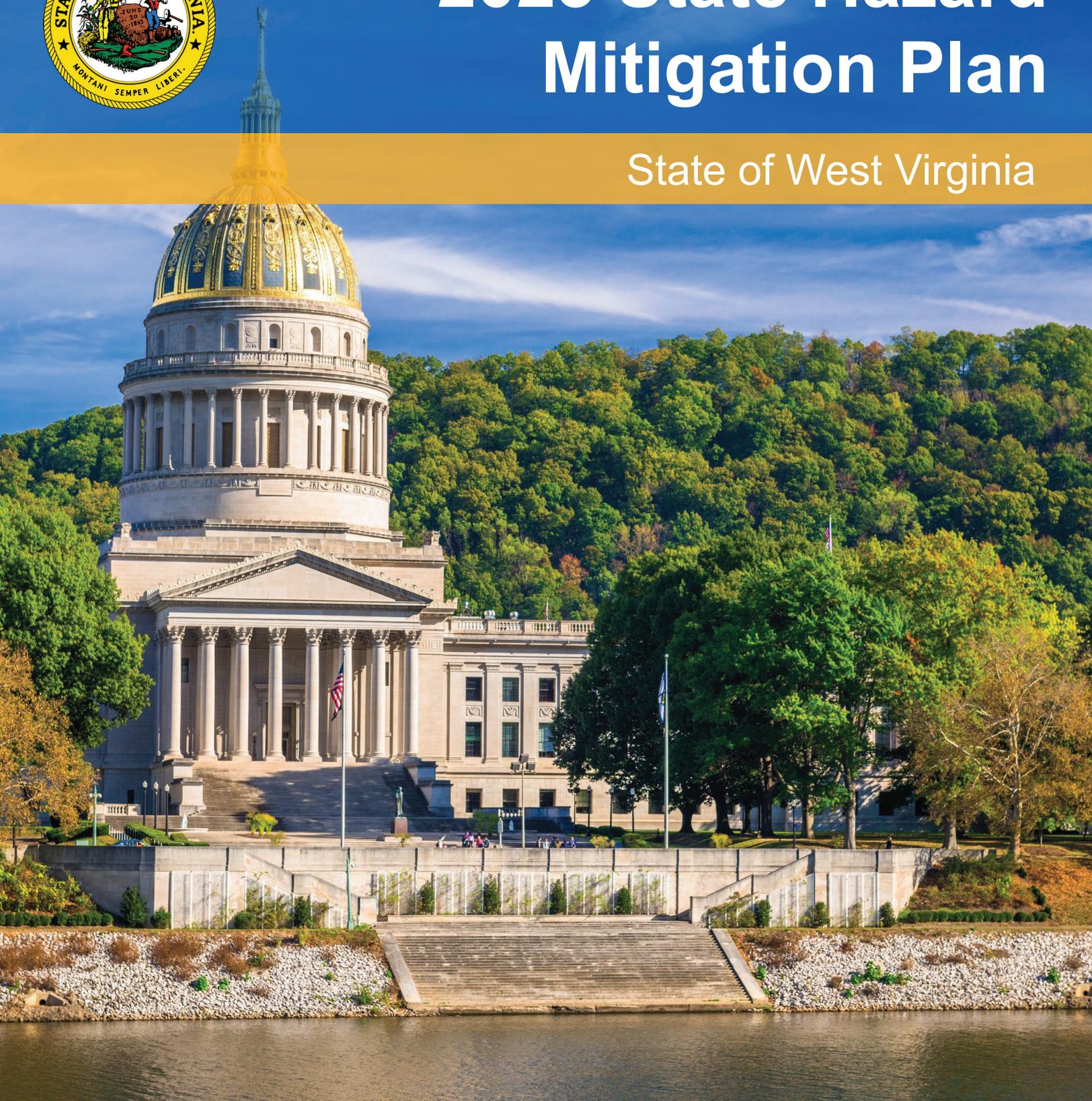




# 2023 State Hazard Mitigation Plan

State of West Virginia



Standard

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# EXECUTIVE SUMMARY

## Overview

The State of West Virginia (the State) is committed to building resilience for future hazard events in all communities through ongoing risk reduction efforts. West Virginia is vulnerable to a wide range of natural and non-natural hazards that have impacted and will continue to impact its people, property, environment, infrastructure, and economy. The State has received 77 Federal Emergency Management Agency (FEMA) disaster declarations since 1954. Of these, 32 involved floods, and 31 involved severe storm incidents. Many other disasters and emergencies have also occurred within this time frame. All have resulted in a hefty cost to West Virginia’s people, environment, property, and economy, and the pace and magnitude of disasters is expected to increase due to the changing nature of hazard events.

