

2

Threat and Hazard Identification and Risk Assessment

Unit Objectives

In this unit, we will discuss why the THIRA is important and how it came about.

We will also discuss what the CPG 201 process is, how it relates to other preparedness efforts like the Hazard Identification and Risk Assessment (HIRA) and Hazard Vulnerability Assessment, mitigation planning, capability assessment, etc.

By the end of this unit, you will be able to:

- Identify the four steps of the THIRA process.

References:

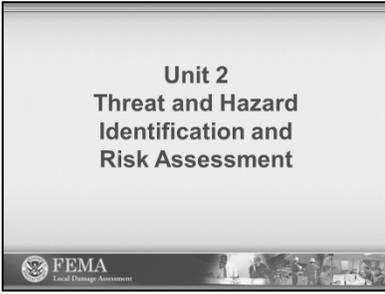
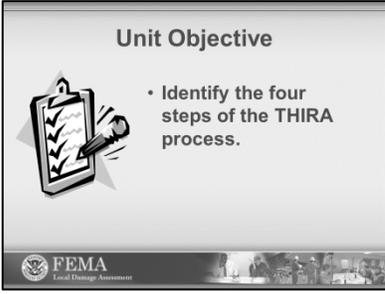
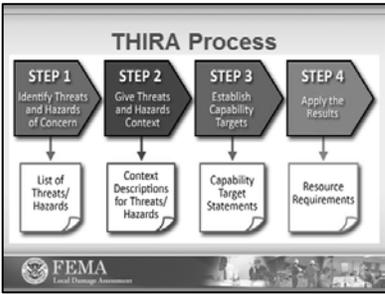
- Developing and Maintaining Emergency Operations Plans CPG 101. Second Edition.
- Threat and Hazard Identification and Risk Assessment Guide CPG 201. Second Edition.

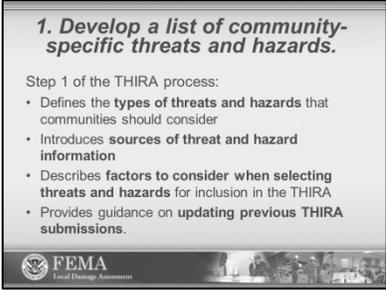
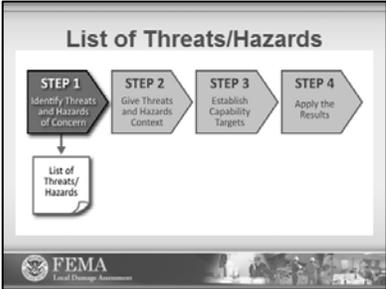
Content Outline

Unit Topics	Estimated Time
Unit Overview	5 Minutes
Threat and Hazard Identification and Risk Assessment	1 Hour, 55 Minutes
TOTAL	2 Hours

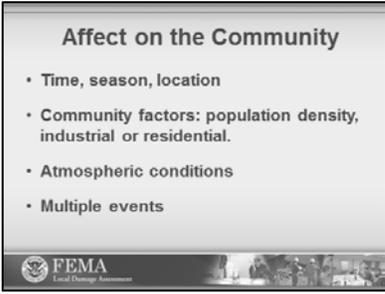
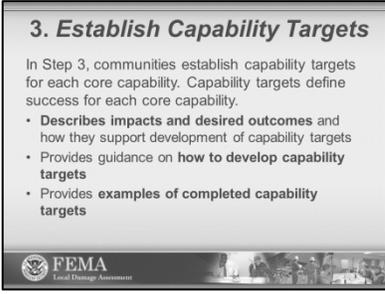
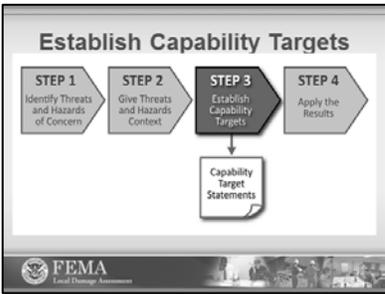
*The time estimate for this topic does not include the activities, which are listed separately.

