



State of Maryland Mitigation Operations Plan (SMOP)

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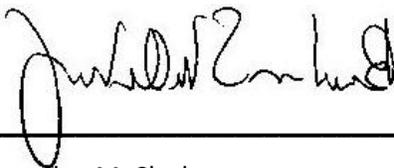
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SIGNATURE PAGE

The State of Maryland is committed to a consistent and inclusive approach to reducing the impact of threats and hazards to communities across the State.



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ACRONYMS AND DEFINITIONS

The following acronyms and definitions reflect only those acronyms or terms used in this document.

AAR	- After Action Report
BCA	- Benefit Cost Analysis
CO ₂	- Carbon Dioxide
DBED	- Department of Business and Economic Development (Maryland)
DGS	- Department of General Services (Maryland)
DHCD	- Department of Housing and Community Development (Maryland)
DHR	- Department of Human Resources (Maryland)
DMA 2000	- Disaster Mitigation Act of 2000
DNR	- Department of Natural Resources (Maryland)
FEMA	- Federal Emergency Management Agency
FMA	- Flood Mitigation Assistance
GHG	- Greenhouse Gases
HIRA	- Hazard Impact Risk Assessment
HMA	- Hazard Mitigation Assistance
HMGP	- Hazard Mitigation Grant Program
HSPD-5	- Homeland Security Presidential Directive 5
IP	- Improvement Plan
MAC	- Mitigation Advisory Committee
MDE	- Maryland Department of the Environment
MDOT	- Maryland Department of Transportation
MDP	- Maryland Department of Planning
MEA	- Maryland Energy Administration
MEMA	- Maryland Emergency Management Agency
MEPP	- Maryland Emergency Preparedness Program
MIA	- Maryland Insurance Administration
NIMS	- National Incident Management System
NMF	- National Mitigation Framework
NPG	- National Preparedness Goal
PDM	- Pre-Disaster Mitigation

PPD-8	- Presidential Policy Directive 8
PSIP	- Private Sector Integration Program
PSC	- Maryland Public Service Commission
RGGI	- Regional Greenhouse Gas Initiative
SDROP	- State Disaster Recovery Operations Plan
SHMO	- State Hazard Mitigation Officer
SMOP	- State Mitigation Operations Plan
THIRA	- Threat and Hazard Identification and Risk Assessment
TOD	- Transit-Oriented Development
ZEV	- Zero Emissions Vehicle

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MITIGATION MISSION STATEMENT

Ensure the ability of the State of Maryland to effectively reduce or eliminate the impacts of all hazards on individuals, property, and the environment in coordination with all necessary State, local, federal, private sector, and voluntary, faith-based, and nongovernmental agencies in order to create a more resilient Maryland.

I. PURPOSE

The Maryland State Mitigation Operations Plan (SMOP) describes the roles and responsibilities of entities within Maryland to reduce or eliminate the impacts of all hazards to which Maryland is susceptible. The SMOP serves to implement the Maryland State Hazard Mitigation Plan (HMP).

II. SCOPE

The SMOP is the State Mitigation Mission Area Operations Plan within the Maryland Emergency Preparedness Program (MEPP). The SMOP outlines the ongoing state-level hazard mitigation efforts that occur prior to, during, and following an incident, or disaster. The magnitude to which the Mitigation Mission Area is executed is dependent upon regulatory activity and funding each year. The identified actions and activities in this Plan are based on existing State agency statutory authorities.

While providing a structure of procedures and guidelines, at no time is the SMOP intended to inhibit the use of experience and common sense by Maryland Emergency Management Agency leadership and staff, State of Maryland departments/agencies representatives, or organizations and businesses, when determining the actions and resources needed to reduce the vulnerabilities, consequences, impacts, duration, and the financial, human, and environmental costs of a hazard. The details described in this Plan may or may not apply to specific situations. State employees must use their discretion in each situation to determine the best course of action. Procedures listed in this Plan serve as guidance, but are not intended to replace the best judgment of those who are directly handling a specific hazard mitigation-related task.

III. GOALS

The goals to be met throughout the execution of the SMOP are as follows:

A. Reduce risk by prioritizing investments.

Assessing the impacts of naturally-occurring and human-caused hazards on communities enables strategic prioritization of mitigation projects, and enhances the State's ability to reduce or eliminate long-term risks through the effective allocation of resources and the dissemination of information.

B. Support local jurisdictions' involvement in hazard mitigation planning.

All disasters are locally-driven, and it is the State of Maryland's role to provide assistance to the local jurisdictions in the form of personnel, resources, and operational coordination, at their request, when their resources are exceeded.

C. Integrate risk-reduction programs across State government, and with local governments and the private sector.

Use existing or new regulations, local ordinances, land use and building practices, and mitigation projects to reduce the risk of all hazards on life, property, and the environment. The primary tools to accomplish the consolidation and execution of risk-reduction programs and strategies are the Maryland State HMP, and the local HMPs.

D. Encourage and promote the value of mitigation statewide.

Encourage more participation from various departments and agencies across both the State and local governments to foster stronger intergovernmental coordination for risk reduction.

IV. MITIGATION PLANNING FACTS AND ASSUMPTIONS

The State of Maryland has developed this Plan to address the risks identified in the State's Threat and Hazard Identification and Risk Assessment (THIRA), which is updated annually, and the Hazard Identification and Risk Assessment (HIRA), which is updated every five years as part of the broader State HMP update. Both assessments are developed through statewide coordination and input from all of Maryland's 23 counties and the cities of Baltimore, Annapolis, and Ocean City. This Plan takes into account all threats and hazards to provide a standard framework for mitigation operations at the State level.

- Private and nonprofit organizations within the State of Maryland are an essential part of hazard mitigation operations, and the State takes action to support risk-reduction initiatives at all levels of government, and with the private and nonprofit sectors.
- Maryland departments and agencies need to assist communities with hazard mitigation efforts within policy, regulatory, and financial constraints.
- Statewide hazard-mitigation operations extend beyond traditional federally-funded programs, such as the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Assistance (HMA) Program. While the State is eligible to receive mitigation funds every year, after a Presidential Disaster Declaration, the State or communities within the State will likely be eligible for additional mitigation assistance.
- The State of Maryland integrates issues related to planning for people with disabilities and others with access and functional needs in all mitigation strategies and initiatives, as appropriate.

V. MITIGATION DOCTRINE

A. All Hazards Planning

An incident may occur in the State with or without warning, under a myriad of circumstances. Maryland, while cognizant of its identified threats and hazards, conducts planning efforts in accordance with an all-hazards philosophy.

B. National Doctrine

This Plan is consistent with Presidential Policy Directive 8 (PPD-8), Homeland Security Presidential Directive 5 (HSPD-5), and the National Incident Management System (NIMS) – the primary components of national preparedness doctrine. This document supports seamless coordination and integration of national (federal and other states') resources to supplement State resources during hazard mitigation operations. Together, the National Preparedness Goal (NPG), National Mitigation Framework (NMF), and NIMS present the guiding principles that enable all mitigation partners to work towards mitigating the effects of anything from the smallest incident to the largest catastrophe. The State implements and adapts national standards through the MEPP, which is outlined in the section below.

C. All Emergencies are Locally-Driven

Local jurisdictions have the capability to perform hazard mitigation operations prior to, during, and following most disasters. Hazard mitigation operations should always be ongoing at both the State and local levels.

Assistance from the State may be provided to local jurisdictions under a variety of circumstances, such as when federal funds become available, or when State-led initiatives dictate. The State may also provide technical expertise to local jurisdictions. When resources and/or coordination requirements exceed local capabilities, local authorities may request State hazard-mitigation resources and assistance.

