

## SECTION 6: MITIGATION STRATEGIES

This section presents mitigation actions for Burlington County to reduce potential exposure and losses identified as concerns in the Risk Assessment portion of this plan. The Planning Committee reviewed the Risk Assessment to identify and develop these mitigation actions, which are presented herein.

This section includes:

- (1) Background and Past Accomplishments
- (2) General Mitigation Planning Approach
- (3) Guiding Principle, Mitigation Goals and Objectives
- (4) Capability Assessment

**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.

### BACKGROUND AND PAST ACCOMPLISHMENTS

Although DMA 2000 does not require a discussion regarding past mitigation activities, an overview of past efforts is provided as a foundation for understanding the mitigation goals, objectives, and activities outlined in this Plan. The County, through previous and ongoing hazard mitigation activities, has demonstrated that it is pro-active in protecting its physical assets and citizens against losses from natural hazards. Examples of previous and ongoing actions and projects include:

- All jurisdictions with the exception of Fieldsboro participate in the NFIP, which requires the adoption of FEMA floodplain mapping and certain minimum construction standards for building within the floodplain.
- The County has been actively attempting to update the All-Hazards Mitigation Plan on an annual basis. Due to limited staffing and disaster events, annual meetings were not convened. Future convening of the hazard mitigation committee and preparing annual progress reports to support CRS communities will be conducted as outlined in the Plan Maintenance section of this plan. These efforts will continue to develop the hazard mitigation plan to reduce hazard vulnerability on the county and municipal levels.
- Two jurisdictions participating in this Plan participate in the CRS, the City of Burlington (CRS Classification 8), and the Borough of Palmyra (8).
- The Pinelands National Reserve Comprehensive Management Plan was updated in 2012.
- Burlington County has a robust Public Information system to disseminate information prior, during and after hazard events.
- The County continues to encourage the use of higher regulatory standards such as local floodplain management ordinances and zoning codes.
- The Burlington County Office of Emergency Management Flood Emergency Operations Plan, Rancocas Creek Watershed Management Area #19 was updated in 2013.

These past and ongoing activities have contributed to the County's understanding of its hazard preparedness and future mitigation activity needs, costs, and benefits. These efforts provide a foundation for the Planning Committee to use in developing this HMP.

## GENERAL MITIGATION PLANNING APPROACH

The general mitigation planning approach used to develop this plan is based on the FEMA publication, developing the Mitigation Plan: Identifying Mitigation Actions and Implementing Strategies (FEMA 386-3) and input provided by NJOEM. The FEMA document and NJOEM guidance include four steps, which were used to support mitigation planning. These steps are summarized below and presented in more detail in the following sections.

- **Develop mitigation goals and objectives:** Mitigation goals were developed using the hazard characteristics, inventory, and findings of the risk assessment, and through the results of the public outreach program. By reviewing these outputs and other municipal policy documents, objectives tying to these overarching goals were identified and characterized into similar themes.
- **Identify and prioritize mitigation actions:** Based on the risk assessment outputs, the mitigation goals and objectives, existing literature and resources, and input from the participating entities, alternative mitigation actions were identified. The potential mitigation actions were qualitatively evaluated against the mitigation goals and objectives and other evaluation criteria. They were then prioritized into three categories: high, medium, and low.
- **Prepare an implementation strategy:** High priority mitigation actions are recommended for first consideration for implementation, as discussed under each hazard description in the following sections. However, based on community-specific needs and goals and available funding and costs, some low or medium priority mitigation actions may also be addressed or could be addressed before some of the high priority actions.
- **Document the mitigation planning process:** The mitigation planning process is documented throughout this Plan.

FEMA defines **Goals** as general guidelines that explain what should be achieved. Goals are usually broad, long-term, policy statements, and represent a global vision.

FEMA defines **Objectives** as strategies or implementation steps to attain mitigation goals. Unlike goals, objectives are specific and measurable, where feasible.

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

### Guiding Principle, Mitigation Goals and Objectives

This section presents the guiding principle for this Plan, and mitigation goals and objectives identified to reduce or avoid long-term vulnerabilities to the identified hazards.

### Mission Statement

Per FEMA guidance (386-1), a mission statement or guiding principle describes the overall duty and purpose of the planning process, and serves to identify the principle message of the plan. It focuses or constrains the range of goals and objectives identified. This is not a goal because it does not describe outcomes. Burlington County's mission statement is broad in scope, and provides a direction for the Plan.

