Cal OES

GOVERNOR'S OFFICE
OF EMERGENCY SERVICES

CALIFORNIA STATE HAZARD MITIGATION PLAN

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Appendix M. Basics of Local Mitigation Planning

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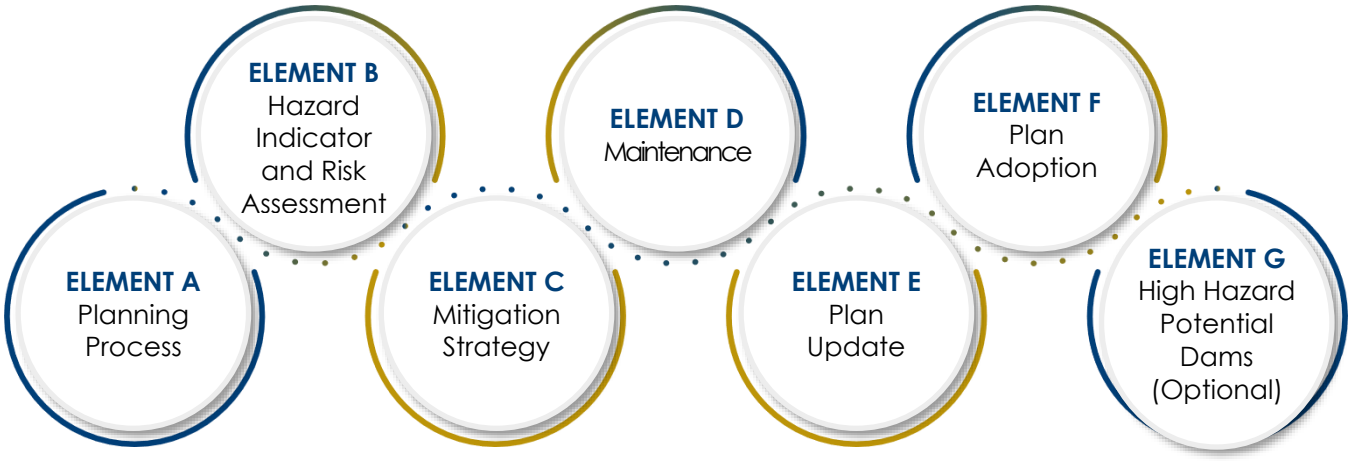
Basics of Local Mitigation Planning

A key theme of the 2023 California State Hazard Mitigation Plan (SHMP) update was to develop a plan that could support and/or enhance local hazard mitigation planning within the State.

The California Governor's Office of Emergency Services (Cal OES) developed this appendix to assist local jurisdictions in using information from the 2023 SHMP in the development of local hazard mitigation plans (LHMPs). This "Basics of Local Mitigation Planning" appendix includes a catalog of best practices and resources that California's local governments can leverage in the development of new or updated LHMPs. This appendix provides planning guidance, as well as best practices and examples, to help jurisdictions meet the required elements in the Federal Emergency Management Agency (FEMA) Region 9 Local Hazard Mitigation Plan Review Tool. The LHMP Review Tool includes the following sections:



WHO NEEDS AN LHMP

Who is Eligible?

FEMA and Cal OES will review and approve an LHMP for all entities meeting the definition of a "local government" outlined in 44 Code of Federal Regulations (CFR) Section 201.3:

> *Any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a non-profit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Tribal Nation or authorized Tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.*

FEMA and Cal OES will also review and approve an LHMP from special districts. Special districts are defined by the California Special Districts Association as:

> *Local governments created by the people of a community to deliver specialized services essential to their health, safety, economy, and well-being. A community forms a special district, which are political subdivisions authorized through a state's statutes, to provide specialized services the local city or county do not provide.*

Availability of Funding

In order to be eligible for Hazard Mitigation Assistance (HMA) grant funding, each local unit of government must actively participate in the development of a FEMA-approved LHMP and then formally adopt the LHMP for their planning area. These FEMA grants include the Hazard Mitigation Grant Program (HMGP), HMGP-Post Fire, Legislative Pre-Disaster Mitigation (LPDM), Flood Mitigation Assistance (FMA) Grant Program, and Building Resilient Infrastructure and Communities (BRIC) Program. Since LHMPs expire every five years, all communities must update and adopt a FEMA-approved plan every five years to remain eligible for these programs.

Planning Process

One of the largest benefits of developing an LHMP is the planning process itself. Bringing together the entire community to make decisions on what risks exist, what

actions can be taken to reduce those risks, and how those actions should be prioritized, helps achieve buy-in from the whole community.

Connection to Other Plans

The final LHMP will also have two strong elements that can be incorporated into other planning documents for California communities, such as the general plan, emergency operation plan, response plans, and evacuation plans, among others.

1

RISK ASSESSMENT

This assessment fully profiles the natural hazards that can impact your planning area. This includes not only location, history, and probability, but also a full vulnerability and impact analysis that shows what is at risk if an event were to occur and what would happen.

2

MITIGATION ACTIONS

Based on the risk and capability assessments in the plan, the mitigation actions are the key actions your local government can take to mitigate the impacts of hazard in your most vulnerable communities.

What Type of Plan to Develop

Whether this is a new LHMP or an update to an existing LHMP, it is important to identify the planning area, the vulnerable populations that need extra support and consideration, and the relationship with surrounding governments. This information will help to determine what type of mitigation plan a government should develop.

SINGLE JURISDICTION PLAN

These plans are developed for one local government entity. Surrounding jurisdictions and agencies should still be invited to participate and comment, but this planning process results in a single local government entity having a FEMA-approved plan. Choosing this type of plan gives flexibility in that no one is dependent on a lead jurisdiction or other annexes for the development of a plan.

MULTI-JURISDICTIONAL PLAN (LEAD)

With this LHMP structure there is a lead jurisdiction, typically the County, and multiple communities that participate in the planning process together. These participating non-lead communities adopt annexes to the main plan document (see below). This effort takes economies of scale into account and allows multiple jurisdictions to complete a FEMA-approved plan as the outcome of one planning process. Most of the administrative work is performed and risk data is collected by the lead jurisdiction that creates a base plan to cover the entire planning area. This effort requires coordination of multiple governments and can be a lengthy process trying to keep everyone on track; however, it encourages more cross-jurisdictional coordination (since hazards do not stop at jurisdictional boundaries) and can be more cost-effective to create a multi-jurisdictional plan from an administrative standpoint.

MULTI-JURISDICTIONAL PLAN (ANNEX)

Communities can also participate in a planning process and adopt an annex to the larger multi-jurisdictional plan. This requires a local government to be part of the planning process, but they are not required to complete their own base LHMP and undertake the associated planning process elements. In most California multi-jurisdictional plans, each participating local government will develop an annex, which is an abridged version of the base plan that specifically tailors the analysis to that government's planning area. A downside to this process is that it typically takes longer to participate in a multi-jurisdictional plan due to the speed of plan organization and development.

Plan Participant vs. Annex

Local governments, including special districts, seeking LHMP approval are responsible for actively participating in the planning process and meeting all requirements as specified in 44 CFR Section 201.6. This can create challenges for large-scale, multi-jurisdictional plans that include a diverse group of local government planning partners (e.g., plans that include multiple cities, counties, special districts, and/or Tribal Nations).

A key to addressing this requirement is to clearly define "participation" at the onset of the planning process. How will each entity seeking compliance under the plan participate in the process? It is important to establish clear expectations up front with metrics that each partner must meet to be eligible for inclusion and coverage under the final plan. Each community must know whether they are participating as a community writing and adopting an annex or as a stakeholder in the planning process. Annex participation, since it allows for HMA grant eligibility, involves significantly more commitment in order to meet all LHMP guidance requirements.

IMPORTANT METRICS THAT MAY BE SET FOR THOSE PARTICIPATING AS AN ANNEX

Participate in a set percentage of planning team or steering committee meetings
Participate in the public engagement strategy
Complete their jurisdiction-specific annex
Make needed revisions in a timely fashion
Adopt the plan

The local planning project manager should monitor the participation metrics and include documentation in the planning process section of the LHMP. The important point here is to define the term, establish the metrics, and document the achievement of those participants who meet the metrics.

What Planning Resources are Available

There are many publications and resources available to help develop an LHMP. Some of them are listed below:

Local Mitigation Planning Handbook – FEMA

The Local Mitigation Planning Handbook was released by FEMA in 2013 and still stands as one of the best tools for local governments to use in developing or updating an LHMP. This document breaks the planning process out into nine tasks, and uses those tasks to outline key ideas, requirements, and steps to follow chronologically. Moreover, the handbook provides strong examples, process worksheets, and best practices throughout each step in the process. While some of the elements listed in the document were revised with the April 2023 update of the FEMA Local Mitigation Planning Policy Guide, the process for creating a robust and usable LHMP has not changed.
Local Mitigation Planning Handbook (fema.gov)

Local Mitigation Planning Policy Guide – FEMA

The Local Mitigation Planning Policy Guide, released April 2022 and effective April 2023, outlines the current standards to which FEMA and Cal OES review each LHMP. In addition to providing the review tool that a community uses to document where in the LHMP each required element can be found, Section 4 "Local Planning Requirements" explains what each element means and how to meet them. Additional detail into the "why" behind each element is provided with FEMA's definitions of important concepts, including "document," "participation," and "involvement." This policy guide should be read before starting the LHMP planning process in order to understand what must be included, tracked, and completed during the process.
Local Mitigation Planning Policy Guide (fema.gov)

Mitigation Ideas – FEMA

Identifying a jurisdiction's hazards and vulnerabilities and deciding what actions to take can be difficult. FEMA's Mitigation Ideas resource guide provides numerous potential mitigation actions that can be incorporated into a community's Mitigation Strategy section of their LHMP. This guide has separate sections for each of the main natural hazards in the U.S. and provides specific actions to mitigate the hazards facing a planning area. Each hazard considers four types of actions, including: local planning and regulations; structure and infrastructure projects; natural systems protection; and education and awareness programs.
Mitigation Ideas Publication (fema.gov)