VI. PLAN ORGANIZATION

This Plan describes the roles and responsibilities of State-level entities to effectively deliver hazard mitigation capabilities statewide. The SMOP is one of four all-hazards mission area operations plans (Prevention/Protection, Mitigation, Response, and Recovery) within the MEPP.

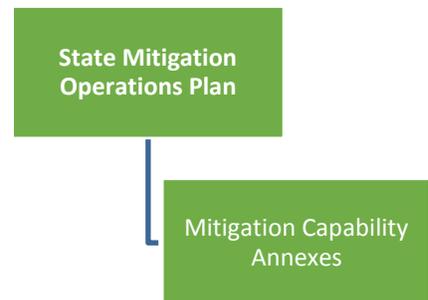
Figure 1 – The MEPP Plan Hierarchy



The MEPP is the State’s overarching construct for emergency preparedness. The MEPP is an all-hazards approach to the delivery of specific capabilities for each of Maryland’s four mission areas (listed above) to address the State’s risk. This document serves as the operations plan for the Mitigation Mission Area, and is maintained by the Mitigation Advisory Committee (MAC).

The SMOP is supplemented by Mitigation Capability Annexes that identify capability targets and resources needed and available to meet those targets. The SMOP and Mitigation Capability Annexes describe common management and coordination processes that apply to all mitigation activities.

Figure 2 – SMOP Components

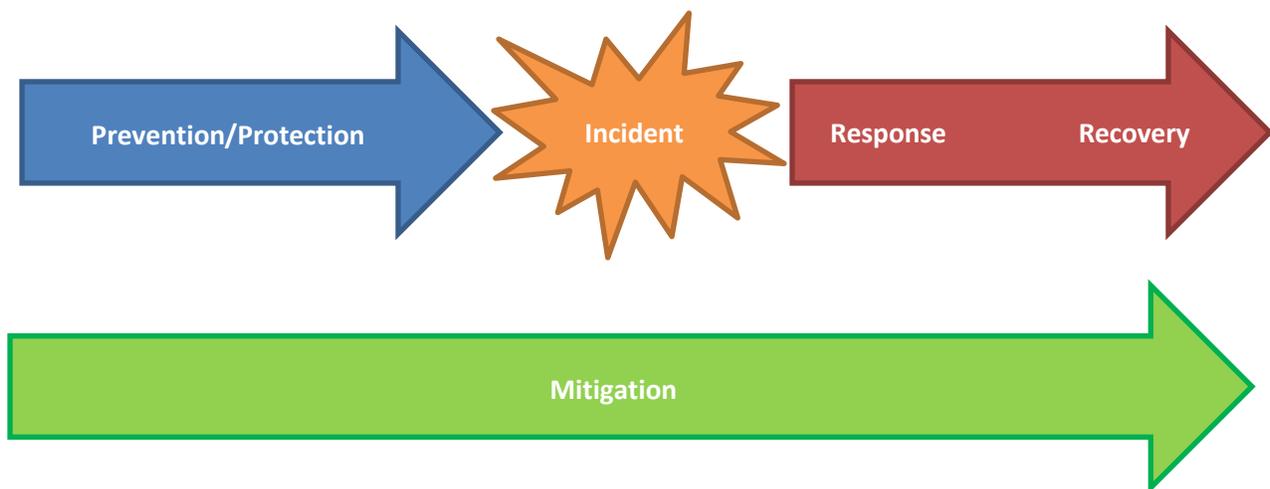


A. Mission Area Interdependencies

1. The mission areas are divided between crisis management and consequence management, each with distinct focuses and operational activities.

- *Crisis management* (shown below in blue) is the process of preventing or reducing the risk of a threat or hazard to the State, its citizens, or its infrastructure (Prevention/Protection).
- *Consequence management* (shown below in red) is the process of addressing the impacts of a threat or hazard to the State, its citizens, or its infrastructure, and restoring the State's ability to function, while taking steps to reduce future vulnerabilities (Response and Recovery).
- Note: Mitigation is depicted in green as crosscutting both crisis and consequence management, because elements of the Mitigation Mission Area are included in both types of planning.

Figure 3 – Mission Area Interdependence



Capabilities involved in the Prevention/Protection, Response, and Recovery Mission Areas greatly impact Mitigation Mission Area operations. Many of the resources used daily to deliver the capabilities of the other three mission areas are utilized to support mitigation operations. Capabilities within the Mitigation Mission Area reduce the impact and severity of an incident, and generate the risk-based planning assumptions that the MEPP is based upon. Recovery capabilities are the direct evolution of an emergency from stabilization to community restoration.

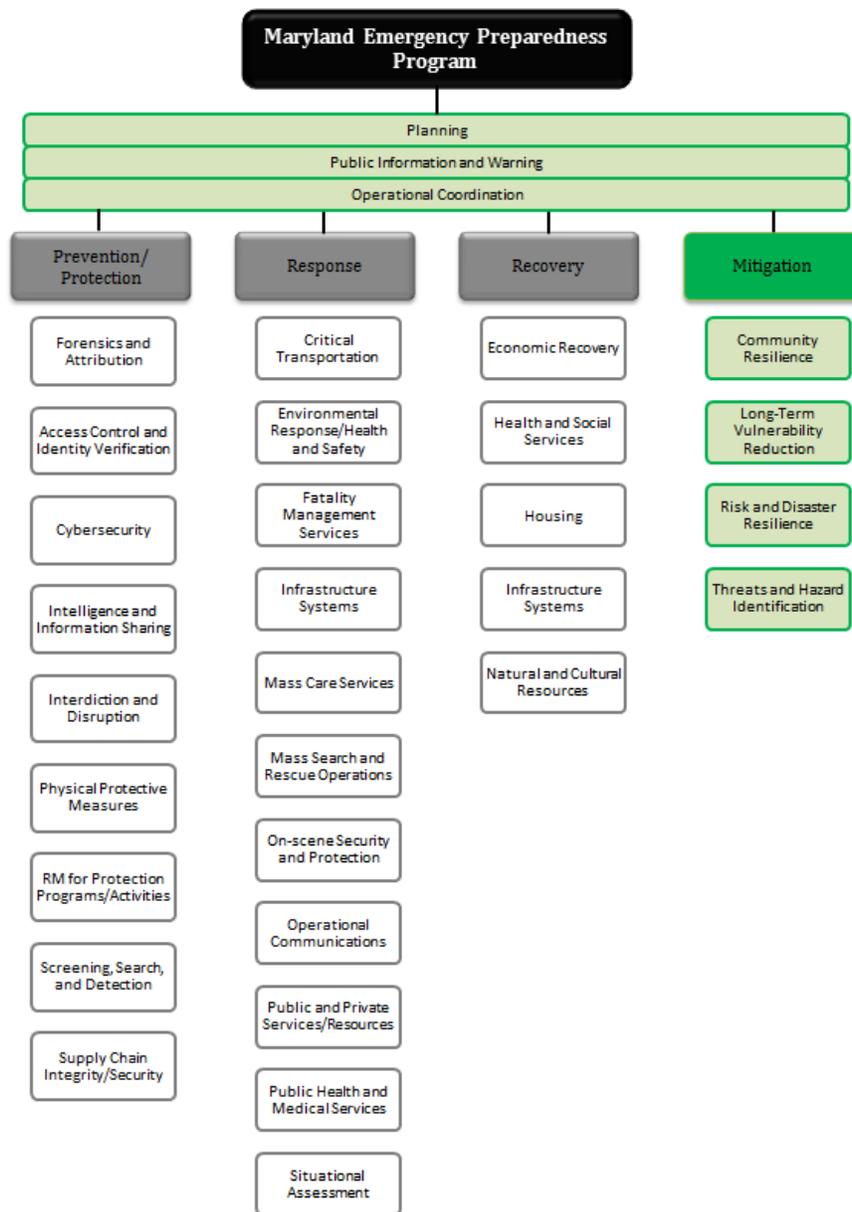
While this Plan pertains solely to those capabilities within the Mitigation Mission Area, thoughtful consideration is essential as to how capabilities are being delivered in the context of this Plan, and how

this may impact the delivery of capabilities needed for concurrent operations within other mission areas.

