

# REGION 3

## HIGH HAZARD POTENTIAL DAMS

### State and Local Mitigation Planning Tips

If your community is interested in accessing FEMA funding for dam rehabilitation, your Hazard Mitigation Plan (HMP) should address the risks posed by high-hazard potential dams (HHPD). This Region 3 tip sheet walks through the components that must be included in your HMP to unlock access to FEMA grant funding.



## REQUIREMENTS AND CONSIDERATIONS

### STATE REQUIREMENTS AND CONSIDERATIONS



While reviewing HHPD grant applications for completeness and eligibility, FEMA will verify that the state has a FEMA-approved HMP that addresses all dam risk by the application deadline and at grant funding obligation. **Review the NOTABLE DEFINITIONS section provided at the end of this resource to learn more about “eligible HHPDs,” “all dam risk,” and other key terms.**

#### State Mitigation Planning Requirement FY21 HHPD NOFO (a)

“Does the plan describe how the state dam safety agency, other agencies, and stakeholders participated in the planning process and contributed expertise, data, studies, information, etc. relative to eligible high hazard potential dams?”

*While addressing “eligible” dams is the minimum, FEMA advises that states address all dam risk, whether in an HMP amendment or in the 5-year plan update.*

#### To meet this requirement, the HMP must address the following:

- Ensure that the state dam safety agency is consulted and coordinate with them from the outset of the planning process. Including the state dam safety officer on the mitigation plan steering committee is ideal.
- Provide a description of the types of dam-related data that have been integrated into the plan, such as the location and size of the Population at Risk (PAR), potential impacts to institutions and critical infrastructure/facilities/community lifelines, Emergency Action Plans (EAPs), Hydrologic Engineering Center’s River Analysis System (HEC-RAS), Decision Support System for Water Infrastructure Security (DSS-WISE), Human Consequences Module (HCOM), DSS-WISE Lite, FLO-2D, or more detailed studies.
- When dam safety coordination is limited, explain the limitations.

#### State Mitigation Planning Requirement FY21 HHPD NOFO (b)

“Does the plan address all dam risk for eligible high hazard potential dams in the risk assessment?”

#### To meet this requirement, the HMP must address the following:

- Provide a list of HHPDs by name, National Inventory of Dams (NID) identification number, location by jurisdiction, and other relevant information (such as primary purpose, date of construction, primary purpose, and EAP approval date).
- Describe the method the state uses to identify and assess the risk associated with dams.
- 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 showing HHPD locations within the planning area is encouraged.

- Summarize state-wide vulnerabilities from eligible HHPDs and include:
  - ✓ Information regarding cascading impacts of seismic events, landslides, wildfires and other hazards on dams that might affect up and downstream flooding potential in terms of breach, non-breach and residual risk.
  - ✓ Significant economic, environmental or social impacts and multi-jurisdictional impacts from a dam incident.
  - ✓ Location and size of the PAR from HHPDs.
  - ✓ Potential dam failure impacts to institutions and critical infrastructure and lifelines.
  - ✓ The risk identification methodology and/or assumptions for risk data and inundation analyses.
  - ✓ Documentation of limitations and the approach to address deficiencies.



### State Mitigation Planning Requirement FY21 HHPD NOFO (c)

“Does the plan include mitigation goals to reduce long-term vulnerabilities from eligible high hazard potential dams that pose an unacceptable risk to the public?”

#### To meet this requirement, the HMP must address the following:

- Address a reduction in hazard vulnerabilities to/from eligible HHPDs and the potential consequences associated with dam incidents as part of their own goals or with other long-term strategies.
- Examples include:
  - ✓ Reducing the number of eligible HHPDs.
  - ✓ Identifying opportunities for non-federal risk reduction investments.
  - ✓ Developing floodplain management strategies to mitigate risk associated with eligible HHPDs.
  - ✓ Building community resilience to dam-related flooding from eligible HHPDs.
- Link proposed actions to reducing long-term vulnerabilities consistent with the goals.
- Examples include:
  - ✓ Consider how projects submitted for HHPD funding will be consistent with the goals and objectives identified in the current, FEMA-approved HMP.

### State Mitigation Planning Requirement FY21 HHPD NOFO (d)

“Does the plan prioritize mitigation actions to reduce vulnerabilities from eligible high hazard potential dams that pose an unacceptable risk to the public?”

#### To meet this requirement, the HMP must address the following:

- Describe the process to evaluate and prioritize actions related to eligible HHPDs that are cost effective, environmentally sound, and technically feasible.
- Describe how each action to reduce risks related to eligible HHPDs contributes to the goals, as well as how strategies are linked to the state mitigation strategy.
- Examples include:
  - ✓ Identifying mitigation actions to reduce vulnerabilities to/from eligible HHPDs, such as proposing, enacting or delegating authority for local land use regulations, ordinances and/or construction standards to protect life and property from HHPDs.
  - ✓ Work with HHPD owners to integrate EAPs or a dam incident annex into emergency operations plans.
  - ✓ Delegate authority to local governments to adopt and enforce restrictive zoning and land use ordinances in designated inundation areas.
  - ✓ Acquire and/or elevate structures both up and downstream of HHPDs.

