



## 21. MITIGATION STRATEGY

This chapter describes the process of preparing mitigation strategies to reduce potential vulnerability and losses identified as concerns in the risk assessment portion of this plan. The Planning Partners reviewed the risk assessment and capability assessment to identify and develop their mitigation strategies, which are included in the annexes in Volume II.

**Hazard mitigation** reduces the potential impacts of, and costs associated with, emergency and disaster-related events. Mitigation actions address a range of impacts, including impacts on the population, property, the economy, and the environment.

**Mitigation actions** can include activities such as revisions to land-use planning, training and education, and structural and nonstructural safety measures.

### 21.1 PAST MITIGATION ACCOMPLISHMENTS

Sussex County, through previous and ongoing hazard mitigation activities, has demonstrated that it is proactive in protecting its physical assets and citizens against losses from natural hazards. Examples of previous and ongoing actions and projects include the following:

- The County facilitated the development of the original Sussex County HMP. The current planning process represents the regulatory five-year plan update process, which includes the participation of 24 jurisdictions in the County, along with key County and regional stakeholders.
- All municipalities participating in this HMP update participate in the National Flood Insurance Program (NFIP), which requires the adoption of FEMA floodplain mapping and certain minimum standards for building within the floodplain.
- Reports, plans, and studies relating to or including information on natural hazards or natural hazard policies affecting Sussex County have been reviewed and incorporated into this plan update as appropriate, as discussed in Chapter 2 and References.

### 21.2 REVIEW AND UPDATE OF MITIGATION GOALS AND OBJECTIVES

This section describes the process of updating the Planning Partners' goals and objectives for reducing long-term vulnerabilities to identified hazards. For the purposes of this plan, goals and objectives are defined as follows:

"The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards."

44 CFR 201.6(c)(3)(i)

- **Goals** are general guidelines that explain what is to be achieved. They are usually broad, long-term, policy-type statements and represent global visions. Goals help define the benefits that the plan is trying to achieve. The success of the plan, once implemented, should be measured by the degree to which its goals have been met (that is, by the actual benefits in terms of hazard mitigation).
- **Objectives** are short-term aims that form a strategy or course of action to meet a goal. Unlike goals, objectives are stand-alone measurements of the effectiveness of a mitigation action. The objectives also are used to help establish priorities. Broadly defined mitigation objectives were eliminated from the updated strategy unless accompanied by discrete actions.



The Steering Committee reviewed the 2021 goals and objectives and made revisions for the 2025 update based on the following considerations:

- Hazard events and losses since the 2021 plan
- The updated hazard profiles and risk assessment
- The goals and objectives established in the New Jersey 2019 HMP
- The Planning Partnership's interests in integrating this plan with other planning mechanisms, including Sussex County and local risk management plans
- Direct input from the Steering Committee, stakeholders, and the public on how the County and jurisdictions need to move forward to best manage their hazard risk
- Discussions and research on existing authorities, policies, programs, resources
- Support for mitigation through the protection of natural systems

As a result of this review process, the goals and objectives for the 2025 update were updated, as shown in Table 21-1 and Table 21-2, respectively.

Table 21-1. 2025 Goals

Goal Number	2025 Goals
1	Protect life
2	Protect property
3	Increase public preparedness and awareness
4	Develop and maintain an understanding of increased risk from climate change impacts on natural hazards
5	Enhance mitigation capabilities to reduce hazard vulnerabilities
6	Support continuity of operations before, during, and after hazard events
7	Reduce the risk of natural hazards for socially vulnerable populations
8	Address long-term vulnerabilities from high hazard dams

Table 21-2. 2025 Objectives

Objective Number	2025 Objectives
1	Develop, enhance, and protect early warning and emergency communications systems
2	Improve and support Comprehensive Regional Evacuation Plan
3	Strengthen County and local planning, building codes, ordinances, and enforcement
4	Identify the need for, and acquire, any special emergency services, training, and equipment to enhance response capabilities for specific hazards
5	Enhance sheltering capabilities at the local level
6	Protect, maintain, and increase resilience of infrastructure and critical facilities
7	Reduce repetitive and severe repetitive losses
8	Ensure coordination between communities and encourage shared services in acquiring, maintaining and providing emergency services
9	Reduce the risk of utility failure