VII. CAPABILITIES FOR MITIGATION

The Mitigation Mission Area capabilities are a list of the activities that generally must be accomplished during mitigation operations, regardless of which levels of government are involved. The Mitigation Mission Area includes seven capabilities – four that apply only to mitigation, and three that are common to all four mission areas. The figure below outlines the capabilities for each of the four mission areas as defined by the MEPP Strategic Plan.

Figure 4 – Mitigation Mission Area Capabilities



The Mitigation Mission Area includes those capabilities necessary to reduce loss of life and property, and lessen environmental effects by reducing the impact of disasters. It is focused on ensuring that the State is able to reduce the consequences, impacts, duration, and financial, human, and environmental costs that responding to and recovering from adverse incidents has on governments, individuals, the private sector, communities, critical infrastructure, and other states.

The table below provides a description of each mitigation capability and the critical tasks to achieve its objective.

Table 1 – Mitigation Mission Area Capability Overview

Planning	
Description	Conduct a systematic process engaging the whole community, as appropriate, in the development of executable strategic, operational, and/or community-based approaches to meet defined objectives.
Capability Targets	<p>Mitigation Planning</p> <ol style="list-style-type: none"> 1. Revise the State’s Hazard Mitigation Plan every 5 years. 2. Evaluate implementation of mitigation strategies included in the HMP annually. 3. Ensure Federal approval of HMPs for each of Maryland's 26 local jurisdictions on the applicable 5 year revision cycle through financial program administration, plan integration guidance, and plan compliance review. 4. Encourage other eligible entities (e.g., colleges/universities, municipalities, etc. to develop, update, and seek FEMA approval for applicable mitigation plans on the 5-year revision cycle.
Public Information and Warning	
Description	Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard and, as appropriate, the actions being taken and the assistance being made available.
Capability Targets	<p>Digital Media</p> <ol style="list-style-type: none"> 1. Quarterly spread safety warnings through Twitter to four million people in the state (including Tweets and Retweets). 2. Quarterly, spread safety warnings through Facebook to a million followers. 3. Quarterly, update the MEMA website to provide relevant safety information. 4. Produce one YouTube video per quarter to highlight a threat or hazard. 5. Promote hazard mitigation opportunities through social media as

	<p>they become available.</p> <p>Traditional Media</p> <ol style="list-style-type: none"> 1. Maintain a media calendar highlighting threats and hazards throughout the year, and contact all media outlets in the state for each calendar entry. 2. Promote hazard mitigation opportunities through traditional media as they become available. <p>Public Outreach/Direct Contact</p> <ol style="list-style-type: none"> 1. Hold one public event per region per quarter. 2. Present at 2 national conferences per year. 3. Table or present at 4 major and 12 minor public events in Maryland throughout the year. 4. Develop and implement a risk-based editorial calendar to target public outreach activities.
Operational Coordination	
Description	Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of capabilities.
Capability Targets	<p>Mitigation Operational Coordination</p> <ol style="list-style-type: none"> 1. Within 72 hours of the conclusion of life-saving operations, determine which mitigation strategies and projects were involved in the operation. 2. Within one week of an event, communicate any unmet mitigation needs identified in the operation to the Mitigation Grants Program.
Community Resilience	
Description	Lead the integrated effort to recognize, understand, communicate, plan, and address risks so that the community can develop a set of actions to accomplish Mitigation and improve resilience.
Capability Targets	<p>Individual Resiliency</p> <ol style="list-style-type: none"> 1. 25% of a three day supply of food and water. 2. 50% of Maryland citizens can receive information without electricity. 3. 50% of Maryland citizens have important documents protected. 4. Produce and update maps every five years displaying the spatial distribution of areas containing concentrations of persons characterized as socio-economically vulnerable. <p>Institutional Resiliency</p> <ol style="list-style-type: none"> 1. 100% of Pre-K-12th grade schools have a preparedness plan. 2. 50% of Maryland small businesses have attended a continuity of operations (COOP) seminar. 3. 100% increase in Private Sector Integration Program (PSIP) membership. <p>Local Government Coordination</p> <ol style="list-style-type: none"> 1. 100% of Jurisdictions are engaged in the MEPP. 2. 100% of Maryland State Agencies have a COOP Plan.

Long-Term Vulnerability Reduction	
Description	Build and sustain resilient systems, communities, and critical infrastructure and key resources lifelines so as to reduce their vulnerability to natural, technological, and human-caused incidents by lessening the likelihood, severity, and duration of the adverse consequences related to these incidents.
Capability Targets	<p>Reduce Vulnerability from Natural Hazards</p> <ol style="list-style-type: none"> 1. Every five years, update the State HMP to reflect current status of projects and needs of the State. 2. On the timeline specified, administer grants and projects that reduce the vulnerability to natural disasters. 3. At the end of each year, identify and evaluate natural disaster risk-reduction policies. <p>Reduce Vulnerability from Technological Hazards</p> <ol style="list-style-type: none"> 1. Every five years, update the State HMP to reflect current status of projects and needs of the State. 2. On the timeline specified, administer grants and projects that reduce the vulnerability to technological disasters. 3. At the end of each year, identify and evaluate technological disaster risk-reduction policies. <p>Reduce Vulnerability from Human-caused Hazards</p> <ol style="list-style-type: none"> 1. Every five years, update the State HMP to reflect current status of projects and needs of the State. 2. On the timeline specified, administer grants and projects that reduce the vulnerability to human-caused disasters. 3. At the end of each year, identify and evaluate human-caused disaster risk-reduction policies.
Risk and Disaster Resilience Assessment	
Description	Assess risk and disaster resilience so that decision makers, responders, and community members can take informed action to reduce their entity's risk and increase their resilience.
Capability Targets	<p>Natural Hazard Resilience Assessment</p> <ol style="list-style-type: none"> 1. At the end of each year, develop a ranking of all potential natural threats and hazards using quantitative analysis to prioritize risk-reduction programs. <p>Technological Hazard Resilience Assessment</p> <ol style="list-style-type: none"> 1. At the end of each year, develop a ranking of all potential technological threats and hazards using quantitative analysis to prioritize risk-reduction programs. <p>Human-caused Hazard Resilience Assessment</p> <ol style="list-style-type: none"> 1. At the end of each year, develop a ranking of all potential human-caused threats and hazards using quantitative analysis to prioritize risk-reduction programs.

Threats and Hazard Identification	
Description	Identify the threats and hazards that occur in the geographic area; determine the frequency and magnitude; and incorporate this into analysis and planning processes so as to clearly understand the needs of a community or entity.
Capability Targets	<p>Identify Threats from Natural Sources</p> <ol style="list-style-type: none"> 1. Each month, add to a running list of new or potentially altered natural hazards. 2. Each year, identify all potential natural threats and hazards. <p>Identify Threats from Technological Failure Sources</p> <ol style="list-style-type: none"> 1. Each month, add to a running list of new or potentially altered technological hazards. 2. Each year, identify all potential technological threats and hazards. <p>Identify Threats from Human-caused Sources</p> <ol style="list-style-type: none"> 1. Each month, add to a running list of new or potentially altered human-caused hazards. 2. Each year, identify all potential human-caused threats and hazards.