Reducing risks associated with hazards requires an integrated and collaborative approach that emphasizes building community resilience through federal, state, and local cooperation. Hazard mitigation is the sustained effort to reduce loss of life and property by lessening or eliminating the impacts of natural and human-caused emergencies and disasters. It requires an understanding of all risks and investment in long-term community well-being through the implementation of short-term and long-term strategies before the next disaster (FEMA 2022). The purpose of hazard mitigation planning is to identify and assess hazards that impact the state, develop a strategy to reduce losses from those hazards, and establish a coordinated process to implement the strategy.

Since 2004, the State has been eligible to receive non-emergency Stafford Act assistance and federal mitigation pre-disaster assistance by maintaining an approved state hazard mitigation plan (SHMP) compliant with Title 44 of the Code of Federal Regulations (C.F.R.) Section 20.14 (44 C.F.R. §201.4) and related FEMA mitigation planning guidance. Authority for this plan originates from the following federal sources:

- Robert T. Stafford Disaster Relief and Emergency Assistance, 42 U.S.C., Section 322, as amended
- 44 C.F.R. §79.4, §201, and §206
- Disaster Mitigation Act (DMA) of 2000, Public Law 106-390, as amended

Having an approved SHMP qualifies the State to obtain funding for repairing and replacing infrastructure under the following programs:

- Public Assistance Categories C–G (PA C–G)
- Fire Management Assistance Grants (FMAG)
- Building Resilient Infrastructure and Communities (BRIC)

### Key Terms

**Hazard Mitigation** – Any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.

**State Hazard Mitigation Plan** – Demonstrates the State’s intent to reduce or eliminate risks from natural hazards and serves as a guide for decision makers for reducing the effects of natural hazards as resources are committed.

Source: FEMA 2022



- Hazard Mitigation Grant Program (HMGP)
- HMGP Post Fire
- Flood Mitigation Assistance (FMA)
- Pre-Disaster Mitigation (PDM)
- Rehabilitation of High Hazard Potential (HHPD) Dams Grant Program

The 2018 SHMP was approved on October 17, 2018, and had an expiration date of October 16, 2023. As an update to the 2018 SHMP, the plan was developed over the course of a year in conjunction with a multidisciplinary group of local, regional, state, and federal stakeholders, as well as input from the public and review by FEMA.

West Virginia’s SHMP effort is maintained by the Hazard Mitigation Officer (HMO) in the West Virginia Emergency Management Division (WVEMD). The HMO’s responsibilities in preparing and implementing the SHMP are as follows:

- Ensure that the SHMP meets FEMA requirements and is approved by FEMA.
- Coordinate the continued development of the SHMP with stakeholders, strategic working groups, and outreach to other local, public/private, state, and federal agencies in order to keep the plan relevant.
- Provide opportunities for stakeholder involvement in the continuous update and implementation of the SHMP.
- Administer FEMA hazard mitigation assistance programs listed above to support plan implementation at the state and regional/county levels.
- Support integration of local and regional hazard mitigation efforts with the SHMP.

The State is committed to updating and implementing its long-term strategy for reducing the risks of hazards, as documented in this updated 2023 SHMP. The SHMP serves as a guide for state, regional, and local decision-makers to make important risk-informed decisions to reduce the impacts of the identified hazards on people, property, and the environment.