Objective Number	2025 Objectives
10	Review existing local laws and ordinances, safety inspection procedures, and applicable rules to help ensure that they employ the most recent and generally accepted standards for the protection of buildings and environmental resources
11	Identify and pursue funding opportunities to develop and implement local and county mitigation activities
12	Provide or improve flood protection with flood control structures and drainage maintenance plans
13	Enhance stakeholder education and training about hazard risks and mitigation
14	Review and incorporate updated hazard data into the County Hazard Mitigation Plan and other county and local planning mechanisms
15	Increase support for the development of local mitigation planning and projects that provide co-benefits and support a healthy and equitable environment
16	Better characterize flood/stormwater hazard events by conducting additional hazard studies and identify inadequate stormwater facilities and poorly drained areas
17	Prevent or discourage new development in hazardous areas or ensure that if building occurs in high-risk areas it is done in such a way as to minimize risk
18	Strengthen understanding of, and adaptation to, a changing climate
19	Encourage the use of green and natural infrastructure
20	Coordinate with local, County, state, federal, international, and other stakeholder agencies to maintain natural systems, including wetlands, parks, and riverine and coastal areas
21	Ensure continuity of government operations, emergency services and essential facilities during and immediately after disaster and hazard events
22	Increase resiliency by facilitating rapid disaster recovery
23	Support and encourage the implementation of alternative energy sources
24	Implement mitigation measures that promote the reliability of lifeline systems
25	Promote sustainable and equitable land development practices that direct future development away from vulnerable areas
26	Encourage and support multi-jurisdictional mitigation projects that leverage funding and support from multiple levels of government and community organizations
27	Encourage the establishment of policies to help ensure the prioritization and implementation of mitigation actions and/or projects designed to benefit socially vulnerable populations and underserved communities
28	Ensure that dam infrastructure is maintained
29	Support the identification and access to funding to repair, rehabilitate, or replace dams

## 21.3 MITIGATION STRATEGY DEVELOPMENT AND UPDATE

### 21.3.1 Update of Local Jurisdiction Mitigation Strategies

#### Review of Previous Actions

To evaluate progress on local mitigation actions, each planning partner was provided with a Mitigation Action Plan Review Worksheet, pre-populated with the actions identified for their jurisdiction in the prior (2021) plan. The Planning Partners were asked to indicate the status of each action (“No Progress,” “In Progress,” “Continuous,” “Completed,” “Discontinued”). They were requested to provide comments

FEMA defines **Mitigation Actions** as specific actions that help to achieve the mitigation goals and objectives.



to quantify the extent of progress and provide reasons for the level of progress or why actions were discontinued. This information is included in the jurisdictional annexes.

Mitigation actions identified as “Complete” or “Discontinued” have been removed from the Planning Partners’ updated mitigation strategies. Actions identified as “No Progress” or “In Progress” have been carried forward in their local updated mitigation strategies. Planning partners were asked to provide further details on these projects to help better define the projects, identify benefits and costs, and improve implementation.

Certain continuous or ongoing actions (Ongoing Capabilities) from the previous plan that represent programs that are now fully integrated into the normal operational and administrative framework of the community are identified in the capabilities assessment of each annex and removed from the updated mitigation strategy (marked as “Discontinued”).

### Identifying New Actions

At the kickoff and during subsequent local level planning meetings, all participating jurisdictions were surveyed to identify potential new mitigation actions. Communities also were made aware of potential new mitigation actions as such actions became evident during the plan update process (e.g., through the capability assessment, risk assessment, or the public and stakeholder outreach process).

### Developing the Overall Strategy

Members of the Steering Committee and contract consultants worked directly with each jurisdiction (by phone, email, or virtual meetings) to update their annex with mitigation strategies that focus on well-defined, implementable projects that meet the definition or characteristics of mitigation. Mitigation actions were selected with a careful consideration of benefits (risk reduction, losses avoided), costs, and possible funding sources (including mitigation grant programs).