Mitigation Action Portfolio – FEMA

This resource is like the Mitigation Ideas resource guide, but it details specific case studies as examples of what local governments in the U.S. are doing to mitigate risk to natural hazards. These examples also highlight ways that effective hazard mitigation enhances a culture of preparedness and considers other non-economic benefits to a community. This document includes details of each strategy like the costs (including maintenance), funding sources used, benefits, and more related to implemented mitigation actions.
Hazard Mitigation Assistance Mitigation Action Portfolio (fema.gov)

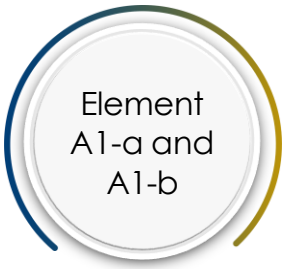
2023 California State Hazard Mitigation Plan

The SHMP should be used as a primary resource to understand the hazards and vulnerabilities that exist in California. The SHMP profiles the hazards occurring in California and provides the methodology, process, and resources to assess the hazards impacting a planning area. Moreover, the SHMP can serve as a reference to create risk and vulnerability assessments that are required in an LHMP. The SHMP also includes potential actions to mitigate hazards and information on relevant planning topics such as equity factors, considerations for vulnerable populations, potential climate impacts on hazards, developing capabilities, and leveraging partnerships.

ELEMENT A—PLANNING PROCESS

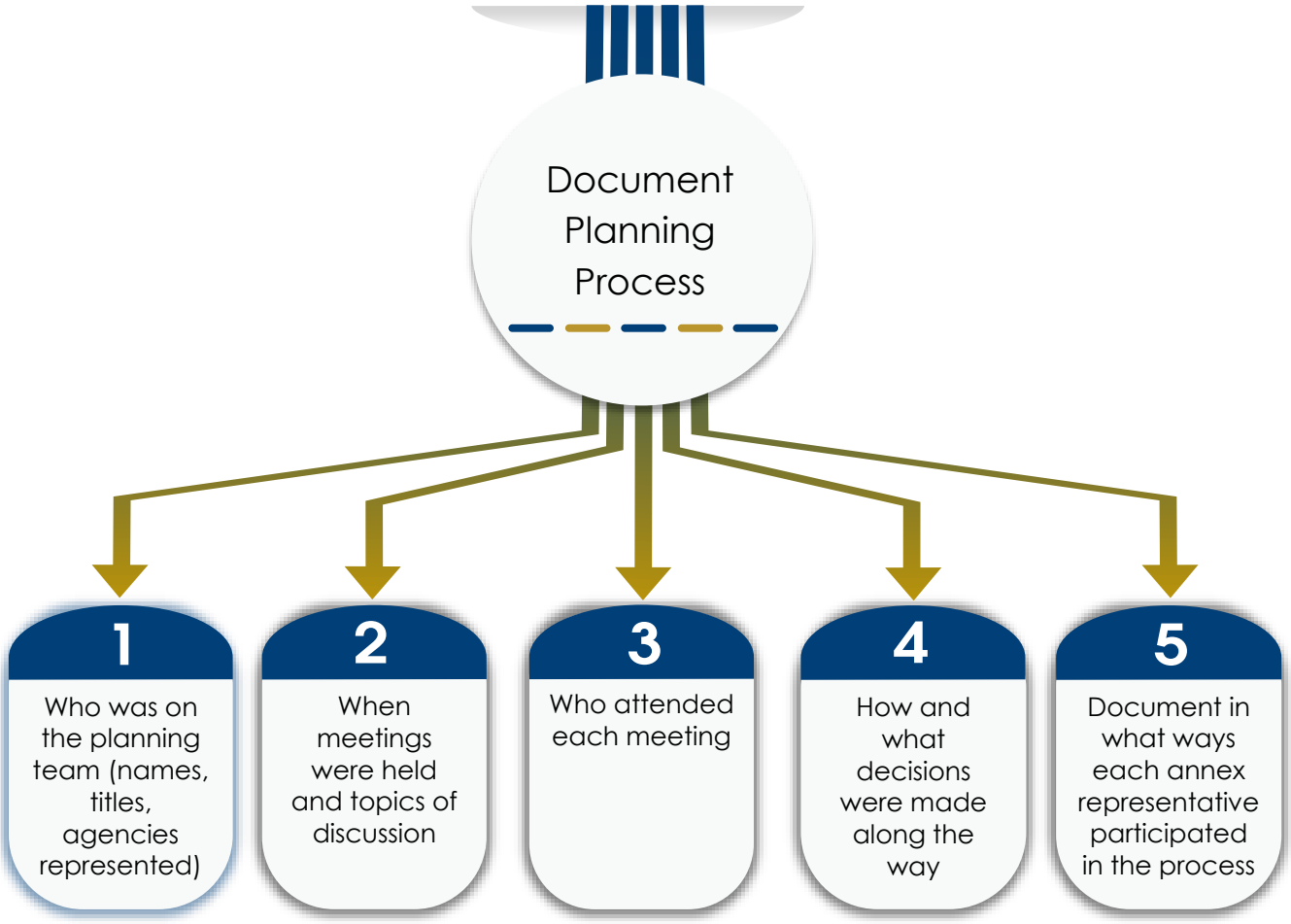
The planning process section of an LHMP details how the plan was developed, who was involved, and what data and information were used to build or update the plan. A successful planning effort includes active participation and buy-in from community leaders, stakeholders, and the public.

Documenting the Planning Process



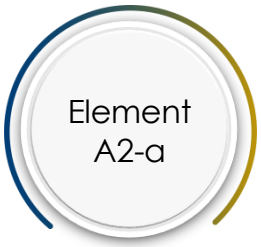
All FEMA-approved LHMPs must describe the planning process that each local government developed and implemented during plan development. This can be achieved by providing a narrative and specific documentation, such as sign-in sheets and meeting minutes. For this element, the LHMP must describe the full planning process including the schedule or timeframe, the activities that made up the process, a list of participating jurisdictions or organizations, a list of the representatives from each jurisdiction (person's position/title/agency or organization), and how each jurisdiction was involved. The narrative outlining the schedule and activity milestones must explicitly address what meetings were held and what topics were discussed in those meetings.

Documentation may be included in the body of the LHMP or in an appendix. Below is a summary of suggested metrics to include:



There have been neither major changes in this requirement from the 2011 to 2023 planning guidance, nor changes to how the planning process should be documented.

Building the Planning Team



It is common for LHMP development to be led by a singular agency or department like Planning and Zoning, Emergency Management, Community Development, or Public Works. A common mistake that can be made, especially with multi-jurisdictional plans, is facilitating these efforts in a silo with a singular department focus. Emergency managers typically work with other emergency managers. Community planners typically work with other planners.

Successful hazard mitigation planning involves a wide array of stakeholders in the process. It is beneficial to take a whole community approach when building a

planning team and include local government representatives, community organizations, non-governmental organizations (NGOs), academia, and private sector businesses. Utility providers or major employers who operate community lifelines should be included in the process; community lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. For communities working on an LHMP update, consider reconvening the steering committee and/or team from the previous planning process. As FEMA highlights, "Representatives from agencies involved in hazard mitigation activities, agencies with the authority to regulate development, and offices responsible for enforcing local ordinances are important members of the planning team" (FEMA, 2013). The LHMP must also document how stakeholders were invited to the planning process such as emails, phone calls, or other communication methods.

STAKEHOLDER GROUPS THAT MUST BE INVITED TO THE PLANNING PROCESS

1

Local and regional agencies involved in hazard mitigation activities:

Examples include public works, emergency management, local floodplain administration, or geographic information system (GIS) departments.

2

Agencies that have the authority to regulate development:

Examples include zoning, planning, community, and economic development departments; building officials; planning commissions; or other elected officials.

3

Neighboring communities:

Examples include adjacent local governments, including special districts, such as those that are affected by similar hazard events or may share a mitigation action or project that crosses boundaries. Neighboring communities may be partners in hazard mitigation and response activities, or may be where critical assets, such as dams, are located.

4

Representatives of businesses, academia, and other private organizations:

Examples include private utilities or major employers that sustain community lifelines.

5

Representatives of non-profit organizations, including community-based organizations, which work directly with and/or provide support to underserved communities and socially vulnerable populations, among others:

Examples include housing, healthcare, or social service agencies.

When organizing participants for a hazard mitigation planning effort, ensure each of these groups is represented in the planning process. The involvement of a wide variety of sectors is very important when it is time to assess the capabilities and capacities of the jurisdiction and develop mitigation strategies and actions. Cross-sector representation makes it easier to answer questions like, "Who is my floodplain administrator?" or "What elements does my Capital Improvement Plan (CIP) cover? How often is it updated?" This also helps to uncover planned development, existing authorities, redundancies, and gaps in capabilities that can be addressed.

Moreover, there is a requirement for the planning process to include "neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and nonprofit interests" (44 CFR Section 201.6.1). It is not merely a best practice; it is a requirement.

Agency Coordination

Not all stakeholders in a planning process may be able to directly participate in your planning efforts. For example, there may be a U.S. Army Corps of Engineers (USACE) project within your planning area that could be a source of risk (i.e., a dam, levee, or flood control project), and the office or personnel responsible for that project are not able to directly participate in the LHMP process. However, engaging these stakeholders provides important input and information that could be vital to your understanding of the risk that will be assessed by the LHMP. So how do you engage them to get what you need?