The Burlington County Hazard Mitigation Steering Committee developed the mission statement for the 2013 Burlington County Hazard Mitigation Plan as follows:

*Through partnerships and careful planning, identify and reduce the vulnerability to natural hazards in order to protect the health, safety, quality of life, environment, and economy of the communities within Burlington County.*

### Goals and Objectives

According to CFR 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.” The Planning Committee developed mitigation goals and objectives based on the risk assessment results, discussions, research, and input from amongst the committee, existing authorities, polices, programs, resources, stakeholders and the public.

In 2008, the Steering Committee identified ten goals. Goals were developed by taking into consideration both state and jurisdictional goals for mitigation. None of the goals or actions in the 2008 County plan contradicted with the goals of the State Hazard Mitigation Plan.

1. Promote disaster-resistant development.
2. Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.
3. Reduce the possibility of damage and losses due to drought.
4. Reduce the possibility of damage and losses due to flooding caused by floods and hurricanes.
5. Reduce the possibility of damage and losses due to earthquakes.
6. Reduce the possibility of damage and losses due to landslides.
7. Reduce the possibility of damage and losses due to wildfires.
8. Reduce the possibility of damage and losses due to winter storms.
9. Reduce the possibility of damage and losses due to tornadoes and high winds caused by windstorms and hurricane winds.
10. Reduce the possibility of damages to emergency facilities from flooding, wind damage and wildfire damage

The Steering Committee revised the goals and five new goals were established. These new goals were identified through a facilitated exercise, working from a catalog of goal statements created through review of the State Hazard Mitigation Plan, similar plans and FEMA planning guidance. Once the goals were established, objectives that meet multiple goals were selected through a similar facilitated exercise. For the purposes of this Plan, goals are defined as follows:

**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).

The following are the mitigation plan goals for the 2013 update as established by the Steering Committee:

- Protect Life
- Protect Property
- Promote a Sustainable Economy
- Protect the Environment
- Increase Public Awareness

Burlington County goals are compatible with the needs and goals expressed in other available community planning documents as well as the NJ State Hazard Mitigation Plan. Objectives were created to further define the specific actions or implementation steps of the goals. Achievement of these goals and objectives will define the effectiveness of a mitigation strategy. The goals also are used to help establish priorities.

The objectives were developed and/or selected by the Steering Committee through its knowledge of the local area, review of past efforts, findings of the risk assessment, qualitative evaluations, and identification of mitigation options. The objectives are used to 1) measure the success of the Plan once implemented, and 2) to help prioritize identified mitigation actions. For the purposes of this Plan, objectives are defined as follows:

**Objectives** are short-term aims which, when combined, form a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable.

The Steering Committee developed multi-goal objectives in the 2013 plan update. Therefore, the objectives stated below are long-term statements of what the participating jurisdictions hope to achieve over time through implementation of the plan. They are based on the findings of the risk assessment, and will apply to each jurisdiction adopting this plan.

**Table 6-1. Burlington County Hazard Mitigation Plan Objectives**

Obj. #	Objective Statement	Protect Life	Protect Property	Promote a Sustainable Economy	Protect the Environment	Increase Public Awareness
O-1	Promote disaster-resistant development.	x	x	x	x	
O-2	Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.	x	x	x		x
O-3	Reduce the possibility of damages to emergency facilities from natural hazards.	x	x	x		
O-4	Reduce the possibility of damage and losses due to natural hazards affecting the county and its municipalities.	x	x	x	x	
O-5	Educate the public on the risk from natural and man-made hazards and increase their awareness of preparation, mitigation, response, and recovery activities.	x	x			x
O-6	Ensure continuity of government operations, emergency services, and essential facilities at the local level during and immediately after hazard events.	x	x	x		
O-7	Increase communications before, during, and after natural hazard events.	x	x	x	x	x
O-8	Retrofit, acquire, or relocate vulnerable property in high hazard areas including those known to be subject to repetitive damages.	x	x	x	x	
O-9	Utilize the best available information on hazard exposure and vulnerability to support appropriate land use decisions within Burlington County.	x	x	x	x	x

### **Capability Assessment**

According to FEMA 386-3, a capability assessment is an inventory of a community's missions, programs and policies; and an analysis of its capacity to carry them out. This assessment is an integral part of the planning process. The assessment process enables identification, review and analysis of local and state programs, policies, regulations, funding and practices currently in place that may either facilitate or hinder mitigation.

