



## HAZUS-MH Used for American Indian Reservation Pre-Disaster Mitigation

### Full Mitigation Best Practice Story

#### *Tribal, FEMA Region I*

**FEMA Region I** - Since 2000, Indian tribes, along with State and local governments, have been writing pre-disaster mitigation (PDM) plans in order to achieve compliance with the Disaster Mitigation Act of 2000 (DMA2000).

The Federal Emergency Management Agency (FEMA) approved PDM plan makes a government entity eligible for FEMA non-emergency public assistance funding that can cover infrastructure improvements, including roads and bridges, water-control facilities, buildings and equipment, utilities, and parks and recreation. Without an approved plan, FEMA will only fund emergency debris removal programs and emergency protective measures.



According to the Bureau of Indian Affairs (BIA), there are 561 federally recognized tribal governments in the United States and 55.7 million acres of land held in trust by the U.S. for American Indians, Indian tribes, and Alaska Natives. There are approximately 300 Indian reservations. Some tribes have written PDM plans, and some reservations have been included in multi-jurisdictional or county plans.

Indian reservations are considered “unincorporated areas” and publicly accessible data regarding the infrastructure or buildings on such lands rarely exists. Many of these “sovereign nations” feature tourist attractions, such as casinos. Most reservations contain homes and at least several businesses. A thorough risk assessment must account for these structures and the reservation’s infrastructure.

The risk-assessment portion of the PDM plan includes identifying potential hazards, researching the background of such hazards as well as their historic frequency, impact and severity. Next, it is necessary to ask and answer the question: What will happen to the identified study area when each hazard occurs?

Fortunately, FEMA’s multi-hazard loss-estimation tool, HAZUS-MH, has powerful risk-assessment capabilities that can analyze potential losses from earthquakes, floods and hurricane winds. HAZUS-MH Level 2 risk assessments have proved useful during the creation of the PDM plans of numerous Indian reservations.

Some tribes may maintain geographic information system (GIS) data or Global Positioning System (GPS) data that can be input into HAZUS-MH, including building inventories or essential facilities data. Other, more detailed information that will help in the analysis includes a review of hazardous material (HAZMAT) facilities and high-potential-loss facilities. The research may also include soil analysis, ground motion, liquefaction susceptibility, landslide susceptibility, landslide hazards, and dam-inundation maps. If GIS or GPS data is not available, collecting this data is imperative for an accurate risk analysis.

It has also proved useful to interview the Tribal Council, the primary governing body of the Tribe, and Tribal members for disaster history as well as potential mitigation strategies. Researching historical disasters by way of past studies, the internet and interviews provides essential ground-truthing to a risk analysis. A thorough risk assessment includes data regarding sacred lands such as burial grounds or areas containing petroglyphs, pictographs, or other cultural assets. GPS data can inventory these areas.

Mitigation strategies that can protect these areas are a priority for most Tribes. However, these areas are never made public with printed maps or reports. It works to name them in the PDM plan with associated mitigation strategies but omit their exact location from all maps.

Determining cost-effective mitigation strategies for an Indian reservation always leads to an examination of the relationship between the tribe and the surrounding governments. Reservations exist within the boundaries of a City or County government and within the boundaries of a State government. Some tribes, therefore, maintain a firehouse or firefighting equipment, while others rely on first responder resources within their region.

Most Tribal casinos are open twenty-four hours a day and are ready to survive a power outage or other disaster with powerful generators and stores of food and supplies. Residents of disaster affected communities may flock to a Tribal casino for food and shelter. During the PDM planning process it is useful to discuss these scenarios with all key stakeholders to determine appropriate mitigation strategies.

A responsible PDM plan for an Indian reservation gathers essential data for and about the reservation and examines the relationships and capabilities that exist between the tribal government and its local-government counterpart. These governments have similar missions: to protect their people and assets. These shared goals are best achieved by working together to mitigate risks. Those cooperative efforts are currently being advanced on numerous reservations by leveraging the dynamic strengths of HAZUS-MH technology.

#### Activity/Project Location

Geographical Area: **Tribal**

FEMA Region: **Region I**

#### Key Activity/Project Information

Sector: **Public**

Hazard Type: **Earthquake; Flooding; Hurricane/Tropical Storm**

Activity/Project Type: **HAZUS-MH**

Activity/Project Start Date: **01/2000**

Activity/Project End Date: **Ongoing**

Funding Source: **Pre-Disaster Mitigation (PDM)**

Application/Project Number: **9999**

#### Activity/Project Economic Analysis

Cost: **Amount Not Available**

Non FEMA Cost: **0**

#### Activity/Project Disaster Information

Mitigation Resulted From Federal  
Disaster? **No**

Value Tested By Disaster? **Unknown**

Repetitive Loss Property? **Unknown**

#### Reference URLs

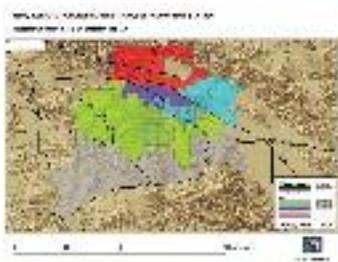
Reference URL 1: **<http://www.hazus.org>**

## Reference URLs

Reference URL 2: <http://www.fema.gov/plan/prevent/hazus/index.shtm>

## Main Points

- Since 2000, Indian tribes, along with State and local governments, have been writing pre-disaster mitigation (PDM) plans in order to achieve compliance with the Disaster Mitigation Act of 2000 (DMA2000).
- The FEMA approved PDM plan makes a government entity eligible for FEMA non-emergency public assistance funding that can cover infrastructure improvements, including roads and bridges, water-control facilities, buildings and equipment, utilities, and parks and recreation.
- The risk-assessment portion of the PDM plan includes identifying potential hazards, researching the background of such hazards as well as their historic frequency, impact and severity.
- Fortunately, FEMA's multi-hazard loss-estimation tool, HAZUS-MH, has powerful risk-assessment capabilities that can analyze potential losses from earthquakes, floods and hurricane winds.
- HAZUS-MH Level 2 risk assessments have proved useful during the creation of the PDM plans of numerous Indian reservations.



An example of an earthquake hazard scenario