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Final Report
Tribes of Warm Springs

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Warm Springs



CONFEDERATED TRIBES OF WARM SPRINGS

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The Confederated Tribes of Warm Springs Hazard Mitigation Plan

Meeting the Requirements of a Standard State Mitigation Plan



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Acronyms

AFG	Assistance to Firefighters Grant
ANA	Administration for Native Americans
BCA	Benefit-Cost Analysis
BRV	Building Replacement Value
CFR	Code of Federal Regulations
cfs	cubic feet per second
DMA	Disaster Mitigation Act of 2000
EHS	Extremely Hazardous Substances
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMA	Flood Mitigation Assistance
GIS	Geographical Information System
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
PDM	Pre-Disaster Mitigation
Reservation	Warms Springs Reservation
SFHA	Special Flood Hazard Area
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
STAPLEE	Social, Technical, Administrative, Political, Legal, Economic, and Environmental
Steering Committee	Hazard Mitigation Planning Steering Committee
USGS	United States Geological Survey

Across this land, natural and human-made disasters have led to increased levels of injury, property damage, interruption of business and government services, and even death. The impact of disasters on families and individuals can be immense, and damages to businesses can result in economic consequences. The time, money, and effort to respond to and recover from these disasters divert public resources and attention from other important programs and problems.

In 2000, Congress passed the Disaster Mitigation Act (Public Law 106-390) to reinforce the importance of mitigation planning and emphasize planning for disasters before they occur. As such, states, tribes, and local communities must have an approved mitigation plan in place prior to receiving both pre-disaster mitigation and post-disaster funds. These plans must demonstrate that proposed mitigation measures are based on a sound planning process that accounts for the risks to and the capabilities of the individual communities.

Applying this knowledge, the Confederated Tribes of Warm Springs has prepared a Standard State Mitigation Plan (hereon referred to as a Hazard Mitigation Plan [HMP]) that will guide the Confederated Tribes toward greater disaster resistance in full accord with the character and needs of the community and Federal requirements. The potential hazards identified and assessed in this version of the HMP include dam failures, floods, hazardous materials events, landslides, wildland fires, and winter storms. Mitigation actions include a range of specific actions and projects that reduce the effects of each hazard, with particular emphasis on protecting new and existing buildings and infrastructure.

This HMP has been prepared to meet the Federal Emergency Management Agency's (FEMA's) requirements of the Disaster Mitigation Act 2000 and the Interim Final Rule, thus making it eligible for funding and technical assistance from State and Federal hazard mitigation programs. Following each major disaster declaration, the Confederated Tribes of Warm Springs is required to review and update the mitigation strategy. Additionally, in compliance with FEMA regulations, this HMP must be reviewed, revised if appropriate, and resubmitted for approval every 3 years so that the Confederated Tribes continues to be eligible for various hazard mitigation grant-funding sources. The Confederated Tribes of Warm Springs HMP was adopted by the Confederated Tribes of Warm Springs Tribal Council on *(insert date after adoption)*, 2006, reviewed by the Oregon Office of Emergency Management, and approved by FEMA.

Chief Dan Martinez, the Point of Contact for this HMP, can be reached at (541) 553-1634 dmartinez@wstribes.org.

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This section provides an overview of the Disaster Mitigation Act of 2000 (DMA 2000; Public Law 106-390), the adoption of this Standard State Hazard Mitigation Plan (HMP) by the local governing body, and supporting documentation for the adoption.

1.1 DISASTER MITIGATION ACT OF 2000

The DMA 2000 was passed by Congress to emphasize the need for mitigation planning to reduce vulnerability to natural and human-caused hazards. The DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act; 42 United States Code 5121 et seq.) by repealing the act's previous Mitigation Planning section (409) and replacing it with a new Mitigation Planning section (322).

To implement the DMA 2000 planning requirements, the Federal Emergency Management Agency (FEMA) published an Interim Final Rule in the *Federal Register* on February 26, 2002 (FEMA 2002a). This rule (44 Code of Federal Regulations [CFR] Part 201) established the mitigation planning requirements for states, tribes, and local communities. The planning requirements are described in detail in Section 2 and identified in their appropriate sections throughout the HMP. In addition, a crosswalk documenting compliance with 44 CFR is included as Appendix F.

1.2 ADOPTION BY THE TRIBAL GOVERNING BODY AND SUPPORTING DOCUMENTATION

The requirements for the adoption of a HMP by the tribal governing body, as stipulated in DMA 2000 and its implementing regulations, are described below.

DMA 2000 REQUIREMENTS: PREREQUISITES

Adoption by the State (Tribe)

Requirement §201.4(c)(6): The plan must be formally adopted by the State (Tribe) prior to submittal to [FEMA] for final review and approval.

Requirement §201.4(c)(7): The plan must include assurances that the State (Tribe) will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). The State (Tribe) will amend its plan whenever necessary to reflect changes in State (Tribal) or Federal laws and statutes as required in 44 CFR 13.11(d).

Element

- Has the State (Tribe) formally adopted the plan?
- Does the plan provide assurances that the State (Tribe) will comply with all applicable Federal statutes and regulations during the periods for which it receives grant funding, in compliance with 44 CFR 13.11 (c), and will amend its plan whenever necessary to reflect changes in State (Tribal) or Federal laws and statutes as required in 44 CFR 13.11 (d)?

Source: FEMA, March 2004.

This HMP meets the requirements of Section 409 of the Stafford Act and Section 322 of the DMA 2000. In addition, as required by 44 CFR 13.11(c) and 13.11(d), the Confederated Tribes of Warm Springs will comply with all applicable Federal statutes and regulations during the periods for which it receives grant funding, as well as amend its plan whenever necessary to reflect changes in tribal or Federal laws and statutes.

A copy of the resolution, adopted by the Tribal Council, assures FEMA that the Confederated Tribes will comply with both of the CFR requirements. The resolution is presented in Appendix A.

This section provides an overview of the HMP and includes a review of the background, authority, and purpose of the HMP and a description of the document.

2.1 PURPOSE AND AUTHORITY

The DMA 2000, also referred to as the 2000 Stafford Act amendments, was approved by Congress on October 10, 2000. On October 30, 2000, the President signed the bill into law, creating Public Law 106-390. The purposes of the DMA 2000 are to amend the Stafford Act, establish a national program for pre-disaster mitigation, and streamline administration of disaster relief.

This HMP meets the requirements of the DMA 2000, which calls for states, tribes, and local communities to prepare HMPs. By preparing this HMP, the Confederated Tribes of Warm Springs is eligible to receive Federal mitigation funding after disasters and to apply for mitigation grants before disasters strike. More importantly, this HMP starts an ongoing process to evaluate the risks different types of hazards pose to the Warm Springs Reservation (hereon referred to as the Reservation), and to engage the Confederated Tribes and tribal community in dialogue to identify the steps that are most important in reducing these risks. This constant focus on planning for disasters will make the Reservation, including its members, property, infrastructure, and the environment, much safer.

The hazard mitigation planning requirements help communities, including tribes, identify technical assistance needs and prioritize funding. Furthermore, they encourage agencies at all levels, local residents, businesses, and the nonprofit sector to participate in the mitigation planning and implementation process. This broad public participation enables the development of mitigation actions that are supported by these various stakeholders and reflect the needs of the entire community.

For FEMA's Pre-Disaster Mitigation (PDM) grant program and Hazard Mitigation Grant Program (HMGP), a state, tribe, or local community must have an approved HMP to be eligible for PDM and HMGP funding for Presidentially declared disasters after November 1, 2004. Plans approved at any time after November 1, 2004, will allow states, tribes, and local communities to be eligible to receive PDM and HMGP project grants.

Adoption by the governing body demonstrates a community's commitment to fulfilling the mitigation goals and objectives outlined in the HMP. Adoption legitimizes the HMP and authorizes responsible agencies to execute their responsibilities. Following adoption by the Tribal Council, the HMP was approved by FEMA. The resolution adopting this HMP is included in Appendix A.

2.2 PLAN DESCRIPTION

The remainder of this HMP consists of the following sections.

Community Description

Section 3 provides a general history and background of the Confederated Tribes of Warm Springs and the Reservation and historical trends for population, demographic, and economic conditions that have shaped the area. Trends in land use and development are also discussed.

Planning Process

Section 4 describes the planning process, identifies Hazard Mitigation Planning Steering Committee (Steering Committee) members, URS Corporation (URS) consultants, and key stakeholders from the Confederated Tribes of Warm Springs and surrounding region. In addition, this section documents public outreach activities and the review and incorporation of relevant plans, reports, and other appropriate information.

Risk Assessment

Section 5 describes the process through which the Steering Committee identified and compiled relevant data on all potential natural hazards that threaten the Reservation and the immediately surrounding area. Information collected includes historical data on natural hazard events that have occurred in and around the Reservation and how these events impacted tribal members and their property.

The descriptions of natural hazards that could affect the Reservation are based on historical occurrences and best available data from agencies such as FEMA, the U.S. Geological Survey, and the National Weather Service. Detailed hazard profiles include information on the frequency, magnitude, location, and impact of each hazard as well as probabilities for future hazard events. Figures (attached as Appendix B) are included to identify known hazard areas and locations of previous hazard occurrences.

In addition, Section 5 identifies potentially vulnerable assets such as people, housing units, critical facilities, special facilities, infrastructure, and hazardous materials facilities. These data were compiled by assessing the potential impacts from each hazard using FEMA's natural hazards loss estimation model, HAZUS-MH, the U.S. Census, and the Confederated Tribes of Warm Springs Housing and Social Services departments. The resulting information identifies the full range of hazards that the Reservation could face and potential social impacts, damages, and economic losses.

Mitigation Strategy

Section 6 first provides an overview of the Confederated Tribes of Warm Springs resources in the following areas for addressing hazard mitigation activities:

- Existing ordinances, plans, and codes that affect the physical or built environment
- The current and potential financial resources to implement the mitigation strategy

Then Section 6 describes the process in which the Steering Committee:

- Reviewed and refined mitigation goals and actions based upon the findings of the risk assessment and the capability assessment
- Prioritized and ranked a select group of mitigation actions that would best help the Confederated Tribes fulfill its mitigation goals, thereby reducing or avoiding long-term vulnerabilities to the identified hazards

Maintenance Process

Section 7 describes the Steering Committee's formal plan maintenance process to ensure that the HMP remains an active and applicable document. The process includes monitoring, evaluating, and updating the HMP and mitigation action closeouts.

References

Section 8 lists the reference materials used to prepare this HMP.

Appendices

The appendices include the Adoption Resolution, maps and figures, public involvement process, a FEMA Cost-Benefit Analysis, a plan maintenance annual review and progress report, and a crosswalk for compliance with the DMA 2000.

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This section describes the history, location, and geography of the Reservation as well as the Confederated Tribes of Warm Springs government, demographic information, and current land use and development trends in the region.

3.1 HISTORY, LOCATION, AND GEOGRAPHY

Long before Europeans came to the Americas, the Wasco and the Walla Walla (later called the Warm Springs) tribes lived beside the Columbia River and Cascade Mountains. The Piute lived throughout the vast plateaus to the southeast of Oregon's political border. These three tribes constitute the modern federation called the Confederated Tribes of Warm Springs and own and occupy the Reservation, as shown in Appendix B, Figure B-1, which was created by the Treaty of 1855.

Warm Springs became the political and economic center of the 600,000-acre Reservation that comprises much of the northern part of Central Oregon. In 1937, the three tribes adopted a constitution, Bill of Rights, and bylaws for the tribal government and in 1938 formally accepted a corporate charter from the United States for business endeavors. During the period between 1940 and 1970 The Confederated Tribes of Warm Springs came to be known as leaders among Native Americans in self-preservation, self-determination, and innovation for economic development efforts.

The Reservation includes alpine lakes, pristine rivers, deep canyons, and vistas of high desert and volcanic peaks. As shown in Appendix B, Figure B-2, over half the Reservation is forested; with the remainder primarily range land. Reservation lands extend from the summit of Oregon's Cascade Mountains and snowcapped Mt. Jefferson at 10,497 feet, east to the Deschutes River's elevation at 1,000 feet, with the Metolius River and Lake Billy Chinook forming the southern boundary.

The town of Warm Springs is a Census Designated Place where half the population of the Reservation resides. It has a total area of 43 square miles and over 600 housing units.

3.2 GOVERNMENT

Pursuant to the provisions of the Indian Reorganization Act, the Confederated Tribes of Warm Springs adopted a Constitution, Bylaws, and Corporate Charter. These organic documents set out the tribal membership, objectives, powers and authority, and make provisions for a Tribal Council to act on behalf of the membership to carry out tribal goals. They represent the policies of the membership and provide specific delegation of governmental powers from the general membership to the Tribal Council.

The Tribal Council's primary responsibility is to carry out the objectives of the Constitution and Bylaws, which includes promotion of tribal advancement and protection of tribal treaty rights, resources, and sovereignty. Council members make the key decisions, such as authorizing referendums, on behalf of the People. Since 1983, the Tribal Council's actions have led to achievement of the Health and Wellness Center, Early Childhood Education Center, Museum at Warm Springs, and Elder Care Assisted Living Facility, reconstruction of Kah-Nee-Ta Village, and development of Indian Head Casino, among a number of other projects. The Tribal Council also initiated the Scholarship Fund, Senior Citizens Pension Fund, and the "Rainy Day" Fund (Revenue Reserve Fund).

3.3 DEMOGRAPHICS

Nearly 4,000 tribal members inhabit the Reservation. The population has doubled since 1975. Since the 1960's tribal enrollment, the Reservation has grown at an annual population growth rate of 2.75 percent. This growth rate is expected to continue, resulting in a total enrollment of 6,585 members by the year 2020. If non-Indian residents, those married into the tribe or other Indians, and members that do not live on the Reservation are included, the total expected population for Warm Springs in 2020, as forecasted by Economic Development for Central Oregon is approximately 8,692 total residents.

The tribal economy is based primarily on natural resources, including hydropower, forest products, and ranching. Tourism and recreation also make important contributions. The Confederated Tribes of Warm Springs has approximately 604 employees. Tribal enterprises of Kah-Nee-Ta Resort and Warm Springs Forest Products Industries are the next two largest employers at 285 and 204 employees.

3.4 LAND USE AND DEVELOPMENT TRENDS

Large-scale development of tribal resources began in 1942 with a 20-year contract for selective harvest of 500 million board feet of Reservation lumber, followed by the purchase of a plywood plant and sawmill in 1967. The tribes also negotiated agreements for use of tribal lands for the Pelton and Round Butte dams, which provided a revenue stream for tribal activities and projects. Proceeds from these enterprises provided capital for further land acquisition and additional developments in recent years such as the Kah-Nee-Ta Lodge Resort, Indian Head Casino, and Museum at Warm Springs.

In the early 1970s the Confederated Tribes of Warm Springs established the Warm Springs Industrial Park and Warm Springs National Fish Hatchery. The industrial park offers building sites to nontribal members on a lease-only basis. In 2000 the Confederated Tribes entered into an agreement with Pacific Power to purchase the Warm Springs Power Enterprise hydroelectric dam on the Deschutes River.

In 2001, Warm Springs Ventures was created as the business arm of the Confederated Tribes, to diversify and broaden the local economy through new potential business opportunities both on and off the Reservation. The corporation's priority is to generate new revenue for the Confederated Tribes.

The Comprehensive Plan of 1999 broadly describes how the tribal government intends to monitor the change in the number of vacant sites, etc., with a view to encourage new development.

This section provides an overview of the planning process, identifies the coordination among agencies, including the Steering Committee, public involvement, and program integration.

The requirements for the planning process, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Planning Process

Planning Process

§201.4(b): An effective planning process is essential in developing and maintaining a good plan.

Documentation of the Planning Process

§201.4(c)(1): [The State (*Tribal*) plan must include a] description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated.

Element

- Does the plan provide a narrative description of how the plan was prepared?
- Does the plan indicate who was involved in the planning process?
- Does the plan indicate how other agencies participated in the planning process?

Source: FEMA, March 2004.

4.1 OVERVIEW OF PLANNING PROCESS

FEMA tasked URS with providing technical assistance in support of the development of a HMP for the Confederated Tribes of Warm Springs, thus ensuring its eligibility for future HMGP funding for the March 2006 Presidential Disaster Declaration for the Reservation.

For the first step in the planning process URS met with FEMA to discuss the project work plan and hazard mitigation planning in Region X. Next, URS and FEMA met with members of the Confederated Tribes of Warm Springs in Warm Springs, Oregon. During the meeting, URS familiarized the Confederated Tribes with DMA 2000 requirements, the overall planning process, and the estimated work schedule. URS also led the group through a hazard identification and screening exercise. During this process, the tribal members identified six potential hazards. In addition, the tribal members identified Steering Committee participants and a primary point of contact for the Confederated Tribes.

Once the Steering Committee was formed, the following five-step planning process took place from April to June 2006.

- **Organize resources:** Members of the Steering Committee identified resources, including the Confederated Tribes of Warm Springs staff, agencies, and local community members, who could provide technical expertise and historical information needed in the development of the HMP.
- **Assess risks:** The Steering Committee identified the hazards specific to the Reservation, and URS developed the risk assessment for the six identified hazards. The Steering Committee reviewed the hazard maps and draft risk assessment, prior to and during the development of the mitigation strategy.
- **Assess capabilities:** URS and the Steering Committee reviewed current administrative and technical, legal and regulatory, and fiscal capabilities to determine whether existing provisions and requirements adequately address relevant hazards.

- **Develop a mitigation strategy:** After reviewing the risks posed by each hazard, the Steering Committee selected a comprehensive range of potential mitigation goals and actions. Subsequently, the Steering Committee prioritized and ranked the actions to be implemented.
- **Monitor progress:** The Steering Committee developed an implementation process to ensure the success of an ongoing program to minimize hazard impacts to the Reservation.

4.2 COORDINATION AMONG AGENCIES

The requirements for coordination among agencies, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Planning Process - Coordination Among Agencies

Coordination Among Agencies

Requirement §201.4(b): The [State] (*Tribal*) mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups, etc.

Element

- Does the plan describe how Federal and State (*Tribal*) agencies were involved in the planning process?
- Does the plan describe how interested groups (e.g., businesses, non-profit organizations, and other interested parties) were involved in the planning process?

Source: FEMA, March 2004.

4.2.1 Steering Committee

As previously noted, the planning process began in April 2005. Dan Martinez, Fire and Safety Chief for the Confederated Tribes of Warm Springs, formed the advisory body, known as the Steering Committee, utilizing staff from relevant tribal departments and agencies. In addition, the Steering Committee members included representatives from the Kah-Nee-Ta Resorts and the U.S. Department of Interior Bureau of Indian Affairs. The Steering Committee members and their involvement in the planning process are listed in Table 4-1. The Steering Committee meetings are described in Table 4-2.

**Table 4-1
Steering Committee Members**

Name	Department/Agency	Involvement in Planning Process
Dan Martinez	Fire and Safety	Point of Contact. Identified hazards, provided information about hazard events, reviewed hazard maps, and prioritized and selected mitigation actions. Attended Meetings 1, 2, and 3.
Jody Calica	Treasurer	Identified hazards, provided information about hazard events. Attended Meeting 1.
Richard Craig	Environmental Enforcement	Prioritized and selected mitigation actions. Attended Meeting 3.
Owen Danzaka	Division of Transportation	Prioritized and selected mitigation actions. Attended Meeting 3.
Herb Graybael	Public Utilities	Identified hazards, provided information about hazard events, reviewed hazard maps, and prioritized and selected mitigation actions. Attended Meetings 1, 2, and 3.
Desiree Green	Fire and Safety	Provided tribal administrative support. Also, identified hazards, provided information about hazard events, reviewed hazard maps, and prioritized and selected mitigation actions. Attended Meetings 1, 2, and 3.
Paul Henderson	Public Utilities, Water/Waste Water	Identified hazards and provided information about hazard events. Attended Meetings 1 and 3.
Laurain Hintsala	Tribal Services	Identified hazards, provided information about hazard events, reviewed hazard maps, identified population clusters on the Reservation, and prioritized and selected mitigation actions. Attended Meetings 1, 2, and 3.
Trey Leonard	Fire Management	Prioritized and selected mitigation actions. Attended Meeting 3.
Lonny Macy	Policy & Planning	Identified hazards and provided information about hazard events. Attended Meeting 1.
Jennifer Miller	KWSO Radio	Prioritized and selected hazards. Provided public service announcement for mitigation outreach. Attended Meeting 3.
John Miller	Fire and Safety	Identified hazards and provided information about hazard events. Attended Meeting 1.
Kip Morris	Kah-Nee-Ta Resorts	Identified hazards, provided information about hazard events, and prioritized and selected mitigation actions. Attended Meeting 1 and 3.
Charles Nathan	Risk Management, Finance	Identified hazards and provided information about hazard events. Attended Meeting 1.
Ray Potter	Finance	Identified hazards and provided information about hazard events. Attended Meeting 1.
Jeff Sanders	Housing	Prioritized and selected mitigation actions. Attended Meeting 3.
Chuck Schmidt	Kah-Nee-Ta Resorts	Prioritized and selected mitigation actions. Attended Meeting 3.

**Table 4-1
Steering Committee Members**

Name	Department/Agency	Involvement in Planning Process
Tom Shuman	Bureau of Indian Affairs	Identified hazards and provided information about hazard events.
Roy Spino	Public Utilities	Identified hazards, provided information about hazard events, and prioritized and selected mitigation actions. Attended Meetings 1 and 3.
Adrian White	Budget	Prioritized and selected mitigation actions. Attended Meeting 3.