A capability assessment was prepared by Burlington County and each participating jurisdiction. The capability assessments are presented in Section 9, Volume II of this Plan. By completing this assessment, Burlington County and each jurisdiction learned how or whether they would be able to implement certain mitigation actions by determining the following:

- Types of mitigation actions that may be prohibited by law;
- Limitations that may exist on undertaking actions; and
- The range of local and/or state administrative, programmatic, regulatory, financial and technical resources available to assist in implementing their mitigation actions.
- Action is currently outside the scope of capabilities (funding)
- The jurisdiction is not vulnerable to the hazard
- Action is already being implemented

### **IDENTIFICATION, PRIORITIZATION, ANALYSIS, AND IMPLEMENTATION OF MITIGATION ACTIONS**

This subsection discusses the identification, prioritization, analysis and implementation of mitigation actions for Burlington County.

#### **Strengths, Weaknesses, Opportunities and Obstacles (SWOO)**

On June 27, 2013, a Strengths, Weaknesses, Opportunities, and Obstacles (SWOO) session was held with the Planning Committee and the invited agencies/stakeholders identified in table 6.2 below. The purpose of this session was to review information garnered from the risk assessment and the public involvement strategy to identify strengths, weaknesses, opportunities and obstacles in hazard mitigation within Burlington County through a facilitated brainstorming session on risks, vulnerabilities, and capabilities. All information shared during this session was recorded and used to prepare catalogs of mitigation alternatives to be used by the Planning Committee in preparing their individual jurisdictional annexes. Many of the strategies (such as community outreach) identified in the catalogs could be applied to multiple hazards. This Plan identifies strategies for multiple hazards for the County and each jurisdictional annex for participating jurisdictions (Section 9).

**Table 6-2. Agencies/Stakeholders**

Agency/Stakeholder
Evesham
Springfield
Moorestown
Medford Lakes
Pemberton
Mt. Laurel
Bordentown City
Burlington City
Burlington County Health
Westampton
Delanco
Burlington County OEM
Tabernacle
Wrightstown
Hainesport
Southampton
Burlington County College
Palmyra
County Resource Conservation
Washington
PSE&G
Florence
Edgewater Park
Burlington Township
Environmental Resolutions
Ocean County OEM
Bordentown
VIRTUA Health
Burlington County Highway Dept.
Lumberton
Bass River
NJ American Water
NJ Forest Fire Service

The Planning Committee generated a mitigation catalog which includes a comprehensive list of mitigation actions (see Appendix X) to be considered that met the following objectives:

- Use information obtained from the public involvement strategy;
- Use information provided in the risk assessment;
- Seek mitigation actions consistent with the goals and objectives for the Burlington County Plan;
- Create catalogs of mitigation actions to be used as a tool by the Planning Committee in selection of mitigation actions.

### Catalog of Mitigation Actions

Based on information gathered during the SWOO session, a catalog of mitigation actions was created listing initiatives that could manipulate the hazard, reduce exposure to the hazard, reduce vulnerability to the hazard, and to increase the ability to respond to or be prepared for a hazard (Appendix X). In addition, the catalog indicates responsibility for implementation (i.e., who would most likely implement the initiative: personal property owners, private sector business, or government). The FEMA publication, “Mitigation Ideas” dated January 2013 was also provided to each plan participant to use as a resource and to compliment the mitigation catalog. Based on the risk assessment, the hazards included in the catalog are deemed to be those to which the planning area is most vulnerable.

The catalog is not meant to be exhaustive or site-specific but rather to inspire thought and provide members of the Planning Committee a baseline of initiatives backed by a planning process, consistent with the goals and objectives of the planning area, and within the capabilities of the Participants. The Planning Committee was not bound to these actions. They had the opportunity to add further actions subsequent to the SWOO workshop. Actions in the catalog that were not selected by the Partners to include in their jurisdictional annexes were not selected based on the following:

- Action is currently outside the scope of capabilities (funding)
- The jurisdiction is not vulnerable to the hazard
- Action is already being implemented

All proposed mitigation actions were identified in relation to the goals and objectives presented above. The mitigation actions include a range of options in line with the six types of mitigation actions described in FEMA guidance (FEMA 386-3), including:

- 1. Prevention:** Government, administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- 2. Property Protection:** Actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- 3. Public Education and Awareness:** 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 school-age and adult education programs.
- 4. 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.