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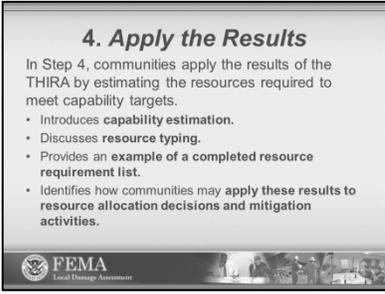
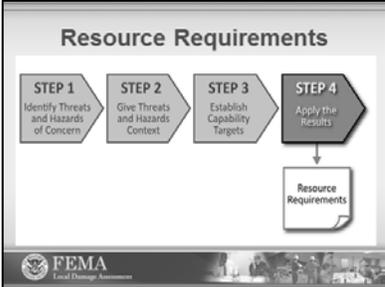
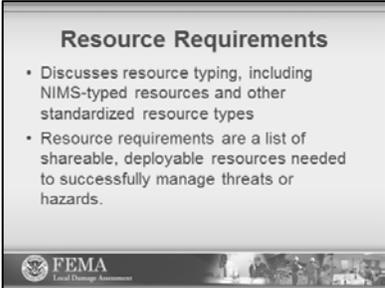
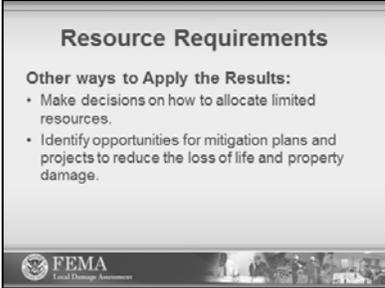
Notes	Content
<p style="text-align: center;">Visual 2-1</p>  <p style="text-align: center;">Unit 2 Threat and Hazard Identification and Risk Assessment</p> <p style="text-align: center;"><small>FEMA Local Damage Assessment</small></p>	<p>In this unit, we will discuss why the THIRA is important and how it came about.</p> <p>We will also discuss what the CPG 201 process is, how it relates to other preparedness efforts like the Hazard Identification and Risk Assessment (HIRA), mitigation planning, capability assessment, etc.</p> <p>The THIRA process is flexible and scalable. Communities can adapt these four steps to meet their specific needs and resources.</p>
<p style="text-align: center;">Visual 2-2</p>  <p style="text-align: center;">Unit Objective</p> <ul style="list-style-type: none"> • Identify the four steps of the THIRA process. <p style="text-align: center;"><small>FEMA Local Damage Assessment</small></p>	<p>Objective</p> <p>This unit will enable you to do the following:</p> <ul style="list-style-type: none"> • Identify the four steps of the THIRA process.
<p style="text-align: center;">Visual 2-3</p>  <p style="text-align: center;">THIRA Process</p> <pre> graph LR S1[STEP 1 Identify Threats and Hazards of Concern] --> S2[STEP 2 Give Threats and Hazards Context] S2 --> S3[STEP 3 Establish Capability Targets] S3 --> S4[STEP 4 Apply the Results] S1 --- O1[List of Threats/Hazards] S2 --- O2[Context Descriptions for Threats/Hazards] S3 --- O3[Capability Target Statements] S4 --- O4[Resource Requirements] </pre> <p style="text-align: center;"><small>FEMA Local Damage Assessment</small></p>	<p>Step 1: Identify the Threats and Hazards of Concern: Based on a combination of past experience, forecasting, expert judgment, and other available resources, communities identify a list of the threats and hazards of primary concern to the community.</p> <p>Step 2: Give the Threats and Hazards Context: Communities describe the threats and hazards of concern, showing how they may affect the community.</p> <p>Step 3: Establish Capability Targets: Communities assess each threat and hazard in context to develop a specific capability target for each relevant core capability. The capability target defines success for the capability.</p> <p>Step 4: Apply the Results: Communities estimate the resources required per core capability to meet the capability targets for each threat and hazard. Communities also plan to deliver the targeted level of capability with either community assets or through mutual aid, identify mitigation opportunities, and drive preparedness activities.</p>