**Table 4-2
Summary of Steering Committee Meetings**

Date	Purpose
April 18, 2006	During the Kick-Off Meeting, URS discussed the objectives of the DMA 2000, the hazard mitigation planning process, the role of the Steering Committee, and public outreach opportunities. In addition, meeting attendees completed a hazard identification and screening exercise. Among the potential hazards initially discussed, six hazards were determined to pose the greatest potential risk to the Reservation.
May 22, 2006	The Steering Committee met to review and make changes to the asset inventory and hazard maps in the Risk Assessment, as well as to develop the Capability Assessment and the Mitigation Strategy. For the Mitigation Strategy, the Steering Committee analyzed and modified a list of over 40 potential mitigation actions.
May 24, 2006	During the third meeting, over 16 members of the Steering Committee participated in the prioritization and selection process for the mitigation actions to be included in the Mitigation Action Plan.

4.2.2 Public Involvement

4.2.2.1 Public Service Announcement

In May 2006, shortly after the third Steering Committee meeting, the Confederated Tribes of Warm Springs issued a public service announcement on KWSO 91.9 FM Warm Springs Community. The radio station played this announcement, which invited public input, 5-10 times a day from May 25–June 5.

The public service announcement is included in Appendix C.

4.2.2.2 Public Comment Period

The Draft Plan for the Confederated Tribes of Warm Springs was sent to tribal members for review from June 13-20. During this period, tribal members could review the document and relevant maps and submit questions and comments about the HMP.

4.3 PROGRAM INTEGRATION

The requirements for program integration, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Planning Process – Program Integration**Program Integration**

Requirement §201.4(b): [The State (*Tribal*) mitigation planning process should] be integrated to the extent possible with other ongoing State (*Tribal*) planning efforts as well as other FEMA mitigation programs and initiatives.

Element

- Does the plan describe how the State (*Tribal*) mitigation planning process is integrated with other ongoing State (*Tribal*) planning efforts?
- Does the plan describe how the State (*Tribal*) mitigation planning process is integrated with FEMA program and initiatives?

Source: FEMA, March 2004.

This planning process is integrated with other ongoing tribal, state, and FEMA mitigation planning and program efforts, such as:

- Review existing plans and reports, including the Integrated Resource Management Plan, Fire Management Plan, and People's Plan, to identify opportunities to integrate mitigation actions.
- Update and adopt the newest building regulations, including the Unified Fire Code, Uniform Building Code, and local Floodplain Ordinance.
- Develop and adopt hazard-specific building regulations for wildland fire (e.g., defensible space).
- Work with the Oregon Department of Transportation to reduce hazardous materials events and their effects on sensitive habitats.

Additional ongoing mitigation planning and policy efforts on the Reservation are discussed in Section 6, Mitigation Strategy.

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This section identifies and profiles the hazards that could affect the Reservation, assesses the risk of such hazards, describes the Confederated Tribes of Warm Springs vulnerability, and estimates potential losses from the hazards. Each of these tasks is described in detail below.

In compliance with the DMA 2000, the requirements for the risk assessment are described below.

DMA 2000 Requirements: Risk Assessment – Overall

Risk Assessment

§201.4(c)(2): The State (*Tribal*) Plan must include a risk assessment that provides the factual basis for activities proposed in the strategy portion of the mitigation plan. Statewide (*Tribal*) risk assessments must characterize and analyze natural hazards and risks to provide a statewide (*tribal*) overview. This overview will allow the State (*Tribe*) to compare potential losses throughout the State (*Tribe*) and to determine their priorities for implementing mitigation measures under the strategy, and to prioritize jurisdictions for receiving technical and financial support in developing more detailed local risk and vulnerability assessment.

Source: FEMA, March 2004.

5.1 OVERVIEW OF A RISK ASSESSMENT

A risk assessment requires the collection and analysis of hazard-related data to enable local communities to identify and prioritize appropriate mitigation actions that will reduce losses from potential hazards. The hazard mitigation planning process has five risk assessment steps as outlined below and is described in detail throughout the remainder of Section 5.

Step 1: Identify and Screen Hazards

Hazard identification is the process of recognizing natural and human-caused events that threaten an area. Natural hazards result from unexpected or uncontrollable natural events of sufficient magnitude to cause damage. Human-caused hazards result from human activity and include technological hazards and terrorism. Technological hazards are generally accidental or result from events with unintended consequences (for example, an accidental hazardous materials release). Terrorism is defined as the calculated use of violence (or threat of violence) to attain goals that are political, religious, or ideological in nature. Even though a particular hazard may not have occurred in recent history in the study area, all hazards that may potentially affect the study area are considered; hazards that are unlikely to occur, or for which the risk of damage is accepted as very low, are then eliminated from consideration.

Step 2: Profile Hazards

Hazard profiling is accomplished by describing hazards in terms of their history, magnitude, duration, frequency, location, and probability. Hazards are identified through collection of historical and anecdotal information, review of existing plans and studies, and preparation of hazard maps of the study area. Hazard maps are used to determine the geographic extent of the hazards and define the approximate boundaries of areas at risk.

Step 3: Identify Assets

Assets are defined as the population, buildings, and critical facilities and infrastructure that may be affected by hazard events. Asset information may be obtained from participating communities, the U.S. Census Bureau, and FEMA's HAZUS-MH software. Asset information is organized and categorized for analysis using a Geographical Information System (GIS).

Step 4: Assess Vulnerabilities

A vulnerability analysis predicts the extent of exposure that may result from a hazard event of a given intensity in a given area. The assessment provides quantitative data that may be used to identify and prioritize potential mitigation measures by allowing communities to focus attention on areas with the greatest risk of damage.

Step 5: Analyze Future Development Trends

The final stage of the risk assessment process provides a general overview of development and population growth that is forecasted to occur within the study area. This information provides the groundwork for decisions about mitigation strategies in developing areas and locations in which these strategies should be applied.

5.2 HAZARD IDENTIFICATION

The requirements for hazard identification, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Risk Assessment – Identifying Hazards**Identifying Hazards**

Requirement §201.4(c)(2)(i): [The State (*Tribal*) risk assessment shall include an] overview of the type of all natural hazards that can affect the State.

Element

- Does the plan provide a description of the types of all natural hazards that can affect the State (*Tribe*)? If the hazard identification omits (without explanation) any hazards commonly recognized as threats to the State, this part of the plan cannot receive a Satisfactory score.

Source: FEMA, March 2004.

The risk assessment process starts with the identification and screening of hazards, as shown in Table 5-1. During the first kick-off meeting, the Steering Committee identified 20 possible hazards that could affect the Reservation. The Steering Committee evaluated and screened the comprehensive list of potential hazards based on a range of factors, including prior knowledge or perception of the relative risk presented by each hazard, the ability to mitigate the hazard, and the known or expected availability of information on the hazard (See Table 5-1). The Steering Committee determined that six hazards pose the greatest threat to the Reservation: dam failures, floods, hazardous materials events, landslides, wildland fires, and winter storms. The remaining 14 hazards excluded through the screening process were considered to pose a lower threat to life and property on the Reservation due to the low likelihood of occurrence or the low probability

that life and property would be significantly affected. Should the risk from these hazards increase in the future, the HMP can be updated to incorporate vulnerability analyses for these hazards.

**Table 5-1
Identification and Screening of Hazards**

Hazard Type	Should It Be Profiled?	Explanation
Avalanche	Yes	The Cascade Range in the Reservation is susceptible to avalanches. Avalanches are addressed within the Winter Storm hazard profile.
Coastal Erosion	No	The Reservation is not located along the coast.
Coastal Storm	No	The Reservation is not located along the coast.
Dam Failure	Yes	The Reservation is located in close proximity to the Pelton Round Butte Hydroelectric Project.
Drought	No	While drought has been identified as a hazard, the Confederated Tribes of Warm Springs have chosen not to address it in this version of the HMP. Drought may be addressed in later versions of the HMP.
Earthquake	No	The Reservation is in a relatively stable seismic zone, although geologists have discovered a few regional faults.
Expansive Soils	No	The Reservation is not located in an area susceptible to expansive soils.
Extreme Heat	No	While extreme temperatures are known to occur, prolonged heat waves are rare.
Flood	Yes	The Reservation has a history of flooding associated with heavy rainfall and snowmelt.
Hailstorm	No	Only minor hailstorms are known to occur locally.
Hurricane	No	The Reservation is not located in an area prone to hurricanes.
Land Subsidence	No	The Reservation is not located in an area prone to land subsidence.
Landslide	Yes	The Reservation is vulnerable to slope instability, especially after prolonged rainfalls.
Tornado	No	No significant historic events have occurred on the Reservation.
Tsunami	No	The Reservation is not located along the coast.
Volcanic Eruption	No	The Reservation may be affected by tephra falls and lahar flows. However, tephra falls and lahar flows are not considered a high priority hazard for this version of the HMP.
Wildland Fires	Yes	The terrain, vegetation, and weather conditions in the region are favorable for the ignition and rapid spread of wildfires.
Windstorm	No	Severe windstorms are uncommon in this area of Oregon.
Winter Storm	Yes	Significant winter storms have led to avalanches, increased snow pack and, as a result, flooding.
Other: Hazard Materials Events	Yes	Highway 26 runs through the Reservation.

5.3 HAZARD PROFILES

The requirements for hazard profiles, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Risk Assessment – Profiling Hazards

Profiling Hazards

Requirement §201.4(c)(2)(i): [The State (*Tribal*) risk assessment shall include an overview of the] location of all natural hazards that can affect the State, including information on previous occurrences of hazard events, as well as the probability of future hazard events, using maps where appropriate.

Element

- Does the risk assessment identify the location (i.e., geographic area affected) of each natural hazard addressed in the plan?
- Does the plan provide information on previous occurrences of each hazard addressed in the plan?
- Does the plan include the probability of future events (i.e., chance of occurrence) for each hazard addressed in the plan?

Source: FEMA, March 2004

The specific hazards selected by the Steering Committee for profiling have been examined in a methodical manner based on the following factors:

- Nature
- History
- Location
- Extent
- Probability of Future Events

The hazards profiled for the Reservation are presented in Sections 5.3.1 through 5.3.6 in alphabetical order. The order of presentation does not signify the level of importance or risk.

5.3.1 Dam Failures

5.3.1.1 Nature

A dam failure is the structural collapse of a dam that releases the water stored in the reservoir behind the dam. A dam failure is usually the result of the age of the structure, inadequate spillway capacity, or structural damage caused by an earthquake or flood. The sudden release of water has the potential to cause human casualties, economic loss, and environmental damage. This type of disaster is dangerous because it can occur rapidly, providing little warning and evacuation time for people living downstream. The flows resulting from dam failure generally are much larger than the capacity of downstream channels and can, therefore, lead to extensive flooding. Flood damage occurs as a result of the momentum of the flood caused by the sediment-laden water, flooding over the channel banks, and impact of debris carried by the flow.

5.3.1.2 History

Pelton Reregulating Dam, Pelton Dam, and Round Butte Dam, which are located to the south of the Reservation, and Happy Valley Reservoir, which is located on the Reservation, have never failed or been subject to significant damage.

5.3.1.3 Location, Extent, and Probability of Future Events

As shown in Appendix B, Figure B-3, three dams are located outside of the Reservation, about 6 miles west of the city of Madras. These three dams (Round Butte Dam, Pelton Reregulating Dam, and Pelton Dam) are jointly owned by the Confederated Tribes of Warm Springs and Portland General Electric, and are known as the Pelton Round Butte Hydroelectric Project. Round Butte Dam is the largest dam, with a height of 440 feet and a 135,000 acre-feet storage capacity (holding 40 percent of the water stored in the Deschutes basin). This 1964 rockfill dam has been classified as a high hazard dam by the Oregon Water Resources Department. Pelton Dam is the second largest dam of this hydroelectric project, standing 204 feet tall. This 1957 concrete-arch dam has a storage capacity of 37,300 acre-feet and is considered a high hazard dam. Finally, Pelton Reregulating Dam is the smallest of these three dams, with a height of 78 feet and a storage capacity of 3,270 acre-feet. This 1957 concrete and rockfill dam is also classified as a high hazard dam.

Happy Valley Reservoir is the only dam located on the Reservation. This dam is 45 feet tall and has a storage capacity of 4,750 feet. Oregon Water Resources Department has classified this dam as a high hazard dam.

The United States Geological Survey has prepared dam inundation maps for the failure of Round Butte and the Pelton dams due to lahar flows. As shown in Appendix B, Figure B-3, dam failure models show that floods generated by the breaching of Round Butte Dam would overtop and cause the Pelton dams to fail. As a result of these failures, large flood waves on the lower Deschutes River and its tributaries would inundate Warm Springs.

The depth and duration of these floods are dependant upon the amount of water in the reservoirs. In addition, it is nearly impossible to estimate the probability of dam failure. The annual probability of Pelton Round Butte Hydroelectric Project failure due to the Mount Jefferson eruption is 1 in 15,000 years.

A dam failure inundation map for Happy Valley Reservoir is not available. However, should this dam fail, it would send flood waves down Badger Creek and Pine Hollow Creek.

5.3.2 Floods**5.3.2.1 Nature**

Flooding is the accumulation of water where usually none occurs or the overflow of excess water from a stream, river, lake, reservoir, or coastal body of water onto adjacent floodplains. Floodplains are lowlands adjacent to water bodies that are subject to recurring floods. Floods are natural events that are considered hazards only when people and property are affected.

Nationwide, floods result in more deaths than any other natural hazard. Physical damage from floods includes the following:

- Inundation of structures, causing water damage to structural elements and contents.
- Erosion or scouring of stream banks, roadway embankments, foundations, footings for bridge piers, and other features.
- Impact damage to structures, roads, bridges, culverts, and other features from high-velocity flow and from debris carried by floodwaters. Such debris may also accumulate on bridge piers and in culverts, increasing loads on these features or causing overtopping or backwater effects.
- Destruction of crops, erosion of topsoil, and deposition of debris and sediment on croplands.
- Release of sewage and hazardous or toxic materials as wastewater treatment plants are inundated, storage tanks are damaged, and pipelines are severed.

Floods also result in economic losses through closure of businesses and government facilities, disrupt communications, disrupt the provision of utilities such as water and sewer service, result in excessive expenditures for emergency response, and generally disrupt the normal function of a community.

On the Reservation, the most common type of flooding event is riverine flooding, also known as overbank flooding. Riverine floodplains range from narrow, confined channels in the steep valleys of mountainous and hilly regions, to wide, flat areas in plains and coastal regions. The amount of water in the floodplain is a function of the size and topography of the contributing watershed, the regional and local climate, and land use characteristics. Flooding in steep, mountainous areas is usually confined, strikes with less warning time, and has a short duration. Larger rivers typically have longer, more predictable flooding sequences and broad floodplains.

In addition to riverine flooding, the Reservation is susceptible to flash flooding. Flash flood is a term widely used by experts and the general population, but no single definition or clear means of distinguishing flash floods from other riverine floods exists. Flash floods are generally understood to involve a rapid rise in water level, high velocity, and large amounts of debris, which can lead to significant damage that includes the tearing out of trees, undermining of buildings and bridges, and scouring of new channels. The intensity of flash flooding is a function of the intensity and duration of rainfall, steepness of the watershed, stream gradients, watershed vegetation, natural and artificial flood storage areas, and configuration of the streambed and floodplain. Dam failure may also lead to flash flooding. Urban areas are increasingly subject to flash flooding due to the removal of vegetation, installation of impermeable surfaces over ground cover, and construction of drainage systems. Wildfires that strip hillsides of vegetation and alter soil characteristics may also create conditions that lead to flash floods and debris flows. Debris flows are particularly dangerous due to the fact that they generally strike without warning and are accompanied by extreme velocity and momentum.

Finally, localized flooding may occur outside of recognized drainage channels or floodplains due to a combination of locally heavy precipitation, increased surface runoff, and inadequate facilities for drainage and stormwater conveyance. Such events frequently occur in flat areas and in urbanized areas with large impermeable surfaces. Local drainage may result in “nuisance flooding,” in which streets or parking lots are temporarily closed, and minor property damage.

Because the effects are not widespread and damage is typically minimal, they are not studied in detail as part of this HMP.

5.3.2.2 History

Several large floods have occurred on the Warm Springs River, Shitike Creek, and Tenino Creek within the Reservation, including:

- In the winter of 1964, a 100-year flood event damaged the Kah-Nee-Ta Resort and 24 homes in Warm Springs and washed out portions of Highway 26. Damage on the Reservation was estimated at \$903,000.
- In January 1974, flood levels along the Shitike Creek reach a recurrence interval of 60 years. No structural damage was reported.
- In February 1996, during a 4-day period, recording breaking rain in conjunction with warm temperatures and deep snowpack led to severe flooding along the Warm Springs Creek, Shitike Creek, and Tenino Creek. River flood stages were comparable in magnitude to the December 1964 flood, which was the largest in Oregon since flood control reservoirs were built in the 1940s and 1950s.
- On March 20, 2006, the President declared a major disaster under the authority of the Stafford Act for severe storms, flooding, landslides, and mudslides from December 18, 2005, through and including January 21, 2006, in several areas of Oregon, including the Reservation.

5.3.2.3 Location, Extent, and Probability of Future Events

Floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. Flood studies often use historical records, such as streamflow gages, to determine the probability of occurrence for floods of different magnitudes. The probability of occurrence is expressed in percentages as the chance of a flood of a specific extent occurring in any given year.

Factors contributing to the frequency and severity of riverine flooding include the following:

- Rainfall intensity and duration
- Antecedent moisture conditions
- Watershed conditions, including steepness of terrain, soil types, amount and type of vegetation, and density of development
- The existence of attenuating features in the watershed, including natural features such as swamps, glacial dams, and lakes and human-built features such as dams
- The existence of flood control features, such as levees and flood control channels
- Velocity of flow

- Large landslides from canyon walls
- Availability of sediment for transport, and the erodability of the bed and banks of the watercourse

These factors are evaluated using a hydrologic analysis to determine the probability that a discharge of a certain size will occur; and a hydraulic analysis to determine the characteristics and depth of the flood that results from that discharge.

The magnitude of flood used as the standard for floodplain management in the United States is a flood having a probability of occurrence of 1 percent in any given year. This flood is also known as the 100-year flood or base flood. The most readily available source of information regarding the 100-year flood is the system of Flood Insurance Rate Maps (FIRMs) prepared by FEMA. These maps are used to support the NFIP. The FIRMs show 100-year floodplain boundaries for identified flood hazards. These areas are also referred to as Special Flood Hazard Areas (SFHAs) and are the basis for flood insurance and floodplain management requirements. FEMA prepared FIRMs for the Reservation in April 2002.

The Flood Insurance Study (FIS, FEMA 2005) for the Reservation shows the identified SFHAs for the following flooding sources in the Reservation boundaries:

- Warm Springs River, which is the largest tributary of the Deschutes River on the Reservation, has a drainage area of 530 square miles and a 100-year peak discharge of 8,000 cubic feet per second (cfs).
- Shitike Creek has a drainage area of 105 square miles, including Tenino Creek, and a 100-year peak discharge of 2,000 cfs.
- Tenino Creek has a drainage area of 21 square miles, and a 100-year peak discharge of 650 cfs.

Using information provided by the FIS and the Confederated Tribes of Warm Springs, Appendix B, Figure B-4 shows potential flood-prone areas in the Reservation. Warm Springs River, Shitike Creek, and Tenino Creek generally occur during the rainy season during the months of November through February. Severe flooding is usually a result of a combination of rain on snow with saturated or frozen soil. Therefore, based on previous occurrences, the likelihood of a major flood occurring within the Reservation is every 10 years. Localized flooding, such as along Highway 26 and Quartz Creek, can occur annually.

5.3.3 Hazardous Materials Events

5.3.3.1 Nature

Hazardous materials may include hundreds of substances that pose a significant risk to humans. These substances may be highly toxic, reactive, corrosive, flammable, radioactive, or infectious. Numerous Federal, State, and local agencies including the U.S. Environmental Protection Agency (EPA), U.S. Department of Transportation, National Fire Protection Association, FEMA, U.S. Army, and the International Maritime Organization regulate hazardous materials.

Hazardous material releases may occur from any of the following:

- Fixed site facilities (such as refineries, chemical plants, storage facilities, manufacturing, warehouses, wastewater treatment plants, dry cleaners, automotive sales/repair, gas stations, etc.)
- Highway and rail transportation (such as tanker trucks, chemical trucks, railroad tankers)
- Air transportation (such as cargo packages)
- Pipeline transportation (liquid petroleum, natural gas, and other chemicals)

Unless exempted, facilities that use, manufacture, or store hazardous materials in the United States fall under the regulatory requirements of the Emergency Planning and Community Right to Know Act (EPCRA) of 1986, enacted as Title III of the Federal Superfund Amendments and Reauthorization Act (42 United States Code 11001–11050; 1988). Under EPCRA regulations, hazardous materials that pose the greatest risk for causing catastrophic emergencies are identified as Extremely Hazardous Substances (EHSs). These chemicals are identified in the *List of Lists – Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112 of the Clean Air Act* (EPA 2005). Releases of EHSs can occur during transport and from fixed facilities. Transportation-related releases are generally more troublesome because they may occur anywhere, including close to human populations, critical facilities, or sensitive environmental areas. Transportation-related EHS releases are also more difficult to mitigate due to the variability of locations and distance from response resources.

In addition to accidental human-caused hazardous material events, natural hazards may cause the release of hazardous materials and complicate response activities. The impact of earthquakes on fixed facilities may be particularly serious due to the impairment or failure of the physical integrity of containment facilities. The threat of any hazardous material event may be magnified due to restricted access, reduced fire suppression and spill containment, and even complete cutoff of response personnel and equipment. In addition, the risk of terrorism involving hazardous materials is considered a major threat due to the location of hazardous material facilities and transport routes throughout communities and the frequently limited antiterrorism security at these facilities.