Three annex support meetings were held for Planning Partners to assist in the development of additional actions, foster collaboration between neighboring jurisdictions for mitigation actions, discuss actions that involve cooperation between the County and jurisdictions, and identify steps needed to complete the jurisdictional annexes.

### Addressing Known Vulnerabilities

To help support the selection of an appropriate risk-based mitigation strategy, each annex includes a summary of hazard vulnerabilities. These were identified during the plan update process by planning partner representatives, through review of available plans and reports, or through the hazard profiling and risk assessment process.

A mitigation strategy workshop was conducted on May 8, 2024, for all participating jurisdictions to support the development of focused problem statements based on the impacts of natural hazards in the County and their communities. These problem statements provide a detailed description of a problem area, including its impacts on the jurisdiction; past damage; loss of service; etc. An effort was made to include the street address of the problem location, adjacent streets, water bodies, and well-known structures as well as a brief description of existing conditions (topography, terrain, hydrology) of the site. These problem statements form a bridge between the hazard risk assessment, which quantifies impacts on each community, and the development of actionable mitigation strategies.



### Incorporating a Range of Action Types

Concerted efforts were made to ensure that Planning Partners develop updated mitigation strategies that cover the range of mitigation action types described in recent FEMA planning guidance (FEMA “Local Mitigation Planning Handbook” March 2013):

- **Local Plans and Regulations**—Actions that include government authorities, policies or codes that influence the way land and buildings are developed and built.
- **Structure and Infrastructure Project**—Actions that involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as community lifelines and other critical facilities. This type of action also involves projects to construct structures to reduce the impact of hazards.
- **Natural Systems Protection**—Actions that minimize damage and losses to natural systems and preserve or restore their functions.
- **Education and Awareness Programs**—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as the National Flood Insurance Program, Community Rating System, StormReady (NOAA), and Firewise (NFPA) Communities.

Efforts were also made to develop mitigation strategies that cover the range of mitigation action types described in recent CRS guidance (FEMA 2018):

- **Preventive Measures**—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- **Property Protection**—Actions that include public activities to reduce hazard losses or actions that involve modification of existing buildings or structures to protect them from a hazard or removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- **Public Information**—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- **Natural Resource Protection**—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Structural Flood Control Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- **Emergency Services**—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities

### Protecting Critical Facilities

Planning partner mitigation actions that address vulnerable critical facilities have been proposed in consideration of protection against 500-year events or worst-case scenarios. However, in the case of projects funded through federal



mitigation programs, the level of protection may be influenced by cost-effectiveness as determined through a formal benefit-cost analysis. In the case of “self-funded” projects, local jurisdiction discretion must be recognized. Further, it must be recognized that the County and jurisdictions have limited authority with regard to mitigation at any level of protection over privately owned critical facilities.

### Accounting for Climate Change

As discussed in the hazard profiles in this HMP, the long-term effects of climate change are anticipated to exacerbate the impacts of weather-related hazards (e.g., flood, severe storm, severe winter storm, and wildfire). Communities are working to evaluate and recognize these long-term implications and to incorporate their mitigation strategies into planning and capital improvement updates.

### 21.3.2 Update of County Mitigation Strategy

The update of the County-level mitigation strategy included a review of progress on the actions identified in the 2021 HMP using a process similar to that used to review local jurisdiction mitigation strategy progress. The County, through its department representatives, was provided with a Mitigation Action Plan Review Worksheet identifying all County-level actions and initiatives from the 2021 plan. The County reviewed each action and provided progress, in order to identify actions to be carried over into the updated mitigation strategy. Additional regional and County-level mitigation actions were identified by the following processes:

- Review of the results and findings of the updated risk assessment
- Review of available regional and County plans, reports, and studies
- Direct input from County departments and other regional agencies, including:
  - Newton Medical Center
  - Rutgers Cooperative Extension of Sussex County
  - Sussex County Community College
  - Sussex County Department of Planning and Economic Development
  - Sussex County Department of Public Health
  - Sussex County Division of Community and Youth Services
  - Sussex County Division of Emergency Management
  - Sussex County Division of Engineering
  - Sussex County Division of Public Works
  - Sussex County Division of Senior Services
  - Sussex County Facilities Management
  - Sussex County Municipal Utilities Authority
  - Sussex County Open Space Committee
  - Sussex County Sheriff's Office
  - Sussex Rural Electric Coop
- Input received through the public and stakeholder outreach process

Various County departments and agencies included mitigation actions to address vulnerable critical facilities, with the same considerations as described above for local jurisdiction mitigation strategies. The County has included





mitigation actions to address the long-term implications and potential impacts of climate change, including continuing and long-term planning and emergency management support.

### 21.3.3 Mitigation Best Practices

Catalogs of hazard mitigation best practices were developed that present a broad range of alternatives to be considered for use in the mitigation strategies, in compliance with 44 CFR Section 201.6(c)(3)(ii). One catalog was developed for each hazard of concern evaluated in this plan. The catalogs present alternatives that are categorized in two ways:

- By who would have responsibility for implementation:
  - Individuals—personal scale
  - Businesses—corporate scale
  - Government—government scale
- By what the alternatives would do:
  - Manipulate the hazard
  - Reduce vulnerability to the hazard
  - Reduce impacts from the hazard
  - Build local capacity to respond to or be prepared for the hazard

The alternatives include actions that will mitigate current risk from hazards and actions that will help reduce risk from changes in the impacts of these hazards resulting from climate change. Hazard mitigation actions recommended in this plan were selected from among the alternatives presented in the catalogs. The catalogs provide a baseline of mitigation alternatives that are backed by a planning process, are consistent with the established goals and objectives, and are within the capabilities of the Planning Partners to implement. Some of these actions may not be feasible based on the selection criteria identified for this plan. The purpose of the catalogs was to provide a list of what could be considered to reduce risk from natural hazards within the planning area. Actions in the catalog that are not included for the partnership's mitigation strategy were not selected for one or more of the following reasons:

- The action is not feasible
- The action is already being implemented
- There is an apparently more cost-effective alternative
- The action does not have public or political support.

The catalogs are included in Appendix I.

### 21.3.4 Mitigation Strategy Evaluation and Prioritization

FEMA guidance for hazard mitigation establishes how mitigation strategies are to be prioritized, implemented, and administered by local jurisdictions. For this plan update, each mitigation strategy was prioritized using suitable criteria. This provided a systematic approach that considered the opportunities and constraints of implementing each mitigation action.



## Evaluation Criteria

The Steering Committee chose the following evaluation criteria for the prioritization process:

1. Life Safety—How effective will the action be at protecting lives and preventing injuries? Will the proposed action adversely affect one segment of the population?
2. Property Protection—How significant will the action be at eliminating or reducing damage to structures and infrastructure?
3. Cost-Effectiveness—Are the costs to implement the action commensurate with the benefits achieved?
4. Political—Is there overall public support for the action? Is there the political will to support it? Is the action at odds with development pressures?
5. Legal—Does the jurisdiction have the authority to implement the action?
6. Fiscal—Is funding for the action available under existing program budgets or would it require a new budget authorization or funding from another source, such as grants?
7. Environmental—What are the potential environmental impacts of the action? Will it comply with environmental regulations? Are there co-benefits of this action?
8. Social Vulnerability—Does the action benefit socially vulnerable populations and underserved communities?
9. Administrative—Does the jurisdiction have the staff and administrative capabilities to implement the action and maintain it or will outside help be necessary? Does the scale and scope of the action align with the jurisdiction's capabilities?
10. Hazards of Concern—Does the action address one or more of the jurisdiction's high-ranked hazards?
11. Climate Change—Does the action incorporate climate change projections? Is the action designed to withstand or address long-term conditions?
12. Timeline—Can the action be completed in less than five years?
13. Community Lifelines—Does the action benefit community lifelines?
14. Other Local Objectives—Does the action advance other local objectives, such as capital improvements, economic development, environmental quality, or open space preservation? Does it support the policies of other plans and programs?