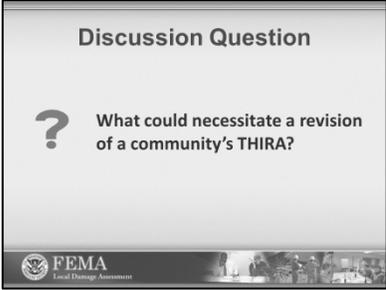
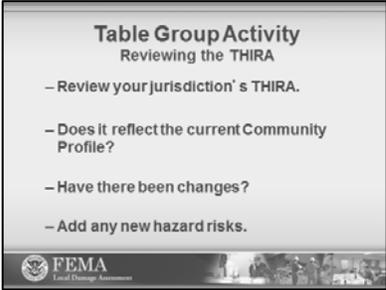
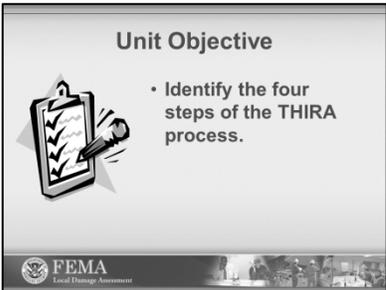
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<p style="text-align: center;">Visual 2-4</p> 	<p>Threat and Hazard Identification and Risk Assessment CPG 201 (Version 2)</p> <p>A THIRA is a similar process to the Hazard Vulnerability Assessment or Analysis.</p> <p>The THIRA process consists of four basic steps:</p> <p>In Step 1 of the THIRA process, communities develop a list of community-specific threats and hazards. This section:</p> <ul style="list-style-type: none"> • Defines the types of threats and hazards that communities should consider • Introduces sources of threat and hazard information • Describes factors to consider when selecting threats and hazards for inclusion in the THIRA • Provides guidance on updating previous THIRA submissions. <p>Communities face a variety of threats and hazards. The three types of threats and hazards are:</p> <ul style="list-style-type: none"> • Natural hazards, which result from acts of nature, such as hurricanes, earthquakes, tornadoes, animal disease outbreak, pandemics, or epidemics. • Technological hazards, which result from accidents or the failures of systems and structures, such as hazardous materials spills or dam failures. • Human-caused incidents, which result from the intentional actions of an adversary, such as a threatened or actual chemical attack, biological attack, or cyber incident. <p>The focus in this step is on deciding what should or should not be on the list. For example, a coastal jurisdiction in Oregon might include a tsunami while an inland jurisdiction that would not be directly impacted may not.</p>
<p style="text-align: center;">Visual 2-5</p> 	<p>Identify the Threats and Hazards of Concern: Based on past experience, forecasting, expert judgment, and available resources, identify a list of the threats and hazards of concern to a community.</p> <p>Developing Step 1: Identify a list of threats and hazards of concern based on past experience, forecasting, expert judgment, and available resources.</p>

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<p style="text-align: center;">Visual 2-6</p> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">List of Threats/Hazards</p> <ul style="list-style-type: none"> • Threats and hazards are divided into three broad categories: natural, technological, and human-caused.  </div>	<p>Step 1 Output: A list of threats and hazards of concern sorted by type: natural, technological, or human-caused incidents.</p>
<p style="text-align: center;">Visual 2-7</p> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">2. Give Threats and Hazards Context</p> <p>In Step 2, Communities add context descriptions to each threat and hazard identified. Context descriptions outline the conditions, under which a threat or hazard might occur.</p> <ul style="list-style-type: none"> • Identifies factors to consider when developing context descriptions • Provides examples of a completed threat/hazard context description  </div>	<p>In Step 2 of the THIRA, communities add context descriptions to each threat and hazard identified in Step 1. Context descriptions outline the conditions, including time and location, under which a threat or hazard might occur. This section:</p> <ul style="list-style-type: none"> • Identifies factors to consider when developing context descriptions • Provides examples of a completed threat/hazard context description <p>To develop threat and hazard context descriptions, communities should take into account the time, place, and conditions in which threats or hazards might occur. Communities can use expert judgment or analysis of probability and statistics to inform the descriptions of the different threat and hazard conditions.</p>
<p style="text-align: center;">Visual 2-8</p> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">Descriptions of Threats/Hazards</p>   </div>	<p>Communities should recognize that past experience with threats and hazards may differ from the future threat and hazard environment. Factors such as demographics, climate, and the built environment are subject to change. Communities should consider these factors when developing threat and hazard context descriptions.</p>

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<p style="text-align: center;">Visual 2-9</p> 	<p>Using the list of threats and hazards, develop context that shows how those threats and hazards may affect a community in terms of time, season, location, and community factors. Inherent to this step is an understanding of the likelihood or probability of a threat or hazard affecting a community.</p> <p>This understanding can be determined through a variety of means, including expert judgment and advanced statistical analysis.</p>
<p style="text-align: center;">Visual 2-10</p> 	<p>In Step 3, communities establish capability targets for each core capability. Capability targets define success for each core capability based on the threat and hazard contexts developed in Step 2. Communities apply the capability targets from Step 3 to generate resource requirements and consider preparedness activities, including opportunities for mitigation in Step 4. This step:</p> <ul style="list-style-type: none"> • Describes impacts and desired outcomes and how they support development of capability targets • Provides guidance on how to develop capability targets • Provides examples of completed capability targets
<p style="text-align: center;">Visual 2-11</p> 	<p>Capability targets should be specific and measurable. To develop specific and measurable targets, communities should consider impacts and desired outcomes for each threat and hazard.</p> <p>Impacts describe how a threat or hazard might affect a core capability. Impacts are linked to the size and complexity of threats and hazards. Larger, more complex threats and hazards might cause larger, more complex impacts.</p> <p>Desired outcomes describe the timeframe or level of effort needed to successfully deliver core capabilities. Capabilities are only useful if communities can deliver them in a timely and effective manner.</p>