A recommended best practice for agency coordination is to organize identified stakeholders into two groups such as participatory stakeholders and coordinating stakeholders:

- **Participatory Stakeholders**—Those identified stakeholders who have agreed to actively participate in the planning process as members of a planning team or working group. This would involve participation in regularly scheduled meetings and processes. All units of government seeking approval of a single jurisdictional LHMP or an annex in a multi-jurisdictional LHMP must be participatory stakeholders.
- **Coordinating Stakeholders**—Those identified stakeholders who do not have the ability to participate in the planning process actively and fully as described above but have information and/or resources that are important to the process. Additionally, coordinating stakeholders are not seeking single jurisdictional LHMP

or multi-jurisdictional annex approval. The stakeholders could be people who have expressed an interest in being kept apprised of plan development milestones or are willing to be engaged in one part of the process, like a specific hazard analysis in the risk assessment. Engagement with these stakeholders may be a one-time effort, asking for comments and feedback on sections of the plan, or adding them to an email list with updates on the planning process. Examples of such stakeholders could include but are not limited to:

- Neighboring communities
- Local and regional agencies involved in hazard mitigation activities
- Stakeholder-type organizations that are not represented on the planning committee
- Local drainage, levee, sanitary, soil, and water conservation districts
- Regional and metropolitan planning agencies
- State National Flood Insurance Program (NFIP) Coordinator
- State water resources agency
- State coastal zone management agency
- State emergency management agency
- FEMA Regional Office
- National Weather Service (NWS)
- U.S. Army Corps of Engineers (USACE)
- Natural Resources Conservation Service (NRCS)
- U.S. Bureau of Reclamation (USBR)
- U.S. Fish and Wildlife Service (FWS)
- National Oceanic and Atmospheric Administration (NOAA)
- Tribal Nations within the planning area
- American Red Cross (ARC)
- Local homebuilders' association
- Local environmental groups

Defining the Public

44 CFR Section 201.6 explicitly states that "an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval" must be given. So, it is essential that each LHMP process includes and documents how "the public" was involved. This can differ from jurisdiction to jurisdiction depending on how a community defines "the public." For example, a water utility company that meets FEMA's definition of local government

may define "the public" as their customers, whereas a city may define "the public" as all the residents of their city.

A clear definition of who the public is in relation to the specific planning jurisdiction will determine the LHMP messaging and participation. For the water utility company mentioned above, the public would include the member agencies that buy water. For those member agencies, the public would include the ratepayers or the constituents in the service area. The water utility company's messaging might center on how proactive mitigation helps them increase a level of preparedness and reduce the impacts on services during or following a disaster.

There are many variables in defining and engaging the public that must be considered and included in the planning process. Below are three requirements to remember:

- Define what "the public" is for the jurisdiction
- Determine and implement a strategy for engaging the public during the planning process
- Document how the engagement occurred

Sample documentation might include a narrative description, meeting minutes, public announcements or notices, copies of questionnaires or surveys, interactive websites, or photo evidence of booths at community events. This documentation can be included in the plan document or an appendix.

Social Vulnerability and Equity Priority Communities

The inclusive planning processes take time and thoughtfulness in order to provide everyone with the resources necessary to meaningfully participate, make progress, and benefit from hazard mitigation.

When speaking about inclusive planning processes, the terms whole community and equity frequently appear. The term whole community includes individuals and families from all aspects of society such as people from various businesses, faith-based and community organizations, and non-profit groups, individuals with access and functional needs including people with disabilities, schools and academia, media outlets, and all levels of government (regional, metropolitan, state, local, Tribal Nation, territorial, and federal). The term equity is defined by FEMA as "the consistent and systematic fair, just, and impartial treatment of all individuals" (FEMA, 2023). To ensure the planning process and outcomes of local

mitigation plans benefit the whole community, equity must be central to its development.

Equity is not just an important principle; it is essential for reducing risk to the whole community, particularly for those who face barriers to accessing assistance and for populations that are disproportionately affected by disasters. Local jurisdictions have a responsibility to ensure that the LHMP's mitigation strategy engages members of equity priority communities. The public outreach information in an LHMP should document the specific steps taken to ensure equity priority communities have the ability to participate in and comment on the mitigation planning process and have a voice. Such compliance can help achieve equitable outcomes through the mitigation planning process for all, including equity priority communities and socially vulnerable populations. An LHMP is an opportunity to counter some of the systemic barriers and intentionally plan for reducing the risk for all communities.

EQUITY PRIORITY COMMUNITIES: Populations that bear a disproportionate burden of emergencies, hazards, and disaster impacts, such as households with lower incomes, individuals with disabilities, people of color, persons with limited English proficiency, zero-vehicle households, older adults 65 years and over, single parent families, persons experiencing homelessness, and rent burdened households.

FEMA has placed an emphasis on engaging underserved/underrepresented communities and socially vulnerable populations (also known in California as equity priority communities) in hazard mitigation processes as these key stakeholders have been historically excluded from conversations about their communities. Bringing people into the planning process expands buy-in, highlights new opportunities and ideas, and creates new local champions to drive LHMP implementation.

Public Engagement

Both FEMA's 2023 Local Mitigation Planning Policy Guide and federal regulations specify that an LHMP must document how the public had an opportunity to be involved in the LHMP process and what that participation entailed. This includes the local government's efforts to engage the public generally and equity priority communities specifically. The LHMP should detail how the public was given the opportunity to be involved throughout the plan's development prior to adoption, any responses or edits they provided in the process, and how that

input was incorporated into the plan. Generally, LHMPs must document how public feedback was included throughout the planning process; however, strong plans will explicitly address efforts to engage underserved communities and vulnerable populations and how their feedback was included.

In order to engage the public per requirement A.3, many planning efforts will rely on public meetings. Requirement A.3 states that the public is given "an opportunity to be involved." There are many ways you can involve the public beyond the traditional public meeting. Some examples include:

- Invite the public and/or community-based organizations (CBOs) to participate in the planning team
- Make your planning team meetings open to the public
- Conduct a survey
- Utilize social media
- Develop a web page that includes interactive components like an ArcGIS StoryMap product
- Leverage the reach of your CBO stakeholders and agency partners

The crucial point is to develop a public engagement strategy at the start of the planning process that seeks to leverage and build upon existing outreach capabilities within the planning area. Remember, communities need a way to both engage the public during the planning process and have a strategy for how the public will continue to be involved through the plan's implementation. To meet FEMA requirements, the engagement strategy should detail successful practices used to get public participation in the planning and implementation process.

The COVID-19 pandemic demonstrated that it is possible to hold successful public meetings in a virtual setting. Platforms like Zoom, Microsoft Teams, and Webex, among others, have become a part of day-to-day life. Having a virtual meeting or a hybrid meeting may allow more stakeholders to participate as it reduces some obstacles like transportation, travel distance, childcare, etc. It is important to remember that not every member of a community will have the means to attend virtual meetings, so having a mixture of in-person, virtual, and hybrid meetings may be beneficial.

Leveraging the reach of CBO planning partners can help the engagement strategy address the portion of the population that may not have the means to attend meetings. Having a diverse and active planning team with people familiar with how to get the public involved, like a Public Information Officer (PIO), is vital for cultivating a well-rounded public engagement strategy that fits your community.

Documentation of public engagement is extremely important. In addition to the narrative description in the LHMP, strong plans reference multiple sources and methods to encourage and track participation, such as providing copies of meeting agendas, sign-in sheets, meeting minutes, public announcements, email listservs, and any outreach brochures or initiatives used to get people to the table.

Review and Incorporation of Existing Plans, Studies, Reports, and Technical Information

The last requirement for the LHMP process is to identify how local governments review and include valuable information in the plan that informs hazard mitigation in the community. This list of resources is very specific to each community participating in the LHMP process. Effective LHMPs not only list the plans, studies, reports, and technical information as references but also incorporate the information from these sources throughout the plan to connect the LHMP to other existing efforts.

Many communities only address this requirement in the risk assessment (see Element B); however, including information from past and current land use plans, comprehensive plans, transportation plans, housing plans, or CIP processes, will support local governments in taking a whole community approach to the LHMP process. It is a best practice to provide a list of all plans, studies, reports, and technical information incorporated into the plan in an appendix so that people can refer to the primary sources that informed the process.

For jurisdictions with structures for which NFIP coverage is available, regulatory flood mapping products are required to be incorporated, if appropriate (e.g., if the community has a Special Flood Hazard Area (SFHA) mapped in its boundaries, the Flood Insurance Rate Map (FIRM) or other regulatory flood map, must be incorporated into the LHMP). For more information, visit the FEMA Map Service Center at https://msc.fema.gov/portal/home.

Some documents and initiatives that meet this requirement are:

- California SHMP
- Comprehensive/master/general/ land use plan
- Economic development plans
- Capital improvement plans
- Affordable housing plans
- Transportation plans
- Resource management plans
- FEMA Flood Insurance Studies
- Community wildfire protection plans
- Climate adaptation plans
- Climate action plans
- Comprehensive flood hazard management plans
- Non-regulatory Risk MAP Products

ELEMENT B—HAZARD IDENTIFICATION AND RISK ASSESSMENT

The risk assessment in an LHMP identifies the hazards that can affect a local government's planning area. It analyzes each of these hazards with respect to:

- **Location:** the unique geographic boundaries within the planning area, or assets outside of the geographic boundaries, that may be affected by the identified hazard
- **Extent:** a hazard's potential magnitude or intensity
- **Previous Occurrences:** historic hazard events that have impacted the local government's planning area
- **Probability:** the likelihood of the hazard occurring or reoccurring. The probability of all natural hazards addressed in the LHMP must also take climate change into account
- **Vulnerability:** description of which assets within the locations identified to be hazard-prone are at risk from the effects of the identified hazard. Assets can include people (including underserved communities and socially vulnerable populations), structures (facilities, lifelines, and critical infrastructure), systems, natural, historic, and cultural resources, and activities that have value to the community
- **Impacts:** the potential consequences to community assets

The Mitigation Strategy section of the LHMP details the measures that the community identified to reduce their risk to natural hazards which are based upon the findings from the risk assessment. Local risk assessments must provide enough information for each community to identify strategies and prioritize them during plan implementation.

