

# Hazus Loss Library Use Case: Mitigation Planning

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The Hazus studies housed in the [Hazus Loss Library](#) can inform and help build your hazard mitigation plan. For communities that may not have the resources needed to run a study in Hazus software, the Hazus Loss Library helps fill data and analysis gaps. You can use the library in three key ways to inform your plan's risk assessment and mitigation strategy:

1. To pull data from a Hazus Loss Library analysis that can be used directly in your plan's risk assessment.
2. As a reference for how to set up the Hazus run that will best support your plan.
3. To develop and prioritize targeted mitigation actions in your plan's mitigation strategy.

See the [Hazus Loss Library How-To Guide](#) for step-by-step guidance on navigating the library.

## Using the Hazus Loss Library Data Directly in Your Plan's Risk Assessment

If the Hazus Loss Library has a study in your planning area, you can use it directly in your risk assessment. Hazus Loss Library analyses can inform four hazard profiles in your plan: earthquake, flood, hurricane and tsunami. If you have the Hazus software, you can also combine a study with other data to create a custom analysis. Most of the library analyses cover a broad area. These areas are often larger than community or county lines. If your planning area falls within a broader study area, you can still use that analysis in your plan. You can even use it to identify any differences in risk between multiple communities that are taking part in one plan.

You can use the results of a Hazus Loss Library study to inform different required components of the risk assessment. This includes the Location, Extent, Previous Occurrences, Probability of Future Events, and Vulnerability Assessment sections. Each study in the library has a summary report with maps and tables that you can include in your plan. The outputs can help improve risk communication while also meeting the requirements for hazard location and extent. Additionally, different studies can inform specific elements. This depends on the type of analysis.



**Table 1. Mitigation Planning Uses for Different Hazus Loss Library Analysis Types**

Hazus Loss Library Analysis Types Options		
Historic	A model of a past hazard event that is based on the actual impacts of that event. It can inform the Previous Occurrences section of your hazard profile.	
Scenario	A model for a natural hazard event that has not occurred. The scenario analysis has two different subtypes: Probabilistic and Deterministic.	
	<i>Probabilistic</i>	This is modeled using a return period, such as a 1%-annual-chance flood. That is a flood event with a 1 in 100 chance of occurring in any given year. This can inform the Probability of Future Events section of your hazard profile.
	<i>Deterministic</i>	This is modeled after a hypothetical event, such as an earthquake from the San Andreas fault. It lets you review the results for a hazard scenario that has not happened but could. It can inform the Probability of Future Events section of your hazard profile.

The Hazus Loss Library can also inform the vulnerability portion of your risk assessment by giving insight into what assets are exposed and how a hazard event might affect them. Each study may include data on asset vulnerability, estimated losses, and impacts. Analyses within the library that can be used for the vulnerability elements of the risk assessment may include the following types of data outputs from Hazus:

- **Direct Damage:** Damage that a potential hazard directly causes to buildings, essential facilities, transportation systems, utility systems, etc.
- **Direct Losses:** Losses that a potential hazard event directly causes. This includes cost of repair, income loss, casualties, shelter needs, evacuation needs and average annualized loss.
- **Induced Damage:** Damage that causes cascading events, or events that result from another event. In Hazus, results of an event that fit this include debris generation that follows a hurricane.

## Using Hazus Loss Library Analyses To Navigate Hazus

If the Hazus Loss Library does not have a study that covers your community, you can still use it to inform the method for building your plan's risk assessment. Referencing the studies stored in the library can show you some of the key outputs and data to use in your plan's risk assessment. Exploring this information can help you build the Hazus analysis that best supports your plan's risk assessment.

For example, you can look at the Hazus Loss Library for an earthquake event to understand the vulnerability of local assets and the estimated amount of losses your community may have. Many of the study outputs for earthquake events focus on building damage and damaged facility estimates. Knowing that they are commonly used to assess asset vulnerability in earthquake events, it may make sense to pull these outputs for your plan's risk assessment.

## Using the Hazus Loss Library To Inform Your Plan's Mitigation Strategy

After your plan's risk assessment is complete, the next step in the mitigation planning process is to create the mitigation strategy. The information in the Hazus Loss Library can play an important role when considering mitigation actions. It can help you understand where there is high risk and which assets are vulnerable in the risk assessment. Results such as economic loss and building damage are key for creating mitigation actions that address the most vulnerable places in your community.

When prioritizing your mitigation actions, the economic loss estimates from the library can help you show that an action's benefits outweigh its cost. You can use the census-tract level estimates to show how a potential project will save more than it costs due to the mitigation benefits it will provide the area. The more focused and targeted your plan's mitigation strategy is, the easier it is to carry out.

For any questions, reach out to [FEMA-Hazus@fema.dhs.gov](mailto:FEMA-Hazus@fema.dhs.gov).