On behalf of several Federal agencies including the EPA and U.S. Department of Transportation, the National Response Center serves as the point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment within the United States.

5.3.3.2 History

The National Response Center Web-based query system of non-Privacy Act data show that since 1990, four and chemical spills have occurred in Warm Springs. All of these gasoline spills occurred at mobile locations.

In addition to oil and chemical spills, the EPA has recorded one airborne hazardous material release and two toxic releases in Warm Springs since 1996.

5.3.3.3 Location, Extent, and Probability of Future Events

The EPA regulates six facilities on the Reservation. Of these facilities, two-thirds facilities are permitted to discharge to water and one-half are hazardous waste handlers. However, while several of the small, fixed facilities (e.g., body shops) have varying uses of hazardous chemicals, in general these facilities do not pose a significant risk to the Reservation.

In addition to fixed facilities, hazardous material events have the potential to occur along Highways 26, 9, and 3, and the railroad tracks, which are located in close proximity to the Reservation. The trucks and trains that use these transportation arteries commonly carry a variety of hazardous materials including gasoline, other crude oil derivatives, and other chemicals known to cause human health problems. The Warm Springs River, Shitike Creek, and Tenino Creek are waterways most vulnerable to hazardous material transportation incidents.

Based on previous occurrences, the likelihood of a small oil or chemical spill occurring within the Reservation is every 4 years. However, more comprehensive information on the probability and magnitude of hazardous material events from all types of sources (such as fixed facilities or transport vehicles) is not available. Wide variations among the characteristics of hazardous material sources and among the materials themselves make such an evaluation difficult.

While it is beyond the scope of this HMP to evaluate the probability and magnitude of hazardous material events within the Reservation in detail, it is possible to determine the exposure of population, buildings, and critical facilities should such an event occur. Of the facilities that were required to file an annual EPA Tier II Material Inventory Report because of the presence of hazardous materials, one facility located in the community of Warm Springs was identified as having EHSs. Therefore, as shown in Appendix B, Figure B-5, areas at risk for hazardous material events include the community of Warm Springs and any area within a ½-mile radius of Highways 26, 9, and 3, and the railroad tracks.

5.3.4 Landslides

5.3.4.1 Nature

Landslide is a general term for the dislodgment and fall of a mass of soil or rocks along a sloped surface or for the dislodged mass itself. The term is used for varying phenomena, including mudflows, mudslides, debris flows, rockfalls, rockslides, debris avalanches, debris slides, and slump-earth flows. Landslides may result from a wide range of combinations of natural rock, soil, or artificial fill. The susceptibility of hillside and mountainous areas to landslides depends on variations in geology, topography, vegetation, and weather. Landslides may also occur due to indiscriminate development of sloping ground or the creation of cut-and-fill slopes in areas of unstable or inadequately stable geologic conditions.

Additionally, landslides often occur together with other natural hazards, thereby exacerbating conditions, as described below:

- Shaking due to earthquakes can trigger events ranging from rockfalls and topples to massive slides.
- Intense or prolonged precipitation that causes flooding can also saturate slopes and cause failures leading to landslides.

- Landslides into a reservoir can indirectly compromise dam safety, and a landslide can even affect the dam itself.
- Wildfires can remove vegetation from hillsides, significantly increasing runoff and landslide potential.

5.3.4.2 History

While landslides on the Reservation are triggered by the aforementioned events, they mostly occur during periods of significant precipitation. Two landslides induced by heavy precipitation and flooding have occurred in recent history.

- The Reservation also received a Federal disaster declaration in February 1996 due to severe storms and flooding. These events produced landslides on the Reservation, and also produced approximately 700 landslides and debris flows throughout the state of Oregon.
- A Federal disaster was declared in Oregon for 18 counties and the Reservation on March 20, 2006. The disaster declaration was the result of severe storms, flooding, landslides, and mudslides, which occurred in the 18 counties and the Reservation from December 18, 2005, to January 21, 2006.
- Chronic landsliding and rocksliding are known to occur near Seekseequa and Simnasho.

5.3.4.3 Location, Extent, and Probability of Future Events

As shown in Appendix B, Figure B-6, landslides are possible throughout the Reservation, but are especially prevalent on steep slopes. The western portions of the Reservation border the Cascade Mountain Range and are characterized by steep slopes, indicating that these areas are vulnerable to landslide events. In addition, bluffs and mesas in the northeastern and eastern portions of the Reservation are susceptible to landsliding.

The probability of a landslide is dependent upon many factors including, but not limited to, the steepness of the slope, the type and stability of slope materials, amount of vegetative cover, human influence, and water. Based on previous events, the Reservation is susceptible to large landsliding events every 10 years.

5.3.5 Wildland Fires

5.3.5.1 Nature

A wildland fire is a type of wildfire that spreads through consumption of vegetation. It often begins unnoticed, spreads quickly, and is usually signaled by dense smoke that may be visible from miles around. Wildland fires can be caused by human activities (such as arson or campfires) or by natural events such as lightning. Wildland fires often occur in forests or other areas with ample vegetation. In addition to wildland fires, wildfires can be classified as urban fires, interface or intermix fires, and prescribed fires.

The following three factors contribute significantly to wildland fire behavior and can be used to identify wildland fire hazard areas.

- **Topography:** As slope increases, the rate of wildland fire spread increases. South-facing slopes are also subject to more solar radiation, making them drier and thereby intensifying wildland fire behavior. However, ridgetops may mark the end of wildland fire spread, since fire spreads more slowly or may even be unable to spread downhill.
- **Fuel:** The type and condition of vegetation plays a significant role in the occurrence and spread of wildland fires. Certain types of plants are more susceptible to burning or will burn with greater intensity. Dense or overgrown vegetation increases the amount of combustible material available to fuel the fire (referred to as the “fuel load”). The ratio of living to dead plant matter is also important. The risk of fire is increased significantly during periods of prolonged drought as the moisture content of both living and dead plant matter decreases. The fuel’s continuity, both horizontally and vertically, is also an important factor.
- **Weather:** The most variable factor affecting wildland fire behavior is weather. Temperature, humidity, wind, and lightning can affect chances for ignition and spread of fire. Extreme weather, such as high temperatures and low humidity, can lead to extreme wildland fire activity. By contrast, cooling and higher humidity often signals reduced wildland fire occurrence and easier containment.

The frequency and severity of wildland fires is also dependent upon other hazards, such as lightning, drought, equipment use, railroads, recreation use, arson, and infestations. If not promptly controlled, wildland fires may grow into an emergency or disaster. Even small fires can threaten lives and resources and destroy improved properties. In addition to affecting people, wildland fires may severely affect livestock and pets. Such events may require emergency watering/feeding, evacuation, and shelter.

The indirect effects of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and streams, thereby enhancing flood potential, harming aquatic life, and degrading water quality. Lands stripped of vegetation are also subject to increased debris flow hazards, as described above.

5.3.5.2 History and Extent

Several significant wildland fires have occurred on the Reservation, including:

- 5,000-acre fire in July 2005
- 13,539-acre Log Springs Fire in August 2004
- 23,572-acre Eyerly Fire in July 2002
- 1,000-acre Shimasho fire in July 1998
- 115,000-acre Shimasho fire in August 1996

5.3.5.3 Location and Probability of Future Events

On the Reservation, wildland fires generally occur in the following areas:

- Warm Springs and the surrounding area, which is composed of sagebrush grass and intermittent juniper stands.
- Central and northeastern portion of the Reservation, which is primarily characterized by old growth Ponderosa pine, poles, and young saw timber. Incense cedar and perennial grasses are also present in this area as are sources of fuel.
- The western and southwestern portion of the Reservation, which is primarily characterized by mixed conifer vegetation and subalpine species including Douglas fir, Ponderosa pine, western larch, western hemlock, and perennial grasses amongst other species.

As shown in Appendix B, Figure B-7, nearly the entire Reservation has a high-very high wildland fire risk. Fire susceptibility throughout the Reservation dramatically increases in late summer and early autumn as summer thunderstorms with lightning strikes increases and vegetation dries out, decreasing plant moisture content and increasing the ratio of dead fuel to living fuel. However, various other factors, including humidity, wind speed and direction, fuel load and fuel type, and topography can contribute to the intensity and spread of wildland fires (See Appendix B, Figure B-7 and Section 5.3.5.2 for extent of wildland fires on the Reservation). In addition, common causes of wildland fires include arson and negligence from industrial and recreational activities. Based on previous occurrences, the likelihood of significant wildland fire (larger than 1,000 acres) occurring in and/or near the Reservation is every 2 years.

5.3.6 Winter Storm

5.3.6.1 Nature

In Oregon, winter storms begin with cyclonic weather systems in the North Pacific Ocean or the Aleutian Islands that can cause massive low-pressure storm systems to sweep into the continental United States. As the moist air masses push across the Cascade Mountains, the air masses cool and the water condenses as snow. Wind in combination with the snow can cause reduced visibilities and deep snowdrifts. In addition, heavy snow can cause avalanches in areas along steep terrain. In some instances, freezing rain occurs, when very cold inland arctic air becomes trapped under warm moist air.

5.3.6.2 History

In the past 25 years, three heavy snow-associated winter storms have been recorded on the Reservation. Meteorologists define heavy snow as 6 inches or more falling in less than 12 hours, or snowfall of 8 inches or more in 24 hours. These storms occurred in January 1969, February 1989, and December 2003–January 2004. In addition, recent severe icestorms on the Reservation occurred in January 1986, January 1991, January 1996, February 1996, and February 2005.

5.3.6.3 Location, Extent, and Probability of Future Events

As shown in Appendix B, Figure B-8, the valley locations within the central and eastern portions of the Reservation are at moderate and high risk to freezing rains. It is in these lower-elevation areas where temperatures may be near or above freezing during the day, but as storms pass and temperatures plummet, wet roadways often turn to ice. It is not uncommon for freezing rain storms to occur every 2 to 3 years on the Reservation.

The western side of the Reservation, at the foothills of the Cascades, is at risk to moderate and high snow storm hazards. As such, this mountainous area can accumulate over 140 inches of snow during the months of January and February. Generally, these severe winter storms occur every 5 to 10 years.

5.4 ASSET INVENTORY

This section describes the third step in the risk assessment process, which is the identification of assets that may be affected by hazard events. Assets identified for the risk assessment include population, buildings, and critical facilities that may be affected by hazard events. The assets identified are discussed in detail below. Sections 5.4.1 and 5.4.2 provide a complete list of assets and insurance or replacement values where applicable.

5.4.1 Population and Building Stock

Population and residential building data were obtained from the 2000 U.S. Census. The total documented population for the Confederated Tribe of Warm Springs was 3,544 in 2000. Approximately 2,272 Native Americans resided in the largest tribal community of Warm Springs. This community includes a total of 600 residential buildings (single-family dwellings, mobile homes, and multifamily dwellings), with a median value of \$70,400.

Table 5-2 shows the known total mapped tribal population within the major communities of the Reservation of 2,672. Population density throughout the Reservation is shown in Appendix B, Figure B-9.

**Table 5-2
Estimated Population and Residential Building Inventory in Major Tribal Communities of the Reservation**

Location	Population	Residential Buildings
Warm Springs	2,272	600
Bear Springs	25	8
Kah-Nee-Ta	200*	67
Seekseequa	100	33
Sidwalter	200	67
Simmasho	100	33
Total	2,722	816

Source: Confederated Tribes of Warm Springs, U.S. Census 2000

* During peak tourist season, total population in Kah-Nee-Ta can exceed 2,000.

5.4.2 Critical Facilities

A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, such as preserving the quality of life in the Reservation and fulfilling important public safety, emergency response, and disaster recovery functions. The critical facilities owned by the Confederated Tribes of Warm Springs are listed in Table 5-3 and shown in Appendix B, Figure B-10. Tribally owned and operated critical facilities include the following:

- Seven tribal offices and facilities
- Seven tribal enterprises
- Three schools
- Four gathering places
- Eight police and fire stations
- Seven potable water and wastewater facilities
- Three communication facilities
- Kah-Nee-Ta resorts

**Table 5-3
Critical Facilities**

Category	Facility	Location	Estimated Structure Value
Tribal Offices and Facilities	Administration Building	Warm Springs	\$659,000
	Senior Services Department	Warm Springs	\$659,000
	Indian Health Services	Warm Springs	\$1,452,000
	Family Resource Center	Warm Springs	\$659,000
	High Lookee Lodge	Warm Springs	\$619,000
	Forestry and Natural Resources	Warm Springs	\$659,000
	Ranger Station	Bear Springs	\$170,000
Tribal Enterprises	Pelton/Round Butte Hydroelectric Project, Warm Springs Power Enterprises	West of Madras, along the Deschutes River	\$20,335,200
	Warm Springs National Fish Hatchery	North of Warm Springs, along the Warm Springs River	\$4,969,000
	The Museum at Warm Springs	Warm Springs	\$7,600,000
	Warm Springs Forest Product Industries	Warm Springs	\$492,000
	Warm Springs Ventures / The Plaza at Warm Springs	Warm Springs	\$492,000
	Warm Springs Composite Products	Warm Springs	\$492,000
	Warm Springs Construction	Warm Springs	\$492,000

**Table 5-3
Critical Facilities**

Category	Facility	Location	Estimated Structure Value
Educational Facilities	Early Childhood Education	Warm Springs	\$565,000
	Warm Springs Elementary	Warm Springs	\$565,000
	Higher Education Building	Warm Springs	\$565,000
Gathering Places	Agency Longhouse	Warm Springs	\$297,000
	Simmasho Longhouse	Simmasho	\$297,000
	Hehe Longhouse	west of Simmasho	\$297,000
	Community Center	Warm Springs	\$659,000
Police and Fire Stations	Police Station	Warm Springs	\$1,582,000
	Police Substation	Simmasho	\$243,900
	Fire and Safety Building / Station	Warm Springs	\$678,000
	Fire Management Complex	Warm Springs	\$678,000
	Fire Station	Seekseequa	\$678,000
	Fire Station	Sidwalter	\$678,000
	Fire Station	Simmasho	\$678,000
	Fire Substation	Kah-Nee-Ta Resorts	\$237,100
Potable Water and Wastewater Facilities	Potable Water Facility	Simmasho, along Quartz Creek	\$6,778,400
	Potable Water Facility	Northwest of Warm Springs, along Shitike Creek	\$6,778,400
	Potable Water Facility	Sidwalter	\$6,778,400
	Potable Water Facility	Seekseequa	\$6,778,400
	Wastewater Facility	Warm Springs, along Shitike Creek	\$10,455,300
	Wastewater Facility	Sunnyside	\$10,455,300
	Wastewater Facility	Kah-Nee-Ta	\$10,455,300
Communication Facilities	Qwest Facility	Warm Springs	\$2,000,000
	Radio Station	Eagle Butte	\$200,000
	Radio / Cell Tower	Eagle Butte	\$113,000
Casinos & Resorts	Kah-Nee-Ta Village	Kah-Nee-Ta, along the Warm Springs River	\$654,200
	Kah-Nee-Ta Lodge and Casino	Kah-Nee-Ta, above the Warm Springs River	\$33,200,000

Source: FEMA HAZUS-MH (estimated values)

5.5 VULNERABILITY ASSESSMENT

The fourth step of the risk assessment and its primary intent is the vulnerability assessment. This section includes an overview of the vulnerability assessment, methodology, data limitations, and exposure analysis.

5.5.1 Overview of a Vulnerability Assessment

The requirements for a risk assessment, as stipulated in the DMA 2000 and its implementing regulations, are described below:

- A summary of the State's (*Tribe's*) vulnerability to each hazard that addresses the impact of each hazard on the State (*Tribe*)
- An identification of the types and numbers of existing vulnerable buildings, and critical facilities and infrastructure

DMA 2000 Requirements: Assessing Vulnerability

Assessing Vulnerability: Assessing Vulnerability by Jurisdiction and State (*Tribal*) Facilities

Requirement §201.4(c)(2)(ii): [The State (*Tribal*) risk assessment shall include an] overview and analysis of the State's vulnerability to the hazards described in this paragraph (c)(2), based on estimates provided in local risk assessments as well as the State (*Tribal*) risk assessment. The State (*Tribe*) shall describe vulnerability in terms of the jurisdictions most threatened by the identified hazards, and most vulnerable to damage and loss associated with hazard events. State (*Tribal*) owned critical or operated facilities located in the identified hazard areas shall also be addressed.

Element

- Does the plan describe the State's (*Tribe's*) vulnerability based on estimates provided in local risk assessments as well as the State (*Tribal*) risk assessment?
- Does the plan describe the State's (*Tribe's*) vulnerability in terms of the jurisdictions most threatened and most vulnerable to damage and loss associated with hazard event(s)?
- Does the plan describe the types of State (*Tribal*) owned or operated critical facilities located in the identified hazard areas?

Source: FEMA, March 2004.

- Estimate of potential dollar losses to vulnerable structures and the methodology used to prepare the estimate.

DMA 2000 Requirement: Estimating Potential Losses

Estimating Potential Losses: Estimating Potential Losses by Jurisdiction and State Facilities

Requirement §201.4(c)(2)(iii): [The State (*Tribal*) risk assessment shall include an] overview and analysis of potential losses to the identified vulnerable structures, based on estimates provided in the local risk assessments as well as the State risk assessment. The State (*Tribe*) shall estimate the potential dollar losses to State (*Tribal*) owned or operated buildings, infrastructure, and critical facilities located in the identified hazard areas.

Element

- Does the plan present an overview and analysis of the potential losses to the identified vulnerable structures?
- Are the potential losses based on estimates provided in local risk assessments as well as the State (*Tribal*) risk assessment?
- Does the plan present an estimate of the potential dollar losses to State (*Tribal*) owned or operated buildings, infrastructure, and critical facilities in the identified hazard areas?

Source: FEMA, March 2004.

5.5.2 Methodology

The methodology used to prepare the dollar estimates for vulnerability is described below. Potential dollar losses are summarized in Table 5-4 in Section 5.5.4.

A conservative exposure-level analysis was conducted to assess the risks of the identified hazards. This analysis is a simplified assessment of the potential effects of the hazard on values at risk without consideration of probability or level of damage.

Using GIS, the locations of critical facilities were compared to locations where hazards are likely to occur. If any portion of the critical facility or community fell within a hazard area, the critical facility and/or entire community was counted as impacted. The exception for this analysis includes communities and critical facilities located within the 100-year floodplain (see Section 5.5.4.2 for further explanation).

Replacement values or insurance coverage were developed for physical assets. These values were obtained from HAZUS-MH, the Confederated Tribes of Warm Springs, and the U.S. Census. For facilities that didn't have specific values per building in a multibuilding scenario, the buildings were grouped together and assigned one value. For each physical asset located within a hazard area, exposure was calculated by assuming the worst-case scenario (that is, the asset would be completely destroyed and would have to be replaced). Finally, the aggregate exposure, in terms of replacement value or insurance coverage, for each category of structure or facility was calculated. A similar analysis was used to evaluate the proportion of the population at risk. However, the analysis simply represents the number of people at risk; no estimate of the number of potential injuries or deaths was prepared.

5.5.3 Data Limitations

The vulnerability estimates provided herein use the best data currently available, and the methodologies applied result in an approximation of risk. These estimates may be used to understand relative risk from hazards and potential losses. However, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning hazards and their effects on the built environment, as well as approximations and simplifications that are necessary for a comprehensive analysis.

It is also important to note that the quantitative vulnerability assessment results are limited to the exposure of people, buildings, and critical facilities to hazard. It was beyond the scope of this HMP to develop a more detailed or comprehensive assessment of risk (including annualized losses, people injured or killed, shelter requirements, loss of facility/system function, and economic losses). Such impacts may be addressed with future updates of the HMP.

5.5.4 Exposure Analysis

The results of the exposure analysis are summarized in Tables 5-4 and 5-5 and in the discussion below.