FEMA's recent emphasis on climate change has significantly changed requirements associated with the risk assessment section of all LHMPs. Many communities in California were already addressing climate change in their LHMPs, but FEMA has specific requirements about how this topic must be incorporated. Risk is not static; climate change, land use trends, population projections, and other dynamic considerations must be incorporated into the risk assessment so officials can determine which hazards must take the forefront of local policy and funding.

Selecting the Hazards of Concern

The LHMP must include a description of natural hazards that impact the local governments participating in the planning process. Some resources to help identify potential hazards of concern include:

- California's SHMP
- Previous LHMPs
- County LHMP
- FEMA's National Risk Index: Map National Risk Index (fema.gov)
- Historic records
- Subject matter experts

Not all hazards listed in these resources need to be included or assessed in an LHMP. It is important to consider the planning area's level of risk to the hazards. Even if a hazard might occur in the planning area, there may not be enough risk to justify assessing or creating mitigation actions for the hazard.

It is important that LHMPs classify hazards of concern as high, medium, or low priority. These hazard rankings can directly inform the identification of actions and strategies targeting and prioritizing hazards with the highest risk. If a hazard that can impact the planning area is omitted from the LHMP, the plan must state why.

Figure 1 is an example from the 2022 Stanislaus County LHMP that ranks the overall significance of hazards that may impact the planning area based on location, probability, and severity.

Figure 1. Excerpt from Stanislaus County HMP

Table 4-2 Stanislaus County Hazard Significance

Hazard	Geographic Area	Probability of Future Occurrence	Magnitude/Severity (Extent)	Overall Significance
Agriculture Pest and Disease	Extensive	Likely	Limited	Low
Aquatic Invasive Species	Limited	Likely	Negligible	Low
Cyber Attack	Significant	Likely	NA	Medium
Dam Incidents	Significant	Unlikely	Catastrophic	Medium
Drought	Extensive	Likely	Critical	High
Earthquake	Extensive	Occasional	Critical	Medium
Extreme Temperatures: Freeze and Extreme Heat	Extensive	Highly Likely	Critical	High
Flood	Significant	Likely	Critical	Medium
Landslide	Significant	Occasional	Negligible	Low
Public Health Hazards: Pandemic/Epidemic	Extensive	Occasional	Critical	High
Severe Weather: Dense Fog	Extensive	Likely	Critical	Medium
Severe Weather: Heavy Rain, Thunderstorm, Hail, and Lightning	Extensive	Highly Likely	Critical	High
Severe Weather: High Wind and Tornado	Extensive	Highly Likely	Critical	High
Wildfire	Significant	Occasional	Negligible	Medium

Geographic Area
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Probability of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year or happens every year.

Magnitude/Severity (Extent)
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability

Source: (Stanislaus County, CA, 2022)

An example hazards summary worksheet can be found in FEMA's Local Mitigation Planning Handbook on page A-29 (FEMA, 2013).

Natural vs. Non-natural Hazards

44 CFR 201.6(c)(2)(i) states that risk assessments must include "a description of the type, location, and extent of all natural hazards that can affect the jurisdiction." The inclusion of non-natural hazards is optional and based on the participants, stakeholders, and public involved in the LHMP process. Even though the 2023 California SHMP includes an assessment of both natural and non-natural hazards, LHMPs do not require an assessment of non-natural hazards.

When both are included, natural and non-natural hazards are often assessed differently. Natural hazards tend to be assessed using "risk," whereas non-natural hazards tend to be assessed using "threat."

- **Risk** is defined as "the potential for damage, loss, or other impacts created by interaction of natural hazards with community assets" (FEMA, 2013). A simple

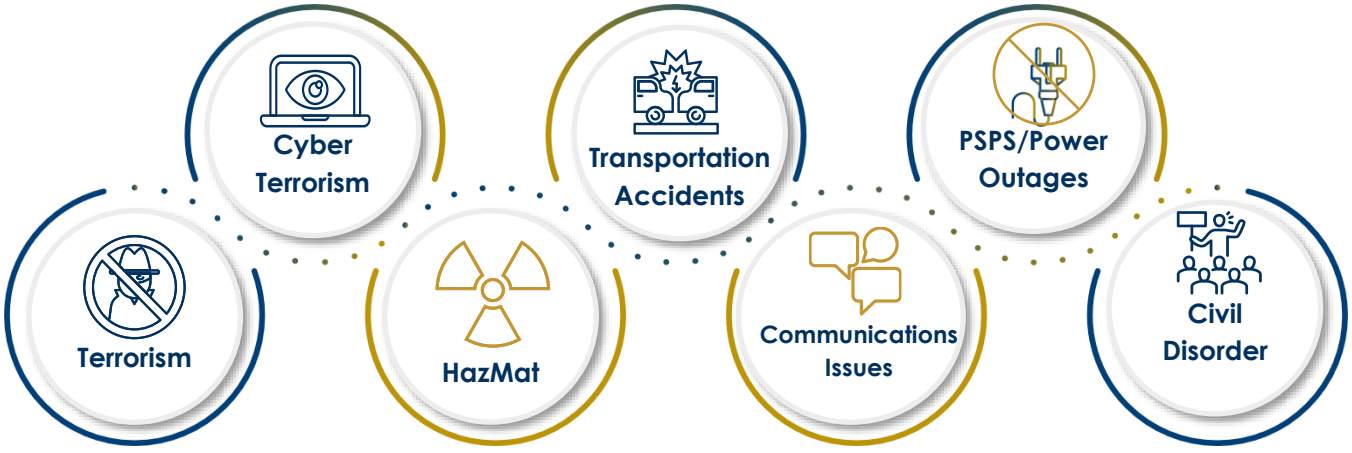
way of calculating risk is to multiply the hazard's probability by the impact of a hazard on the people, property, economy, and environment of a defined planning area. The key factor in the definition of risk is the probability, or how often can or has a hazard event occurred.

- **Threats** are typically associated with intentional acts that target intended consequences.

FEMA has prepared guidance for the preparation of Threat and Hazard Identification Risk Assessments (THIRAs) that focus on threats and a local government's preparedness to respond to identified threats. When identifying threats and hazards to include in the THIRA, communities consider two main factors: (1) the likelihood of a threat or hazard affecting the community; and (2) the challenge presented by the impacts of that threat or hazard, should it occur.

There is a fundamental difference between a risk assessment and a threat assessment that makes it difficult to compare natural hazards to non-natural hazards and rank their impacts. That difference is the probability of occurrence. Event recurrence probability is a predominant factor in the weighting of risk, where the frequency of occurrence carries no weight in a threat assessment. In plain language, for a risk assessment of natural hazards, we care about the difference between the 100-year and 500-year floodplains. The risk in both those areas will be different based on the probabilities of occurrence. There is no such thing as a 100-year terrorism event because the driver for the occurrence of such an event is an intentional act that is striving for a consequence. Therein lies the fundamental difference between assessing natural hazards vs. non-natural hazards.

Non-natural hazards include:



What Data Should Be Used for My Risk Assessment?

The goal of any LHMP risk assessment is an enhanced understanding of the risk associated with a hazard. Data are required to help understand the extent and location of the hazards assessed. Many common sources of data include federal and state agencies, such as FEMA, NOAA, USACE, California Division of Safety of Dams (DSOD), California Department of Forestry and Fire Protection (CAL FIRE), and California Geological Survey (CGS). Some communities also have access to local data, including high-water marks, post-event damage assessments, or historical photos that illustrate the extent and location of hazard events.

It is crucial that the data are credible and relevant to the impacts and interests of the planning area and that the planning partners support the use of that data. Data should be from a reputable and authoritative source. It is also recommended to use data from sources that have some connection to either hazard or mitigation efforts. If the data or information do not exist to fully assess a hazard, identify that as a gap and prioritize an action to close that gap. Hazards may still be qualitatively assessed, acknowledging the gap in available data. Strong LHMPs clearly identify what data were used for the risk assessment and why those data were considered the best available at the time of LHMP development.

FEMA's Hazus Risk Assessment Tool

Hazus is a nationally standardized risk modeling methodology distributed as a free geographic information system (GIS) based desktop software. Hazus identifies areas at high risk for natural hazards and estimates the physical, economic, and social impacts of earthquakes, floods, hurricanes, and tsunamis. These models can be used to determine potential losses from disasters and identify mitigation actions to minimize those losses.

The Hazus program leverages open-source methods and tools that are managed by FEMA's Natural Hazards Risk Assessment Program (NHRAP) within the Risk Management Directorate. Risk assessment resources from the Hazus program are always freely available online and transparently developed and shared. Cal OES recognizes that not all local governments within the State may have the capacity or capability to run Hazus to support their LHMP. It is, however, an approach highlighted by Cal OES as a best practice for performing quantitative risk assessments for dam failure, flood, earthquake, and tsunami hazards.

A significant number of the State's LHMP efforts have been funded with FEMA HMA grant funding. When applying for HMA grants, local governments that lack Hazus

capability and/or capacity can include hiring contractor support to use this tool and gain education on its use and application during LHMP development. The grant funding creates the opportunity to increase this capability and capacity during the planning process.

Risk Assessment Resources

California is a data-rich state with available data ideally suited to support robust, detailed risk assessments. The resources below include some, but not all, of the available resources to assist with local risk assessments. It is important to note that the best available data are always changing, and these resources may become outdated.

