Capability Standard – Hazard Identification, Hazard Analysis, Hazard Mitigation, and Risk Assessment

Planning is the mechanism through which jurisdictions and the private sector develop, validate, and maintain plans, policies, and procedures describing how they will prioritize, coordinate, manage, and support personnel, information, equipment, and resources to prevent, protect and mitigate against, respond to, and recover from Catastrophic events. Preparedness plans are not limited to those plans drafted by emergency management planners. The planning capability sets forth many of the activities and tasks undertaken by an Emergency Management planner when drafting (or updating) emergency management (preparedness) plans.

Unlike the other target capabilities, the attributes of planning are difficult to quantify, as individual planners may have considerably varied education and experience and still produce plans that lead to the successful implementation of a target capability. The focus of the Planning Capability is on successful achievement of a plan's concept of operations using target capabilities and not the ability to plan as an end unto itself. Plans should be updated following major incidents and exercises to include lessons learned. The plans should form the basis of training and should be exercised periodically to ensure that responders are familiar with the plan and able to execute their assigned role. Thus, it is essential that plans reflect the preparedness cycle of plan, train, exercise, and incorporation of after action reviews and lessons learned.

Risk Management is the continuous process of managing, through a series of mitigating actions that impact a jurisdiction's activities, the likelihood of an adverse event and its negative impact. Risk Management is founded in the capacity for a jurisdiction to identify and measure risk prior to an event, based on credible threats/hazards, vulnerabilities, and consequences; and to manage their exposure to that risk through the prioritization and implementation of risk-reduction strategies. Risk management actions will vary between jurisdictions, but the foundation of Risk Management is constant. There are a variety of tools, processes, and offerings in practice and under development to serve the Risk Management capability. Risk Management is defined by the Government Accountability Office (GAO) as "A continuous process of managing—through a series of mitigating actions that permeate an entity's activities—the likelihood of an adverse event and its negative impact."

Risk Management is founded in the capacity for all levels of government to identify and measure risk prior to an event, based on credible threats/hazards, vulnerabilities, and consequences, and to manage the exposure to that risk through the prioritization and implementation of risk-reduction strategies. The actions to perform Risk Management may well vary among government entities; however, the foundation of Risk Management is constant. The jurisdiction is able to identify and assess risks, prioritize and select appropriate protection, prevention, and mitigation solutions based on reduction of risk, monitor the outcomes of allocation decisions, and undertake corrective actions. An additional desired outcome is that Risk Management is integrated as a planning construct for effective prioritization and oversight of all emergency management investments. Jurisdictions should conduct a risk assessment to identify strategies for prevention and mitigation and to gather information to develop plans for response, continuity, and recovery. Jurisdictions should identify hazards and monitor those hazards and the likelihood of their occurrence. Hazards to be evaluated should shall include: (1) Natural hazards (geological, meteorological, and biological); (2) Human-caused events (accidental and intentional); and (3) Technologically caused events (accidental and intentional).

An accredited Emergency Management Program should have a **Hazard Mitigation** program that regularly and systematically utilizes resources to mitigate the effects of emergencies associated with the risks identified in the HIRA. The Emergency Management Program shall develop and implement its mitigation program to eliminate hazards or mitigate the effects of hazards that cannot be reasonably prevented. The mitigation program identifies ongoing opportunities and tracks repetitive loss. The Emergency Management Program implements mitigation projects according to a plan that sets priorities based upon loss reduction. The

mitigation program includes participation in applicable federal, state/territorial, tribal, local, and/or public/private mitigation efforts. The Emergency Management Program provides technical assistance consistent with the scope of the mitigation program such as implementing building codes, fire codes, and land-use ordinances**.** The Emergency Management Program shall implement a process to monitor overall progress of the mitigation strategies, document complete initiatives, and resulting reduction or limitation of hazard impact in the jurisdiction. The mitigation plan shall be based on the natural and human-caused hazards identified by the Emergency Management Program and the risk and consequences of those hazards. The mitigation plan for the jurisdiction is developed through formal planning processes involving Emergency Management Program stakeholders and shall establish interim and long-term strategies, goals, objectives, and actions to reduce risk to the hazards identified. The Emergency Management Program implements a process and documents project ranking based upon the greatest opportunity for loss reduction and documents how specific mitigation actions contribute to overall risk reduction.