## State Mitigation Planning Requirement

### FY21 HHPD NOFO (e)

*“Does the plan identify current and potential sources of funding to implement mitigation actions and activities for eligible high hazard potential dams that pose an unacceptable risk to the public?”*

#### To meet this requirement, the HMP must address the following:

- Include at least FEMA funding sources to mitigate an HHPD’s vulnerabilities to hazards and the potential consequences associated with dam incidents. The inclusion of Non-FEMA funding sources that mitigate HHPD vulnerabilities is encouraged. Non-FEMA funding sources for activities other than the rehabilitation of eligible HHPDs may be identified.

## State Mitigation Planning Requirement

### FY21 HHPD NOFO (f)

*“Does the plan generally describe and analyze the effectiveness of local mitigation policies, programs, and capabilities that address eligible high hazard potential dams that pose an unacceptable risk to the public?”*

#### To meet this requirement, the HMP must address the following:

- Provide a summary of the local policies, programs and capabilities to implement mitigation actions and reduce eligible HHPD vulnerabilities.
- Describe challenges to implementing local mitigation policies, programs and capabilities to reduce eligible HHPD vulnerabilities, and the approach to overcome these challenges.
- Describe opportunities for implementing mitigation actions to reduce risks to and from eligible HHPDs, such as through tools for regulating land use around dams.

## State Mitigation Planning Requirement

### FY21 HHPD NOFO (g)

*“Does the plan describe the criteria for prioritizing funding for high hazard potential dams that pose an unacceptable risk to the public?”*

#### To meet this requirement, the HMP must address the following:

- Document limitations and describe the approach to addressing deficiencies.
- Describe the method for funding actions to reduce vulnerabilities to and from eligible HHPDs, if these actions were prioritized differently than mitigation actions for other hazards.
- Examples include:
  - ✓ Summarizing the methodology used by the state dam safety program to assess projects based on failure modes, potential consequences resulting from a dam incident, the expected risk reduction and other project benefits.
  - ✓ Assessing the loss of the resources and/or benefits of the dam.



## LOCAL REQUIREMENTS AND CONSIDERATIONS



Local governments with jurisdiction over the area where the dam is located must have a FEMA-approved HMP that includes all dam risk. This must be demonstrated when the grant recipient submits project scope of work to FEMA and when FEMA approves the project scope.

### Local Mitigation Planning Requirement FY21 HHPD NOFO (a)

“Does the plan describe the incorporation of existing plans, studies, reports, and technical information for eligible high hazard potential dams?”

#### To meet this requirement, the HMP must address the following:

- Describe how the state dam safety agency 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 the location and size of the PAR, potential impacts to institutions and critical infrastructure/facilities/community lifelines, EAPs, HEC-RAS, DSS-WISEHCOM, DSS-WISE Lite, FLO-2D, or more detailed studies.
- 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.

### Local Mitigation Planning Requirement FY21 HHPD NOFO (b)

“Does the plan address all dam risk from eligible high hazard potential dams in the risk assessment?”

#### To meet this requirement, the HMP must address the following:

- 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 multijurisdictional 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/lifelines.
  - ✓ Methodology and/or assumptions for risk data and inundation modeling.
  - ✓ Documentation of limitations and the approach to address deficiencies.



**Local Mitigation Planning Requirement  
FY21 HHPD NOFO (c)**

“Does the plan include mitigation goals to reduce long-term vulnerabilities from eligible high hazard potential dams that pose an unacceptable risk to the public?”

**To meet this requirement, the HMP must address the following:**

- 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 HMP goals.