VIII. CONCEPT OF COORDINATION: MITIGATION ADVISORY COMMITTEE

Mitigation is an ongoing process aimed at reducing the human, financial, and environmental consequences of potential or actual threats and hazards. Effective hazard mitigation requires an assessment of local risks and strategic investments into a community's well-being. Local jurisdictions should have the capacity to effectively engage in ongoing mitigation operations without any outside assistance. Through the HMA Program, funding is available both before and after a disaster targeted at reducing the risk of future hazards. HMA includes three components: the Pre-Disaster Mitigation (PDM) Program, the Hazard Mitigation Grant Program (HMGP), and the Flood Mitigation Assistance (FMA) Program.

The State is responsible for implementing risk-reduction strategies and coordinating those activities in support of Maryland's individuals, communities, local jurisdictions, and the private and nonprofit sectors. The Maryland Emergency Management Agency (MEMA) and the State Hazard Mitigation Officer (SHMO) act as the conduit of coordination among HMA-related risk-reduction Initiatives and participates in other mitigation-related programs.

Local jurisdictions are responsible for coordinating risk-reduction initiatives and partnerships within their areas of responsibility. This includes developing, assessing, and implementing mitigation capabilities to reduce long-term vulnerability.

The MAC serves as the leadership group for the Mitigation Mission Area at the state level. The State departments and agencies engaged in mitigation operate according to their statutory authorities in a roundtable, group approach to making decisions. MEMA serves as the lead for the Mitigation Mission Area and the SHMO serves as chair of the MAC. The MAC helps to identify Maryland's threats and hazards, and conducts assessments to prioritize threats and hazards according to risk. Additionally, the MAC is responsible for the review and prioritization of HMA-related projects that are recommended to be forwarded to FEMA for funding. The final authority to submit projects to FEMA for funding rests with the Executive Director of MEMA. The MAC is also responsible for the maintenance and revisions of this Plan.

A. Purpose of the MAC

The purpose of the MAC is to advise the State of Maryland and MEMA on concerns of hazard-mitigation planning, activities, and policies including naturally-occurring and human-caused. The Committee should adhere to the guidance outlined in the State HMP, in accordance with the federal Disaster Mitigation Act of 2000 (DMA 2000), the Robert T. Stafford Act, and other applicable federal and state statutes, regulations, and policies. Specific charges to the MAC are to:

- Review and revise the State of Maryland HMP, as required by federal law or as needed. The Disaster Mitigation Act of 2000 requires that all state HMPs plans be updated by the State, and approved by FEMA every five years.
- Initiate the preparation of proposals from State agencies and encourage local and regional, multi-jurisdictional governmental agencies and other eligible organizations to submit proposals for hazard mitigation projects and HMPs.
- Review the HMPs of local and regional governmental agencies, multi-jurisdictional governmental agencies, and other eligible organizations to make recommendations to MEMA.
- Review proposals submitted for hazard mitigation projects and make recommendations to the MEMA Executive Director for funding priorities.
- Assist MEMA and other State agencies in the discovery and notification of opportunities, coordination and collaboration of efforts, and preparation and submission of proposals related to other formal and informal mitigation-related projects, programs, and initiatives.

The MAC will evaluate and prioritize all eligible mitigation project applications using the following Project Ranking System (Note: The percentages and priorities noted below are based on the most recent FEMA mitigation grant guidance when this plan was most recently updated. The federal guidance and the total funds available may change each fiscal year.):

- **Priority 1 – Hazard Mitigation Plan updates:** Valid, adopted HMPs are a pre-requisite for project eligibility in a local jurisdiction. HMP updates are the first priority for all HMA programs. Funds may be allocated to these projects within applicable limits. For example, up to 7% of HMGP funds available may be allocated to the preparation of local HMPs and the State HMP.
- **Priority 2 – 5% Initiative (HMGP Only):** Up to 5% of HMGP funds available may be allocated for projects that do not meet normal benefit cost analysis, but contribute to hazard mitigation goals. Typically, these are public information, and alert and warning projects.

- **Priority 3 – Hazard Mitigation Projects (excluding generators):** The balance of funding after allocation above is available for standard mitigation projects, such as those listed below (items

below are in no particular order):

- Structure Elevations (both residential and non-residential)
- Structure Acquisition/Demolition (both residential and non-residential)
- Flood proofing (non-residential structures only)
- Public Infrastructure Retrofit

Note: Standard Hazard Mitigation projects, including elevations and acquisitions that exceed FEMA cost caps must complete a Benefit Cost Analysis (BCA).

- **Priority 4 – Generators for Critical Facilities:** The balance of funds available after all other priorities have been met will be applied to generators using the three step process outlined below:

Figure 5 – Generator Prioritization Process



1. Benefit-Cost Analysis:

All generator projects are ranked according the following benefit cost ratio, which is derived from the FEMA BCA model:

- a) Water and wastewater systems
- b) Hospitals and health care facilities
- c) Fire/rescue/emergency operations
- d) Police stations
- e) Other critical facilities (public works, administrative facilities)

2. Geographic Distribution:

Jurisdictions that have received recent (within five years) HMGP funding for generator projects will be moved to the bottom of the ranking to allow for a more even distribution of funds across the State. Secondly, jurisdictions that have received grants for standard Hazard Mitigation projects (e.g., elevations and acquisitions) in the past will receive a higher priority ranking.

3. Disaster Impact Assessment:

Applicants in jurisdictions that have been particularly impacted by the most recent disaster events will be moved up in the ranking.

B. MAC Members

The MAC is staffed from, but not limited to, the following departments, agencies, and associations:

- 1) Maryland Emergency Management Agency (MEMA)
- 2) Maryland Emergency Management Association
- 3) Maryland Department of Business and Economic Development (DBED)
- 4) Maryland Department of Housing and Community Development (DHCD)
- 5) Maryland Department of Human Resources (DHR)
- 6) Maryland Department of Natural Resources (DNR)
- 7) Maryland Department of Planning (MDP)
- 8) Maryland Department of the Environment (MDE)
- 9) Maryland Department of Transportation (MDOT)
- 10) Maryland Department of General Services (DGS)
- 11) Maryland Insurance Administration (MIA)
- 12) Maryland State Treasurer's Office
- 13) Maryland Energy Administration (MEA)

The head of each agency listed above must designate a primary and alternate representative to serve on the MAC. Other State, federal, and local agencies may be asked to participate as the need arises. The MAC will meet, at a minimum, twice per year, and members are expected to all meetings. Consensus of the MAC members will be used to approve issues that require a vote. Additionally, a list of attendees and meeting minutes will be maintained by MEMA Staff supporting the MAC.

IX. CONCEPT OF OPERATIONS

Hazard mitigation is a shared mission among all of the State agencies and departments, local jurisdictions, neighborhoods, businesses, nonprofit organizations, and individual citizens. While the State has certain responsibilities, reduction of long-term vulnerability and the building of resilient communities is only achieved if all Marylanders work in concert to reduce risk.

As the lead for the Mitigation Mission Area, MEMA is responsible for the facilitation of the Maryland Mitigation Process, detailed below. The capabilities for the Mitigation Mission Area are broken into three phases of an ongoing process, aimed at developing and sustaining resilient communities that are actively reducing their risk to the threats and hazards they face. The table below details the capabilities included in the Mitigation Mission Area, and defines the Primary Agency for delivering that capability. While MEMA serves as the agency with primary responsibility for the Mitigation capabilities, the MAC member agencies provide support as needed.