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<p style="text-align: center;">Visual 2-12</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Establish Capability Targets</p> <p>This step involves two essential tasks:</p> <ol style="list-style-type: none"> 1. Identify impacts to a community through the lens of the five mission area and associated core capabilities. 2. Establish desired outcomes for each of the core capabilities.  </div>	<p>In Step 3, communities establish capability targets for each core capability.</p> <p>Capability targets define success for each core capability based on the threat and hazard contexts developed in Step 2. Communities will use the capability targets from Step 3 to apply the results of the THIRA by generating resource requirements and considering mitigation activities in Step 4.</p> <p>Describes impacts and desired outcomes and how they support the development of capability targets.</p>
<p style="text-align: center;">Visual 2-13</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">4. Apply the Results</p> <p>In Step 4, communities apply the results of the THIRA by estimating the resources required to meet capability targets.</p> <ul style="list-style-type: none"> • Introduces capability estimation. • Discusses resource typing. • Provides an example of a completed resource requirement list. • Identifies how communities may apply these results to resource allocation decisions and mitigation activities.  </div>	<p>In Step 4, communities apply the results of the THIRA by estimating the resources required to meet capability targets. Communities express resource requirements as a list of resources needed to successfully manage their threats and hazards. Communities can also use resource requirements to support resource allocation decisions, operations planning, and mitigation activities. This step:</p> <ul style="list-style-type: none"> • Introduces capability estimation. • Discusses resource typing, including National Incident Management System (NIMS)-typed resources and other standardized resource types. • Provides an example of a completed resource requirement list. • Identifies how communities may apply these results to resource allocation decisions and mitigation activities. <p>Communities should consider the resources needed to achieve the capability targets. As a first step, communities can identify the major actions needed to achieve their capability targets. Communities should strive to identify mission-critical activities. Communities can draw mission-critical activities from current community-level plans, as well as from the National Planning Frameworks.</p>

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<p style="text-align: center;">Visual 2-13 (Continued)</p> 	<p>Communities should consider the <u>quantity and types of resources needed</u> to complete each mission-critical activity in support of the capability targets. To identify quantity and types of resources, communities can use existing tools and information sources, such as:</p> <ul style="list-style-type: none"> • Strategic, operational, and/or tactical plans • Resource typing data, including standardized resource characteristics • Existing capacity analysis and capability calculators
<p style="text-align: center;">Visual 2-14</p> 	<p>Resource typing is categorizing, by capability, the resources requested, deployed, and used in incidents. Resource typing helps communities request and deploy needed resources through the use of common terminology. Communities should develop resource requirements expressed as a list of NIMS-typed resources or other standardized resources.</p> <p>A community can use its THIRA results to make decisions about how to allocate limited resources. By establishing resource requirements, a community determines the resources needed to achieve capability targets.</p>
<p style="text-align: center;">Visual 2-15</p> 	<p>Through the THIRA process, communities can identify opportunities to employ mitigation plans, projects, and insurance to reduce the loss of life and damage to property. In this way, communities can reduce the impacts they need to manage, and hence reduce the resources needed to achieve capability targets.</p>
<p style="text-align: center;">Visual 2-16</p> 	<p>Using THIRA results to inform mitigation activities aligns with the traditional mitigation planning process of identifying hazards, assessing losses to the community, and setting mitigation priorities and goals for the community.</p>

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<p style="text-align: center;">Visual 2-17</p> 	<p>Discussion Question</p> <p>What could necessitate a revision of a community's THIRA?</p>
<p style="text-align: center;">Visual 2-18</p> 	<p>Table Group Activity</p> <p>Review the copy of your jurisdiction's THIRA that you brought along.</p> <ul style="list-style-type: none"> • Does it reflect the current Community Profile? • Have there been changes?
<p style="text-align: center;">Visual 2-19</p> 	<p>Objective</p> <p>Review the Unit Objective.</p>

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