Table 1. Risk Assessment Resources

Hazard	Resource Name	Link
Multi-Hazard	MyHazards from the California Governor's Office of Emergency Services (Cal OES)	https://myhazards.caloes.ca.gov/
	Cal-Adapt – Climate Tools from the California Energy Commission (CEC)	https://cal-adapt.org/tools/
	Adaptation Planning Guide (APG) from the Governor's Office of Planning and Research (OPR)	https://resilientca.org/apg/
	Storm Events Database from the National Oceanic and Atmospheric Administration (NOAA)	https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=6%2CCALIFORNIA
	National Risk Index (NRI) from the Federal Emergency Management Agency (FEMA)	https://hazards.fema.gov/nri/map
	Federally Declared Disasters from FEMA	https://www.fema.gov/disaster/declarations
Earthquake	Maps and Data from the California Geological Survey (CGS)	https://www.conservation.ca.gov/cgs/maps- data
	California Earthquake Risk Map and Faults by County from the California Earthquake Authority (CEA)	https://www.earthquakeauthority.com/California-Earthquake-Risk/Faults-By-County

Hazard	Resource Name	Link
	Third Uniform California Earthquake Rupture Forecast (UCERF3) from the Southern California Earthquake Center (SCEC)	https://www.scec.org/ucerf
	The Modified Mercalli Intensity Scale from the U.S. Geological Survey (USGS)	https://www.usgs.gov/programs/earthquake-hazards/modified-mercalli-intensity-scale
	Earthquake event history from USGS	https://www.usgs.gov/programs/earthquake-hazards/lists-maps-and-statistics
Riverine and Coastal Flood	Flood Insurance Rate Maps (FIRM) from FEMA	https://msc.fema.gov/portal/home
	Best Available Map (BAM) from the California Department of Water Resources (DWR)	https://gis.bam.water.ca.gov/bam/
Extreme Heat	Heat Index from the National Weather Service (NWS)	https://www.weather.gov/ama/heatindex
	Cal-Adapt – Extreme Heat Days and Warm Nights from CEC	https://cal-adapt.org/tools/extreme-heat/
	Health Guidance for Schools on Sports and Strenuous Outdoor Activities During Extreme Heat from the California Department of Public Health (CDPH)	https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/extreme-heat-guidance-for-schools.aspx
	Recommendations and Resources for Local Health Jurisdictions (LHJs) and Local Responders/Service Providers from CDPH	https://www.cdph.ca.gov/Programs/EPO/Pages/Extreme%20Heat%20Pages/Extreme-Heat-Guidance-9-8-22.aspx
Extreme Cold	Wind Chill Chart from NWS	https://www.weather.gov/safety/cold-wind-chill-chart
Wildfire	Fire and Resource Assessment Program (FRAP) – Fire Hazard Severity Zones (FHSZ) from the California	https://frap.fire.ca.gov/mapping/pdf-maps/

Hazard	Resource Name	Link
	Department of Forestry and Fire Protection (CAL FIRE)	
	Wildfire statistics from CAL FIRE	https://www.fire.ca.gov/stats-events/
Severe Wind/ Weather	Beaufort Wind Scale from NWS	https://www.weather.gov/mfl/beaufort
Landslide	Landslide Inventory (Beta) from CGS	https://maps.conservation.ca.gov/cgs/lsi/
	U.S. Landslide Inventory from USGS	https://usgs.maps.arcgis.com/apps/webap-pviewer/index.html?id=ae120962f459434b8c9 04b456c82669d
Drought	U.S. Drought Monitor (USDM) from the National Drought Mitigation Center, NOAA, and U.S. Department of Agriculture (USDA)	https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CA
Tsunami	California Tsunami Maps from CGS	https://www.conservation.ca.gov/cgs/tsu-nami/maps
Dam Failure	California Dam Breach Inundation Maps from the California Division of Safety of Dams (DSOD)	https://fmds.water.ca.gov/maps/damim/
Levee Failure	Levee Flood Protection Zone (LFPZ) from DWR	https://gis.lfpz.water.ca.gov/lfpz/
Snow Avalanche	NRI – Avalanche from FEMA	https://hazards.fema.gov/nri/avalanche
	National Danger Map from the American Avalanche Association (A3) and the U.S. Forest Service National Avalanche Center (NAC)	https://avalanche.org/#/current
Subsidence	Land Subsidence in California from USGS	https://www.usgs.gov/centers/land-subsidence-in-california
Volcano	NRI – Volcanic Activity from FEMA	https://hazards.fema.gov/nri/volcanic-activity

When combined with local general building stock data that is available from county assessor offices around the State, many of the hazard-specific data from these resources can be used to build robust Hazus flood, earthquake, and tsunami models to support the risk assessments in LHMPs. If the data and capacity exist to support Hazus modeling, Cal OES recommends following the Hazus Level II, user-defined facility protocol for general building stock and critical facility and infrastructure analyses.

Describe the Hazards

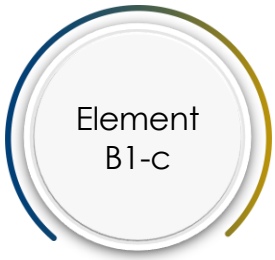
For every natural hazard identified in an LHMP, there must be a description of the hazard location, extent, previous occurrences, probability of future events, and the potential impacts of climate change on the hazard and its resulting effects.

Location—Element B1.b

Location is defined by FEMA as "the unique geographic boundaries within the planning area, or assets outside of geographic boundaries that may be affected by the identified hazard. Maps are an efficient way to illustrate location. Local governments may choose to describe the location through narratives or other formats" (FEMA, 2022). This is typically done for hazards that impact the entire planning area, such as drought.

When a narrative is used, it must include enough detail to identify the areas and assets that will be affected by the hazard. When maps are used to fulfill this requirement, they must be current, legible, and provide enough detail to identify the hazard location.

Extent—Element B1.c

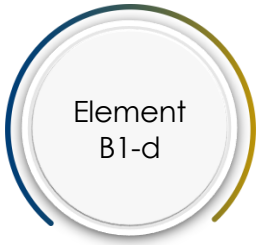


FEMA defines extent as, "the range of anticipated intensities of the identified hazards" (FEMA, 2022). While extent is typically expressed using scientific scales, such as the Enhanced Fujita Scale for tornadoes or the Modified Mercalli Scale for earthquakes, it can also be described in other ways, including measures of magnitude, speed of onset, and duration of hazard events.

One common misconception of plan participants is to use a map to show the extent of a hazard within a planning area; however, the severity and intensity of that hazard are not necessarily explained clearly using only a map. For some hazards, like flooding,

it is possible to convey extent in a map, if the map includes depth and velocity of expected flood water. For other hazards, like landslides or wildfire, it may not be possible to conceptualize extent on a map, and an accompanying narrative explanation of the map would work best.

Previous Occurrences—Element B1.d



An LHMP must include the history of previous hazard events for each identified natural hazard. This information may be displayed in a table or list, and if the data are available, it is important to include details about the extent of impacts, such as fatalities and injuries, building and infrastructure damages, and loss of services.

At a minimum, the LHMP must include any state or federal Major Disaster Declarations for the planning area since the last LHMP was approved. If no events have occurred for the hazard being profiled, the plan should state so.

The section on previous occurrences should also include events that impacted the community, even if they were not a declared disaster. For example, a jurisdiction may include all earthquakes of a certain magnitude within a specific radius of the planning area. While the event may not have resulted in a declared disaster, there may still have been impacts to the community.

Probability of Future Events—Element B1.e

Probability is the likelihood of the hazard occurring in the future. This can be expressed in a variety of ways; however, if you use general descriptions such as "likely" they must be quantitatively defined.

Beyond just using history to predict future events, future conditions including climate change or anticipated changes to development patterns **must** be considered and included in a probability analysis. Examples of how probability can be defined include historical frequencies, statistical probabilities, and hazard probability maps.

Vulnerability and Impacts to the Community

Vulnerability is a key component of a risk assessment. This part of an LHMP must include information on the current and future assets, populations, and the risk that makes the population vulnerable to that specific hazard. The vulnerability description must include a summary or problem statement of the hazard and its effects on the populations and assets. Just listing the populations and assets that are potentially at

risk does not meet the requirement for vulnerability. Instead, the plan must describe why they are vulnerable.

FEMA describes assets as things that are determined by the community and include, but are not limited to (FEMA, 2022):

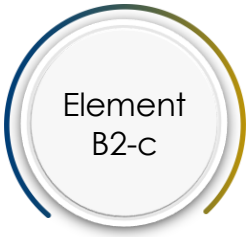
- People (including underserved communities and socially vulnerable populations)
- Structures (including facilities, lifelines, and critical infrastructure)
- Systems (including networks and capabilities)
- Natural, historic, and cultural resources
- Activities that have value to the community

A Risk Assessment should describe the vulnerability of each participating jurisdiction in terms of:

- Assets (defined above)
- Estimate of potential dollar losses to vulnerable structures and methodologies used to estimate losses
- General description of land uses and development trends

Once the location, extent, probability, and vulnerability are determined, the LHMP can describe the potential impacts on the local government and its assets. **Impacts** are the consequences or results of each hazard on local government assets that were identified in the vulnerability assessment. Utilizing historical events and modeling is very useful in understanding the potential impacts. The impacts of a hazard must also include the effects of climate change; shifts in population patterns, such as the makeup of socially vulnerable populations; and changes in development. This section should also include how the community lifelines are impacted by the hazard, such as safety and security, or communication.

FEMA Repetitive Loss (RL) Data—Element B2.c



44 CFR 201.6 requires an LHMP to "address repetitively flooded NFIP-insured structures by including the estimated numbers and types (residential, commercial, institutional, etc.) of repetitive/severe repetitive loss properties."