Table 2 – Maryland Capabilities and Primary Agency(ies)

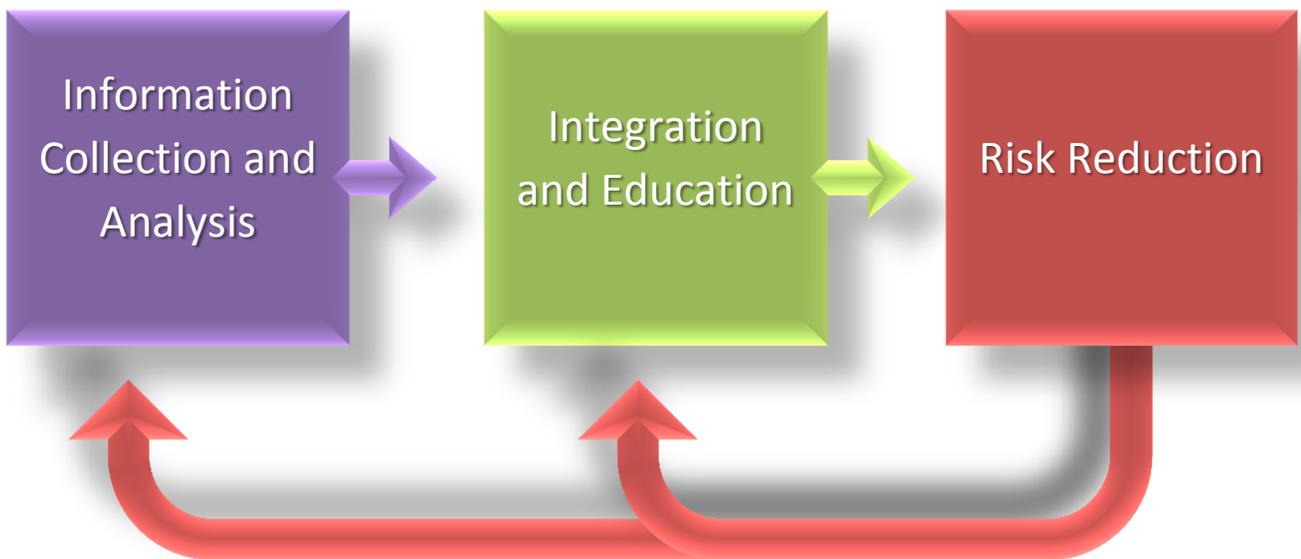
Capability	Primary Agency
Planning	MEMA
Public Information & Warning	MEMA
Operational Coordination	MEMA
Community Resilience	MEMA
Long-Term Vulnerability Reduction	MEMA
Risk and Disaster Resilience Assessment	MEMA
Threat and Hazard Identification	MEMA

The first phase of the Maryland Mitigation Process, Information Collection and Analysis, ties in with the first step of the Maryland Preparedness System: to assess Maryland’s risk to all threats and hazards to help inform risk-reduction priorities. The next phase, Integration and Education, focuses on developing innovative approaches to incorporate the various risk-reduction activities and initiatives across the State

into the State’s HMP. Additionally, this phase includes activities to help educate Maryland’s citizens and communities on the threats and hazards they face and to encourage preparedness activities at all levels of Maryland’s community. Finally, the Risk-Reduction phase reflects the development and sustainment of risk-reduction programs for families, communities, governments, and businesses, ensuring Maryland is well-equipped to withstand the impacts of future disasters, should they occur.

The Maryland Mitigation Process is a continuous process that requires feedback. Once risk-reduction programs are implemented, the success of those programs is tracked through the Maryland Preparedness System. Through annual preparedness reporting, the State gains a better understanding of other threats and hazards it faces, as well as the ability of the State’s residents, communities, and businesses to withstand the impacts of future disasters. Future decisions as to strategies for mitigation integration planning efforts, public education, and risk-reduction programs are made using information learned through this process.

Figure 6 – Maryland Mitigation Process



A. Information Collection and Analysis

To effectively manage and reduce risk throughout the State, a variety of factors are considered in determining mitigation priorities (as outlined above).

The nature of the hazard looks specifically at the frequency (i.e., how often does the particular threat occur?), the likelihood (i.e., how likely is it that the threat will occur?), duration (i.e., the amount of time we will be affected by the threat), and the severity (i.e., the potential impact on life, property, and economy) of the threat or hazard. The impact of the hazard is considered in the

context of the environment, the community, and the implications for individuals (e.g., loss of life, health, and safety). Focusing on the potential impact of a hazard allows the community to plan ahead to better respond and recover. Finally, a cost/benefit analysis is conducted to assess project costs compared with historical and potential loss without the implementation of the project.

Threats and hazards are identified and assessed on a continuous basis in Maryland. Assessments examine the full breadth of threats and hazards that face the State, including both human-caused and naturally-occurring disasters, catastrophic acts of violence and terrorism, and the isolated or systemic failure of critical infrastructure systems. The figure below illustrates how Maryland delivers the Threat and Hazard Identification capability.

Figure 7 – Information Collection & Analysis



Figure 8 – Maryland Threat and Hazard Identification Capability Delivery



Through the HIRA process, the State conducts a quantitative review every five years and uses this information to inform the State HMP. Additionally, a qualitative review of threats and hazards and their projected impacts is conducted annually through the THIRA. These efforts complement law enforcement and terrorism risk assessments conducted through the implementation of the State Prevention/Protection Operations Plan, and form the foundation of emergency preparedness as Step 1 of the Maryland Preparedness System.¹

¹ The Maryland Preparedness System is explained in detail in the MEPP Strategic Plan, *available at* http://mema.maryland.gov/Documents/2013_MEPP_StratPlan_SIGNED.pdf.

B. Integration & Education

Phase 2 is broken into two separate parts: Mitigation Integration, and Education. Mitigation Integration focuses on the development and execution of the State HMP through the inclusion of multidisciplinary planning efforts. Education focuses on providing residents, visitors, communities, and businesses with the information they need to prepare for the potential impacts of a disaster.

1. Mitigation Integration

Traditionally, hazard mitigation projects in the State have been identified and implemented through the State HMP using funds from the three HMA grant programs explained above (HMGP, PDM, and FMA). Mitigation funds may also be available for eligible Public Assistance projects after a Presidential Disaster Declaration, as well as other federal programs.

Integrating elements of State agency and local planning initiatives takes hazard mitigation planning beyond just the traditional federally-funded programs and into areas such as land use, transportation, climate change, sustainability, natural and cultural resource protection, watershed management, and economic development. This fosters innovative approaches that can be used and adapted within all of Maryland’s communities. The plan integration process blends the various policies, plans, and programs across disciplines via two-way information exchange where the State HMP informs and is informed by other planning processes and mitigation initiatives happening throughout the State.² As a result, communities, citizens, and the State as a whole, have a better understanding of the threats and hazards they face, and of the opportunities that exist to reduce the risk.

² The concept of Mitigation Integration is based on FEMA Region III’s Plan Integration Guide (Draft) that was released in January 2013.

Figure 9 – Integration and Education



The Mitigation Mission Area is focused on collaboration, and facilitating integrated planning efforts across all disciplines and all levels of government. Traditional FEMA-centric hazard mitigation programs serve as one programmatic area within the Mitigation Mission Area. In recent years, mitigation has expanded into a broad range of projects, addressing non-traditional risks, hazards, and threats.

Each State agency’s programs and projects have the potential to contribute significantly to the resiliency initiatives that fall under the larger mitigation umbrella, and are captured in the State HMP. The figure below shows the various program areas of Mitigation Initiatives that are integrated into the State’s HMP.

Figure 10 – Mitigation Program Areas



The execution of these programs and projects, keeping mitigation principles in mind, can ensure that mitigation in the State is an ongoing process. Some notable State agency resiliency initiatives are included with a synopsis of each in Appendix A.

