
| **Mitigation Category:** | Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services |
| **STAPLEE Criteria****Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0 | **Score** |
| **S**: Is it **Socially** Acceptable |  |
| **T**: Is it **Technically** feasible and potentially successful? |  |
| **A**: Does the jurisdiction have the **Administrative** capacity to execute this action? |  |
| **P**: Is it **Politically** acceptable? |  |
| **L**: Is there **Legal** authority to implement? |  |
| **E**: Is it **Economically** beneficial? |  |
| **E**: Will the project have either a neutral or positive impact on the natural **Environment**? |  |
| Will historic structures be saved or protected? |  |
| Could it be implemented quickly? |  |
| **STAPLEE SCORE** |  |
| **Mitigation Effectiveness Criteria** | **Evaluation Rating** | **Score** |
| Will the implemented action result in lives saved? | Assign from 5-10 points based on the likelihood that lives will be saved. |  |
| Will the implemented action result in a reduction of disaster damages? | Assign from 5-10 points based on the relative reduction of disaster damages. |  |
| **Mitigation Effectiveness Score** |  |
|  **TOTAL SCORE (STAPLEE + Mitigation Effectiveness)** |  |
|  |  |  |
| **High Priority (30+ points)** | **Medium Priority (25 - 29 points)** | **Low Priority(<25 points)** |
| Completed by (Name, Title, Phone Number) |  |  |

The goals and actions **must** be consistent with the hazards identified in the plan. For each jurisdiction, the hazards identified with the highest (1) probability and (2) historic damage **must** have strategy to mitigate future damages. Note that each jurisdiction participating in the plan must have mitigation actions specific to that jurisdiction that are based on the community’s risk and vulnerabilities, as well as community priorities. See *Guide* page 24. Include narrative explaining how this was done.

The plan **must** include NFIP actions for participating jurisdictions. Simply stating “The community will continue to comply with NFIP,” will not meet this requirement. The description could include, but is not limited to:

* Adoption and enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs);
* Floodplain identification and mapping, including any local requests for map updates; or
* Description of community assistance and monitoring activities.

Jurisdictions where an FHBM or FIRM has been issued that are currently not participating in the NFIP and may meet this requirement by describing the reasons why the community does not participate. See *Guide* page 23.

Analyze each of the final mitigation actions using the following worksheet, **and include the analysis in the plan**, along with an introductory paragraph explaining methodology8(a). Each jurisdiction **must** complete an action worksheet for each hazard identified. Organize the actions by the goal statement that they fall under and include a completed worksheet for each new and continuing mitigation action. Be careful to ensure that the plan for implementation is specific to each jurisdiction. For example, responsible department, planning mechanism to be used in implementation, status, and other elements should all be specific to the subject jurisdiction.

A summary table (**Table 4.3**) of mitigation actions is also recommended.

**ACTION WORKSHEET**

|  |
| --- |
| **Action Worksheet** |
| **Name of Jurisdiction:**  |  |
| **Risk / Vulnerability** |
| **Hazard(s) Addressed:** | List the hazard or hazards that will be addressed by this action |
| **Problem being Mitigated:** | Provide a brief description of the problem that the action will address. Utilize the problem statement developed in the risk assessment. |
| **Action or Project** |
| **Applicable Goal Statement:** | Choose the goal statement that applies to this action |
| **Action/Project Number:** | Insert a unique action number for this action for future tracking purposes. This can be a combination of the jurisdiction name, followed by the goal number and action number (i.e. Joplin1.1) |
| **Name of Action or Project:** |  |
| **Mitigation Category:** | Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services |
| **Action or Project Description:** | Describe the action or project. |
| **Estimated Cost:** | Provide an estimate of the cost to implement this action. This can be accomplished with a range of estimated costs. |
| **Benefits:** | Provide a narrative describing the losses that will be avoided by implementing this action. If dollar amounts of avoided losses are known, include them as well. |
| **Plan for Implementation** |
| **Responsible Organization/Department:** | Which organization will be responsible for tracking this action? Be specific to include the specific department or position within a department. |
| **Supporting Organization/Department:** | Which organization/department will assist in implementation of this action? |
| **Action/Project Priority:** | Include the STAPLEE score and Priority (H, M, L) |
| **Timeline for Completion:** | How many months/years to complete. |
| **Potential Fund Sources:** | List specific funding sources that may be used to pay for the implementation of the action. |
| **Local Planning Mechanisms to be Used in Implementation, if any:** |  |
| **Progress Report** |
| **Action Status:** | Indicate status as New, Continuing Not Started, or Continuing in Progress) |
| **Report of Progress:** | For Continuing actions only, indicate the report on progress. If the action is not started, indicate any barriers encountered to initiate the action. If the action is in progress, indicate the activity that has occurred to date. |