The jurisdiction should develop and implement a mitigation strategy that includes measures to be taken to limit or control the consequences, extent, or severity of an incident that cannot be prevented. The mitigation strategy shall be based on the results of hazard identification and risk assessment, impact analysis, program constraints, operational experience, and cost benefit analysis. The mitigation strategy shall include interim and long-term actions to reduce vulnerabilities.

Associated Target Capabilities: Planning, Risk Management. Additional information on building these capabilities can be found on pages 21 (Planning) and 43 (Risk Management) of the U.S Department of Homeland Security's September 2007 document: *Target Capabilities List: A Companion to the National Preparedness Guidelines*.

Desired Outcomes: Plans incorporate an accurate threat analysis and risk assessment and ensure that capabilities required to prevent, protect against, respond to, and recover from all-hazards events are available when and where they are needed. Plans are vertically and horizontally integrated with appropriate departments, agencies, and jurisdictions. Where appropriate, emergency plans incorporate a mechanism for requesting State and Federal assistance and include a clearly delineated process for seeking and requesting assistance from appropriate agency(ies). Federal, State, local, tribal and private sector entities identify and assess risks, prioritize and select appropriate protection, prevention, and mitigation solutions based on reduction of risk, monitor the outcomes of allocation decisions, and undertake corrective actions. Additionally, Risk Management is integrated as a planning construct for effective prioritization and oversight of all homeland security investments.

The jurisdiction has created and maintains an Emergency Operations Plan and a Resource Manual that: (Associated Target Capabilities: Planning, Risk Management)

Hazard Identification and Analysis

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◯	◯	◯	Identifies and describes the hazards (natural, technological, public health and man-made) that pose a unique risk to the jurisdiction and that would create a need to activate this plan.
◯	◯	◯	Identifies and describes the probable high risk areas (population, infrastructure, environmental) that are likely to be impacted by the defined hazards. Reference the Mitigation Plan where appropriate.
◯	◯	◯	Identifies and describes the hazards that have occurred in the jurisdiction in the past and the likelihood that they will continue to occur (historical frequency, probable risk, national security threat assessment).

◯ ◯ ◯ Includes maps that show high-risk areas within the jurisdiction that are likely to be impacted by identified hazards (residential/ commercial areas within defined floodplains, earthquake fault zones, vulnerable zones for hazardous material facilities/routes, areas within ingestion zones for nuclear power plants, etc.).

◯ ◯ ◯ Identifies and describes the assumptions made and the methods used to complete the jurisdiction's Hazard Analysis, including what tools or methodologies were used to complete the analysis (Ohio's Hazard Analysis and Risk Assessment manual, Mitigation Plan guidance, vulnerability assessment criteria, consequence analysis criteria).

◯ ◯ ◯ Identifies and describes unique time variables that could influence the hazard analysis and pre-planning for emergencies (rush hours, annual festivals, seasonal events, incident onset time, time of day).

◯ ◯ ◯ Describes how the intelligence from threat analyses via state/local fusion centers, joint terrorism task forces, national intelligence organizations, etc. has been incorporated into the hazard analysis.

Comments and Notes:

Critical Infrastructure

1 2 3

◯ ◯ ◯ Describes how critical infrastructure and key resources (CIKR) protection activities have been incorporated into the vulnerability and impact analysis.

◯ ◯ ◯ Describes how agricultural security; food supply security; cyber security; chemical, biological, radiological, nuclear, and high-yield explosive (CBRNE) incidents; and pandemics (those located/originating in the jurisdiction, as well as a nonlocal, nationwide, or global incident) have been assessed and incorporated.

Comments and Notes:

Capability Assessment (describes the jurisdiction's capabilities, readiness and limitations to prepare for and respond to the defined hazards. (A jurisdiction may choose to discuss the Capability Assessment as part of the hazard-specific annexes. In that case, this section should summarize the jurisdiction's abilities and limitations, and reference the hazard-specific annexes for more detailed information.)

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◯ ◯ ◯ Summarizes the jurisdiction's ability to respond to and recover from emergencies or disasters based on the jurisdiction's capability assessment.

◯ ◯ ◯ Summarizes the jurisdiction's limitations to respond to and recover from emergencies or disasters based on training, equipment, and personnel. (Summarize the gaps that exist between the jurisdiction's capabilities and potential needs. Include the measures taken to resolve these gaps through mutual aid and other sources of assistance.)