## Planning Process

The 2023 planning process prioritized integrating a wider range of stakeholders into the process. WVEMD convened a multidisciplinary Steering Committee and State Planning Team (SPT) to serve as advisory committees to guide the development of the plan. Both of these advisory committees consisted of partners from the sectors and community lifelines recommended by FEMA to ensure an inclusive process that incorporates differing perspectives to identify the best solutions for the State. The sectors and community lifelines represented include the following:

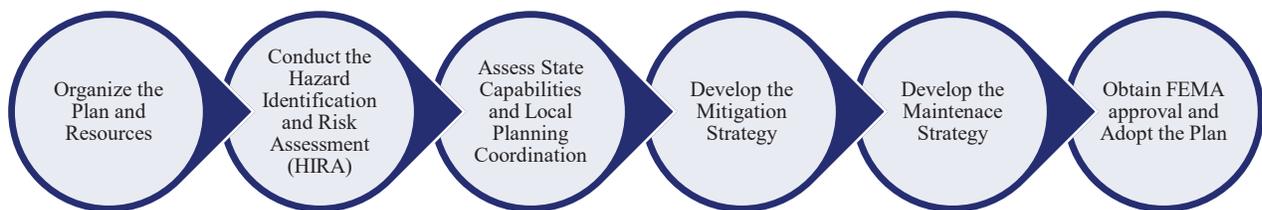
- Emergency Management
- Economic Development
- Land Use and Development
- Housing
- Health and Social Services
- Infrastructure (including Dam Safety)
- Natural and Cultural Resources
- Safety and Security
- Food, Water, and Shelter
- Health and Medical
- Energy
- Communications
- Transportation
- Hazardous Materials



The planning process utilized a variety of outreach and engagement methods to integrate stakeholders into the process. This included hosting in-person and virtual meetings, deploying surveys, developing a website, and regular communication through email. These engagement efforts served to facilitate obtaining stakeholder input on identifying the hazards of concern, assessing risk and vulnerability, identifying and describing state and local capabilities, providing status updates on the 2018 mitigation actions, updating and developing goals and objectives, and developing the mitigation strategy. Regular communication and engagement with the stakeholders permitted continuity throughout the process and kept the project on schedule.

The planning process occurred over the course of a 15-month period and consisted of six key tasks identified in Figure ES-1.

**Figure ES-1. Planning Process Tasks**



## Hazard Identification and Risk Assessment

The Hazard Identification and Risk Assessment within the 2023 SHMP provides the scientific foundation and quantitative basis for developing a mitigation strategy. It highlights the connection between existing vulnerability and the potential reduction of risk achieved by the proposed hazard mitigation actions. For the 2023 SHMP, the State analyzed the following hazards (listed alphabetically, not in order of priority):

- Dam Failure
- Drought
- Earthquake
- Extreme Temperatures
- Flood
- Hazardous Materials
- Landslide
- Levee Failure
- Pandemic
- Radiological Incidents
- Radon Exposure
- Severe Storms
- Subsidence
- Utility Failure
- Wildfire
- Winter Weather

The analysis of each hazard is divided into two parts: (1) hazard profile and (2) vulnerability assessment. The vulnerability assessment now follows the hazard profile so that all information about a specific hazard is found in one concise section. The hazard profile includes a hazard description, location, extent, warning time, previous occurrences and losses, probability of future occurrence, and potential effects of future conditions. The vulnerability assessment includes qualitative and quantitative assessments of state assets and counties, including buildings, roads, critical facilities, population, the built environment, land use, environmental resources, cultural assets, and projected development.

It is important to emphasize that all hazards evaluated in the 2023 SHMP are considered hazards of concern, and potential future losses resulting from all hazard events should be mitigated. Overall, the State’s vulnerability to



the identified hazards of concern has not changed drastically since the 2018 SHMP and will require long-term vision and actionable mitigation strategies to achieve incremental risk reduction.

## Capabilities

Assessing the State’s mitigation capabilities is an integral part of the mitigation planning process in which the State identifies, reviews, and analyzes its current resources for reducing the impact of hazards. Mitigation capabilities provide the means to accomplish desired mitigation outcomes. This SHMP provides a comprehensive review and evaluation of state, regional, and local capabilities used to support and facilitate mitigation activities and describes the process utilized by the State to support, promote, and coordinate mitigation planning at the regional and county levels. In conjunction with additional preparedness activities, such as response planning and training and exercises, these mitigation capabilities form the foundation of resilient communities. The capabilities assessment showed opportunities to increase resilience throughout West Virginia by encouraging the adoption of the State Building Code, integrating state programs that are managed by multiple departments or offices and that have similar goals (e.g., dam safety), and enhancing regional and county hazard mitigation programs.