**Table 5-4
Potential Hazard Vulnerability Assessment – Population and Residential Structures**

Hazard	Risk	Communities	Population	Residential	
				Number	Value
Dam Failures	Dam Inundation Zone	Warm Springs	2,272	600	\$42,240,000
	100-Year Flood Zone	Warm Springs, Kah-Nee-Ta	492	133	\$9,363,200
Hazardous Materials Events	½-Mile Buffer Transportation Corridors	Warm Springs, Simnasho, Bear Springs	2,397	641	\$45,126,400
	Community Buffer EHS facility	Warm Springs	2,272	600	\$42,240,000
Landslides	Low	Sidwalter	200	67	\$4,716,800
	Moderate	Warm Springs, Bear Springs, Kah-Nee-Ta, Seekseequa, Simnasho	2,697	741	\$52,166,400
Wildland Fires	Moderate		0	0	\$0
	High	Sidwalter	200	67	\$4,716,800
	Very High	Warm Springs, Bear Springs, Kah-Nee-Ta, Seekseequa, Simnasho	2,697	741	\$52,166,400
	Extreme		0	0	\$0
Winter Storms	Moderate Freezing Rain	Sidwalter, Simnasho, Seekseequa	400	133	\$9,363,200
	High Freezing Rain	Warm Springs, Kah-Nee-Ta	2,472	667	\$46,956,800
	Moderate Snow Storm	Bear Springs	25	8	\$563,200
	High Snow Storm		0	0	\$0

**Table 5-5
Potential Hazard Vulnerability Assessment – Critical Facilities**

Hazard	Risk	Offices and Facilities		Enterprises		Educational Facilities		Gathering Places		Police and Fire Stations		Potable Water and WW Facilities		Communication Facilities		Kah-Nee-Ta Resorts	
		No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹	No.	Value (\$) ¹
Dam Failures	Inundation Zone	6	\$4,707	7	\$34,872	3	\$1,695	2	\$956	3	\$2,938	2	\$17,234	1	\$2,000	0	\$0
	100-Year Flood Zone	2	\$1,138	4	\$13,553	1	\$565	2	\$956	2	\$1,356	3	\$27,689	0	0	1	\$654
Floods	½-Mile Buffer Transportation Corridors	7	\$4,877	5	\$9,568	3	\$1,695	3	\$1,253	5	\$3,860	6	\$51,701	1	\$2,000	0	\$0
	Community Buffer EHS Facility	6	\$4,707	5	\$9,568	3	\$1,695	2	\$956	3	\$2,938	2	\$17,455	1	\$2,000	0	\$0
Landslides	Low	0	\$0	0	\$0	0	\$0	0	\$0	1	\$678	2	\$13,557	0	\$0	0	\$0
	Moderate	7	\$4,877	7	\$34,872	3	\$1,695	4	\$1,550	7	\$4,775	5	\$44,923	1	\$2,000	2	\$33,854
	Moderate	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
	High	0	\$0	0	\$0	0	\$0	0	\$0	1	\$678	1	\$6,778	0	\$0	0	\$0
Wildland Fires	Very High	7	\$4,877	7	\$34,872	3	\$1,695	4	\$1,550	7	\$4,775	6	\$51,701	3	\$2,313	2	\$33,854
	Extreme	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
	Moderate Freezing Rain	0	\$0	0	\$0	0	\$0	2	\$594	4	\$2,278	5	\$37,569	2	\$313	0	\$0
Winter Storms	High Freezing Rain	6	\$4,707	7	\$34,872	3	\$1,695	2	\$956	3	\$3,175	2	\$20,912	1	\$2,000	2	\$33,854
	Moderate Snow Storm	1	\$170	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
	High Snow Storm	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0

¹ Value = Estimated value (x \$1000)

5.5.4.1 Dam Failures

According to the United States Geological Survey (USGS), the breaching of Round Butte Dam would overtop and cause the Pelton dams to fail. As a result of these failures, large flood waves on the lower Deschutes River and its tributaries would inundate Warm Springs. Exposed within these inundation areas are 2,272 tribal members, 600 residential structures (worth \$42.2 million) and 24 critical facilities (worth \$61.5 million), which includes the Pelton dams.

5.5.4.2 Floods

Using FIRMs prepared for the Confederated Tribes of Warm Springs and US Census blocks, approximately 20 percent of the total area of Warm Springs and Ka-Nee-Ta are at risk to the 100-year flood. Therefore, within this hazard area are 492 tribal members, 133 residential structures (worth \$9.4 million), and 15 critical facilities (worth \$44.6 million).

5.5.4.3 Hazardous Material Events

The entire community of Warm Springs falls within the community-wide buffer around the 1 EHS facility located on the Reservation. This includes 2,272 tribal members, 600 residential buildings (worth \$42.2 million), and 22 critical facilities (worth \$36.2 million).

The communities of Warm Springs, Simnasho, and Bear Springs are located within the ½-mile radius of Highways 26, 9, and 3, and the railroad tracks. Therefore 2,397 tribal members, 608 residential structures (worth \$42.8 million), and 30 critical facilities (worth \$71.1 million) are located within a hazardous materials transport corridor. However, these figures are for the entirety of the transportation corridors and, therefore, overstate the exposure since a hazardous material event along the corridors is unlikely to affect all of the area within the ½-mile buffer.

5.5.4.4 Landslides

Using a USGS digital data and slope inclinations of 0-13 percent (low) and 14-32 percent (medium), landslides are possible throughout the Reservation, but are especially prevalent on steep slopes of the western portions of the Reservation as well as the bluffs and mesas to the east and northeast. Therefore, the community of Sidwalter is at low risk to landslides, with 200 tribal members, 67 residential structures (worth \$4.7 million), and 3 critical facilities (worth \$13.6 million) residing in this area. The communities of Warm Springs, Bear Springs, Kah-Nee-Ta, Simnasho, and Seekseequa are at a higher risk to landslides, with 2,697 tribal members, 741 residential structures (worth \$52.2 million) and 36 critical facilities (worth \$123.8 million) located within this moderate landslide area. It is important to note that the dataset used only offers the general indication of areas that may be susceptible to landsliding and is not suitable for local planning or site selection.

5.5.4.5 Wildland Fires

Wildland fire hazard areas were determined using a wildland fire fuel model that considered slope, aspect, and fuel hazard. South-facing, steep, and heavily vegetated areas were assigned the highest fuel values while areas with little slope and natural vegetation were assigned the lowest

fuel values. Within the areas of high wildland fire exposure is the community of Sidwaller. This community includes 200 tribal members, 67 residential structures (worth \$4.7 million), and 2 critical facilities (worth \$6.8 million). Within the areas of very high wildland fire exposure are the communities of Warm Springs, Bear Springs, Kah-Nee-Ta, Seekseequa, and Simnasho. At risk to very high wildland fire exposure are 2,472 tribal members, 667 residential structures (worth \$50.0 million), and 39 critical facilities (worth \$130.9 million).

5.5.4.6 Winter Storms

Using information provided by the National Weather Service and USGS, the valley locations within the central and eastern portions of the Reservation, including the communities of Warm Springs, Kah-Nee-Ta, Sidwaller, Simnasho, and Seekseequa are at risk to freezing rains. Moderate freezing rain hazard areas include 400 tribal members, 133 residential structures (worth \$9.4 million), and 13 critical facilities (worth \$38.5 million) while high risk freezing rain hazard areas include 2,472 tribal members, 667 residential structures (\$47.0 million), and 26 critical facilities (worth \$99.0 million).

Only the western side of the Reservation, at the foothills of the Cascades, is at risk to moderate and high snow storm hazards. As such, 25 tribal members, 8 residential facilities (\$5.6 million) and 1 critical facility (worth \$170,000) are located in moderate snow storm hazard area.

The requirements for the mitigation strategy, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Mitigation Strategy

Mitigation Strategy
 Requirement §201.4(c)(3): [To be effective the plan must include a] Mitigation Strategy that provides the State's (Tribe's) blueprint for reducing the losses identified in the risk assessment.

The mitigation strategy for the Confederated Tribes of Warm Springs is presented in Sections 6.1 – 6.4 as follows.

- State (Tribal) Capability Assessment
- Funding Sources
- Mitigation Goals
- Mitigation Actions

This section of the HMP does not address the local capability assessment [requirement §201.4(c)(3)(ii)] and coordination of local mitigation planning, including local funding and technical assistance [requirement §201.4(c)(4)(i)], local plan integration [requirement §201.4(c)(4)(ii)], and prioritization of local assistance [requirement §201.4(c)(4)(iii)]. Local (community and county) planning requirements do not apply to the Confederated Tribes of Warm Springs HMP as this entity does not have any jurisdictional communities.

6.1 STATE (TRIBAL) CAPABILITY ASSESSMENT

The requirements for the State (Tribal) Capability Assessment, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Mitigation Strategy -- State Capability Assessment

State (Tribal) Capability Assessment
 Requirement §201.4(c)(3)(ii): [The State (Tribe) mitigation strategy shall include a] discussion of the State's (Tribe's) pre- and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including: an evaluation of State (Tribal) laws, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas [and] a discussion of State (Tribal) funding capabilities for hazard mitigation projects.

Element

- Does the plan include an evaluation of the State's (Tribe's) pre-disaster hazard management policies, programs, and capabilities?
- Does the plan include an evaluation of the State's (Tribe's) post-disaster hazard management policies, programs, and capabilities?
- Does the plan include an evaluation of the State's (Tribe's) policies related to development in hazard prone areas?
- Does the plan include a discussion of State (Tribal) funding capabilities for hazard mitigation projects?

Source: FEMA, March 2004.

The Confederated Tribes of Warm Springs currently supports pre- and post- disaster hazard mitigation through its regulations, plans, and programs. Tribal mitigation policies include building codes, floodplain ordinances, burn permits, and mutual aid agreements. Mitigation planning includes a hazard mitigation administration plan, comprehensive plan, resource management plan, and emergency operations plan. In addition, the Confederated Tribes participates in several hazard mitigation programs including a fuel management program. Table 6-1 summarizes the Confederated Tribes hazard mitigation legal and regulatory capabilities.

**Table 6-1
Legal and Regulatory Resources Available for Hazard Mitigation**

Type of Mitigation	Regulatory Tool	Name/Type	Evaluation of Regulatory Tool on Hazard Mitigation
Pre-Disaster Mitigation	Plans	People's Plan	This comprehensive plan guides overall growth and development on the Reservation. This plan currently does not address hazard mitigation.
		Integrated Resource Management Plan	Establishes standards for all development codes and any ground disturbances.
		Hazard Analysis Priorities	This document is not a regulatory tool. However, it identifies the nature, location, history, and probability of natural and human-made hazards on the Reservation. This information is useful for hazard profiling.
	Policies	Forest Protection Fire Ordinance	This ordinance is designed to limit fires by regulating the use of materials that can cause wildland fires, such as the proper use of campfires and the disposal or use of ignited substances.
		Uniform Building Code	The Uniform Building Code applies to both residential and commercial buildings. Structures built to code are less likely to be vulnerable to hazardous conditions, including windstorms, wildland fires, etc.
		Burn Permits	This policy is currently used to limit burning during bad air quality days. However, it could be used to limit burning during the summer and autumn, when the Reservation is most susceptible to wildland fires.
	Programs	Geographical Information Systems	The tribal GIS Department manages land-cover and hazard information for the Confederated Tribes of Warm Springs. This information is useful for identifying hazard-prone areas and areas of current and future development.
		Forest Department Fuel Management Program	The Forestry Department is involved in fuel management for wildland fire hazard areas on the Reservation. This program reduces fuel load and therefore wildland fire potential.
		Hazard Reduction Program	This program funds various hazard mitigation activities, including fuel reduction.
	Post-Disaster Mitigation	Plans	Emergency Operations Plan
Policies		Mutual Aid Agreements	Mutual Aid Agreement with neighboring counties and communities. Mutual Aid for fire fighting includes fire responders and their equipment. Mutual Aid ensures the efficient utilization of all available resources needed to mitigate an extraordinary event.
Development in Hazard-Prone Areas	Policies	Floodplain Ordinance	The Floodplain Ordinance regulates development in the identified 100-year floodplain.

6.2 FUNDING SOURCES

The requirements for funding sources, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Mitigation Strategy – Funding Sources

Funding Sources

Requirement §201.4(c)(3)(iv): [The State (*Tribal*) mitigation strategy shall include an] identification of current and potential sources of Federal, State, local, or private funding to implement mitigation activities.

Element

- Does the plan identify **current** sources of Federal, State, (*Tribal*), local, or private funding to implement mitigation activities?
- Does the plan identify **potential** sources of Federal, State, (*Tribal*), local, or private funding to implement mitigation activities?

Source: FEMA, March 2004

The fiscal capability assessment lists the specific financial and budgetary tools that are currently available, as well as potentially available, to the Confederated Tribes for hazard mitigation actions. These capabilities, which are listed in Table 6-2, include private, State, and Federal entitlements. General tribal funds are already committed to day-to-day activities and, therefore, are currently not available for hazard mitigation.

**Table 6-2
Current and Potential Financial Resources for Hazard Mitigation**

Sources	Financial Resource	Effect on Hazard Mitigation
Current	Confederated Tribes of Warm Springs – Hazard Reduction Program	Tribal funding used to mitigate wildland fires.
Current	Indian Community Development Block Grant Program	U.S. Housing of Urban Development provides critical housing and community development resources to aid disaster recovery.
Potential	Imminent Threat, Indian Community Development Block Grant Program	Funding to alleviate or remove imminent threats to health or safety (e.g., drought).
Potential	Indian Reservation Roads Transportation Funding	Providing safe access through hazard-prone areas.
Potential	EPA’s Brownfield Program	This program can mitigate the effects of hazardous materials by providing direct funding for Brownfield assessment, cleanup, revolving loans, and environmental job training.
Potential	Administration for Native Americans (ANA) Grant Programs	These discretionary funds can be used to fund a variety of environmental management programs, including the identification and assessment of human and natural hazards and their associated risks, and the development and implementation of plans, policies, and ordinances.

**Table 6-2
Current and Potential Financial Resources for Hazard Mitigation**

Sources	Financial Resource	Effect on Hazard Mitigation
Potential	Department of Homeland Security Preparedness Technical Assistance Program	This grant provides direct assistance to communities to improve their ability to prevent, protect against, respond to, and recover from major events. A primary objective of the program is to enhance the capacity of the community to develop, plan, and implement effective strategies for human-made preparedness.
Potential	Idaho Bureau of Homeland Security - Hazardous Materials Emergency Preparedness Grant	Provides funding for local jurisdictions to determine the flow patterns of hazardous materials within the jurisdiction or between one area and another within Idaho.
Potential	Assistance to Firefighters Grant (AFG) Program's Fire Prevention and Safety Grant	The AFG funds the Fire Prevention and Safety activity and the Firefighter Safety Research and Development activity. These grants are to be used for fire prevention or safety programs and activities.
Potential	FEMA Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA) grants, and Pre Disaster Mitigation (PDM) grants	HMGP grant funding is available to State, tribal, and local communities after a Presidentially declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects. PDM funding is available on an annual basis. This grant can only be used to fund PDM plans and projects only. FMA grant funding assists States, tribes, and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to structures insurable under the NFIP.
Potential	National Flood Insurance Program (NFIP)	The NFIP makes Federally backed flood insurance available to homeowners, renters, and business owners in NFIP-participating states, tribes, and communities.
Potential	Lindbergh Grants Program	Annual grants program that provides \$10,580 per project that balance the advance of technology and the preservation of the natural/human environment. Can be used for conservation of natural resources (i.e., sustainable development codes) and public outreach/education projects.

6.3 MITIGATION GOALS

The requirements for the hazard mitigation goals, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Mitigation Strategy – Hazard Mitigation Goals

Hazard Mitigation Goals
 Requirement §201.4(c)(3)(i): [The State (*Tribal*) mitigation strategy shall include a] description of State (*tribal*) goals to guide the selection of activities to mitigate and reduce potential losses.

Element

- Does the plan include a description of State (*Tribal*) mitigation goals that guide the selection of mitigation activities? (GOALS are long-term, represent what the State (*Tribe*) wants to achieve, such as “eliminate flood

DMA 2000 Requirements: Mitigation Strategy – Hazard Mitigation Goals

damage”; and are based on the risk assessment findings.)

Source: FEMA, March 2004

During the second Steering Committee meeting held on May 24, 2006, the committee members looked at draft mitigation goals. Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide visions. As shown in Table 6-3, committee members reviewed and approved eight mitigation goals, two goals to promote and enable all-hazards disaster mitigation, and six goals to reduce or avoid long-term vulnerability to each of the hazards profiled.

**Table 6-3
Mitigation Goals**

Goal Number	Goal Description
1	Promote disaster-resistant development.
2	Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.
3	Reduce the possibility of damage and losses due to dam failures.
4	Reduce the possibility of damage and losses due to floods.
5	Reduce the possibility of damage and losses due to hazardous materials events.
6	Reduce the possibility of damage and losses due to landslides.
7	Reduce the possibility of damage and losses due to wildland fires.
8	Reduce the possibility of damage and losses due to windstorms.

6.4 MITIGATION ACTIONS

The requirements for mitigation actions, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Mitigation Strategy - Mitigation Actions

Mitigation Actions

Requirement: §201.4(c)(3)(iii): [State (Tribal) plans shall include an] identification, evaluation, and prioritization of cost-effective, environmentally sound, and technically feasible mitigation actions and activities the State (Tribe) is considering and an explanation of how each activity contributes to the overall mitigation strategy. This section should be linked to local plans, where specific local actions and projects are identified.

Element

- Does the plan identify cost-effective, environmentally sound, and technically feasible mitigation actions and activities the State (Tribe) is considering?
- Does the plan evaluate these actions and activities?
- Does the plan prioritize these actions and activities?
- Does the plan explain how each activity contributes to the overall State (tribal) mitigation strategy?

Source: FEMA, March 2004

6.4.1 Identification of Mitigation Actions

In addition to developing goals, the Steering Committee reviewed and refined a list of potential mitigation actions. Mitigation actions are activities, measures, or projects that help achieve the goals of a mitigation plan. Mitigation actions are usually grouped into six broad categories: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects.

Table 6-4 lists the Confederated Tribes of Warm Springs hazard mitigation goals and a range of cost-effective, environmentally sound, and technically feasible mitigation actions.

**Table 6-4
Mitigation Goals and Potential Actions**

Goals		Potential Actions	
Number	Description	Number	Description
1	Promote disaster-resistant development.	1.A	Update and adopt the newest Uniform Building Code, as needed.
		1.B	Update the People's Plan to include natural and human-made hazards.
		1.C	Explore the need for hazard zoning and high-risk hazard land use ordinances.
		1.D	Incorporate and update inline fire suppression into future building codes.
		1.E	Organize an annual event/fair for homeowners, builders, and Tribal Government that includes the distribution of National Oceanic and Atmospheric Administration (NOAA) weather radios, dissemination of information brochures about disasters and building retrofits, and demonstration of "defensible-space" concept and fire-resistant construction materials (for roofs/exterior finishes and nonflammable coverings for openings like chimneys and attics) etc.
		1.F	Update the stormwater management plan to include regulations to control runoff; both for flood reduction and to minimize saturated soils on steep slopes that can cause landslides.
2	Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.	2.A	Expand and disseminate hazard-related GIS information to other relevant agencies and communities.
		2.B	Create a mitigation outreach program that helps tribal members prepare for disasters.
		2.C	Develop a plan and seek funding for backup electric and telecommunications systems for critical facilities.
		2.D	Develop emergency evacuation programs for neighborhoods in dam inundation areas, high wildfire hazard areas, and flood-prone areas.
		2.E	Continue to support and fund Community Emergency Response Team programs that also include a mitigation component.
3	Reduce the possibility of damage and losses due to dam failures.	2.F	Create a virtual and physical library that contains all technical studies, particularly natural resources.
		2.G	Identify high hazard areas for hazard-specific signage in place. Purchase and install signs near these at-risk areas to notify public of potential hazards.
		2.H	Use Project 25 repeaters.
		3.A	Identify a more advanced warning system.

**Table 6-4
Mitigation Goals and Potential Actions**

Goals		Potential Actions	
Number	Description	Number	Description
4	Reduce the possibility of damage and losses due to floods.	4.A	Identify and develop a list of vulnerable critical facilities and mitigate, if necessary.
		4.B	Limit uses in floodways to those tolerant of occasional flooding, including but not limited to agriculture, outdoor recreation, and natural resource areas.
		4.C	Develop a Reservation-wide gauging and warning system for flash and riverine flooding.
		4.D	Continue to implement best management practices for floodplain areas.
		4.E	Work with other agencies (Bureau of Indian Affairs, Bureau of Land Management, Oregon Department of Transportation, etc.) to develop Mutual Aid Agreements for flooding and flash flooding.
		4.F	Identify and analyze repetitively flooded structures and infrastructure. Explore mitigation opportunities for repetitively flooded properties and, if necessary, carry out acquisition, relocation, elevation, and flood-proofing measures to protect these properties.
5	Reduce the possibility of damage and losses due to hazardous materials events.	5.A	Use various media outlets to post information regarding the safe handling and disposal of household chemicals at local landfill.
		5.B	Apply for funding to develop a flow study of the major corridors.
		5.C	Research various ways to protect waterways from hazardous materials events.
		5.D	Work with small and large businesses to ensure that they report chemical information to the Confederated Tribes of Warm Springs under the Emergency Planning and Community Right-to-Know Act, also known as SARA Title III, provisions. The provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment.

**Table 6-4
Mitigation Goals and Potential Actions**

Goals		Potential Actions	
Number	Description	Number	Description
6	Reduce the possibility of damage and losses due to landslides.	6.A	Create comprehensive geological mapping to areas prone to landslides and rockslides.
		6.B	Identify high landslide hazard areas and limit future development.
		6.C	Develop a public outreach program that addresses the impacts of landslides on personal property.
		6.D	Develop a vegetation management plan. Proper vegetation can supply slope-stabilizing root strength, and facilitate in intercepting precipitation. Establishing and maintaining appropriate vegetation of areas above the bluff slope may be the single most important and cost-effective mitigation measure available.
		6.E	Identify and restrict recreational and construction activities in high landslide hazard areas seasonally or as necessary.
		6.F	Implement stream stabilization measures to reduce the effects of erosion.
7	Reduce the possibility of damage and losses due to wildland fires	7.A	Continue to conduct current fuel management programs and investigate and apply new and emerging fuel management techniques.
		7.B	Develop and provide funding and/or incentives for creating defensible space around properties in wildland fire hazard areas.
		7.C	Develop and enhance Emergency Medical Services/fire mutual aid with neighboring communities and relevant agencies.
		7.D	Identify and inventory emergency water supplies.
		7.E	Reduce fuels and develop community fuel breaks in high risk, high priority wildland interface areas.
		7.F	Utilize national urban interface programs, including the Firewise Communities program, which emphasizes community responsibility for planning in the design of a safe community as well as effective emergency response and individual responsibility for safer homes.
		7.G	Adopt fire ordinances that include defensible space measures.

**Table 6-4
Mitigation Goals and Potential Actions**

Goals		Potential Actions	
Number	Description	Number	Description
8	Reduce the possibility of damage and losses due to winter storms.	8.A	Promote the emergency broadcast system.
		8.B	Educate tribal members on driving in winter storms and handling winter-related health effects on humans and livestock.
		8.C	Implement ice and windstorm-resistant trees and landscaping practices to reduce tree-related hazards.
		8.D	Explore the use of environmentally safe chemical deicers / abatement practices.
		8.E	Retrofit critical facilities for maximum load bearing capacity with minimum weight.
		8.F	Purchase and install verbal message signs to communicate ice hazards.
		8.G	Bury utility lines to avoid power outage due to winter storms (if risk is very high, then only this action might be cost-effective).