◯ ◯ ◯ Describes the methods and agencies involved in developing the jurisdiction's Capability Assessment, including a description of the process and a schedule for conducting and updating the assessment.

Comments and Notes:

Hazard Mitigation

1 2 3

◯ ◯ ◯ Provides a brief overview of the mitigation programs used, in advance of and ongoing, to reduce the chance that a defined hazard will impact the community (move homes/businesses out of floodplain, establish and enforce zoning/building codes, etc.), to include short and long-term strategies.

◯ ◯ ◯ Identifies and describes the actions that will be taken to educate and involve the public in mitigation programs (building safe rooms/homes, home relocation, streambed cleaning, etc.).

◯ ◯ ◯ Identifies the agencies and the actions taken to develop mitigation plans, and how plans will be coordinated with state and federal agencies' plans.

Comments and Notes:

A fully-functioning Hazard Identification, Hazard Analysis, Hazard Mitigation, Risk Assessment Capability should:

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◯ ◯ ◯ Address the responsibilities and activities associated with the identification of hazards and assessment of risks to persons, public and private property and structures.

◯ ◯ ◯ Identify the natural and human-caused hazards that potentially impact the jurisdiction using a broad range of sources.

◯ ◯ ◯ Assess the risk and vulnerability of people, property, the environment, and its own operations from these hazards.

◯ ◯ ◯ Conduct a consequence analysis for their identified hazards to consider the impact on the public; responders; continuity of operations including continued delivery of services; property, facilities, and, infrastructure; the environment; the economic condition of the jurisdiction and public confidence in the jurisdiction's governance.

- ◯ ◯ ◯ Conduct a risk assessment to identify strategies for prevention and mitigation, and to gather information to develop plans for response, continuity, and recovery.
- ◯ ◯ ◯ Identify hazards and monitor those hazards and the likelihood of their occurrence.
- ◯ ◯ ◯ Address, at a minimum, the following hazards:
    - ◯ Natural hazards (geological, meteorological, and biological)
    - ◯ Human-caused events (accidental and intentional)
    - ◯ Technologically-caused events (accidental and intentional)
- ◯ ◯ ◯ Identify, evaluate and monitor the vulnerability of people, property and the environment.
- ◯ ◯ ◯ Analyze the impact of the identified hazards on:
    - ◯ The health and safety of persons in the affected area at the time of the incident (injury and death)
    - ◯ The health and safety of personnel responding to the incident
    - ◯ The continuity of operations
    - ◯ Property, facilities, assets, and critical infrastructure
    - ◯ The delivery of the entity's services
    - ◯ Supply chain(s)
    - ◯ The environment
    - ◯ Economic and financial conditions
    - ◯ Regulatory and contractual obligations
    - ◯ The reputation of or confidence in the entity
- ◯ ◯ ◯ Evaluate the potential effects of regional, national, or international incidents that could have cascading impacts.
- ◯ ◯ ◯ Identify the following characteristics for each of the jurisdiction's identified hazards (not all of these may apply to every hazard):
    - ◯ Frequency
    - ◯ Predictability
    - ◯ Controllability
    - ◯ Cause
    - ◯ Speed of onset
    - ◯ Length of possible forewarning
    - ◯ Duration
    - ◯ Scope of impact
    - ◯ Destructive potential

Comments and Notes:

Risk Management

◯ ◯ ◯ Fully-develop a risk management strategy (approaches to reduce risk).
◯ ◯ ◯ Identify vulnerability for inventory, critical facilities, hazardous sites and special needs populations.
◯ ◯ ◯ Map hazardous, environmental and archeologically sensitive areas.
◯ ◯ ◯ If applicable, fully-develop a risk management strategy for nuclear power plant emergencies and has documented the strategy in the jurisdiction's plans.