## Mitigation Strategy

The mitigation strategy sets the State’s mitigation program priorities and assists the regional planning and development councils (RPDC) and counties as they update their local mitigation plans. The mitigation strategy is composed of goals, objectives, and actions that directly address the risks and vulnerabilities identified in the risk assessment as well as the findings of the capability assessment.

For the 2023 SHMP update, the State decided to focus on stronger, expanded goals that reduce the impacts of hazards on infrastructure, align multiple overlapping state programs that reduce vulnerability to hazards, and educate the whole community on reducing vulnerability and strengthening local mitigation programs. The State also incorporated a set of objectives for each goal to help focus the State’s efforts in implementing the SHMP. The goals and objectives of the 2023 SHMP are listed below.

### **Goal 1: Reduce or eliminate the impact of hazards on infrastructure throughout the State.**

- Objective 1.1 Remove the exemption of State facilities from compliance with any development regulations by 2027.
- Objective 1.2 Ensure that State facilities comply with the State Building Code and other development regulations by the end of 2032.
- Objective 1.3 Ensure that State operations are conducted at facilities that are located outside of hazard areas, particularly areas prone to flooding.
- Objective 1.4 Implement strategic, proactive projects to protect existing State facilities from hazard impacts.
- Objective 1.5 Protect high hazard potential dams and reduce vulnerability to dam failures downstream through inventorying, continual maintenance, inspection, rehabilitation, and awareness activities.



**Goal 2: Align and integrate programs related to reducing long-term vulnerability to hazards.**

- Objective 2.1 Analyze and identify opportunities for increased coordination of State programs.
- Objective 2.2 Align and integrate multiple State agencies'/departments' programs related to reducing vulnerability to dam failure.
- Objective 2.3 Align and integrate multiple State agencies'/departments' programs related to resilience from flooding.
- Objective 2.4 Align and integrate programs related to preparing for, responding to, recovering from, and mitigating the impacts of hazards within individual agencies/departments.
- Objective 2.5 Further integrate the regional planning and development councils into the State's mitigation program.

**Goal 3: Provide consistent, continual education of the whole community on reducing long-term vulnerability throughout the State of West Virginia.**

- Objective 3.1 Educate State and local officials, stakeholder groups, and the general public on hazards and reducing long-term vulnerability.
- Objective 3.2 Require initial and ongoing education of local officials with a role in regulating development and include topics on reducing long-term vulnerability in those requirements.
- Objective 3.3 Require initial and ongoing education of elected executive officials and include topics on reducing long-term vulnerability, including dam failures, in those requirements.

**Goal 4: Enhance and support mitigation programs and activities at the local (regional and county) level to reduce long-term vulnerability with minimal negative impacts to community development efforts.**

- Objective 4.1 Enact changes to existing State funding mechanisms to facilitate their use in reducing long-term vulnerability to hazards.
- Objective 4.2 Develop a State-level program to fund mitigation activities at the local level.
- Objective 4.3 Develop State-level standards for the contents of regional and county hazard mitigation plans.
- Objective 4.4 Provide technical assistance to regions, counties, and municipalities in developing their hazard mitigation programs and implementing projects.
- Objective 4.5 Develop, enhance, and advertise data that is available to support mitigation planning and implementation at the local level.
- Objective 4.6 Work with local stakeholders to protect structures and infrastructure from hazard impacts.

A comprehensive evaluation of the 2018 mitigation actions was conducted and progress reported on each. The 2018 SHMP mitigation actions, updated risk assessment, updated capability assessment, and local hazard



mitigation plan (LHMP) actions were used to identify mitigation actions for the 2023 SHMP update. Each identified mitigation action now includes detailed implementation information as well as a clearly articulated and uniformly applied prioritization scheme.

Overall, there are 56 mitigation actions in the updated mitigation action plan, which includes all four FEMA mitigation strategy types: (1) state and local plans and regulations; (2) structure and infrastructure projects; (3) natural system protection; and (4) education and awareness. The types of projects which have been determined high priority are:

- Educating officials on hazards, vulnerability, and possible mitigation actions
- Building and leveraging relationships with owners/operators of critical facilities and infrastructure (including high hazard potential dams) to increase these facilities' resilience
- Encouraging interagency support and coordination to develop and implement a unified floodplain management and mitigation program throughout the state
- Integrating multiple state departments and programs with federal and local stakeholders to reduce risk due to dam failures and to dams from other hazard impacts

## Organization of the Plan

West Virginia's 2023 SHMP update has been designed to use plain language and provide an engaging experience for readers by focusing on making critical information easily identifiable and ensuring that the plan is accessible. Additionally, the SHMP is a resource for local governments to better support work at the local and regional levels.