6.4.2 Evaluation and Prioritization of Mitigation Actions

During the third Steering Committee meeting, committee members evaluated and prioritized each of the 45 mitigation actions to determine which actions would best help the Confederated Tribes of Warm Springs fulfill its mitigation goals, thereby reducing or avoiding long-term vulnerabilities to the identified hazards. To complete this task, the Steering Committee members reviewed the Capability Assessment and applied a simplified Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) evaluation criteria (shown in Table 6-5) to consider the opportunities and constraints of implementing a particular mitigation action. The results of this evaluation and prioritization process are shown in Table 6-6.

**Table 6-5
Evaluation Criteria for Mitigation Actions**

Evaluation Category	Discussion “It is important to consider...”	Considerations
Social	The public support for the overall mitigation strategy and specific mitigation actions.	Community acceptance Adversely affects segment of population
Technical	If the mitigation action is technically feasible and if it is the whole or partial solution.	Technical feasibility Long-term solutions Secondary impacts
Administrative	If the Confederated Tribes of Warm Springs has the personnel and administrative capabilities necessary to implement the action or whether outside help will be necessary.	Staffing Funding allocation Maintenance / operations
Political	What the tribal community and Tribal Council feel about issues related to the environment, economic development, safety, and emergency management.	Political support Local champion Public support
Legal	Whether the Confederated Tribes of Warm Springs has the legal authority to implement the action, or whether the Tribal Council must pass new laws and regulations.	Tribal authority Federal authority Potential legal challenge
Economic	If the action can be funded with current or future internal and external sources of funding, if the costs seem reasonable for the size of the project, and if enough information is available to complete a FEMA Benefit-Cost Analysis (See Appendix D).	Benefit of action Cost of action Contributes to other economic goals Outside funding required FEMA Benefit-Cost Analysis
Environmental	The impact on the environment because of public desire for sustainable and environmentally healthy communities.	Effect on land/water Effect on Endangered Species Effect on culturally sensitive areas Consistent with community environmental goals Consistent with tribal & Federal laws

**Table 6-6
Prioritized Mitigation Goals and Potential Actions**

Goals		Potential Actions		
Number	Description	Priority*	Number	Description
1	Promote disaster-resistant development.	L	1.A	Update and adopt the newest Uniform Building Code, as needed.
		H	1.B	Update the People's Plan to include natural and human-made hazards.
		H	1.C	Explore the need for hazard zoning and high-risk hazard land use ordinances.
		M	1.D	Incorporate and update inline fire suppression into future building codes.
		H	1.E	Organize an annual event / fair for homeowners, builders, and Tribal Government that includes the distribution of NOAA weather radios, dissemination of information brochures about disasters and building retrofits, and demonstration of "defensible-space" concept and fire-resistant construction materials (for roofs/exterior finishes and nonflammable coverings for openings like chimneys and attics) etc.
		H	1.F	Update the stormwater management plan to include regulations to control runoff; both for flood reduction and to minimize saturated soils on steep slopes that can cause landslides.
		M	2.A	Expand and disseminate hazard-related GIS information to other relevant agencies and communities.
		H	2.B	Create a mitigation outreach program that helps tribal members prepare for disasters.
2	Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.	H	2.C	Develop a plan and seek funding for backup electric and telecommunications systems for critical facilities.
		H	2.D	Develop emergency evacuation programs for neighborhoods in dam inundation areas, high wildfire hazard areas, and flood-prone areas.
		L	2.E	Continue to support and fund Community Emergency Response Team programs that also include a mitigation component.
		L	2.F	Create a virtual and physical library that contains all technical studies, particularly natural resources.
		H	2.G	Identify high hazard areas for hazard-specific signage in place. Purchase and install signs near these at-risk areas to notify public of potential hazards.
		M	2.H	Use Project 25 repeaters.

**Table 6-6
Prioritized Mitigation Goals and Potential Actions**

Goals		Potential Actions		
Number	Description	Priority*	Number	Description
3	Reduce the possibility of damage and losses due to dam failures.	M	3.A	Identify a more advanced warning system.
		H	4.A	Identify and develop a list of vulnerable critical facilities and mitigate, if necessary.
		M	4.B	Limit uses in floodways to those tolerant of occasional flooding, including but not limited to agriculture, outdoor recreation, and natural resource areas.
4	Reduce the possibility of damage and losses due to floods.	M	4.C	Develop a Reservation-wide gauging and warning system for flash and riverine flooding.
		M	4.D	Continue to implement best management practices for floodplain areas.
		H	4.E	Work with other agencies (Bureau of Indian Affairs, Bureau of Land Management, Oregon Department of Transportation, etc.) to develop Mutual Aid Agreements for flooding and flash flooding.
		H	4.F	Identify and analyze repetitively flooded structures and infrastructure. Explore mitigation opportunities for repetitively flooded properties and, if necessary, carry out acquisition, relocation, elevation, and flood-proofing measures to protect these properties.
5	Reduce the possibility of damage and losses due to hazardous materials events.	L	5.A	Use various media outlets to post information regarding the safe handling and disposal of household chemicals at local landfill.
		L	5.B	Apply for funding to develop a flow study of the major corridors.
		H	5.C	Research various ways to protect waterways from hazardous materials events.
		H	5.D	Work with small and large businesses to ensure that they report chemical information to the Confederated Tribes of Warm Springs under the Emergency Planning and Community Right-to-Know Act, also known as SARA Title III, provisions. The provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment

**Table 6-6
Prioritized Mitigation Goals and Potential Actions**

Goals		Potential Actions		
Number	Description	Priority*	Number	Description
6	Reduce the possibility of damage and losses due to landslides.	M	6.A	Create comprehensive geological mapping to areas prone to landslides and rockslides.
		M	6.B	Identify high landslide hazard areas and limit future development.
		M	6.C	Develop a public outreach program that addresses the impacts of landslides on personal property.
		L	6.D	Develop a vegetation management plan. Proper vegetation can supply slope-stabilizing root strength, and facilitate in intercepting precipitation. Establishing and maintaining appropriate vegetation of areas above the bluff slope may be the single most important and cost-effective mitigation measure available.
		L	6.E	Identify and restrict recreational and construction activities in high landslide hazard areas seasonally or as necessary.
		M	6.F	Implement stream stabilization measures to reduce the effects of erosion.
7	Reduce the possibility of damage and losses due to wildland fires	H	7.A	Continue to conduct current fuel management programs and investigate and apply new and emerging fuel management techniques.
		H	7.B	Develop and provide funding and/or incentives for creating defensible space around properties in wildland fire hazard areas.
		H	7.C	Develop and enhance Emergency Medical Services/fire mutual aid with neighboring communities and relevant agencies.
		H	7.D	Identify and inventory emergency water supplies.
		H	7.E	Reduce fuels and develop community fuel breaks in high risk, high priority wildland interface areas.
		H	7.F	Utilize national urban interface programs, including the Firewise Communities program, which emphasizes community responsibility for planning in the design of a safe community as well as effective emergency response and individual responsibility for safer homes.
		H	7.G	Adopt fire ordinances that include defensible space measures.

**Table 6-6
Prioritized Mitigation Goals and Potential Actions**

Goals		Potential Actions		
Number	Description	Priority*	Number	Description
8	Reduce the possibility of damage and losses due to winter storms.	L	8.A	Promote the emergency broadcast system.
		L	8.B	Educate tribal members on driving in winter storms and handling winter-related health effects on humans and livestock.
		M	8.C	Implement ice- and windstorm-resistant trees and landscaping practices to reduce tree-related hazards.
		M	8.D	Explore the use of environmentally safe chemical deicers / abatement practices.
		M	8.E	Retrofit critical facilities for maximum load-bearing capacity with minimum weight.
		L	8.F	Purchase and install verbal message signs to communicate ice hazards.
		M	8.G	Bury utility lines to avoid power outage due to winter storms (if risk is very high then only this action might be cost-effective).

* H = High, M = Medium, and L = Low

Once prioritized, each member of the Steering Committee reviewed the entire mitigation actions list again and voted on one mitigation action to be included in the Mitigation Action Plan. The outcome of this voting process yielded eight mitigation actions. The voting process and priority ranking as well as how each mitigation action will be implemented and administered, including which departments or agencies will be responsible, existing and potential funding sources, overall cost benefits, and time frame, are outlined in Table 6-7. In addition, the Steering Committee also outlined how each action will contribute to the overall tribal mitigation strategy.

**Table 6-7
Mitigation Action Plan**

Action Number	Criteria	Description
Action 2.B	Action Item	Create a mitigation outreach program that helps tribal members prepare for disasters.
	Priority	High
	Votes	Three
	Department/Agency	Public Safety Branch
	Potential Funding Source	PDM grants, Lindbergh Grants Program
	Implementation Timeline	0-1 year
Overall Benefit-Costs	Overall Benefit-Costs	This mitigation action is low cost, but has the potential to reach a larger number of people.
	Contribution to Overall Mitigation Strategy	A public outreach program will help build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.
Action 2.C	Action Item	Develop a plan and seek funding for backup electric and telecommunications systems for critical facilities.
	Priority	High
	Votes	Three
	Department/Agency	Public Utilities Branch
	Potential Funding Source	Department of Homeland Security Preparedness Technical Assistance Program, PDM grants
	Implementation Timeline	1-2 years
Overall Benefit-Costs	Overall Benefit-Costs	This mitigation action addresses high risk situations – it is imperative that the tribal critical facilities can function during and after a disaster.
	Contribution to Overall Mitigation Strategy	This program will help Tribal government agencies prepare for, respond to, and recover from disasters.

**Table 6-7
Mitigation Action Plan**

Action Number	Criteria	Description
Action 4.F	Action Item	Identify and analyze repetitively flooded structures and infrastructure. Explore mitigation opportunities for repetitively flooded properties and, if necessary, carry out acquisition, relocation, elevation, and flood-proofing measures to protect these properties.
	Priority	High
	Votes	One
	Department/Agency	Infrastructure Planning & Engineering, Building Inspections & Permits
	Potential Funding Source	HGMP, and PDM and FMA grants
	Implementation Timeline	1-3 years
	Overall Benefit-Costs	The probability of future damage to repetitively damaged properties is high if this mitigation action is not implemented.
	Contribution to Overall Mitigation Strategy	The identification and mitigation of repetitively flooded properties and infrastructure will reduce potential losses due to floods.
Action 5.D	Action Item	Work with small and large businesses to ensure that they report chemical information to the Confederated Tribes of Warm Springs under the Emergency Planning and Community Right-to-Know Act, also known as SARA Title III, provisions. The provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment
	Priority	High
	Votes	One
	Department/Agency	Policy and Planning Department
	Potential Funding Source	None needed.
	Implementation Timeline	0-1 year, ongoing
	Overall Benefit-Costs	This mitigation action is low cost, but has the potential to reach a larger number of people.
	Contribution to Overall Mitigation Strategy	This effort will help reduce the possibility of damage and losses due to hazardous materials events by increasing public awareness and capability.

**Table 6-7
Mitigation Action Plan**

Action Number	Criteria	Description
Action 7.A	Action Item	Continue to conduct current fuel management programs and investigate and apply new and emerging fuel management techniques.
	Priority	High
	Votes	One
	Department/Agency	Fire and Safety Department
	Potential Funding Source	AFG Program's Fire Prevention and Safety Grant, HMGP, PDM grants
	Implementation Timeline	Ongoing
	Overall Benefit-Costs	The probability of future damage from wildland fires is high if this mitigation action is not implemented. Additionally, this mitigation action addresses the highest natural hazard risk (wildland fires) on the Reservation.
Contribution to Overall Mitigation Strategy	This effort will help reduce the possibility of damage and losses due to wildland fires.	
Action 7.B	Action Item	Develop and provide funding and/or incentives for creating defensible space around properties in wildland fire hazard areas.
	Priority	High
	Votes	One
	Department/Agency	Fire and Safety Department
	Potential Funding Source	ANA Grants Program, AFG Program's Fire Prevention and Safety Grant, HMGP, PDM grants
	Implementation Timeline	0-2 years
	Overall Benefit-Costs	The potential cost of this mitigation action seems reasonable for the size of the problem and its likely benefits. Additionally, this mitigation action addresses the highest natural hazard risk (wildland fires) on the Reservation.
Contribution to Overall Mitigation Strategy	This effort will help reduce the possibility of damage and losses due to wildland fires.	

**Table 6-7
Mitigation Action Plan**

Action Number	Criteria	Description
Action 7.D	Action Item	Identify and inventory emergency water supplies.
	Priority	High
	Votes	One
	Department/Agency	Fire and Safety Department, Water and Waste Management Department
	Potential Funding Source	None needed, Department of Homeland Security Preparedness Technical Assistance Program
	Implementation Timeline	0-1 year
Overall Benefit-Costs	The cost of this mitigation action seems reasonable for the size of the problem and likely benefits.	
Contribution to Overall Mitigation Strategy	This effort will help build the Fire and Safety Department's capacity to prepare for and respond to wildland fires.	
Action 7.E	Action Item	Reduce fuels and develop community fuel breaks in high risk, high priority wildland interface areas.
	Priority	High
	Votes	Three
	Department/Agency	Fire and Safety Department
	Potential Funding Source	Hazard Reduction Program, AFG Program's Fire Prevention and Safety Grant, HMGF, PDM grants
	Implementation Timeline	Ongoing
Overall Benefit-Costs	The probability of future damage to from wildland fires is high if this mitigation action is not implemented. Additionally, this mitigation action addresses the highest natural hazard risk (wildland fires) on the Reservation.	
Contribution to Overall Mitigation Strategy	This effort will help reduce the possibility of damage and losses due to wildland fires.	

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This section describes a formal plan maintenance process to ensure that the HMP remains an active and applicable document. It includes an explanation of how the Confederated Tribes of Warm Springs and the Steering Committee intend to organize their efforts to ensure that improvements and revisions to the HMP occur in a well-managed, efficient, and coordinated manner.

The following two process steps are addressed in detail below:

- Monitoring, evaluating, and updating the HMP
- Monitoring progress of mitigation activities

7.1 MONITORING, EVALUATING, AND UPDATING THE HMP

The requirements for monitoring, evaluating, and updating the HMP, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Plan Maintenance Process - Monitoring, Evaluating, and Updating the Plan

Monitoring, Evaluating and Updating the Plan

Requirement §201.4(c)(5)(i): [The Standard State (Tribal) plan maintenance process must include an] established method and schedule for monitoring, evaluating, and updating the plan.

Element

- Does the plan describe the method and schedule for **monitoring** the plan? (For example, identifies the party responsible for monitoring and include a schedule for reports, site visits, phone calls, and meetings?)
- Does the plan describe the method and schedule for **evaluating** the plan? (For example, identifies the party responsible for evaluating the plan, includes the criteria used to evaluate the plan?)
- Does the plan describe the method and schedule for **updating** the plan?

Source: FEMA, March 2004.

The HMP was prepared as a collaborative effort among the Steering Committee, FEMA, and URS. To maintain momentum and build upon this hazard mitigation planning effort, the Confederated Tribes of Warm Springs will use the Steering Committee to monitor, evaluate, and update the HMP. In addition to the original members of the Steering Committee, other interested parties can participate in this process. The Fire and Safety Chief (Steering Committee leader) will serve as the primary point of contact and will coordinate all local efforts to monitor, evaluate, and revise the HMP.

Following both the first and second year of adoption, the Steering Committee will conduct an annual review to monitor the progress in implementing the HMP, particularly the Mitigation Action Plan. As shown in Appendix E, the annual review will provide the basis for possible changes in the HMP's Mitigation Action Plan by refocusing on new or more threatening hazards, adjusting to changes to or increases in resource allocations, and engaging additional support for the HMP implementation. The Steering Committee leader will initiate the annual review 1 month prior to the date of adoption.

The Steering Committee leader will collect the questionnaire and summarize the results into an annual report. This report will be distributed to all Steering Committee members, Tribal Council members, and other interested agencies, departments, and persons.

Six months prior to the third year of adoption, the Steering Committee will undertake the following activities to evaluate the plan and ensure that the HMP is readopted in the third year:

- Thoroughly analyze and update the Confederated Tribes of Warm Springs risk of natural and human-caused hazards.
- Review the previous annual reviews, including the mitigation activities progress reports.
- Provide a detailed review and revision of the Mitigation Strategy.
- Prepare a new Mitigation Action Plan with prioritized actions, responsible parties, and resources.
- Prepare a new draft HMP and submit it to the Tribal Council for adoption.
- Submit an updated HMP to FEMA for approval.

7.2 MONITORING PROGRESS OF MITIGATION ACTIVITIES

The requirements for monitoring progress of mitigation activities, as stipulated in the DMA 2000 and its implementing regulations, are described below.

DMA 2000 Requirements: Plan Maintenance Process – Monitoring Progress of Mitigation Activities

Monitoring Progress of Mitigation Activities

Requirement §201.4(c)(5)(ii). [The Standard State (*Tribal*) Plan Maintenance Process **must** include a] system for monitoring implementation of mitigation measures and project closeouts.

Requirement §201.4(c)(5)(ii1). [The Standard State (*Tribal*) Plan Maintenance Process **must** include a] system for reviewing progress on achieving goals as well as activities and projects in the Mitigation Strategy.

Element

- Does the plan describe how mitigation measures and project closeouts will be monitored?
- Does the plan identify a system for reviewing progress on achieving goals in the Mitigation Strategy?
- Does the plan identify a system for reviewing progress on implementing activities and projects of the Mitigation Strategy?

Source: FEMA, March 2004.

Each department and agency identified in Table 6-7, Mitigation Action Plan, will specifically be responsible for monitoring mitigation project implementation and closeout. If more than one department and/or agency are identified for a mitigation project, a single department and/or agency will be chosen to monitor the mitigation project implementation and closeout. The status of the project implementation and closeout will be included with each annual review. In addition, each of these agencies and/or departments will be required to submit a closeout report at the conclusion of any mitigation project.

A system of reviewing progress on achieving goals and implementing activities and projects of the Mitigation Strategy will also be accomplished during the annual review process. During each annual review, the department and/or agency currently administering a mitigation project will submit a progress report to the Steering Committee. As shown in Appendix E, the report will include the current status of the mitigation project, including any changes made to the project,

the identification of implementation problems and appropriate strategies to overcome them, and whether or not the project has helped achieved the appropriate goals identified in the plan. Finally, the Steering Committee will review each progress report, as well as other relevant local, State, and Federal mitigation activities, to determine if progress has been made toward achieving each goal identified in the Mitigation Strategy.