Comments and Notes:

A fully-functioning Hazard Identification and Risk Assessment capability should address the following measures:

Hazard Identification and Risk Assessment

◯ ◯ ◯ The vulnerability of people, property, the environment, and the entity has been identified, evaluated, and monitored.
◯ ◯ ◯ The jurisdiction has conducted an analysis of the impact of their identified hazards, that addresses:

- ◯ Health and safety of persons in the affected area at the time of the incident (injury and death)
- ◯ Health and safety of personnel responding to the incident
- ◯ Continuity of operations
- ◯ Property, facilities, assets, and critical infrastructure
- ◯ Delivery of the entity's services
- ◯ Supply chain
- ◯ Environment
- ◯ Economic and financial condition
- ◯ Regulatory and contractual obligations
- ◯ Reputation of or confidence in the entity

◯ ◯ ◯ The hazard analysis has evaluated the potential effects of regional, national, or international incidents that could have cascading impacts.
◯ ◯ ◯ The identification of the following characteristics for each hazard (not all of these may apply to every hazard):

- ◯ Frequency
- ◯ Predictability
- ◯ Controllability
- ◯ Cause
- ◯ Speed of onset
- ◯ Length of possible forewarning
- ◯ Duration
- ◯ Scope of impact

◯ Destructive potential

◯ ◯ ◯ The jurisdiction's emergency management agency has addressed the following risk management activities:

◯ Has fully developed a risk management strategy (approaches to reduce risk).
◯ Has identified vulnerability for inventory, critical facilities, hazardous sites and special needs populations.
◯ Has mapped hazardous, environmental and archeologically sensitive areas.
◯ If applicable, has fully developed a risk management strategy for nuclear power plant emergencies and has documented the strategy in the jurisdiction's plans.

Comments and Notes:

A fully-functioning Hazard Mitigation capability should address the following measures:

◯ ◯ ◯ The jurisdiction participates in and monitors private insurance coverage programs for relevant hazards such as:

◯ National Flood Insurance Program
◯ Wind/tornado damage
◯ Earthquake damage
◯ Fire damage

◯ ◯ ◯ The jurisdiction has established a local hazard mitigation team.
◯ ◯ ◯ The jurisdiction has established a program for public education/awareness & training in mitigation issues.
◯ ◯ ◯ The jurisdiction employs land use planning, zoning & subdivision regulations to control construction on & occupation of property within the jurisdiction including the following elements:

◯ Flood plain management
◯ Environmental considerations
◯ Project incentive programs
◯ Real estate tax credits
◯ Availability of information on resources and publications

◯ ◯ ◯ The jurisdiction has established training programs for builders, engineers, architects, designers, city planners & inspectors designed to encourage mitigation & adherence to local building/land use codes.
◯ ◯ ◯ The jurisdiction has identified mitigation projects and funding sources.
◯ ◯ ◯ The jurisdiction has developed a written mitigation plan adopted for your county.
◯ ◯ ◯ Identified mitigation programs available. Researched input from other counties, experts, groups, and organizations.

◯ ◯ ◯ The jurisdiction has identified executive and legislative support
◯ ◯ ◯ The jurisdiction has identified funding strategies
◯ ◯ ◯ The jurisdiction has developed a prioritization of mitigation among local jurisdictions, interest groups, and business (networking, team effort)
◯ ◯ ◯ The jurisdiction monitors changes in vulnerability and analyzes consequences of change
◯ ◯ ◯ The jurisdiction has developed wildland fire mitigation strategies

Comments and Notes:

Capability Assessment – Hazard Identification, Hazard Analysis, Hazard Mitigation, Risk Assessment

1 2 3 4 5 The jurisdiction has engaged an integrated team to develop this capability.

1 2 3 4 5 The jurisdiction has developed an integrated plan for this capability.

1 2 3 4 5 The jurisdiction has identified the hazards/threats that would necessitate the application of this capability.

1 2 3 4 5 The jurisdiction's local responders have the necessary training to effectively carry out this capability.

1 2 3 4 5 The jurisdiction has access to the necessary resources to effectively carry out this capability (either local or identified through MOUs).

1 2 3 4 5 The jurisdiction's local responders have received the necessary training to be able to carry out this capability.

1 2 3 4 5 The jurisdiction's local responders have the expertise to carry out this capability.

1 2 3 4 5 The jurisdiction has tested this capability within the last year through exercise or activation.

Scale Key:

1- The jurisdiction has not started to develop this measure.
2- The jurisdiction has started to develop this measure, but we are not far along in the process.
3- The jurisdiction has developed this measure, but it needs to be improved.
4- The jurisdiction has fully developed this measure.
5- The jurisdiction has fully developed and tested this measure.