RISK
Risk, for the purpose of hazard mitigation planning, is the potential for damage, loss, or other impacts created by the interaction of natural hazards with community assets.

STEPS TO CONDUCT A RISK ASSESSMENT
For multi-jurisdictional hazard mitigation plans, the risk assessment must result in an evaluation of potential impacts and overall vulnerability that each participating jurisdiction will use to develop specific mitigation actions. Assets, vulnerabilities, and overall risk are unique to each community and must be addressed. Although hazards may be described for the entire planning area, the plan also must explain any hazards that are unique or varied within communities. For the Thurston Region Hazards Mitigation Plan, each community assesses its unique impacts in their annex to the plan.

Describing Hazards
The plan is required to include a description of the type of all of the natural hazards that can affect the community. The Thurston Region’s plan includes both natural and other technological or human-induced hazards. For each hazard affecting the planning area, the risk assessment must include a description for each of the following:
- Location
- Extent
- Previous occurrences
- Probability of future events

Hazard Profiles
Every hazard that is profiled in this plan meets one or all of the following criteria:
1. There is a high probability of the natural hazard occurring in Thurston County within the next 25 years; and/or
2. There is the potential for significant damage to impacted buildings and infrastructure; and/or
3. There is the potential for loss of life.

The following hazards meet one or more of the above criteria and are profiled in this plan: 1) Earthquake; 2) Flood; 3) Landslide; 4) Storm; 5) Volcanic Lahar; and 6) Wildland Fire.

For each of these hazards, an assessment of the region’s population, employment, residential units, valuation of assets, and essential facilities is provided. The portion of these attributes, that are in or out of an area potentially affected by the hazard, is summarized. Additional data and maps of hazard areas are also included. Loss estimation analysis, provided by HAZUS modeling software, is also included.

At present, loss estimation analysis is only available for earthquake and flood. The hazard posters are simplified summaries of the hazard profiles.

MEASURING RISK
Hazard Analysis Definitions
The Thurston Region Hazard Mitigation Plan uses a subjective risk measurement process based on Thurston County’s Hazard Inventory and Vulnerability Assessment or HVA. This methodology rates elements of each hazard’s risk characteristics using adjective descriptors such as high, moderate, and low. These descriptors are applied to the hazards’ probability of occurrence, vulnerability, and overall risk. The following is an overview of the risk measurement process:

Risk Rating: An adjective description (High, Moderate, or Low) of the overall threat posed by a hazard is assessed for the next 25 years. Risk is the subjective estimate of the combination of any given hazard’s probability of occurrence and the region’s vulnerability to the hazard.

- **High:** There is strong potential for a disaster of major proportions during the next 25 years; or history suggests the occurrence of multiple disasters of moderate proportions during the next 25 years.
- **Moderate:** There is medium potential for a disaster of less than major proportions during the next 25 years.
- **Low:** There is little potential for a disaster during the next 25 years.

Probability of Occurrence: An adjective description (High, Moderate, or Low) of the probability of a hazard impacting Thurston County within the next 25 years.

- **High:** There is great likelihood that a hazardous event will occur within the next 25 years.
- **Moderate:** There is medium likelihood that a hazardous event will occur within the next 25 years.
- **Low:** There is little likelihood that a hazardous event will occur within the next 25 years.

Vulnerability: Vulnerability can be expressed as combination of the severity of a natural hazard’s effect and its consequential impacts to the community. An adjective description (High, Moderate, or Low) of the potential impact a hazard could have on Thurston County. It considers the population, property, commerce, infrastructure and services at risk relative to the entire county.

- **High:** The total population, property, commerce, infrastructure and services of the county are uniformly exposed to the effects of a hazard of potentially great magnitude. In a worst case scenario, there could be a disaster of major to catastrophic proportions.
- **Moderate:** The total population, property, commerce, infrastructure, and services of the county are exposed to the effects of a hazard of moderate influence; or The total population, property, commerce, infrastructure, and services of the county are exposed to the effects of a hazard of moderate influence, but not all to the same degree; or an important segment of population, property, commerce, infrastructure and services of the county are exposed to the effects of a hazard. In a worst case scenario there could be a disaster of moderate to major, though not catastrophic, proportions.
- **Low:** A limited area or segment of population, property, commerce, infrastructure, or service is exposed to the effects of a hazard. In a worst case scenario, there could be a disaster of minor to moderate proportions.

RISK ASSESSMENT SUMMARY
Using this criteria, the six hazards profiled in this plan receive the following risk ratings:

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Probability of Occurrence</th>
<th>Vulnerability</th>
<th>Risk Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthquake</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Flood</td>
<td>High</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>Landslide</td>
<td>High</td>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td>Storm</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Volcanic Lahar</td>
<td>Low</td>
<td>High</td>
<td>Moderate</td>
</tr>
<tr>
<td>Wildland Fire</td>
<td>High</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
</tbody>
</table>