- 5. 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.

### Mitigation Actions

The mitigation actions are the key element of the natural hazards mitigation plan. It is through the implementation of these actions that Burlington County and the participating jurisdictions can strive to become disaster-resistant through hazard mitigation. For the purposes of this Plan, mitigation actions are defined as follows:

*Mitigation actions* are activities designed to reduce or eliminate losses resulting from natural hazards.

Although one of the driving influences for preparing this Plan was grant funding eligibility, its purpose is more than just access to federal funding. It was important to the Planning Committee to look at mitigation actions that will work through all phases of emergency management. Some of the actions outlined in this Plan may not be grant eligible—grant eligibility was not the focus of the selection. Rather, the focus was the actions’ effectiveness in achieving the goals of the Plan and whether they are within the County or each jurisdiction’s capabilities.

A series of mitigation actions were identified by Burlington County and each participating jurisdiction. These actions are summarized in the County and Jurisdictional Annexes, located in Section 9, Volume II of this Plan. Along with the hazards mitigated, goals and objectives met, lead agency, estimated cost, potential funding sources and the proposed timeline are identified. The parameters for the timeline are as follows:

- Short Term = To be completed in 1 to 5 years
- Long Term = To be completed in greater than 5 years
- Ongoing = Currently being funded and implemented under existing programs.

### Prioritization

Section 201.c.3.iii of 44 CFR requires an action plan describing how the actions identified will be prioritized. The Burlington County Planning Committee, along with their contract consultant, developed a prioritization methodology for the Plan that meets the needs of the County and participating jurisdictions while at the same time meeting the requirements of Section 201.6 of 44 CFR. The mitigation actions identified in Volume II of this plan were prioritized according to the criteria defined below.

- **High Priority:** A project that meets multiple plan goals and objectives, benefits exceed cost, has funding secured under existing programs or authorizations, or is grant-eligible, and can be completed in 1 to 5 years (short-term project) once project is funded.
- **Medium Priority:** A project that meets at least one plan goal and objective, benefits exceed costs, funding has not been secured and would require a special funding authorization under existing programs, grant eligibility is questionable, and can be completed in 1 to 5 years once project is funded.
- **Low Priority:** A project that will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, and project is not grant-eligible and/or timeline for completion is considered long-term (5 to 10 years).

It is noted that these priority definitions are considered to be dynamic and can change from one category to another based on changes to a parameter such as availability of funding. For example, a project might be assigned a medium priority because of the uncertainty of a funding source. This priority could be changed to high once a funding source has been identified such as a grant. The prioritization schedule for this Plan will be reviewed and updated as needed annually through the plan maintenance strategy described in Section 7 of this Plan.

The planning committee reviewed the prioritization process and determined that this provided an acceptable method to prioritize the projects. In addition, specific guidance was provided by FEMA during the jurisdictional annex workshops to provide an understanding of how the resources, funding and costs factor into prioritizing projects. Therefore the STAPLEE method was not utilized in the update of the plan but instead the general philosophy was employed in conjunction with the review of the mitigation strategy.

**Benefit/Cost Review**

Section 201.6.c.3iii of 44CFR requires the prioritization of the action plan to emphasize the extent to which benefits are maximized according to a cost/benefit review of the proposed projects and their associated costs. The County was asked to weigh the estimated benefits of a project versus the estimated costs to establish a parameter to be used in the prioritization of a project, utilizing the same parameters used by each of the participating jurisdictions as outlined in Volume II of this Plan.

This benefit/cost review was qualitative; that is, it did not include the level of detail required by FEMA for project grant eligibility under the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) grant program. This qualitative approach was used because projects may not be implemented for up to 10 years, and the associated costs and benefits could change dramatically in that time. Each project was assessed by assigning subjective ratings (high, medium, and low) to its costs and benefits, described in Table 6-2.

**Table 6-3. Project Assessment**

<b>Costs</b>	
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.
<b>Benefits</b>	
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-beneficial and are prioritized accordingly. For some of the County initiatives identified, Burlington County may seek financial assistance under FEMA’s HMGP or PDM programs. Both of these programs require detailed benefit/cost analysis as part of the application process. These analyses will be performed when funding applications are prepared, using the

FEMA BCA model process. The Planning Committee 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 Committee reserves the right to define “benefits” according to parameters that meet its needs and the goals and objectives of this plan.