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Appendix A
Adoption Resolution

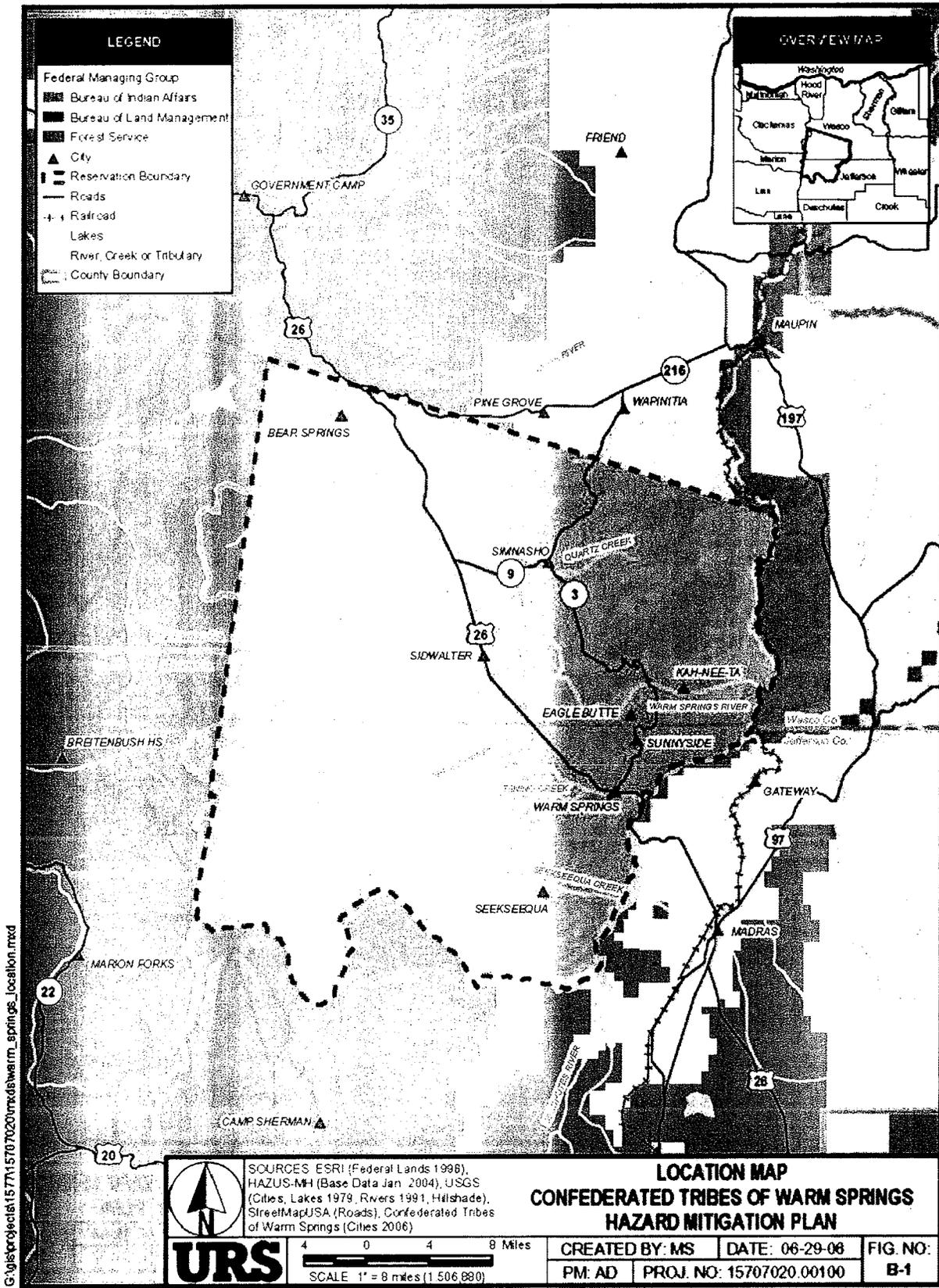


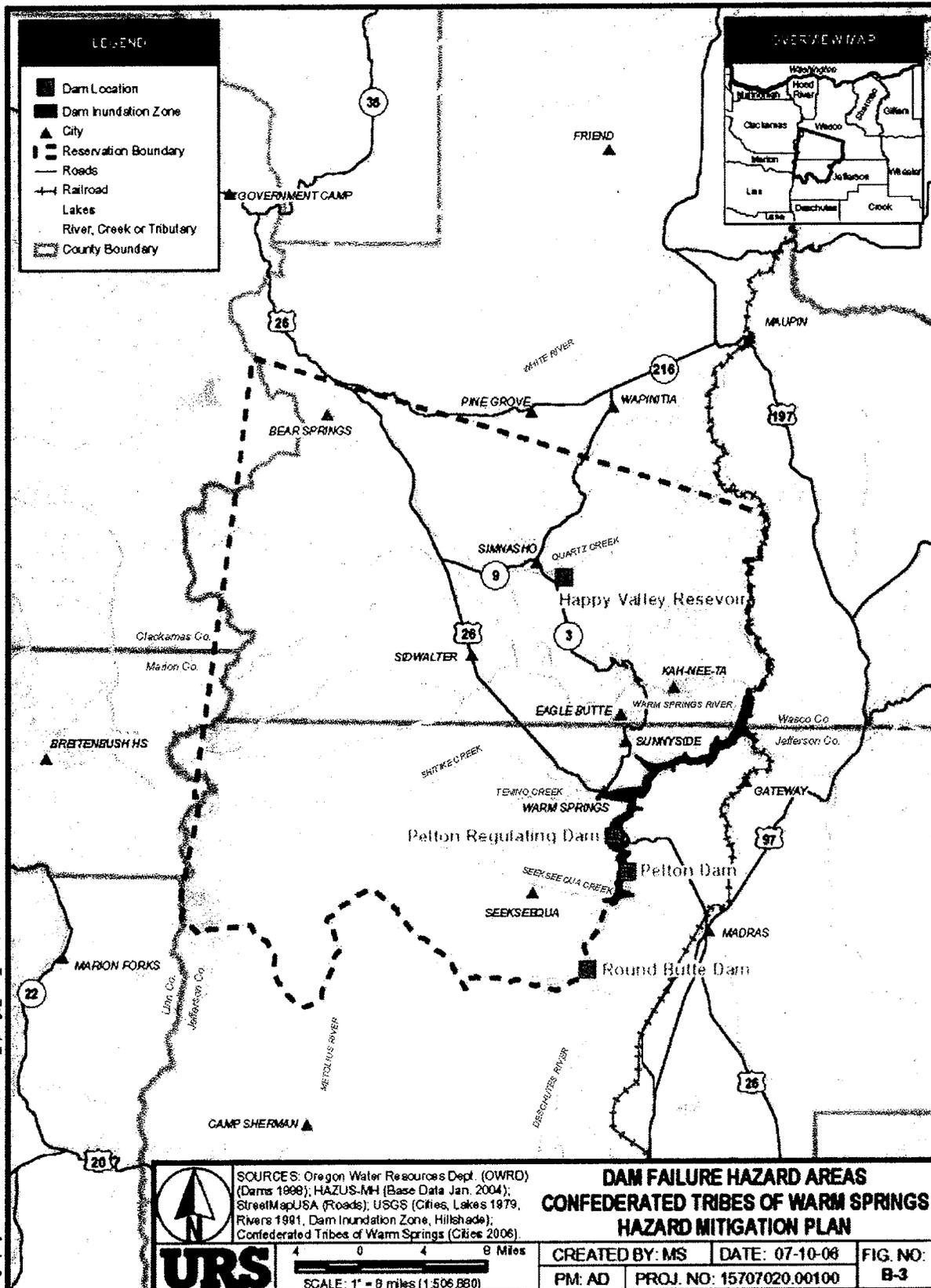
Appendix A
Adoption Resolution

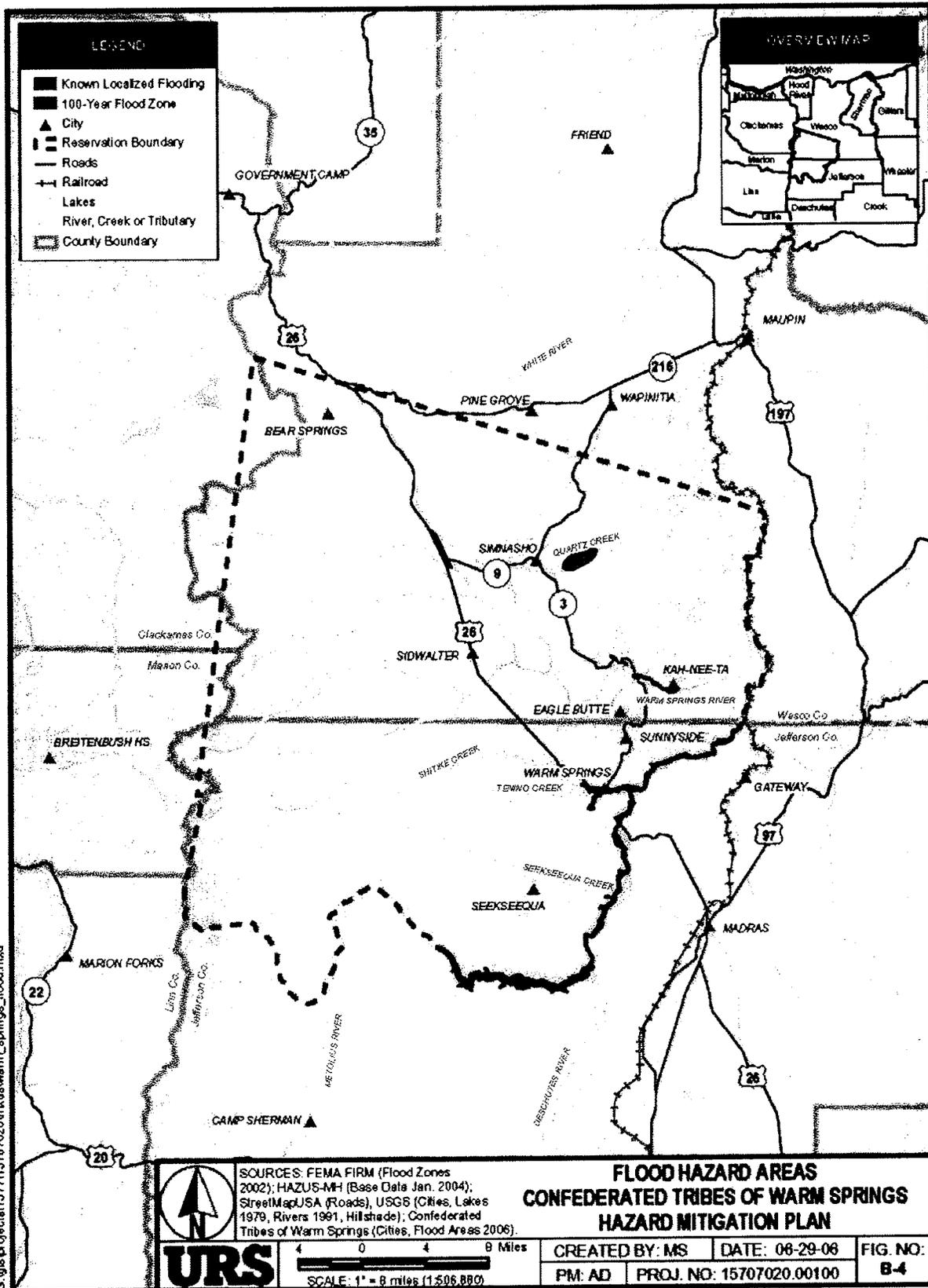
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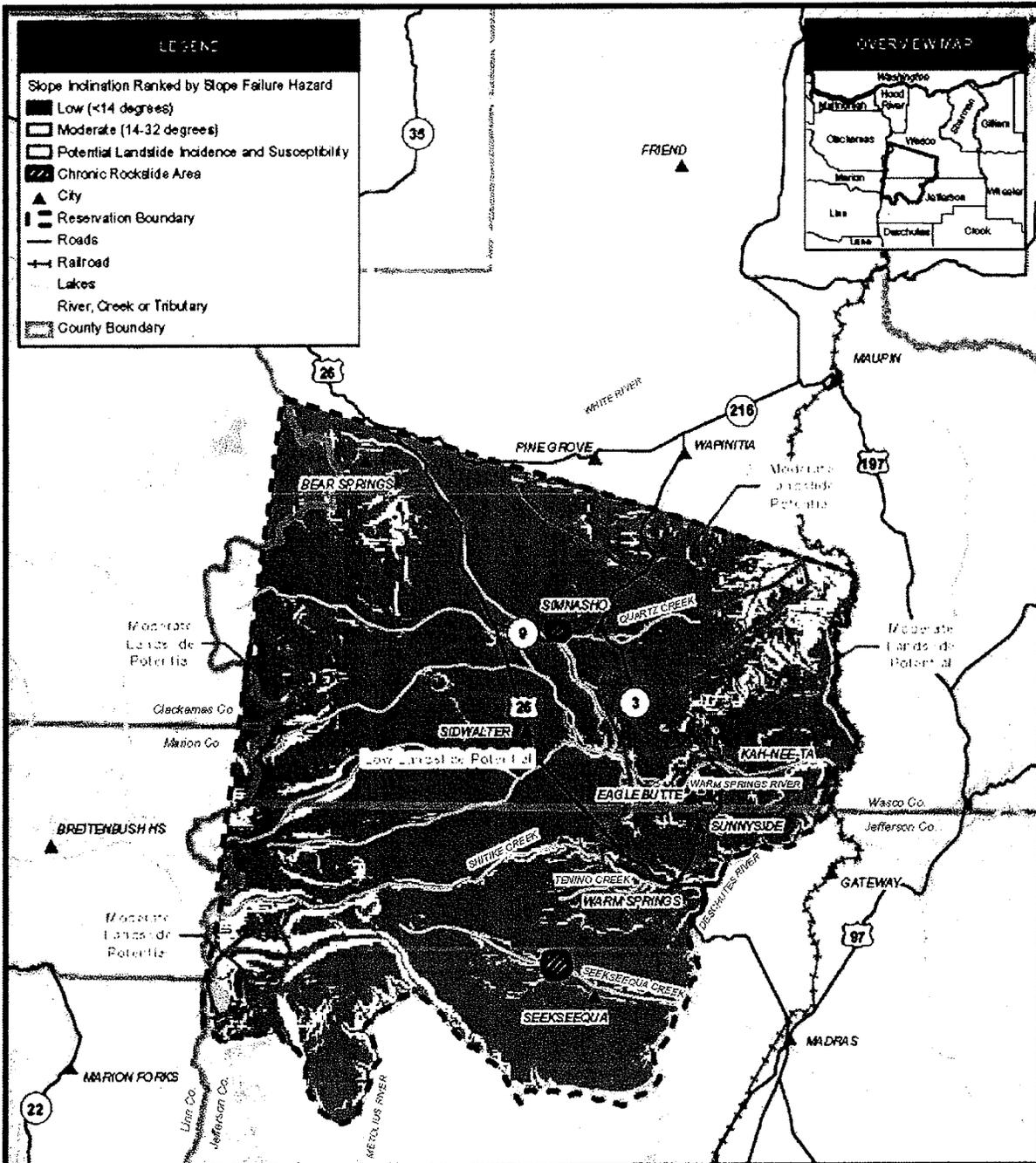
Appendix B
Figures

Appendix B Figures







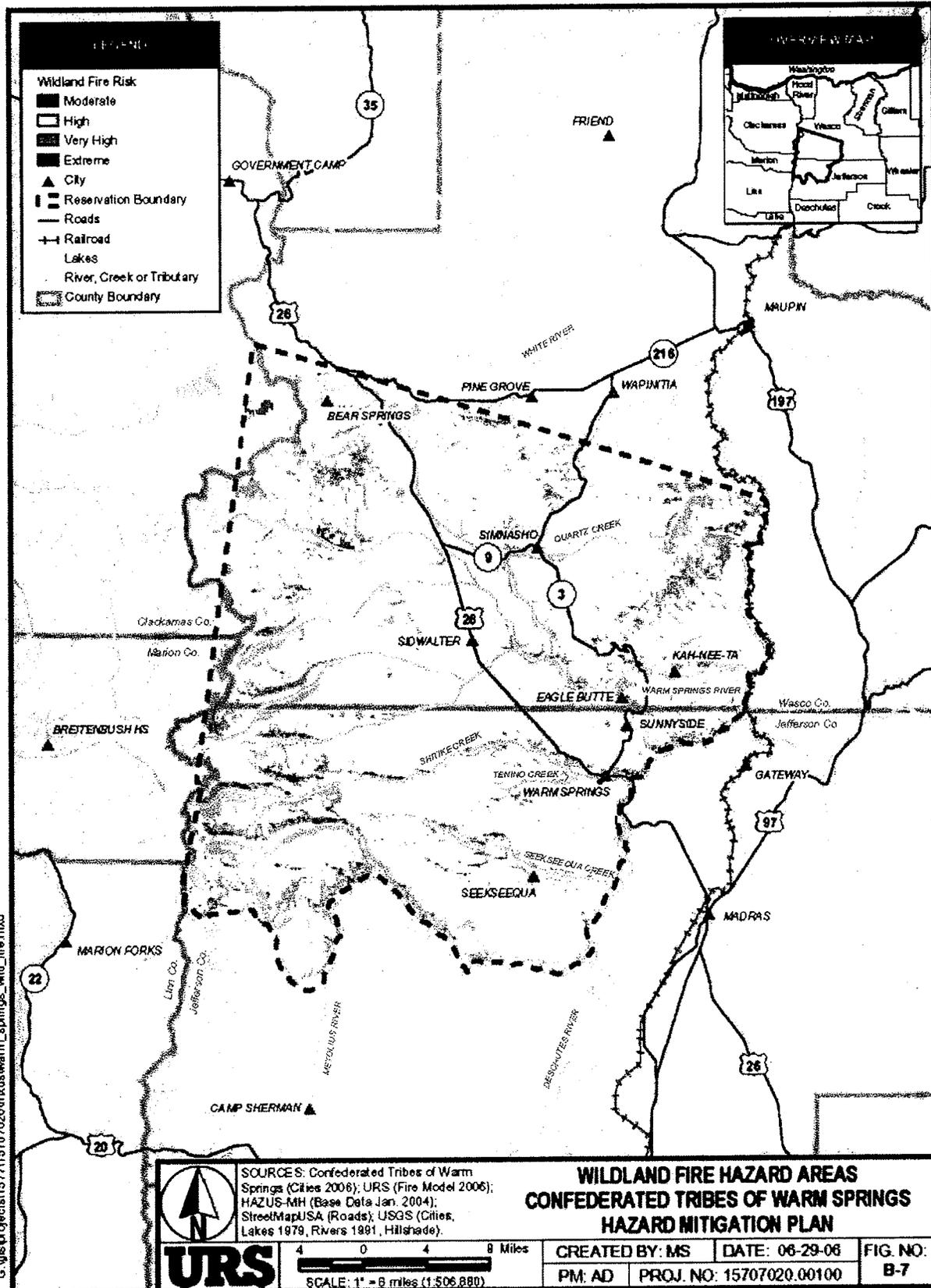


Notes:
The landslide incidence and Susceptibility data shown was derived by the USGS from the U.S. Geological Survey Professional Paper 1163, Landslide Overview Map of the Conterminous United States. The purpose of this data set is to give the user a general indication of areas that may be susceptible to landsliding. It is not suitable for local planning or site selection.

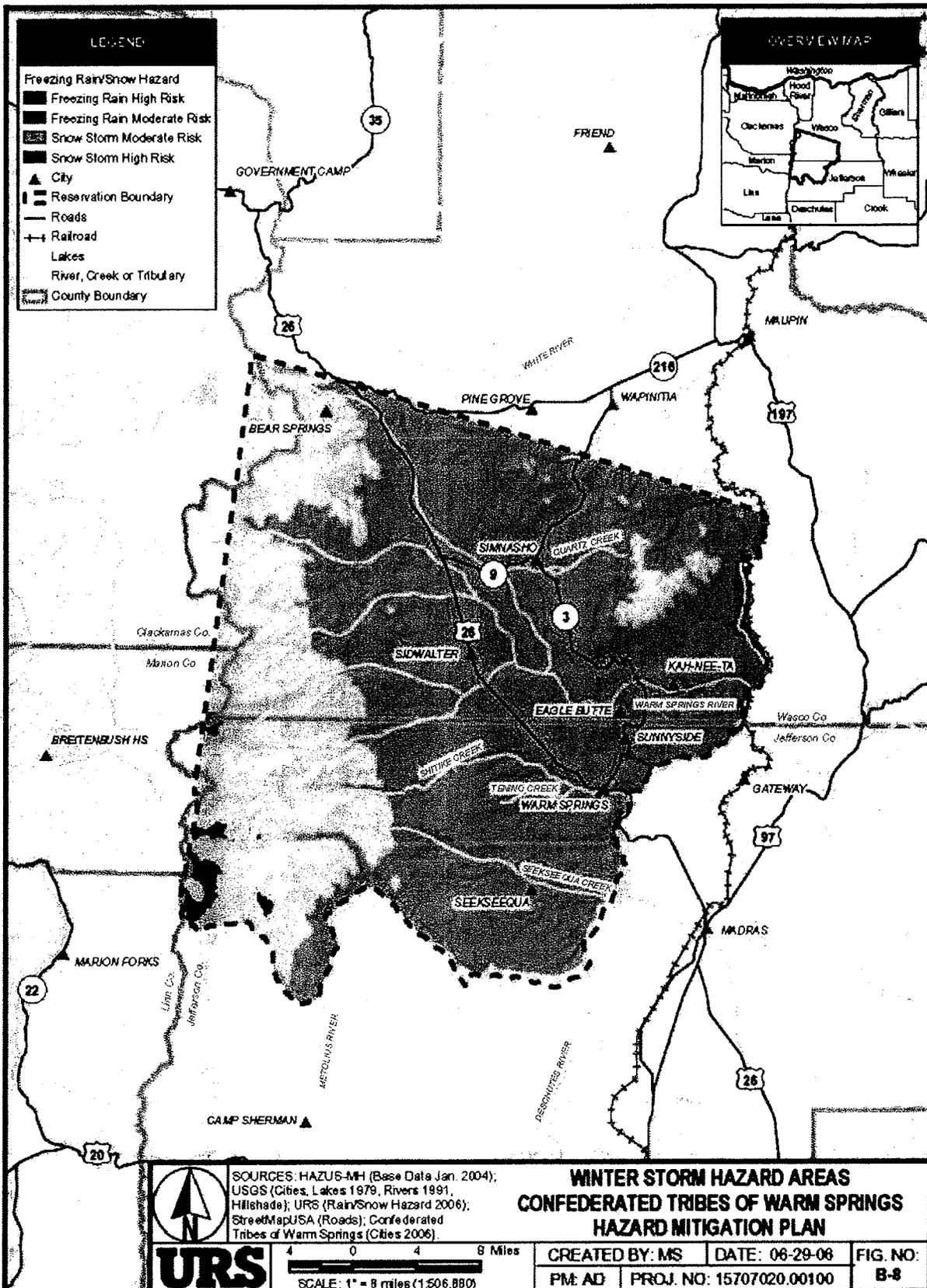
This map considers slope inclination as the basis for evaluating the slope failure hazard. In general, the probability of slope failure increases with an increase in slope inclination. However, depending on various factors including, but not limited to, soil type, rock type, water content, vegetative cover and type, slope aspect, permeability, rate of infiltration, proximity to seismic sources, magnitude of seismic event, potential vertical and horizontal accelerations, etc., a slope having a relatively low inclination could be at greater risk of failure than another slope having a relatively high inclination.