2. Education

Educating individuals on the risks prevalent in their communities is an important first step in building a culture of preparedness that promotes community resilience. Once an individual is aware of the risks they face, and the interdependent nature of all facets of their community (e.g., economy, health and social services, infrastructure, natural and cultural resources), they can begin taking action to mitigate those risks. Communities that take mitigation actions benefit from fewer disruptions from disasters, and a decreased need for outside support and resources.

Individuals informed on the opportunities and benefits of community preparedness find similar individuals within the community who share the same goals, values, and purposes. This initial interaction promotes information sharing and collective action by the community to promote mitigation and resilience activities.

C. Risk Reduction

Risk reduction is accomplished through a variety of policy-based activities including, but not limited to, regulations, local ordinances, and land use and building practices. Mitigation addresses long-term risk from disaster-causing hazards and their effects, including reducing exposure to hazards, minimizing loss of life and property, and encouraging intelligent land and environmental management and

Figure 11 – Risk Reduction



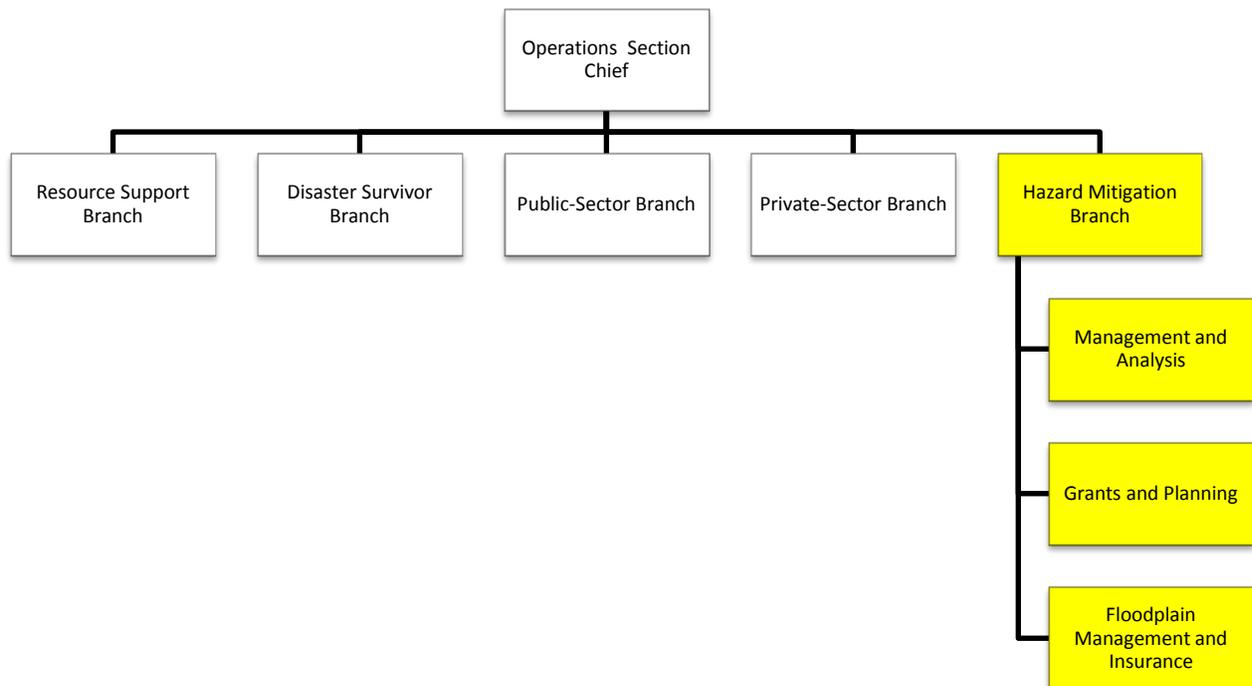
improvements to community preparedness. The execution of the aforementioned risk-reduction activities helps to build community resilience by helping the community recover more quickly following a disaster, or by preventing the adverse impacts of the event altogether. By acting before a disaster, it may be possible to prevent a disaster from occurring, or to at least mitigate the effects of a disaster.

Successful delivery of the mitigation capabilities through the Maryland Mitigation Process results in a reduced need to deliver capabilities across the other Mission Areas. As communities, citizens, and visitors develop a better understanding of the threats and hazards they face, and as government, nonprofit, and private-sector partners seek to integrate planning efforts, the need for delivery of capabilities in the Prevention/Protection, Response, and Recovery Mission Areas lessens. Additionally, at the State level, the MEPP ensures a more robust understanding of the threats and hazards the State faces, the purpose of which is to decrease the State’s risk. The MEPP also provides a way to effectively measure the State’s level of preparedness to deliver all the necessary capabilities and to manage the consequences of disasters. Through the MEPP and the Maryland Mitigation Process, the desired result of communities that are resilient and have reduced their long-term vulnerability is achieved, and all of Maryland’s citizens, visitors, communities, and businesses are better prepared to withstand the impacts of future disasters.

X. MITIGATION DURING RECOVERY OPERATIONS

Although the delivery of mitigation capabilities spans all mission areas, there is a direct link between the Recovery and Mitigation Mission Areas. During disaster recovery operations, as guided by the State Disaster Recovery Operations Plan (SDROP), mitigation capabilities are delivered through the Hazard Mitigation Branch as depicted in the figure below.

Figure 12 – Mitigation During Recovery Operations



During recovery operations, mitigation activities will be focused on coordinating with other programs as a part of the overall, short-term disaster recovery effort. The Hazard Mitigation Branch will support efforts to rebuild and strengthen communities that are sustainable and resilient. This Branch includes the activities related to floodplain management and flood insurance, as well as applicable hazard mitigation grants and planning activities. The specific roles and responsibilities of this Branch are outlined in the SDROP.

XI. COORDINATION OF LOCAL MITIGATION PLANNING

Following the introduction of the DMA 2000, all Maryland counties have adopted FEMA-approved hazard mitigation plans. Local HMPs address potential hazards and provide a basis to streamline government review processes. Additionally, local HMPs facilitate active participation from not only the emergency management community, but also local planning leadership and community development staff.

Engaging local leadership, staff, and stakeholders from the beginning of the hazard mitigation planning process establishes defined channels for communication and cooperation. These important channels may then translate into more informed future hazard mitigation efforts by raising the group's awareness of current projects, future initiatives, or potential funding opportunities that could help implement the plan.

XII. COORDINATING WITH THE FEDERAL GOVERNMENT

Cooperation among all levels of government and the community is imperative to the successful execution of the mitigation capabilities. Federal departments and agencies play a key role in promoting mitigation projects thereby, increasing the nation's resilience. Frequent communication occurs between the State and the federal governments at a functional level (e.g., federal program agency to state program agency) to ensure awareness of regulations, programs, funding, incentives, and best practices assist the State in reducing long-term vulnerabilities. The most frequent interaction between the federal government and the State occurs during federal grant implementation. Additionally, many State agencies have pre-existing agreements with federal counterparts to provide services and technical assistance after a disaster.

XIII. COORDINATION WITH PRIVATE AND NONPROFIT ORGANIZATIONS

Private-sector entities and nonprofit organizations play an integral role in building resilient communities. Private-sector investments in programs and community risk-reduction efforts build capacity within communities to respond to and recover from disaster events. The commitment from both the private and nonprofit sectors to reduce their risk drives demand in communities for materials, systems, and technological solutions that are necessary to build and sustain resilient communities. Additionally, these groups can help set standards and criteria for safer and more resilient structures, invest in risk-reduction efforts in the community, serve as subject matter experts to help with projects, and, finally, can serve as a hub for volunteers and funding following an event.