The annexes presented in Section 9, Volume II present the results of applying the prioritization methodology presented to the set of mitigation actions identified by Burlington County and each participating jurisdiction, and includes the following prioritization parameters:

- Number of objectives met by the initiative
- Benefits of the project (high, medium, or low)
- Cost of the project (high, medium, or low)
- Do the benefits equal or exceed the costs?
- Is the project grant-eligible?
- Can the project be funded under existing programs and budgets?
- Priority (high, medium, or low)

### **Jurisdictional Annexes**

The annexes present the County’s and each participating jurisdiction’s mitigation action implementation strategy including:

- Mitigation actions for individual and multiple hazards
- Mitigation objectives supported by each action. Goals are not listed because all objectives meet multiple goals.
- Implementation priority
- Potential funding sources for the mitigation action (grant programs, current operating budgets or funding, or the agency or jurisdiction that will supply the funding; additional potential funding resources are identified)
- Estimated budget for the mitigation action (financial requirements for new funding or indication that the action is addressed under current operating budgets)
- Time estimated to implement and complete the mitigation action
- Existing policies, programs, and resources to support implementation of the mitigation action (additional policies, programs, and resources identified)

Specific mitigation actions were identified to prevent future losses; however, current funding is not identified for all of these actions at present. Burlington County has limited resources to take on new responsibilities or projects. The implementation of these mitigation actions is dependent on the approval of the local elected governing body and the ability of the community to obtain funding from local or outside sources. Where such actions are high priorities, the community will work together with NJOEM, FEMA and other Federal, State and County agencies to secure funds.

Each jurisdiction participating in this update (both the County and all municipalities) has assisted in the authoring of their own annex or chapter to this plan, included in Section 9. One of the key elements of each annex is the updated jurisdictional mitigation strategy.

As data, information and other input was compiled and received from the municipality, it was input directly into their draft annex. To help support the selection of an appropriate, risk-based mitigation

strategy, each annex provided a summary of hazard vulnerabilities identified during the plan update process, either directly by municipal representatives, through review of available county and local plans and reports, and through the hazard profiling and vulnerability assessment process.

Annexes were then pre-populated with jurisdictional-specific mitigation actions identified during the course of the plan update, as well as general (“common”) initiatives developed during the planning process and included for municipal consideration.

Specific mitigation actions included in the draft municipal annexes included:

- Those being carried forward from the 2008 plan;
- Those specifically identified by the jurisdiction during the course of the planning process;
- Those identified in other relevant county and local plans and reports (e.g. Stream Corridor Management Plans, Highway Management Plans, Master Plans, local engineering studies, etc.);
- Those identified during the public and stakeholder outreach process (see Section 3); and,
- Those that became evident through the updated hazard profiling and risk/vulnerability assessment effort.

Throughout the plan update process, and in consideration of federal and state mitigation guidance, the Steering Committee recognized that all municipalities would benefit from the inclusion of certain “general” or “common” mitigation initiatives. These include initiatives to address vulnerable public and private properties, including RL and SRL properties; initiatives to support continued and enhanced participation in the NFIP; improved public education and awareness programs; initiatives to build greater local mitigation capabilities; and a commitment to implement and maintain the plan.

All municipalities were advised to thoroughly review these “general” initiatives, and include, amend or delete them as they found appropriate for their jurisdiction. Multiple municipal officials reviewed all initiatives included in their respective annex as noted on the municipal “sign-off” sheet found at the end of each annex.

In general, mitigation actions ranked as high priorities will be addressed first. However, medium or even low priority mitigation actions will be considered for concurrent implementation. Therefore, the ranking levels should be considered as a first-cut, preliminary ranking and will evolve based on input from Burlington County departments and representatives, municipal government departments and representatives, the public, municipal government departments and representatives, NJOEM, and FEMA as the Plan is implemented.

### Area-Wide Collaborative Actions

During the five year period of the 2008 Hazard Mitigation Plan, the County and municipalities have collaborated on numerous projects. Namely the following initiatives have been jointly addressed:

- Improved communication before, during, and after flood events.
- Participation in CRS.
- Countywide Community Emergency Response Team
- Focus on acquiring property in hazard (flood) prone areas to reduce vulnerability to natural hazards.
- Providing back-up power for critical facilities.
- Improving emergency response and using new technology as it becomes available.
- Developing post disaster action plans.