	SOURCES: HAZUS-MH (Base Data Jan. 2004); StreetMapUSA (Roads); USGS (Landslide Incidence and Susceptibility 2001, Cities and Lakes 1979, Rivers 1991, Slope, Hillshade); Confederated Tribes of Warm Springs (Cities, Chronic Rockslide Areas 2006).		LANDSLIDE HAZARD AREAS CONFEDERATED TRIBES OF WARM SPRINGS HAZARD MITIGATION PLAN	
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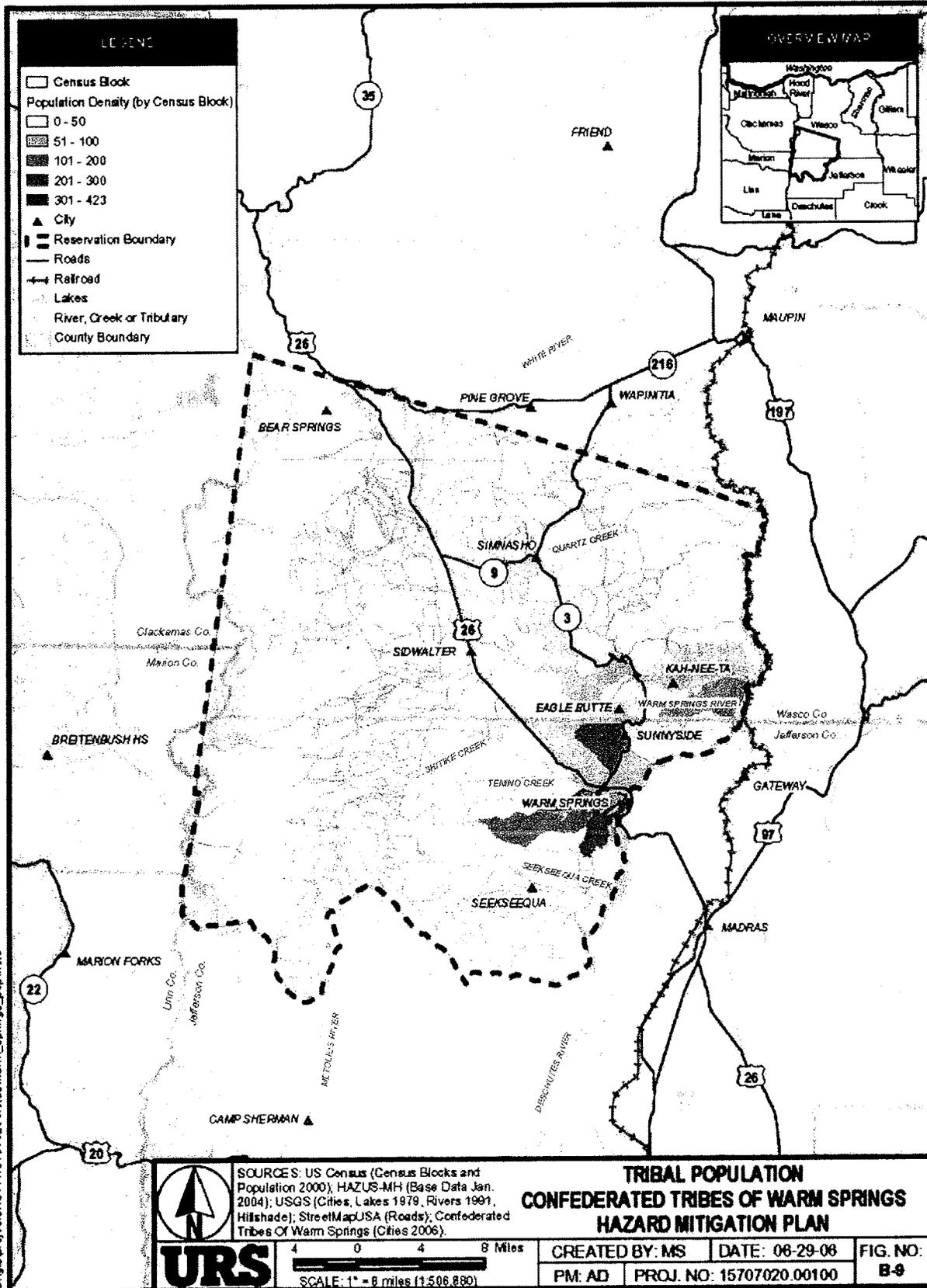
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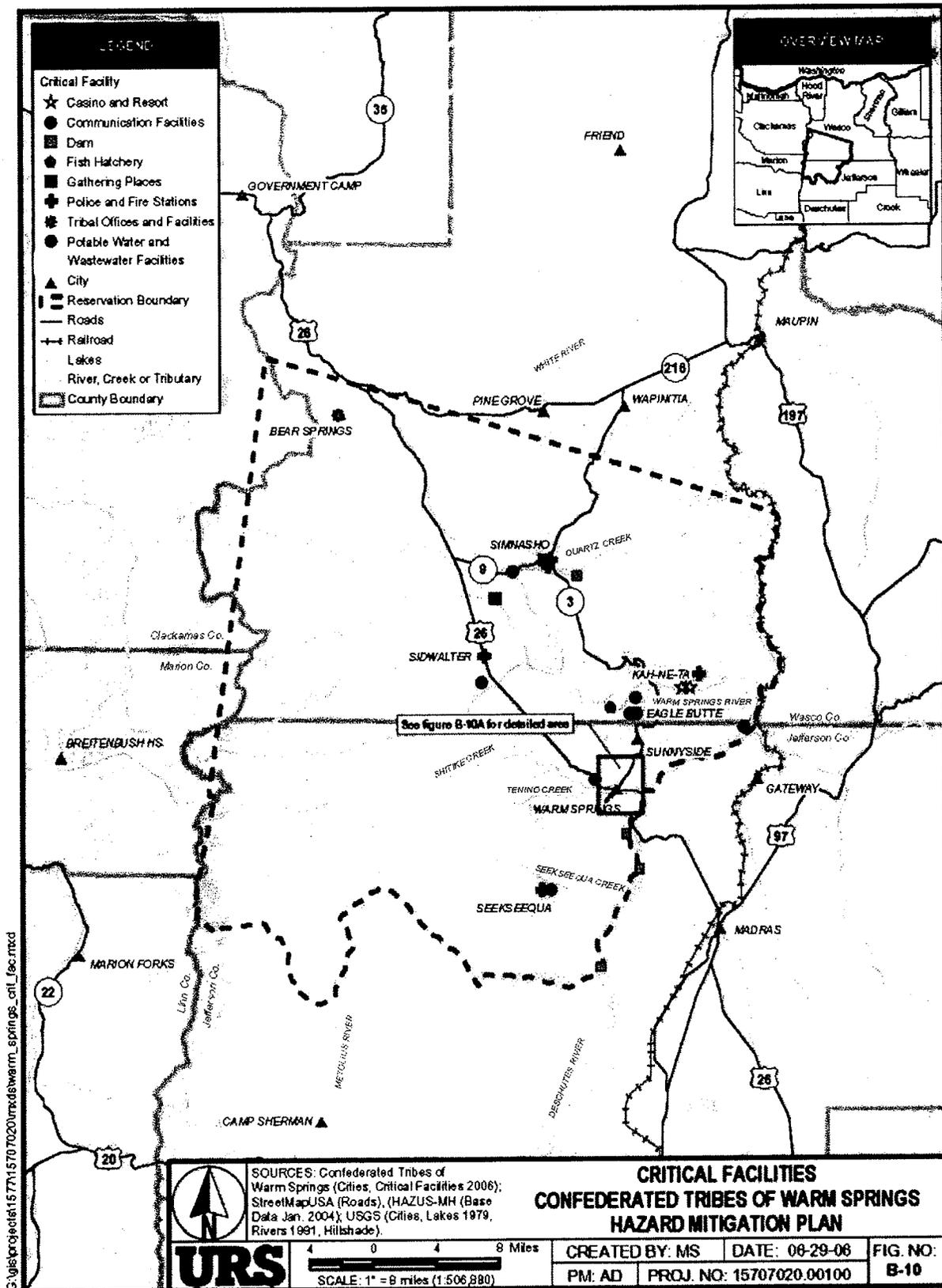
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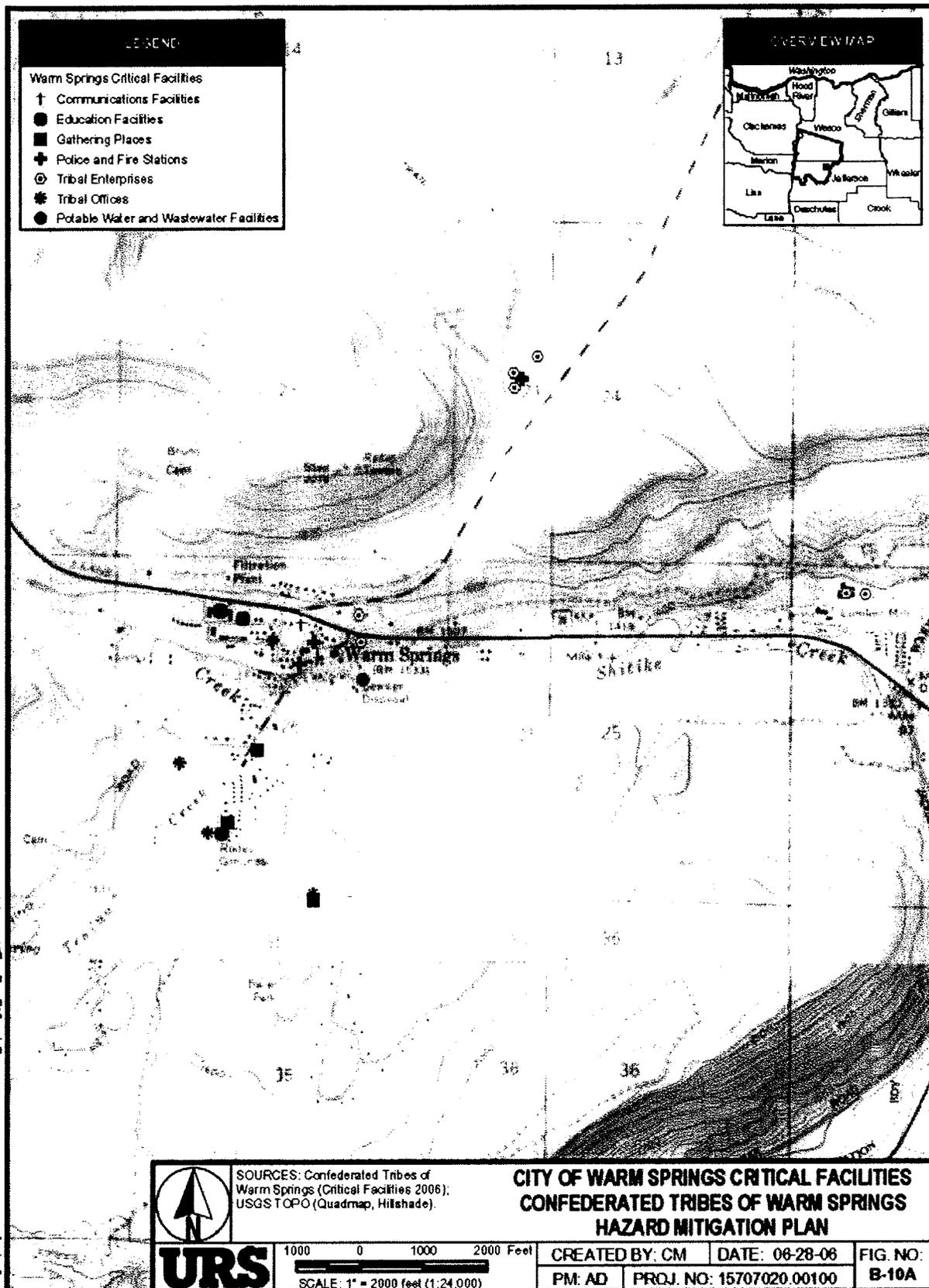
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Appendix C
Public Involvement

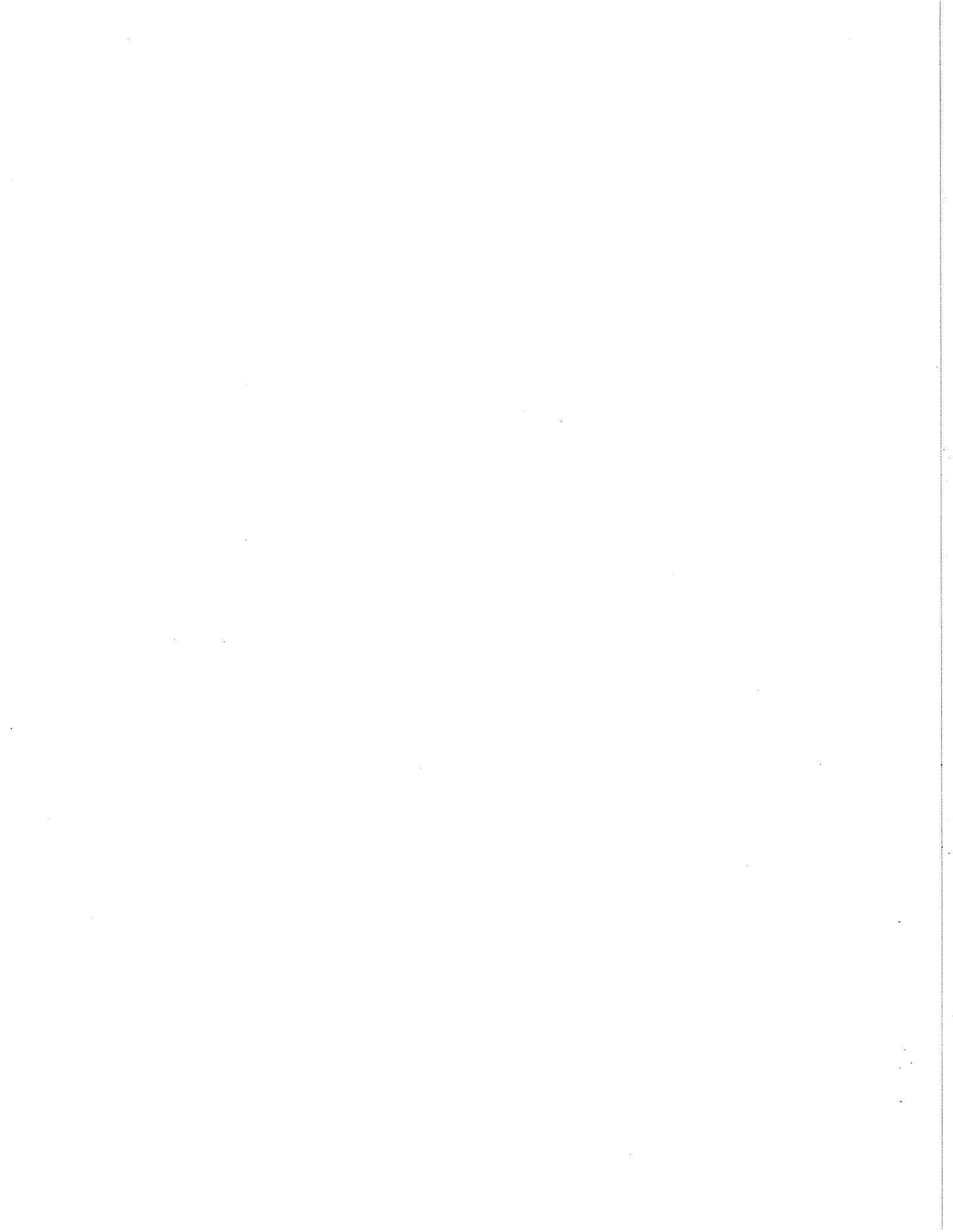
Script for the Public Service Announcement
KWSO 91.9 FM Warm Springs Community Radio

Played 5 – 10 times daily between May 25 – June 5, 2006

One of the lessons learned from the winter storms that occurred this last Dec and Jan is that the Warm Springs Reservation could be vulnerable to disasters. In response to these concerns, the Confederated Tribes of Warm Springs has launched a planning effort, known as the Hazard Mitigation Plan, to assess the risks posed by natural and human caused disasters and identify ways to reduce those risks. This plan is required by the Federal Disasters Mitigation Act of 2000 as a pre-requisite for receiving certain forms of Federal Disaster Assistance. The Confederated Tribes of Warm Springs has received funding from the Federal Emergency management Agency, or FEMA to prepare a plan. The public is invited to participate in this planning process. A draft plan will be made available in early June. For additional Information, or to submit comments, please contact Fire & Safety Chief Dan Martinez at dmartinez@wstribes.org or 541-553-1634.

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Appendix D
FEMA Benefit-Cost Analysis



Benefit-Cost Analysis Fact Sheet

Hazard mitigation projects are specifically aimed at reducing or eliminating future damages. Although hazard mitigation projects may sometimes be implemented in conjunction with the repair of damages from a declared disaster, the focus of hazard mitigation projects is on strengthening, elevating, relocating or otherwise improving buildings, infrastructure or other facilities to enhance their ability to withstand the damaging impacts of future disasters. In some cases, hazard mitigation projects may also include training or public-education programs if such programs can be demonstrated to reduce future expected damages.

A Benefit Cost-Analysis (BCA) provides an estimate of the "benefits" and "costs" of a proposed hazard mitigation project. The benefits considered are avoided future damages and losses which are expected to accrue as a result of the mitigation project. In other words, benefits are the reduction in expected future damages and losses (i.e., the difference in expected future damages before and after the mitigation project). The costs considered are those necessary to implement the specific mitigation project under evaluation. Costs are generally well determined for specific projects for which engineering design studies have been completed. Benefits, however, must be estimated probabilistically because they depend on the improved performance of the building or facility in future hazard events, the timing and severity of which must be estimated probabilistically.

All Benefit-Costs must be:

- Credible and well documented
- Prepared in accordance with accepted BCA practices
- Cost-effective (Benefit Cost Ratio ≥ 1.0)

General Data Requirements:

- All data entries (other than FEMA standard or default values) **MUST** be documented in the application
- Data **MUST** be from a credible source
- Provide complete copies of reports and engineering analyses
- Detailed cost estimate
- Identify the hazard (flood, wind, seismic, etc.)
- Discuss how the proposed measure will mitigate against future damages
- Document the Project Useful Life
- Document the proposed Level of Protection
- The Very Limited Data BCA module cannot be used to support cost-effectiveness (screening purposes only)
- Alternative BCA software **MUST** be approved in writing by FEMA HQ and the Region prior to submittal of the application

Damage and Benefit Data:

- Well documented for each damage event
- Include estimated frequency and method of determination per damage event
- Data used in place of FEMA standard or default values **MUST** be documented and justified
- The Level of Protection **MUST** be documented and readily apparent
- When using the Limited Data BCA module, users cannot extrapolate data for higher frequency events for unknown lower frequency events

Building Data:

- Should include FEMA Elevation Certificates for elevation projects or projects using First Floor Elevations
- Include data for building type (tax records or photos)
- Contents claims that exceed 30% of building replacement value (BRV) **MUST** be fully documented
- Method for determining BRVs **MUST** be documented. BRVs based on tax records **MUST** include the multiplier from the County Tax Assessor
- Identify the amount of damage that will result in demolition of the structure (FEMA standard is 50% of pre-damage structure value)
- Include the site location (i.e., miles inland) for the Hurricane module

Use correct occupancy data:

- Design occupancy for Hurricane shelter portion of Tornado module
- Average occupancy per hour for the Tornado shelter portion of the Tornado module
- Average occupancy for Seismic modules

Questions to Be Answered:

- Has the level of risk been identified?
- Are all hazards identified?
- Is the BCA fully documented and accompanied by technical support data?
- Will there be residual risk after the mitigation project is implemented?

Common Shortcomings:

- Incomplete documentation
- Inconsistencies between data in the application, BCA module runs, and the technical support data
- Lack of technical support data

Appendix D

FEMA Benefit-Cost Analysis

- Lack of a detailed cost estimate
- Use of discount rate other than FEMA required amount of 7%
- Overriding FEMA default values without providing documentation and justification
- Lack of information on building type, size, number of stories and value
- Lack of documentation and credibility for first floor elevations
- Use of incorrect Project Useful Life (not every mitigation measure = 100 years)

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Appendix E
Plan Maintenance Documents

Annual Review Questionnaire

PLAN SECTION	QUESTIONS	YES	NO	COMMENTS
PLANNING PROCESS	Are there internal or external organizations and agencies that have been invaluable to the planning process or to mitigation action project implementation that should be represented on the Steering Committee?			
	Are there procedures (e.g., meeting announcements, plan updates) that can be done more efficiently?			
	Has the Steering Committee undertaken any public outreach activities regarding the HMP or implementation of mitigation actions?			
RISK ASSESSMENT	Has a natural and/or human-caused disaster occurred in this reporting period?			
	Are there natural and/or human-caused hazards that have not been addressed in this HMP and should be?			
	Are additional maps or new hazard studies available? If so, what have they revealed?			
	Has the critical facilities list changed?			
	Have there been changes in development patterns that could influence the effects of hazards or create additional risks?			
MITIGATION STRATEGY	Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?			
	Are the goals still applicable?			
	Should new mitigation actions be added to the Action Plan?			
	Do existing mitigation actions need to be reprioritized?			
	Are the mitigation actions appropriate for available resources?			

Plan Goal (s) Addressed: _____

Page 2 of 3

Goal: _____

Indicator of Success: _____

Project Status

Project Cost Status

Project on schedule

Cost unchanged

Project completed

Cost overrun*

Project delayed*

*explain: _____

*explain: _____

Cost underrun*

Project canceled

*explain: _____

Summary of progress on project for this report:

A. What was accomplished during this reporting period?

B. What obstacles, problems, or delays did you encounter, if any?

C. How was each problem resolved?

Appendix E
Plan Maintenance Documents

Next Steps: What is/are the next step(s) to be accomplished over the next reporting period?

Other Comments:

Appendix F
Crosswalk For Disaster Mitigation Act 2000 Compliance

Instructions for Using the Plan Review Crosswalk for Review of Standard State Hazard Mitigation Plans

Attached is a Plan Review Crosswalk based on the *Multi-Hazard Mitigation Planning Guidance Under the Disaster Mitigation Act of 2000*, published by FEMA, dated March 2004. This Plan Review Crosswalk is consistent with the *Disaster Mitigation Act of 2000* (P.L. 106-390), enacted October 30, 2000 and *44 CFR Part 201 – Mitigation Planning, Interim Final Rule* (the Rule), published February 26, 2002.

SCORING SYSTEM

N – Needs Improvement: The plan does not meet the minimum for the requirement. Reviewer’s comments must be provided.

S – Satisfactory: The plan meets the minimum for the requirement. Reviewer’s comments are encouraged, but not required.