Obtaining Repetitive Loss (RL) data can be a challenge for local governments because this information is protected under the Privacy Act of 1974 (Privacy Act), as amended, 5 U.S.C. § 552a. To obtain this information for any level of analysis in support of local or state hazard mitigation planning, the community or office will need to enter into an Information Sharing

Access Agreement (ISAA) with FEMA. The purpose of the ISAA is to enable FEMA to share personally identifiable information (PII) that is protected by the Privacy Act with a local plan participant or state planning office. The ISAA can take six to eight weeks to be processed through a FEMA regional office.

The requirement that LHMPs must "address repetitively flooded NFIP-insured structures," can have different meanings depending on a community's participation in FEMA's Community Rating System (CRS) program. If a planning effort seeks CRS credit and any individual community participating in the planning effort has 50 or more RL properties, the LHMP will need to include a spatial analysis that plots where their structures are in relation to the Special Flood Hazard Area (SFHA), identify the causes for the repetitive flooding, and identify other structures adjacent to the identified RL properties that may be subject to the same repetitive flooding, but are not on FEMA's RL list because they do not have flood insurance in force. This means that each CRS community participating in the planning process will need to obtain an ISAA through FEMA Region 9 to access RL data.

If a planning effort is not seeking credit under the CRS program, FEMA's requirements for compliance are much less stringent. A table that lists the number and type of RL and Severe Repetitive Loss (SRL) properties by community should suffice. The data needed for this type of table and analysis are typically not property-specific data and therefore are not considered PII requiring an ISAA. FEMA's flood insurance database (PIVOT) can produce RL and SRL statistics that do not include PII. Contact the NFIP Bureau Statistical Agent at FEMA Region 9 for this information.

Communities should also categorize properties that are at high risk of flooding that may not be considered NFIP RL properties, if applicable.

Impact Scoring

Another option for categorizing and ranking hazard risk would be developing an Impact Scoring strategy. Impact ratings should follow the fundamental calculation of risk:

PROBABILITY	X	IMPACT	=	RISK

Impact rating assesses the probability of each hazard's occurrence as well as its likely impact on assets and lifelines that are critical to the jurisdiction's capability to respond to and recover from hazard events.

The jurisdiction should determine a probability of occurrence scale and hazard impacts on various categories. Impact considerations should include lifelines, owned

and leased facilities, population exposed, potential for the expansion of risk due to buildable lands, and future impacts from the hazard due to climate change.

Using calculation metrics, the results should produce a hazard risk ranking that determines what hazards are high, medium, or low priority for the planning area.

Climate Change and Other Changing Future Conditions

A community's conditions are constantly in flux with changes in climate, demographics, population, land use patterns, and development. These factors alter a local government's vulnerabilities and risk over time. Climate change has greatly impacted communities as it has increased the frequency and severity of certain hazards. FEMA requires that local governments address if and how climate change influences the hazard itself or the impacts from the hazard. The discussion of probability must also include how climate change impacts the frequency that the hazard occurs.

Risk Assessment for Multi-Jurisdictional Plans

For multi-jurisdictional plans, when hazard risks differ across the planning area and between participating jurisdictions, the plan must specify the unique and varied risk information for each local government and its assets. For example, an inland city participating in a coastal county's LHMP as an Annex may highlight that their jurisdiction will not feel the direct impacts of coastal erosion, and therefore would not be expected to have specific strategies targeting coastal erosion in their Annex.

ELEMENT C—MITIGATION STRATEGY

The mitigation strategy serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The Stafford Act directs local mitigation plans to describe hazard mitigation actions and establish a strategy to implement those actions. Therefore, all other requirements for an LHMP lead to and support the mitigation strategy as a means to reduce risk and vulnerabilities over the long term.

Understanding Capabilities and Capacities

44 CFR 201.6 states that an LHMP must describe how the existing authorities, policies, programs, funding, and resources of each participant are available to support the mitigation strategy. This must include a discussion of the existing building codes and land use and development ordinances or regulations.

The capabilities assessment is a critical component of any hazard mitigation plan. Understanding the resources, programs, and personnel that a local government has available to perform mitigation actions is critical to successfully implementing a plan because you do not want to identify actions that you do not have the capability and/or capacity to implement. It is considered a viable mitigation action to increase the capability or capacity of a local government.

When assessing local government capabilities and capacities, Cal OES recommends that these capacities be assessed in the following categories:

- **Planning and Regulations:** What plans, programs, and regulatory authorities exist that can support and/or enhance the outcomes of the plan? Are there plans, programs, and regulatory authorities that do not exist (gaps in capability) that hinder the jurisdiction's ability to implement some actions? For example, a municipality may not have a Capital Facilities program that it could utilize to leverage mitigation actions in the plan. Remember, a viable mitigation action could be the creation of a capability that has been identified as a gap. This assessment should take a hard look at the codes and standards available to each local government that have relevance to natural hazards. This assessment should look at all plans and programs that intersect with the following categories of mitigation:
    - Preventative (codes and standards)
    - Property protection
    - Natural resource protection
    - Emergency services
    - Structural (public works)
    - Public information
- **Permitting:** For those local governments that pose as "permitting authorities," what capabilities exist for the tracking of permit activity to document growth and development trends? Does the jurisdiction track development permit activity by occupancy type? Do they track permit activity that occurs in identified hazard areas? Do they know where their buildable lands are in relation to known hazard areas?
- **Financial:** What fiscal and financial capabilities exist at the local level that the jurisdiction could utilize to leverage mitigation actions, most notable of which could be the source of local match for FEMA HMA grants? For example, does the jurisdiction have a Capital Facilities program? If so, what types of projects does it fund?

- **Administrative and Technical:** What staff-based technical capability and capacity does the jurisdiction have? Are there engineers, planners, and GIS analysts with expertise in natural hazard impacts? Are there code officials that can monitor structure compliance with codes and standards?
- **Education and Outreach:** What capabilities exist at the local level that can be used to engage the public? Does the jurisdiction have a PIO office? A website? Do they utilize social media? How do they engage the press? How do they warn the public in times of emergency?
- **National Flood Insurance Program (NFIP) Compliance:** Do you know who your floodplain administrator is? If not, do you know where you can find out? Where is your community's flood damage prevention ordinance, and when was it last updated? What is a "community assistance visit (CAV)," and when did your last one occur? Did the CAV find any issues that could be supported or addressed by hazard mitigation actions? Do you know how many flood insurance policies there are within your community?
    - Answering these questions is important because 44 CFR 201.6 requires plans to address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate. A focused capability assessment that answers the questions posed above will meet this requirement. Please note that it will be next to impossible to complete this assessment without involving your jurisdiction's floodplain administrator. If you do not know who that is or what department bears that responsibility, look at your flood damage prevention ordinance. It is an NFIP requirement that the flood damage prevention ordinance designates a floodplain administrator. While the ordinance will not list the name of the individual with that responsibility, it will list the department and/or position designated.
    - If your floodplain administrator cannot answer the questions listed above, you have identified a gap in capability. Please note that full compliance and good standing under the NFIP is an eligibility prerequisite for local governments under the FEMA suite of HMA grant programs.
- **Community-based Classifications/Designations:** Did you know that there are community rating and program designations that can attest to the resilience of a community? Supporting or enhancing these designations can greatly benefit local governments. These programs include:
    - **The Community Rating System (CRS):** Voluntary program under the NFIP that rewards participating communities for exceeding the minimum

federal requirements of the NFIP by lowering the cost of flood insurance in participating communities. For more information, visit: https://www.fema.gov/floodplain-management/community-rating-system

- **Building Code Effectiveness Grading Schedule (BCEGS):** BCEGS assesses community building codes and their enforcement, with special emphasis on the mitigation of losses from natural hazards. For more information, visit: https://www.isomitigation.com/bcegs/
- **Public Protection Classification (PPC):** The PPC provides reliable, up-to-date information about community-level fire protection services to help establish appropriate fire insurance premiums for residential and commercial properties. If you do not know your community's PPC classification, contact your local fire chief. For more information, visit: https://www.isomitigation.com/ppc/
- **StormReady:** This designation, provided by NWS, encourages communities to take a new, proactive approach to improving local hazardous weather operations by providing emergency managers with clear-cut guidelines on how to improve their hazardous weather operations. For more information, visit: https://www.weather.gov/stormready/
- **TsunamiReady:** Like the StormReady program, TsunamiReady is a designation provided by NWS to participating communities that promote tsunami hazard preparedness as an active collaboration among federal, state, territorial, and local emergency management agencies, community leaders, and the public. The main goal of the program is to improve public safety before, during, and after tsunami emergencies. It establishes guidelines to mitigate, prepare for, and respond to tsunamis. For more information, visit: https://www.weather.gov/tsunamiready/
- **Firewise:** The Firewise USA recognition program provides a collaborative framework to help organize communities to increase ignition resistance structures and infrastructure in order to reduce wildfire risks. Any community meeting the voluntary criteria to maintain "In Good Standing Status" may identify itself as being a Firewise community. For more information, visit: https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA

Knowledge and understanding of these program designations can be very beneficial for local governments that seek to successfully pursue grant funding under FEMA's suite of HMA grant programs. For example, the BRIC program uses CRS and BCEGS classifications as evaluation factors that can make a difference in competitive project funding. These classifications also attest to the capability and capacity that is

available at the local level, and the aim to establish or increase these designations are viable mitigation actions for a community.

The Ability to Expand and Improve Mitigation Capabilities

44 CFR 201.6 requires that the LHMP must describe the ability of each participant to expand on and improve the capabilities described in the plan. This means that participating jurisdictions need to identify what core capabilities exist at the local level and how they can be expanded.