The 2023 SHMP represents a significant revision to the 2018 SHMP. The SHMP continues to be a "living document" that supports relationship building, promotes resiliency and sustainability, aids in consistent evaluation, and provides a means to reduce the costs associated with response and recovery.

An updated outline of the 2023 SHMP is presented below with a brief summary of each section's contents.

- **Section 1: Introduction**—This section defines mitigation and the planning requirements for the SHMP. It also discusses the 2023 SHMP organization and a summary of changes made during the 2023 update.
- **Section 2: State Profile**—This section provides a description of the West Virginia's physical setting, demographics, economy, state assets and critical facilities, cultural assets, natural resources, and land use and development.
- **Section 3: Planning Process**—This section documents the planning process, including the agencies, stakeholders, and subject matter experts involved and the manner of their involvement. It highlights the extended outreach efforts conducted to encourage participation and increased engagement during the 2023 SHMP update. This section also describes how the planning process has been integrated into ongoing federal and state programs and initiatives.
- **Section 4: Risk Assessment**—This section provides an overview of the risk assessment, including the process to identify hazards, the asset inventories collected and utilized, and the hazard-specific data and methodologies used in the vulnerability assessment.
- **Section 5: Hazard Overview**—This section lists any commonly recognized natural hazards that were not included in the SHMP and explains why.



○ **Sections 5.1 through 5.16: Risk Assessment for Each Hazard**

- **Sections 6 through 8: Capability Assessment**—These sections provide a comprehensive review and evaluation of state and local capabilities used to support and facilitate mitigation activities and describes the process utilized by West Virginia to support, promote, and coordinate mitigation planning at the local level.
- **Section 9: Progress on Previous Plan**—This section provides a description of the status of each mitigation action in the previous plan and lists an action as completed or not completed. If the action is incomplete, the action is either included in the updated SHMP or discontinued.
- **Section 10: Goals for Hazard Mitigation**—This section includes goals to reduce long-term vulnerabilities from the identified hazards. These goals represent what the State seeks to accomplish through mitigation plan implementation using a variety of funding.
- **Section 11: Mitigation Strategy**—This section sets the State’s mitigation program priorities and helps to guide the counties as they update their plans. This section also includes goals and objectives and evaluates the previous SHMP’s actions.
- **Section 12: Adoption**—This section includes information regarding adopting the SHMP.
- **Section 13: Review, Evaluation, and Implementation**—This section describes how the SHMP will be enforced and remain relevant and includes the system for tracking the implementation of the mitigation actions and projects identified in the mitigation strategy.
- **Appendix A: Meeting Documentation** – This appendix includes materials (e.g., meeting notes, presentations, handouts, sign-in sheets) from each planning meeting.
- **Appendix B: Outreach Documentation** – This appendix includes meeting invitations, information-gathering worksheets, survey results, and other outreach conducted during the planning process.
- **Appendix C: Dams Listed on the National Inventory of Dams** – This appendix lists the 561 dams included in the U.S. Army Corps of Engineers’ National Inventory of Dams.

## Plan Maintenance

Maintaining momentum in mitigation strategy implementation can lead to significant long-term changes and overall risk reduction. The development of a plan maintenance process ensures that the SHMP remains a “living” document that is intended to be changed and updated throughout its performance period. As such, a formal process is required to ensure that the SHMP will remain an active and relevant document. The WVEMD is the responsible agency for the preparation and maintenance of this SHMP; and the HMO is the individual responsible for overseeing the coordination, implementation, maintenance of the plan collaboratively across the state throughout the plan’s performance period (2023 to 2028).

The SPT will continue to meet annually throughout the 2023 SHMP performance period to support implementation and discuss amendments to the 2023 SHMP. This will ensure changes in priorities are captured, progress on mitigation actions is documented, and new mitigation actions are included in the plan.