XIV. FINANCIAL ADMINISTRATION

While coordination of the expenditure of grant program funds for mitigation projects and initiatives is encouraged, each State agency maintains responsibility for the proper accounting procedures associated with the grants they administer. Financial administration procedures are outlined by each responsible State agency. For HMGP specifically, these procedures are outlined in the Hazard Mitigation Officer Handbook (Appendix B).

XV. PLAN MAINTENANCE

The SMOP is updated bi-annually by the MAC using the National Plan Development Process, in accordance with the MEPP Strategic Plan. Capability Annexes are updated annually through the implementation of the Maryland Preparedness System.

After Action Reports (AAR) and Improvement Plans (IP) from exercises or real-world events may identify the need for incremental updates of the SMOP and/or Capability Annexes.

XVI. APPENDIX A: MARYLAND MITIGATION-RELATED INITIATIVES

The following Appendix includes information about Maryland’s initiatives, listed in the table below.

Table 3 – State Agency Initiatives

STATE AGENCY	INITIATIVES
Maryland Department of Housing and Community Development	<ul style="list-style-type: none"> • Housing and Building Energy Unit Initiatives
Maryland Department of Natural Resources	<ul style="list-style-type: none"> • Forest Mitigation • Climate Change Adaptation Strategy, Phase I and II • CoastSmart Communities Program • Coast Smart Construction Guidelines
Maryland Department of Planning	<ul style="list-style-type: none"> • PlanMaryland • Smart Growth
Maryland Department of the Environment	<ul style="list-style-type: none"> • Maryland’s Greenhouse Gas Reduction Plan Regional Gas Initiative (RGGI) • Chesapeake Bay Maryland Clean Cars Program • Watershed Implementation Plan
Maryland Department of Transportation	<ul style="list-style-type: none"> • Transit-Oriented Development
Maryland Energy Administration	<ul style="list-style-type: none"> • Maryland Energy Assurance Plan • EmPower Maryland • Renewable Portfolio Standard • Fuel Up Maryland • Maryland Smart Energy Communities • Project Sunburst

A. Energy Programs

Maryland has made renewable and cleaner energy a State priority over the past decade. As the threat climate change poses continues to rise, a significant amount of work has gone into reducing energy demands, increasing efficiency, and shifting to cleaner sources of energy, such as wind, solar, and hydropower. Collectively, these kinds of actions can reduce the impacts of climate change, and reduce the State’s future vulnerability to those impacts. Each of the programs listed below plays a critical role in the overall reduction of that State’s risk.

1. Maryland’s Greenhouse Gas Emissions Reduction Act Plan

The Greenhouse Gas Emissions Reduction Plan highlights over 150 programs and initiatives that address renewable energy, transportation, green building, agriculture, fisheries, and the forestry sector.

Through the implementation of these important programs and initiatives, the Plan lays the framework to reduce greenhouse gas emissions by 25% by 2020. A key component of Maryland's Greenhouse Gas Reduction Plan is a Comprehensive Strategy for Reducing Vulnerability to Climate change, which is broken down into two phases. The first phase addresses the impacts of sea-level rise and coastal flooding, and the second phase addresses changes in climate and the likely impacts to human health, agriculture, forest and terrestrial ecosystems, bay and aquatic environments, water resources, and population growth and infrastructure. Each of the programs, and underlying greenhouse gas reduction and climate change adaptation strategies consequently, effect how the State conducts hazard mitigation.

2. Regional Greenhouse Gas Initiative

Following a provision in the 2006 Healthy Air Act, Maryland was required to join eight other Northeast and Mid-Atlantic states to participate in the first multi-state emissions cap and trade program, known as the Regional Greenhouse Gas Initiative. Using proceeds from the sale of RGGI CO₂ (carbon dioxide), the Maryland Energy Administration (MEA) administers the Strategic Energy Investment Fund (SEIF). Funds are then allocated to energy efficiency, conservation, residential energy bill assistance, renewable energy deployment, and climate change outreach and education. The overarching goal of the program is to reduce Maryland's CO₂ emissions by 10%, from current levels, by 2019, a critical component in reducing the State's vulnerability to climate change in the future.

3. EmPOWER Maryland

Since its enactment in 2008, the EmPOWER Maryland program has worked to reduce Maryland's energy consumption by 15% by 2015. The program has helped fund measures to reduce energy usage and peak demand, and save ratepayers billions of dollars. As a result of this legislation, five Maryland utility companies now offer energy-saver programs. Cost savings are also available for Maryland State offices and buildings. The EmPOWER Initiative has saved the State \$21.3 million, and 130,000 tons of CO₂, annually.

4. Renewable Energy Portfolio Standard

Maryland's Renewable Energy Portfolio Standard requires electricity suppliers to generate a minimum portion of their retail sales from renewable energy sources. Retail electricity sale requirements increase yearly, leading to a 20% renewable energy (18% from renewable and 2% solar) requirement in 2022. Suppliers must submit compliance reports directly to the Public Service Commission (PSC) for review.

Any electricity supplier that fails to meet the yearly standards pays directly into the SEIF, which is used to fund grant and loan programs for Tier 1 renewable-energy resources.

5. Maryland Energy Assurance Plan

Extreme weather events can adversely impact the State's power grid, making it particularly vulnerable to prolonged power outages. Resilient energy supplies are a necessity for all members of Maryland's communities. A prolonged disruption of the supply of basic energy or fuel (e.g., petroleum products, electricity, or natural gas) would likely result in significant harm to Maryland's public health, safety, economy, and security. To address these growing concerns, the MEA and the PSC, in conjunction with MEMA, developed the Maryland Energy Assurance Plan. The Plan has four purposes:

1. To provide an overview of Maryland's interdependent energy landscape as a means to enhance reliability and facilitate recovery from disruptions to the State's energy supply;
2. To provide background information to guide investments in energy infrastructure, going forward;
3. To provide an analysis of the pre- and post-emergency roles, responsibilities, and relationships between the various factors that contribute to the State's energy supply; and
4. To provide background information to aid public agencies and private entities as they develop specific procedural energy emergency plans.

The four purposes of this document work together to make the energy infrastructure in Maryland more resilient to disruptions, which reduces the risk Marylanders face to problems associated with extended power outages.

6. Maryland Smart Energy Communities

The Maryland Smart Energy Communities Program helps local governments commit to a set of policies that lead to sustained energy savings, and opportunities for renewable energy development in their jurisdictions. Local governments must choose to adopt two of the three policies in order to participate in the program. These policies include:

- *Energy Efficiency Guidance Document*: Establish an electricity consumption baseline, and develop a plan with the goal to reduce per-square-foot electricity consumption of the city/town/county buildings by 15% within five years of the baseline year.

- *Renewable Energy Guidance Document:* Reduce the conventional centralized electricity generation serving a local government's buildings by meeting 20% of those buildings' electricity demand with distributed, renewable energy generation by 2022.
- *Transportation Petroleum Reduction:* Establish a petroleum consumption baseline for all local government vehicles, and put in place a comprehensive program designed to reduce the baseline petroleum consumption by 20% within five years of the baseline year.

Once the local government adopts two of the three available policies, they become eligible for grant funding from the MEA to use for energy-related projects in the community.

7. Fuel Up Maryland

The "Fuel Up Maryland" Program is an initiative created by the MEA that provides assistance in the form of grant funding to service stations around Maryland that are interested in prewiring their facilities for backup power generation. Eligible service stations must be within a ½ mile of an on or off ramp of a Maryland evacuation route. The program aims to ensure that Marylanders have an adequate fuel supply in the event of an evacuation or emergency.