The key element of this requirement is the word "ability." For example, a community has a Capital Improvement Plan (CIP) that only covers some components of critical infrastructure. In other words, this community has a CIP, but it is not as robust as possible. The planning committee should identify in what ways the CIP can be improved and examine if there are limitations that prevent changes or improvements. Expanding the scope of the CIP is a great action to include in the LHMP if it is feasible and politically supported. However, the capability assessment should identify how this will happen. If the CIP referenced above is updated on a periodical cycle, the ability to expand that CIP would be upon its next update. If you use a table to identify capabilities, the table can include a field that addresses this expansion component. This could be as simple as, "Ability to expand? Yes/no," with space for an explanation when the "yes" field has been identified.

Opportunities to expand or improve upon capabilities can also be utilized to develop mitigation actions. Additionally, if a participating community cannot perform a mitigation action, it may be because of a capability deficiency.

Comprehensive Range of Alternatives

44 CFR 201.6 requires that the mitigation strategy must include an analysis of a comprehensive range of actions or projects that the participants considered to specifically address vulnerabilities identified in the risk assessment. For LHMPs, communities must consider mitigation alternatives spanning all types of solutions. These may include local plans and regulations, structural solutions, infrastructure projects, natural systems protection, and education and awareness programs, for example. This analysis helps a jurisdiction select actions based on its own capabilities as well as the social, technical, and economic feasibility of the action.

Communities seeking compliance under FEMA's CRS program have additional requirements for flood mitigation actions; merely listing the mitigation actions will not earn CRS credit. The CRS program requires that the LHMP include a systematic review

of a wide range of possible activities to ensure that all possible measures are explored, not just the traditional approaches of flood control, acquisition, and land use regulation. Providing an alternatives analysis that includes the pros and cons of each activity, and which actions were selected, must be included in the LHMP. Examples of how to meet this requirement include using mitigation action worksheets that fully detail the actions considered or a mitigation catalog that groups alternatives by category and profiles action categories.

Action Items: How Many Should a Plan Have?

There are several factors to consider regarding the number of action items in an LHMP. FEMA requires each community to have at least one action item for every "high" hazard. For example, a sample community has determined that its hazards are:

Hazard	Ranking
Severe wind/weather (tornado)	High
Flooding	High
Dam failure	Medium
Mass movement/landslide	Low

Because wind and flooding are both high hazards, the community is required to have an action item for both; however, the action items may be merged if the action item itself applies to both hazards. For example, the community could purchase backup or portable generators to ensure a lifeline has power during a power outage caused by wind or flooding hazards.

Some of the factors that may determine the number of action items include:

- Number of previous action items brought forward into the updated plan
- Size of the jurisdiction (number of departments, staff, resources)
- Number and ranking of hazards, and what would be affected by the hazards
- Financial assets (funding possibilities aside from grants)
- Jurisdiction's priorities
- Support/assistance needed to assist with the action item from outside government agencies (this does not include funding)

In another example, Hometown, U.S., is a typical small town with 15,000 residents and a town staff of 20. Hometown participated in a multi-jurisdictional mitigation planning process. How many action items should the town have selected? 100 would be way

too many; one seems too few. The bulleted items in the list above helped determine how Hometown selected its final number.

For multi-jurisdictional plans, each planning partner (jurisdiction) should develop actions that are specific to its circumstances. A multi-jurisdictional plan can also develop action items that apply to each jurisdiction, such as countywide action items. In this example, the lead agency would be responsible for those action items.

Each jurisdiction should determine the number of action items that work best for its unique circumstances.

Funding Options

44 CFR 201.6 requires that the LHMP include an action plan that describes how the actions identified will be prioritized (including cost-benefit review), implemented, and administered by each jurisdiction. The "Action Plan" must clearly identify the following:

- A clear statement of the action you want to do
- What hazards the action will address
- The agencies responsible for the action's implementation
- The estimated cost for the action
- How will the action be funded
- Timeline for completion
- The priority for the action with an emphasis on benefits vs. costs
    - Although a full benefit-cost analysis is not necessary, the plan must demonstrate that proposed mitigation actions will be prioritized by weighing the cost of the action versus the benefits the action will produce, in addition to other prioritization factors. Another example of a prioritization method may be that jurisdictions establish a minimum threshold for the dollar amount, types, or number of benefits an action must have to be considered for implementation. Or they could simply prioritize actions with more benefits than other alternatives.

There are various options for how an action plan can be presented. The actions can be shown in a matrix or table format or as mitigation action worksheets. The key point to remember as far as actions go is that the plan must have clearly identified actions for each entity seeking compliance and coverage under the LHMP. So, whether the plan will cover one or 51 local governments, you must be able to map actions directly to those local governments covered by the plan.

ELEMENT D—PLAN MAINTENANCE

The LHMP is a living document that guides actions to reduce risk and protect community assets over time. Not only is there a need to track progress on implementing the mitigation strategy, but new information may become available and disasters may occur. The plan needs to be revisited at regular intervals to keep it relevant, and the planning team needs to decide how that will be done. At a minimum, this must be done every five years, but the plan should also be revisited after major disaster events or if new conditions significantly change risk. The following text discusses recommended best practices for developing a plan maintenance strategy.

Progress Reporting

While not a FEMA requirement for LHMP approval, a plan maintenance strategy that includes a protocol for periodic "progress reporting" is considered a best practice and a requirement for communities seeking credit for their plan under FEMA's CRS program. Progress reporting is a process where the status of the plan's implementation is reviewed and documented periodically to identify any need for course correction in the implementation of the plan. Aside from meeting CRS criteria, the benefits of progress reporting include:

- Keeping the plan dynamic by examining the implementation
- Establishing an ongoing dialogue between multi-jurisdictional planning partners
- Enabling a community to stay ahead of information loss due to staff turnover
- Saving time when the five-year update is started
- Encouraging communication of mitigation success stories to political leaders, local officials, and the public
- Providing a means to add or delete actions in the action plan during the implementation period

The CRS program requires a minimum of annual progress reporting. If your community does not participate in the CRS, choose a time interval that is most useful for the jurisdictions covered by the plan (mid-term, every other year, or even more frequently). Many California communities have incorporated progress reporting into their plan maintenance strategies with great success, including:

- San Mateo County: https://www.smcgov.org/ceo/multijurisdictional-local-hazard-mitigation-plan
- Sonoma County: https://permitsonoma.org/longrangeplans/proposedlong-rangeplans/hazardmitigationupdate

- The City of Los Angeles: https://emergency.lacity.org/la-hazards/city-los-angeles-hazard-mitigation-plan
- The City of Roseville: https://www.roseville.ca.us/government/departments/fire_department/emergency_preparedness/multi_hazard_mitigation_plan
- Placer County: https://www.placer.ca.gov/1381/Local-Hazard-Mitigation-Plan
- Sacramento County: https://waterresources.saccounty.gov/stormready/Pages/Local-Hazard-Mitigation-Plan-2017-Update.aspx
- Stanislaus County: https://www.stanoes.com/lhmp.shtm

ELEMENT E—PLAN UPDATE

To continue to effectively represent the jurisdiction's overall strategy for reducing its risks from natural hazards, the LHMP must reflect how current conditions have changed since the last plan. This will require an assessment of the current development patterns and pressures, as well as an evaluation of any new hazard or risk information. The plan update is an opportunity for the jurisdiction to assess its previous goals and action plan, evaluate progress in implementing hazard mitigation actions, and adjust its actions to address the current realities.

Updating the LHMP

44 CFR 201.6 requires that LHMPs be updated within a five-year cycle in order for plan participants to remain eligible for FEMA HMA funding. The key point of this requirement is the terminology "within a five-year cycle." This directive means the plan needs to be fully updated, approved, and adopted before the five-year timeframe from which the previous plan was formally adopted. The idea here is that communities do not wait until the five-year mark to begin their plan update. You need to allow sufficient time to facilitate the process and update the plan document. Depending on the scope and scale of the LHMP (multi-jurisdictional vs. single-jurisdictional), the general rule of thumb is that leadership should start thinking about the plan update process during the third year of the plan's implementation. This is especially true if grant funding is needed to fund the update effort. Depending on the grant and the program for which you apply (BRIC, FMA, HMGP, LPDM, etc.) sub-applicants should expect a minimum of 16 months for planning grants to be applied for and funding approved. If jurisdictions need to go through a procurement process to obtain contract support, this should also be factored into the timing for when to initiate the plan update process.

It is not about the plan; it is about the process. FEMA's LHMP requirements are very "process-oriented," meaning that developing a plan is not as simple as just writing a plan and adopting it. FEMA requires that these plans go through a process of stakeholder engagement, risk assessment, and strategy development. Planning efforts must allow sufficient time for the process to occur. Expediting timelines to avoid plan expiration undermines the quality of the planning process.

ELEMENT F—PLAN ADOPTION

LHMP adoption by a local government demonstrates a commitment to the hazard mitigation goals and actions outlined in the plan. Adoption legitimizes the plan and authorizes responsible agencies to perform their responsibilities. Updated LHMPs are adopted to demonstrate the community's recognition of the current planning process, acknowledge changes from the previous five years, and validate the priorities for hazard mitigation actions. Without adoption, the jurisdiction has not completed the mitigation planning process and will not be eligible for certain FEMA assistance, such as HMA or High Hazard Potential Dams (HHPD) grant program funding for mitigation actions.

Approval Pending Adoption

It is highly recommended that completed LHMPs be submitted for review by FEMA and Cal OES prior to adoption. This is what is referred to as the "approval pending adoption" (APA) protocol. This prevents a jurisdiction from having to re-adopt a plan following substantial revisions that may be required by either Cal OES or FEMA Region 9 during the review phase. The 2023 Local Mitigation Planning Policy Guide states a jurisdiction may adopt before receiving an APA letter, but since most plans require revisions prior to becoming approved, your local government may need to adopt the plan multiple times. By waiting until after receiving the APA designation to initiate formal adoption by your local governing body, you will only go through the process once, which is a more efficient route to plan approval.