1. Mitigation Action Matrix

| **#** | **Action** | **Jurisdiction** | **Priority** | **Goals Addressed** | **Hazards Addressed** | **Address Current Development** | **Address Future Development** | **Continued Compliance with NFIP** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Prevention Public Education** |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | **Structure and Infrastructure Projects** |  |  |  |  |  |  |  |
| 1.1 | Replace undersized culvert on Little Creek at Park Avenue. | City A | High | 1 | Flooding | ✓ |  | ✓ |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | **Natural Systems Protection** |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | **Emergency Services** |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | **Education and Outreach** |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

## CRS Activity Points

|  |  |
| --- | --- |
| **Community Rating System (CRS) Planning Steps (Activity 510)** | **Local Mitigation Planning Handbook Tasks (44 CFR Part 201)** |
| 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 |

## 6. Set Goals. (max: 2)

# 2 points - The points for this step are provided if the plan includes a statement of the goals of the community’s floodplain management or hazard mitigation program. The goals must address all flood-related problems identified in CRS Step 5.

Preparation of Section 4.1 demonstrates the development of the community goals for the hazard mitigation program. These goals must address flood-related problems identified in the risk assessment.

## 7. Review possible activities. (max: 35)

# 5 points - If the plan reviews preventive activities, such as zoning, stormwater management regulations, building codes, subdivision ordinances, and preservation of open space, and the effectiveness of current regulatory and preventive standards and programs. (REQUIRED)

# 5 points - If the plan reviews whether the community’s floodplain management regulatory standards are sufficient for current and future conditions, as discussed under CRS Steps 4(c) and 5(f).

1. 5 points - If the plan reviews property protection activities, such as acquisition, retrofitting, and flood insurance;
2. 5 points - If the plan reviews activities to protect the natural and beneficial functions of the floodplain, such as wetlands protection;
3. 5 points - If the plan reviews emergency services activities, such as warning and sandbagging;
4. 5 points - If the plan reviews structural projects, such as levees, reservoirs, and channel modifications; and
5. 5 points - If the plan reviews public information activities, such as outreach projects and environmental education programs.

This CRS step requires documentation that the various activities were considered, not just listed for identification/selection. The mitigation action category has been added to the STAPLEE Worksheet. As the MPC identifies and considers mitigation actions, a STAPLEE worksheet should be completed. Thus, all actions, both selected for implementation and eliminated, can be documented as considered in the review process.

## 8. Draft an action plan. (max: 60)

1. 45 points, depending on how many categories are covered by the action items:
	1. 10 points, if the action plan includes flood-related recommendations for activities from two of the six categories credited in CRS Step 7; OR
	2. 20 points, if the action plan includes flood-related recommendations for activities from three of the six categories credited in CRS Step 7; OR
	3. 30 points, if the action plan includes flood-related recommendations for activities from four of the six categories credited in CRS Step 7; OR
	4. 45 points, if the action plan includes flood-related recommendations for activities from five of the six categories credited in CRS Step 7.

The mitigation action categories have been added to the Mitigation Action Worksheet and the new Table 4.3, Mitigation Action Matrix. In addressing each of these mitigation categories, the community will develop a comprehensive hazard mitigation program, as well as, maximize CRS activity points.

1. 10 points - If the action plan establishes or revises post-disaster redevelopment and mitigation policies and procedures.

Policies specific to the post-disaster environment and associated redevelopment are credited. As an example, identifying areas anticipated to be most impacted by a flood event and determining whether the areas will be rebuilt if substantially damaged.

1. 5 points - If the plan includes action items (other than public information activities) to mitigate the effects of the other natural hazards identified in the hazard assessment.

The preparation of the multi-hazard mitigation plan and review of possible actions for multiple hazards will satisfy this CRS activity.