B. Transportation Programs

Reducing the vulnerability of our transportation systems from climate change and extreme weather events helps keep transportation in-service, and provides additional modes of transportation that can be accessed during an emergency evacuation. Key programs being implemented as a result of the Greenhouse Gas Reduction Plan to help reduce the transportation infrastructure's vulnerability include the Maryland Clean Cars Program and Transit-Oriented Development (TOD).

1. Maryland Clean Cars Program

Recognizing that one third of Maryland's CO₂ emissions are emitted from cars, in 2007 Maryland adopted California's strict vehicle emissions standards under the Maryland Clean Cars Program. The program works to regulate carbon dioxide emissions in the State by regulating greenhouse gas (GHG) emissions from passenger vehicles, and including a Zero Emissions Vehicle (ZEV) mandate for car manufacturers. The program aims to cut GHG by 30%, when fully implemented, lower smog-forming emissions from mobile sources by 1 ton/day, and reduce hazardous air pollutants by 80 tons/year by 2025.³

³ Maryland Department of the Environment, Facts About COMAR 26.11.13 and the Clean Cars Program, *available at* http://www.mde.maryland.gov/programs/Air/MobileSources/CleanCars/Documents/CALEV_Fact_Sheet.pdf.

2. Transit-Oriented Development

Transit-Oriented Development is a land-use strategy used in Maryland by the Department of Transportation to address sprawl, environmental issues, and traffic congestion. The overarching goal of TOD is to increase transit ridership by supporting transportation alternatives, broadening transportation network efficiencies, and reducing congestion. This kind of deliberate transportation planning supports land use and environmental conservation efforts by helping to minimize air and water quality impact.⁴

C. Coast Smart Construction and Green Buildings Programs

In December 2012, Governor O'Malley signed an Executive Order requiring all new and reconstructed State structures be planned and constructed to avoid or minimize future flood damage. A number of smaller policy directives are included in the Executive Order, including, but not limited to, having all capital budget projects consider the risk of coastal flooding and sea level rise, and requiring that new and rebuilt structures be elevated two or more feet above the 10-year base flood level.

Mitigation projects often require the construction or reconstruction of existing structures. By engaging in energy-efficient practices for building design, site location, and construction, projects can reduce energy use, lessen the impacts of urban heat, mitigate storm water management issues, and harden buildings from severe storms. State and local building codes have been amended to include minimum energy efficiency requirements. As State and local entities continue to work on mitigation projects, working with green practices becomes increasingly important to resilience as green initiatives can help to reduce long-term vulnerability to climate change.

1. Project Sunburst

After the launch of Project Sunburst in 2010, MEA installed solar photovoltaic arrays on 17 government buildings throughout the State. Government facilities included in the initial install included the public school systems, the City of Baltimore, Talbot County facilities, BWI Thurgood Marshall Airport, and the Maryland Port Administration North Locust Point Marine Terminal and Cruise Terminal.

2. Housing and Building Energy Unit Initiatives

Funded through the U.S. Department of Energy's Better Building Program, Maryland's Department of Housing and Community Development was awarded \$20 million for the BeSMART program. The award was used in DHCD's Energy Efficiency and Conservation Block Grant retrofit program to help people and communities install energy efficient retrofits for homes and small businesses. Program components

⁴ http://www.mdot.maryland.gov/Office_of_Planning_and_Capital_Programming/TOD/TOD_Homepage.html

include a Green Retrofit Improvement Program, which targets small business owners; a Multi-family “Preservation and Energy Efficiency” program for renters; and an Efficient Home Program for homeowners. Energy savings are estimated at a 15-30% reduction in energy costs following the retrofit. The DHCD Housing and Building Energy Unit now manages increasing resources and investments in energy efficiency, and weatherization for low- and moderate-income households, small businesses, and sustainable communities.

D. Land Use Programs

Local communities can minimize the harmful sprawl caused by development, and contribute to a reduction in Maryland’s GHG emissions by better managing growth. Maryland’s State agencies are working to help local governments implement smarter, more sustainable land use through a variety of policies and programs. Informed and integrated land use planning efforts can help reduce risk to a wide array of threats and hazards the State faces, and the programs listed below assist with this goal.

1. Greenhouse Gas Reduction Plan

The Greenhouse Gas Reduction Plan introduces land-use strategies aimed at reducing and mitigating greenhouse gas emissions by 1.1 million metric tons of CO₂ by 2020. The Plan encourages informed land use and conscious county, city, and town development that assists in reducing greenhouse gases.

2. Smart Growth

Maryland’s Department of Planning is charged with implementing Smart Growth throughout the State. Smart Growth planning focuses on existing and planned infrastructure to avoid sprawl and sustainability. Smart Growth in Maryland has four goals:

1. Support existing communities by targeting resources to support development in areas where infrastructure exists;
2. Save Maryland’s most valuable natural resources before they are lost forever;
3. Save taxpayers from the high cost of building infrastructure to serve development that has spread far from traditional population centers; and
4. Provide Marylanders with a high quality of life, whether they choose to live in rural communities, suburbs, small towns, or cities.

Together, these plans and programs integrate a variety of risk-reduction efforts that span all sectors across the State, with the ultimate goal of reducing the vulnerabilities, consequences, impacts, duration, and the financial, human, and environmental costs of hazards.

3. PlanMaryland

Since 1959, the Maryland Department of Planning has been required to prepare a State Development Plan. In December 2011, Governor O'Malley accepted the State's first long-term plan for sustainable growth, or "PlanMaryland," to supersede the State Development Plan. The Plan identifies "Climate Change Impact Areas," which include: 50- and 100-Year Sea-level Rise Inundation Zones, 50-Year Erosion Vulnerable Zones, Category 2 Storm Surge Inundation Zones, Marsh Transition Zones, Temperature Sensitive Steams, Drought Hazard, and Wildlife Risk Areas. Highlighting these areas ensures that State and local governments make sound, sustainable decisions when developing and redeveloping in light of climate change.

4. CoastSmart Communities

Maryland's shorelines are susceptible to a wide range of hazards, including coastal flooding, storm surge, and sea level rise. The CoastSmart Communities program was created to assist Maryland's coastal communities in addressing these risks. The CoastSmart program manager uses a ground-up approach to engage local coastal communities in these issues based on their own values and priorities. The manager then provides a network and links to applicable tools and resources from the federal and state levels. These tools include financial assistance through NOAA CZM funding in the form of grants to local governments, a CoastSmart Scorecard to evaluate risk and vulnerability, and an online resource center.

E. Agriculture/Forestry Programs

Although the agricultural and forestry sectors contribute a small percentage of Maryland's greenhouse gases, these sectors have also been called upon to reduce greenhouse gas emissions. By engaging in sustainable forest and urban forest management over both suburban and urban areas, Maryland could see a total greenhouse gas reduction of five million metric tons.

1. Forest Planting and Forest Mitigation

The Maryland Critical Area Act, passed in 1984, marked the first time that the State and local governments jointly addressed the impacts of land development on habitat and aquatic resources. The law identified the "Critical Area" as all land within 1,000 feet of the Mean High Water line of tidal waters or the landward edge of tidal wetlands. The goal of the Critical Area law is threefold: to minimize adverse impacts on water quality, (2) conserve fish, wildlife and plant habitat in the Critical Area and (3) establish land use policies for development to address adverse environmental impacts. Forests and developed woodlands are important contributors to animal habitats and maintaining water quality. Planting trees to enhance the functions of the ecosystem, and subsequently reduce environmental

impacts, requires significant planning to determine what types of trees to plant and where to plant them. The Critical Area regulations establish a goal for no-net loss of forests and establishes minimum mitigation requirements for development activities in the Critical Area that impact forests and developed woodlands.

XVII. APPENDIX B: HAZARD MITIGATION OFFICER HANDBOOK

Currently in development.