Each requirement includes separate elements. All elements of a requirement must be rated “Satisfactory” in order for the requirement to be fulfilled and receive a summary score of “Satisfactory.” A “Needs Improvement” score on elements shaded in gray (recommended but not required) will not preclude the plan from passing.

Optional matrices for assisting in the review of sections on profiling hazards and assessing vulnerability are found at the end of the Plan Review Crosswalk.

The example below illustrates how to fill in the Plan Review Crosswalk.

Example

Assessing Vulnerability by Jurisdiction

Requirement §201.4(c)(2)(ii): *[The State risk assessment shall include an] overview and analysis of the State’s vulnerability to the hazards described in this paragraph (c)(2), based on estimates provided in local risk assessments ... The State shall describe vulnerability in terms of the jurisdictions most threatened by the identified hazards, and most vulnerable to damage and loss associated with hazard event.*

Element	Location in the Plan (section or annex and page #)	Reviewer’s Comments	SCORE	
			N	S
A. Does the plan describe the State’s vulnerability based on information from the local risk assessments?	Section III, pp. 12-28	The plan includes a description of local vulnerable structures. The plan presented a vulnerability summary by regions in the state. This information was collected from the approved plans on file.		✓
B. Does the plan present information on those jurisdictions that face the most risk?	Section III, pp. 30-36	The vulnerability description did not indicate which jurisdictions were the most vulnerable. Required Revisions: <ul style="list-style-type: none"> Use the information provided in the summaries to determine which jurisdictions are most threatened by the identified hazards. Identify which jurisdictions have suffered or are likely to suffer the most losses. If data are not readily available, note these data limitations in the plan. Include actions in the mitigation strategy to obtain these data for the plan update. 		✓
SUMMARY SCORE				✓

State:

Date of Plan:

Standard State Hazard Mitigation Plan Review and Approval Status

Tribal Point of Contact: Dan Martinez	Address: 2112 Wasco Street P.O. Box C Warm Springs, OR 97761
Title: Fire & Safety Chief	
Agency: Fire and Safety	
Phone Number: 541-553-1634	E-Mail: dmartinez@wstribes.org

Title:	Date:
Plan Approved	
Date Approved	

State: _____

Date of Plan: _____

STANDARD STATE HAZARD MITIGATION PLAN SUMMARY CROSSWALK

The plan cannot be approved if the plan has not been formally adopted.

Each requirement includes separate elements. All elements of the requirement must be rated "Satisfactory" in order for the requirement to be fulfilled and receive a score of "Satisfactory." Elements of each requirement are listed on the following pages of the Plan Review Crosswalk. A "Needs Improvement" score on elements shaded in gray (recommended but not required) will not preclude the plan from passing. Reviewer's comments must be provided for requirements receiving a "Needs Improvement" score.

SCORING SYSTEM

Please check one of the following for each requirement.

N – Needs Improvement: The plan does not meet the minimum for the requirement. Reviewer's comments must be provided.

S – Satisfactory: The plan meets the minimum for the requirement. Reviewer's comments are encouraged, but not required.

Prerequisite

Adoption by the State: §201.4(c)(6) and §201.4(c)(7)

NOT MET	MET
<input type="checkbox"/>	<input type="checkbox"/>

Planning Process

Documentation of the Planning Process: §201.4(c)(1)

Coordination Among Agencies: §201.4(b)

Program Integration: §201.4(b)

N	S
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Risk Assessment

Identifying Hazards: §201.4(c)(2)(i)

Profiling Hazards: §201.4(c)(2)(i)

Assessing Vulnerability by Jurisdiction: §201.4(c)(2)(ii)

Assessing Vulnerability of State Facilities: §201.4(c)(2)(ii)

Estimating Potential Losses by Jurisdiction: §201.4(c)(2)(iii)

Estimating Potential Losses of State Facilities: §201.4(c)(2)(iii)

N	S
<input type="checkbox"/>	<input type="checkbox"/>

Mitigation Strategy

Hazard Mitigation Goals: §201.4(c)(3)(i)

State Capability Assessment: §201.4(c)(3)(ii)

Local Capability Assessment: §201.4(c)(3)(iii)

Mitigation Actions: §201.4(c)(3)(iii)

Funding Sources: §201.4(c)(3)(iv)

N	S
<input type="checkbox"/>	<input type="checkbox"/>

Coordination of Local Mitigation Planning

Local Funding and Technical Assistance: §201.4(c)(4)(i)

Local Plan Integration: §201.4(c)(4)(ii)

Prioritizing Local Assistance: §201.4(c)(4)(iii)

N	S
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Plan Maintenance Process

Monitoring, Evaluating, and Updating the Plan: §201.4(c)(5)(i)

Monitoring Progress of Mitigation Activities: §201.4(c)(5)(ii) and (iii)

N	S
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

STANDARD STATE HAZARD MITIGATION PLAN APPROVAL STATUS

PLAN NOT APPROVED

PLAN APPROVED

<input type="checkbox"/>
<input type="checkbox"/>

See Reviewer's Comments

State:

Date of Plan:

PREREQUISITE

Adoption by the State

Requirement §201.4(c)(6): *The plan must be formally adopted by the State prior to submittal to [FEMA] for final review and approval.*

Requirement §201.4(c)(7): *The plan must include assurances that the State will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). The State will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d).*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			NOT MET	MET
A. Has the State formally adopted the plan?	No			
B. Does the plan provide assurances that the State will comply with all applicable Federal statutes and regulations during the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c), and will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d)?	Yes			
SUMMARY SCORE				

PLANNING PROCESS: §201.4(b): *An effective planning process is essential in developing and maintaining a good plan.*

Documentation of the Planning Process

Requirement §201.4(c)(1): *[The State plan must include a] description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan provide a narrative description of how the plan was prepared?	Section 4.1, pages 4.1 and 4.2			
B. Does the plan indicate who was involved in the planning process?	Section 4.2, pages 4.2 through 4.4			
C. Does the plan indicate how other agencies participated in the planning process?	Section 4.2, pages 4.2 through 4.4			
SUMMARY SCORE				

State: _____

Date of Plan: _____

Coordination Among Agencies

Requirement §201.4(b): *The [State] mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups, and ...*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan describe how Federal and State agencies were involved in the planning process?	Section 4.2., pages 4.1 and 4.4 (FEMA, BIA)	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		
B. Does the plan describe how interested groups (e.g., businesses, non-profit organizations, and other interested parties) were involved in the planning process?	Section 4.2., page 4.3 (Radio Station, Resort)	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		
SUMMARY SCORE				

Program Integration

Requirement §201.4(b): *[The State mitigation planning process should] be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs and initiatives.*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan describe how the State mitigation planning process is integrated with other ongoing State planning efforts?	Section 4.3., page 4.5	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		
B. Does the plan describe how the State mitigation planning process is integrated with FEMA mitigation programs and initiatives?	Section 4.3., page 4.5	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		
SUMMARY SCORE				

RISK ASSESSMENT: §201.4(c)(2): *[The State plan must include a risk assessment] that provides the factual basis for activities proposed in the strategy portion of the mitigation plan. Statewide risk assessments must characterize and analyze natural hazards and risks to provide a statewide overview. This overview will allow the State to compare potential losses throughout the State and to determine their priorities for implementing mitigation measures under the strategy, and to prioritize jurisdictions for receiving technical and financial support in developing more detailed local risk and vulnerability assessments.*

Identifying Hazards

Requirement §201.4(c)(2)(i): *[The State risk assessment shall include an] overview of the type ... of all natural hazards that can affect the State ...*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan provide a description of the type of all natural hazards that can affect the State? If the hazard identification omits (without explanation) any hazards commonly recognized as threats to the State, this part of the plan cannot receive a Satisfactory score.	Table 5-1 on page 5-3			
SUMMARY SCORE				

State:

Date of Plan:

Profiling Hazards

Requirement §201.4(c)(2)(i): *[The State risk assessment shall include an overview of the] location of all natural hazards that can affect the State, including information on previous occurrences of hazard events, as well as the probability of future hazard events, using maps where appropriate ...*

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the risk assessment identify the location (i.e., geographic area affected) of each natural hazards addressed in the plan?	Dam Failure, 5-5 Flood, 5-7, 5-8 HazMat, 5-10 Landslide, 5-11 Wild. Fire, 5-13 Winter Storm, 5-14			
B. Does the plan provide information on previous occurrences of each hazard addressed in the plan?	(Hazard, pages) Dam Failure, 5-5 Flood, 5-6 HazMat, 5-9 Landslide, 5-11 Wild. Fire, 5-12 Winter Storm, 5-13			
C. Does the plan include the probability of future events (i.e., chance of occurrence) for each hazard addressed in the plan?	(Hazard, pages) Dam Failure, 5-5 Flood, 5-7, 5-8 HazMat, 5-10 Landslide, 5-11 Wild. Fire, 5-13 Winter Storm, 5-14			
SUMMARY SCORE				

State: _____

Date of Plan: _____

Assessing Vulnerability

Requirement §201.4(c)(2)(ii): *[The State risk assessment shall include an] overview and analysis of the State's vulnerability to the hazards described in this paragraph (c)(2), based on estimates provided in local risk assessments as well as the State risk assessment. The State shall describe vulnerability in terms of the jurisdictions most threatened by the identified hazards, and most vulnerable to damage and loss associated with hazard events. State owned critical or operated facilities located in the identified hazard areas shall also be addressed ...*

Assessing Vulnerability by Jurisdiction

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan describe the State's vulnerability based on estimates provided in local risk assessments as well as the State risk assessment?	There are no "local jurisdictions" within the Reservation. However, a vulnerability analysis at the community-level was performed. See Table 5-4			
B. Does the plan describe the State's vulnerability in terms of the jurisdictions most threatened and most vulnerable to damage and loss associated with hazard event(s)?	There are no "jurisdictions" within the Reservation. However, a vulnerability analysis at the community-level was performed. See Table 5-4, page 5-19			
SUMMARY SCORE				

Assessing Vulnerability of State Facilities

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan describe the types of State owned or operated critical facilities located in the identified hazard areas?	Table 5-5, page 5-20 and pages 5-21 and 5-22			
SUMMARY SCORE				

State:

Date of Plan:

Estimating Potential Losses

Requirement §201.4(c)(2)(iii): *[The State risk assessment shall include an] overview and analysis of potential losses to the identified vulnerable structures, based on estimates provided in local risk assessments as well as the State risk assessment. The State shall estimate the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities located in the identified hazard areas.*

Estimating Potential Losses by Jurisdiction

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan present an overview and analysis of the potential losses to the identified vulnerable structures?	Table 5-4, Table 5-5, and pages 5-21 and 5-22			
B. Are the potential losses based on estimates provided in local risk assessments as well as the State risk assessment?	There are no "local jurisdictions" within the Reservation			
SUMMARY SCORE				

Estimating Potential Losses of State Facilities

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan present an estimate of the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities in the identified hazard areas?	Table 5-4, Table 5-5, and pages 5-21 and 5-22			
SUMMARY SCORE				

State: _____ Date of Plan: _____

MITIGATION STRATEGY: §201.4(c)(3) [To be effective the plan must include a] Mitigation Strategy that provides the State's blueprint for reducing the losses identified in the risk assessment.

Hazard Mitigation Goals

Requirement §201.4(c)(3)(i): [The State mitigation strategy shall include a] description of State goals to guide the selection of activities to mitigate and reduce potential losses.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan provide a description of State mitigation goals that guide the selection of mitigation activities? (GOALS are long-term; represent what the state wants to achieve, such as "eliminate flood damage"; and are based on the risk assessment findings.)	Table 6-3, page 6-6			
SUMMARY SCORE				

State Capability Assessment

Requirement §201.4(c)(3)(ii): [The State mitigation strategy shall include a] discussion of the State's pre-and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including: an evaluation of State laws, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas [and] a discussion of State funding capabilities for hazard mitigation projects ...

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan include an evaluation of the State's pre-disaster hazard management policies, programs, and capabilities?	Table 6-1, page 6-3			
B. Does the plan include an evaluation of the State's post-disaster hazard management policies, programs, and capabilities?	Table 6-1, page 6-3			
C. Does the plan include an evaluation of the State's policies related to development in hazard prone areas?	Table 6-1, page 6-3			
D. Does the plan include a discussion of State funding capabilities for hazard mitigation projects?	Table 6-2, page 6-4			
SUMMARY SCORE				

State: _____

Date of Plan: _____

Local Capability Assessment

Requirement §201.4(c)(3)(ii): [The State mitigation strategy shall include a] general description and analysis of the effectiveness of local mitigation policies, programs, and capabilities.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan present a general description of the local mitigation policies, programs, and capabilities?	Not applicable			
B. Does the plan provide a general analysis of the effectiveness of local mitigation policies, programs, and capabilities?	Not applicable			
SUMMARY SCORE				

Mitigation Actions

Requirement §201.4(c)(3)(iii): [State plans shall include an] identification, evaluation, and prioritization of cost-effective, environmentally sound, and technically feasible mitigation actions and activities the State is considering and an explanation of how each activity contributes to the overall mitigation strategy. This section should be linked to local plans, where specific local actions and projects are identified.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan identify cost-effective, environmentally sound, and technically feasible mitigation actions and activities the State is considering?	Table 6-4, pages 6-8 through 6-10			
B. Does the plan evaluate these actions and activities?	Page 6-11 and Table 6-5			
C. Does the plan prioritize these actions and activities?	Table 6-6, pages 6-12 through 6-15 and page 6-16			
D. Does the plan explain how each activity contributes to the overall State mitigation strategy?	Table 6-7, pages 6-17 through 6-20			
E. Does the mitigation strategy section reflect actions and projects identified in local plans?	Not applicable	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		
SUMMARY SCORE				

State: _____ Date of Plan: _____

Funding Sources

Requirement §201.4(c)(3)(iv): [The State mitigation strategy shall include an] identification of current and potential sources of Federal, State, local, or private funding to implement mitigation activities.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan identify current sources of Federal, State, local, or private funding to implement mitigation activities?	Table 6-2, page 6-4			
B. Does the plan identify potential sources of Federal, State, local, or private funding to implement mitigation activities?	Table 6-2, pages 6-4 and 6-5			
SUMMARY SCORE				

COORDINATION OF LOCAL MITIGATION PLANNING

Local Funding and Technical Assistance

Requirement §201.4(c)(4)(i): [The section on the Coordination of Local Mitigation Planning must include a] description of the State process to support, through funding and technical assistance, the development of local mitigation plans.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan provide a description of the State process to support, through funding and technical assistance, the development of local mitigation plans?	Not applicable			
SUMMARY SCORE				

State: _____

Date of Plan: _____

Local Plan Integration

Requirement §201.4(c)(4)(ii): [The section on the Coordination of Local Mitigation Planning **must** include a] description of the State process and timeframe by which the local plans will be reviewed, coordinated, and linked to the State Mitigation Plan.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan provide a description of the process and timeframe the State established to review local plans?	Not applicable			
B. Does the plan provide a description of the process and timeframe the State established to coordinate and link local plans to the State Mitigation Plan?	Not applicable			
SUMMARY SCORE				

Prioritizing Local Assistance

Requirement §201.4(c)(4)(iii): [The section on the Coordination of Local Mitigation Planning **must** include] criteria for prioritizing communities and local jurisdictions that would receive planning and project grants under available funding programs, which **should** include consideration for communities with the highest risks, repetitive loss properties, and most intense development pressures.

Further, that for non-planning grants, a principal criterion for prioritizing grants **shall** be the extent to which benefits are maximized according to a cost benefit review of proposed projects and their associated costs.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan provide a description of the criteria for prioritizing those communities and local jurisdictions that would receive planning and project grants under available mitigation funding programs?	Not applicable			
B. Did the prioritization criteria include, for non-planning grants, the consideration of the extent to which benefits are maximized according to a cost benefit review of proposed projects and their associated cost?	Not applicable			
C. Do the criteria include considerations for communities with the highest risks?	Not applicable	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		
D. Do the criteria include considerations for repetitive loss properties?	Not applicable	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		
E. Do the criteria include considerations for communities with the most intense development pressures?	Not applicable	Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.		
SUMMARY SCORE				

State: _____

Date of Plan: _____

PLAN MAINTENANCE PROCESS

Monitoring, Evaluating, and Updating the Plan

Requirement §201.4(c)(5)(i): [The Standard State Plan Maintenance Process must include an established method and schedule for monitoring, evaluating, and updating the plan.]

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan describe the method and schedule for monitoring the plan? (e.g., identifies the party responsible for monitoring, includes schedule for reports, site visits, phone calls, and/or meetings)	Section 7-1, pages 7-1 and 7-2, Appendix E			
B. Does the plan describe the method and schedule for evaluating the plan? (e.g., identifies the party responsible for evaluating the plan, includes the criteria used to evaluate the plan)	Section 7-1, pages 7-1 and 7-2, Appendix E			
C. Does the plan describe the method and schedule for updating the plan?	Section 7-1, page 7-2			
SUMMARY SCORE				

Monitoring Progress of Mitigation Activities

Requirement §201.4(c)(5)(ii): [The Standard State Plan Maintenance Process must include a] system for monitoring implementation of mitigation measures and project closeouts.

Requirement §201.4(c)(5)(iii): [The Standard State Plan Maintenance Process must include a] system for reviewing progress on achieving goals as well as activities and projects in the Mitigation Strategy.

Element	Location in the Plan (section or annex and page #)	Reviewer's Comments	SCORE	
			N	S
A. Does the plan describe how mitigation measures and project closeouts will be monitored?	Section 7-2, Page 7-2			
B. Does the plan identify a system for reviewing progress on achieving goals in the Mitigation Strategy?	Section 7-2, Page 7-2 and 7-3, Appendix E			
C. Does the plan identify a system for reviewing progress on implementing activities and projects of the Mitigation Strategy?	Section 7-2, Page 7-2 and 7-3, Appendix E			
SUMMARY SCORE				

State: _____

Date of Plan: _____

Matrix A: Profiling Hazards

This matrix can assist FEMA in scoring each hazard. States may find the matrix useful to ensure that their plan addresses each natural hazard that can affect the State. **Completing the matrix is not required.**

Note: First, check which hazards are identified in requirement §201.4(c)(2)(i). Then, place a checkmark in either the N or S box for each applicable hazard. An "N" for any element of any identified hazard will result in a "Needs Improvement" score for this requirement. List the hazard and its related shortcoming in the comments section of the Plan Review Crosswalk.

Hazard Type	Hazards Identified Per Requirement §201.4(c)(2)(i)		A. Location		B. Previous Occurrences		C. Probability of Future Events	
	Yes	No	N	S	N	S	N	S
Avalanche	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coastal Erosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coastal Storm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dam Failure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Drought	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Earthquake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Expansive Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flood	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hailstorm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hurricane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land Subsidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landslide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Severe Winter Storm	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tornado	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tsunami	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Volcano	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wildfire	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Windstorm	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other <u>Hazardous Materials</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Legend:

- §201.4(c)(2)(i) Profiling Hazards
- A. Does the risk assessment identify the location (i.e., geographic area affected) of each natural hazard addressed in the plan?
- B. Does the plan provide information on previous occurrences of each hazard addressed in the plan?
- C. Does the plan include the probability of future events (i.e., chance of occurrence) for each hazard addressed in the plan?

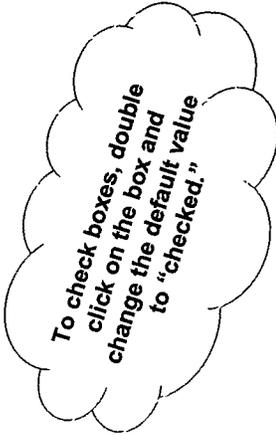
State: _____ Date of Plan: _____

Matrix B: Assessing Vulnerability

This matrix can assist FEMA in scoring each hazard. States may find the matrix useful to ensure that their plan addresses each requirement. Note that this matrix only includes items for Requirements §201.4(c)(2)(ii) and §201.4(c)(2)(iii) that are related to specific natural hazards that can affect the State. **Completing the matrix is not required.**

Note: First, check which hazards are identified in requirement §201.4(c)(2)(i). Then, place a checkmark in either the N or S box for each applicable hazard. An "N" for any element of any identified hazard will result in a "Needs Improvement" score for this requirement. List the hazard and its related shortcoming in the comments section of the Plan Review Crosswalk.

Hazard Type	Hazards Identified Per Requirement §201.4(c)(2)(i)		§201.4(c)(2)(ii) Assessing Vulnerability				§201.4(c)(2)(iii) Estimating Potential Losses			
	Yes	No	1. Vulnerability by Jurisdiction		2. Vulnerability to State Facilities		3. Loss Estimate by Jurisdiction		4. Loss Estimate of State Facilities	
			N	S	N	S	N	S	N	S
Avalanche	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coastal Erosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coastal Storm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dam Failure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drought	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Earthquake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Expansive Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flood	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hailstorm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hurricane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land Subsidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landslide	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Severe Winter Storm	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tornado	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tsunami	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Volcano	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wildfire	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Windstorm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Hazardous Materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Legend

- §201.4(c)(2)(ii) Assessing Vulnerability by Jurisdiction (see element B)
- 1. Does the plan describe the State's vulnerability in terms of the jurisdictions most threatened and most vulnerable to damage and loss associated with hazard event(s)?
- §201.4(c)(2)(ii) Assessing Vulnerability to State Facilities (see element A)
- 2. Does the plan describe the types of State owned or operated critical facilities located in the identified hazard areas?
- §201.4(c)(2)(iii) Estimating Potential Losses by Jurisdiction (see element A)
- 3. Does the plan present an overview and analysis of the potential losses to the identified vulnerable structures?
- §201.4(c)(2)(iii) Estimating Potential Losses of State Facilities (see element A)
- 4. Does the plan present an estimate of the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities in the identified hazard areas?