## Benefit/Cost Review

FEMA guidance for hazard mitigation requires that the prioritization of the mitigation strategy emphasize a benefit/cost review of the proposed actions (Criterion 3 in the list above). For all actions identified in the local strategies, jurisdictions identified the associated costs and benefits as follows:

- **Costs** presented include the total project estimation. This can include administrative, construction (engineering, design, and permitting), and maintenance costs.
- **Benefits** are the savings from losses avoided attributed to project implementation. These can include life safety, structure and infrastructure damages, loss of service or function, and economic and environmental damage and losses.

When possible, jurisdictions were asked to identify the actual or estimated dollar costs and associated benefits. Where estimates of costs and benefits were available, the ratings were defined follows:

Low < = \$10,000

Medium = \$10,000 to \$100,000

High > = \$100,000





Often numerical costs and/or benefits could not be quantified at the current level of development. In this case, jurisdictions were asked to evaluate project cost-effectiveness using qualitative *high*, *medium*, and *low* ratings based on the definitions in Table 21-3.

Table 21-3 Qualitative Cost and Benefit Ratings

Costs	
High	Existing funding levels are not adequate to cover the costs of the proposed project, and implementation would require an increase in revenue through an alternative source (e.g., bonds, grants, and fee increases).
Medium	The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
Low	The project could be funded under the existing budget. The project is part of or can be part of an existing, ongoing program.
Benefits	
High	Project will have an immediate impact on the reduction of risk exposure to life and property.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property or will provide an immediate reduction in the risk exposure to property.
Low	Long-term benefits of the project are difficult to quantify in the short-term.

Using this approach, projects with positive benefit versus cost ratios (such as high over high, high over medium, medium over low, etc.) are considered cost-effective.

For some of the Sussex County actions identified, the Planning Partnership may seek financial assistance under FEMA's Hazard Mitigation Assistance (HMA) programs. These programs require detailed benefit/cost analysis as part of the application process. The benefit/cost review applied for the prioritization of actions in this update did not include the level of detail required by FEMA for project grant eligibility under HMA grant programs. These analyses will be performed when funding applications are prepared, using FEMA's Benefit-Cost Analysis model.

The Planning Partnership is committed to implementing mitigation strategies with benefits that exceed costs. For projects not seeking financial assistance from grant programs that require this sort of analysis, the Planning Partnership reserves the right to define benefits according to parameters that meet its needs and the goals and objectives of this plan.

## Priority Scoring

Participating jurisdictions were asked to use these criteria to prioritize their identified mitigation actions. For each mitigation action, the jurisdictions assigned a numeric score for each of the 14 evaluation criteria:

- 1 = Highly effective or feasible
- 0 = Neutral
- -1 = Ineffective or not feasible



Jurisdictions were asked to provide a brief summary of the rationale behind the numeric rankings assigned. The numerical results were totaled and then used by each jurisdiction to help prioritize the action or strategy as *low*, *medium*, or *high*. Actions that had a numerical value between 0 and 6 were categorized as *low priority*; actions with numerical values between 7 and 10 were categorized as *medium priority*; and actions with numerical values between 11 and 14 were categorized as *high priority*. While this provided a consistent, systematic methodology to support the evaluation and prioritization of mitigation actions, jurisdictions may have additional considerations that could influence their overall prioritization of mitigation actions.

For this plan update there was an effort to develop clear, action-oriented mitigation strategies that include actions seen by the community as the most effective approaches to achieve mitigation goals and objectives.

For that reason, many of the actions in the updated mitigation strategy were ranked as *high* or *medium* priority. This reflects the community's intent to implement them, available resources notwithstanding. In general, actions that would have had *low* priority rankings were screened out during the local action evaluation process.

It is noted that jurisdictions may be carrying forward mitigation actions from prior mitigation strategies that were prioritized using a different, but not inherently contradictory, approach. At their discretion, jurisdictions carrying forward prior actions were encouraged to re-evaluate their priority, particularly if conditions that would affect the prioritization criteria had changed.