Adopting Multi-Jurisdictional Plans

Submission

Planning partners participating in a multi-jurisdictional planning process should submit one plan with annexes representing the various participants. A completed LHMP Review Tool must accompany all plans submitted to Cal OES.

The submitted plan should contain all the necessary, required data and information for the entire planning area. Participants' annexes should contain hazard data that is unique for each jurisdiction's area. Additionally, each participant's annex should contain action items for that jurisdiction.

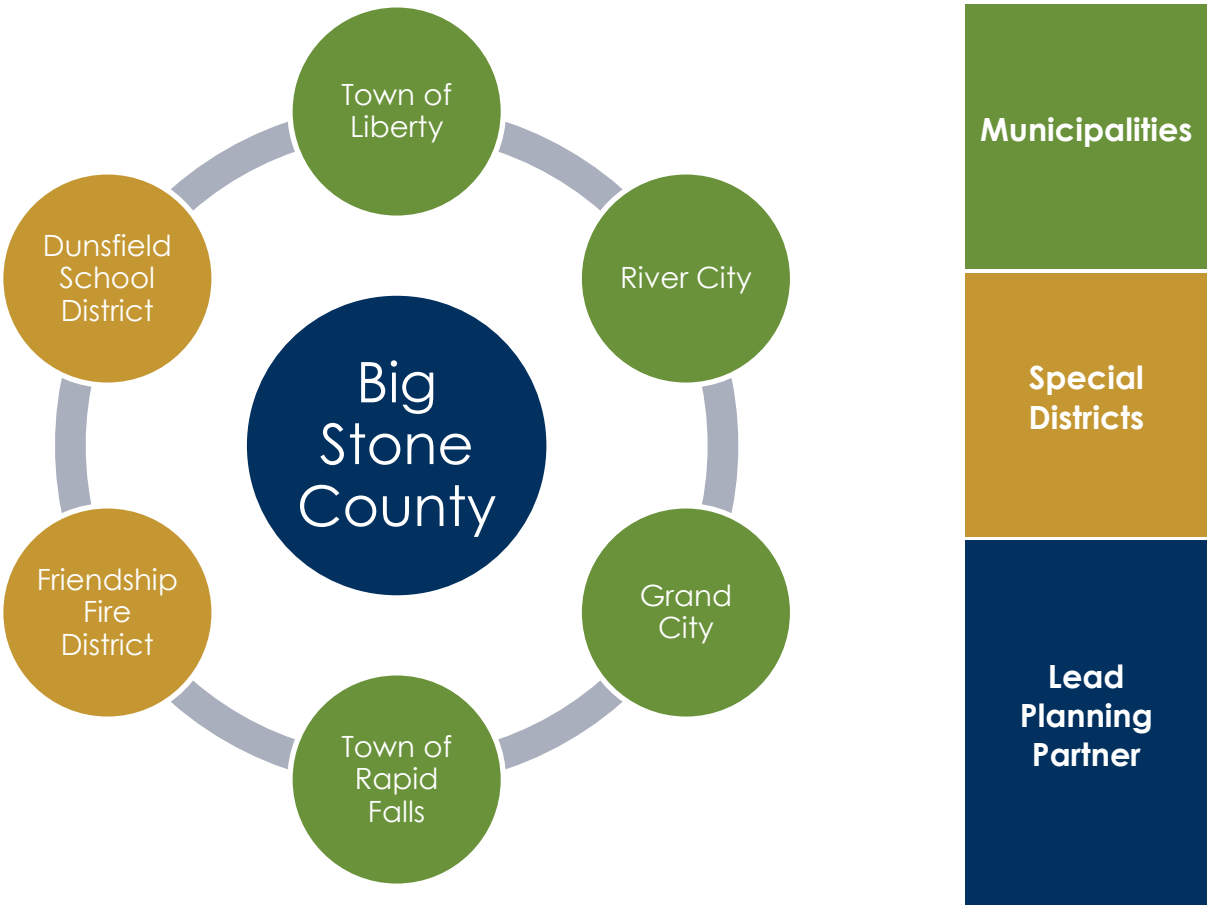
Review and approval of the LHMP (and annexes) are first conducted by Cal OES, which assesses each annex in conjunction with the base plan for compliance. If the plan meets all requirements in the Cal OES review, the LHMP and all annexes will be forwarded to FEMA Region 9 for evaluation. If, however, one or more annex is deemed insufficient or lacking, Cal OES informs the lead multi-jurisdictional agency of its findings and may schedule meetings and/or telephone calls to provide technical assistance required to resolve any deficiencies. Even if one or more annex fails to meet requirements, the remaining annexes can still move forward in the approval process. Annexes cannot be submitted until the lead agency's base plan meets requirements.

Approval

Once FEMA has approved the LHMP, the lead agency is contacted by email and/or letter. The lead agency should contact all the planning partners reminding them that each jurisdiction's governing body needs to adopt the FEMA-approved plan by resolution and send a copy of the approved resolution to FEMA and Cal OES. The plan is officially approved for a jurisdiction once it formally adopts the APA plan and the adoption is confirmed by FEMA.

Adoption

Each planning partner (jurisdiction) that received FEMA approval needs to formally adopt the overall base plan, specific jurisdictional annex, and any supportive documents by resolution. For example, in the figure below each municipality and special district that participated in the planning process would need to adopt the Big Stone County LHMP. This resolution should be forwarded to FEMA with copies sent to Cal OES and the lead planning partner.



HIGH HAZARD POTENTIAL DAMS (OPTIONAL)

The National Dam Safety Program Act (Pub. L. 92–367), as amended, authorizes FEMA to provide High Hazard Potential Dams (HHPD) Rehabilitation Grant Program assistance for the rehabilitation of dams that pose unacceptable risk to life and property due to the failure to meet minimum dam safety standards. To be eligible for HHPD grants, local governments that legally own and are required to maintain an eligible dam must have an approved LHMP that includes all dam risks and complies with requirements outlined in FEMA guidance. Non-profit organizations seeking funding must ensure that the dam is within a local jurisdiction with an approved hazard mitigation plan that includes all dam risks. Listed below are the elements in the LHMP Review Tool related to eligibility for the HHPD Grant Program.

Does the Plan Describe the Incorporation of Existing Plans, Studies, Reports, and Technical Information for HHPDs?

To meet this requirement, the LHMP must address the following:

- Describe how the State dam safety agency (DWR) coordinated with the jurisdiction and/or local dam owners.
- Provide a description of the types of dam-related data that have been integrated into the plan, such as:
    - Location and size of the population at risk.
    - Potential impacts to institutions, critical infrastructure, critical facilities, and community lifelines.
    - Dam Emergency Action Plans (EAPs).
    - Detailed study information from HEC-RAS, DSS-ISEHCOM, DSS-WISE Lite, FLO-2D, or other modeling analyses.
- When dam safety coordination is limited, explain the limitations.

Keep in mind that the planning area may include eligible HHPDs outside of the jurisdiction's political boundaries, like a city that owns a reservoir in a nearby county (FEMA, 2022a).

Does the Plan Address HHPDs in the Risk Assessment?

To meet this requirement, the LHMP must:

- Describe all dam risk, namely incremental, non-breach, and residual risk. A summary narrative description of all dam risk is acceptable. The inclusion of a map depicting HHPD locations within the planning area is encouraged.
- Describe the risks and vulnerabilities to and from eligible HHPDs, including:
    - Potential cascading impacts of storms, seismic events, landslides, wildfires, etc. on dams that might affect up and downstream flooding potential in terms of breach, non-breach, and residual risk.
    - Potential significant economic, environmental, or social impacts as well as multi-jurisdictional impacts from a dam incident. Location and size of populations at risk from eligible HHPDs as well as potential impacts to institutions and critical infrastructure, facilities, and/or lifelines.
    - Methodology and/or assumptions for risk data and inundation modeling.
    - Documentation of limitations and the approach to address deficiencies (FEMA, 2022a).

Did the Plan Include Mitigation Goals to Reduce Long-Term Vulnerabilities from HHPDs?

To meet this requirement, the LHMP must:

- Address a reduction in vulnerabilities to and from eligible HHPDs as part of their own goal(s) or with other long-term strategies.
- Keep in mind that the mitigation goals can satisfy the planning requirement without mentioning specific actions, dams, or using the term "high hazard potential."
- Link proposed actions to reducing long-term vulnerabilities from HHPDs to other LHMP goals.

Does the Plan Include Actions that Address HHPDs and Prioritize Mitigation Actions to Reduce Vulnerabilities from HHPDs?

To meet this requirement, the LHMP must describe a range of specific actions such as:

- Rehabilitating and/or removing dams.
- Adopting and enforcing land use ordinances in identified flood zones.
- Acquiring and/or elevating structures, and/or acquiring easements within identified flood zones.
- Implementing flood protection measures such as berms, floodwalls, or floodproofing within identified flood zones.

Each action must be prioritized and a specific position, office, department, or agency responsible for implementing and administering actions related to mitigating hazards for eligible HHPDs must be identified. The criteria for describing and prioritizing HHPDs must be clearly defined.

ADDITIONAL CONSIDERATIONS

Guidance and Legislation: Hazard mitigation, like the other components of emergency management, is an evolving process with updates and improvements to program guidance continually being added. In California, the State may enact legislation that impacts mitigation planning efforts and requirements. This legislation is often identified as SB (Senate Bill) or AB (Assembly Bill) followed by a number. One example is AB 2140, which applies to local planning efforts related to the safety element of the general plan.

Community Rating System (CRS): Cities that participate in CRS through the NFIP may review any considerations, such as mitigation action items, that maintain or improve their CRS rating. There are additional factors that should be reviewed for compliance during the hazard mitigation planning process. These can be found in the FEMA publication "Mitigation Planning and the CRS Key Topics Bulletin 2018" (https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-planning-and-the-community-rating-system-key-topics-bulletin_10-1-2018.pdf).

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