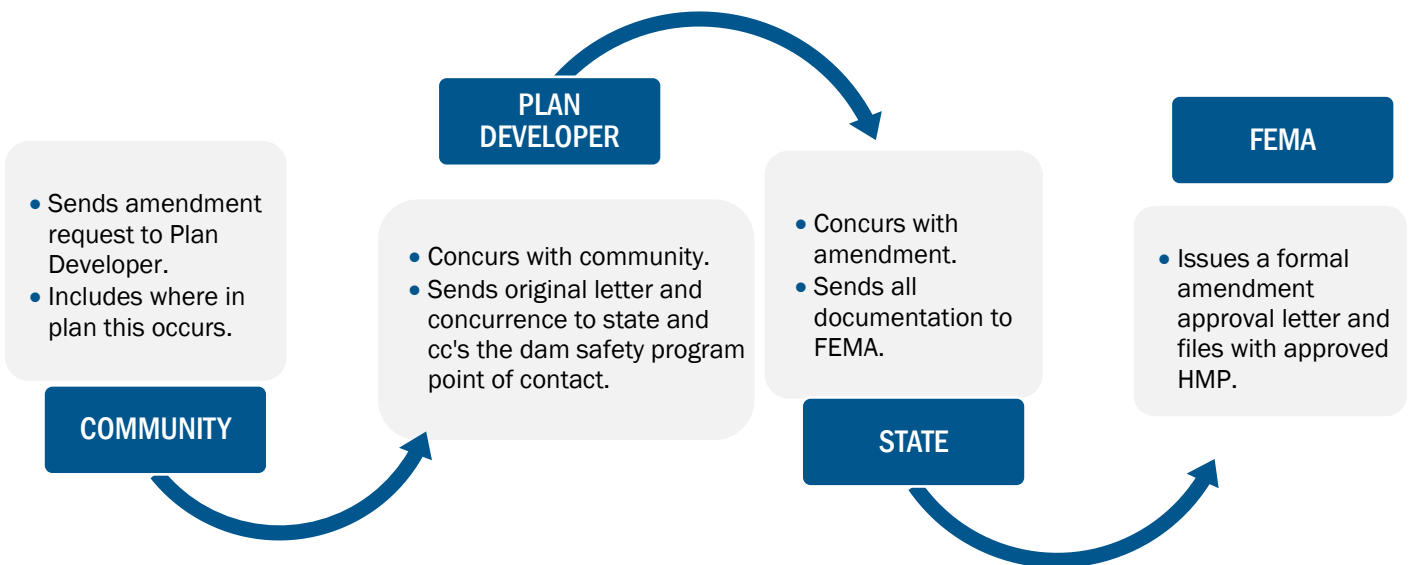
**Local Mitigation Planning Requirement  
FY21 HHPD NOFO (d)**

“Does the plan prioritize mitigation actions to reduce vulnerabilities from high hazard potential dams?”

**To meet this requirement, the HMP must address the following:**

- 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.
- Describe the criteria used for prioritizing actions related to HHPDs.
- Identify the position, office, department or agency responsible for implementing and administering actions related to mitigating hazards for eligible HHPDs.

**REGION 3 HAZARD MITIGATION PLAN AMENDMENT GUIDANCE**



# NOTABLE DEFINITIONS

## 1. Eligible High Hazard Potential Dam

Source: FY21 HHPD Notice of Funding Opportunity (NOFO), page 8; 33. U.S.C. § 467(4)(A)

- A. ...a non-Federal dam that—
  - i. is located in a State with a State dam safety program;
  - ii. is classified as “high hazard potential” by the State dam safety agency in the State in which the dam is located;
  - iii. has an emergency action plan that—
    - I. is approved by the relevant State dam safety agency; or
    - II. is in conformance with State law and pending approval by the relevant State dam safety agency;
  - iv. fails to meet minimum dam safety standards of the State in which the dam is located, as determined by the State; and
  - v. poses an unacceptable risk to the public, as determined by the Administrator, in consultation with the Board.
- B. Exclusion: The term “eligible high hazard potential dam” does not include—
  - i. a licensed hydroelectric dam under a hydropower project with an authorized installed capacity of greater than 1.5 megawatts; or
  - ii. a dam built under the authority of the Secretary of Agriculture.

## 2. All Dam Risk

Source: FY21 HHPD NOFO (18. Definitions, page 63)

For the purposes of the HHPD grant program, all dam risk includes the incremental risk, non-breach risk, and residual risk associated with each eligible high hazard potential dam, as well as the reason(s) the state has determined the dam is an eligible high hazard potential dam.

## 3. Types of Risk

Source: “Rehabilitation of High Hazard Potential Dams Grant Program Guidance,” June 2020

### Incremental Risk

The risk (likelihood and consequences) to the pool area and downstream floodplain occupants that can be attributed to the presence of the dam should the dam breach prior or subsequent to overtopping, or undergo component malfunction or misoperation, where the consequences considered are over and above those that would occur without dam breach. The consequences typically are due to downstream inundation, but loss of the pool can result in significant consequences in the pool area upstream of the dam.

### Non-Breach Risk

The risk in the reservoir pool area and affected downstream floodplain due to ‘normal’ dam operation of the dam (e.g., large spillway flows within the design capacity that exceed channel capacity) or ‘overtopping of the dam without breaching’ scenarios.

### Residual Risk

The risk that remains after all mitigation actions and risk reduction actions have been completed. With respect to dams, FEMA defines residual risk as “risk remaining at any time” (FEMA, 2015, p A-2). It is the risk that remains after decisions related to a specific dam safety issue are made and prudent actions have been taken to address the risk. It is the remote risk associated with a condition that was judged to not be a credible dam safety issue.

## 4. Unacceptable Risk to the Public

Source: FY21 HHPD NOFO (18. Definitions, page 69)

For purposes of the HHPD grant program, the determination of **unacceptable risk to the public** is to be made by the state dam safety program, the agency of the state that is authorized by state statute to manage the state participation in the National Dam Safety Program. A dam poses **unacceptable risk to the public** when the dam requires remediation or risk reduction measures due to deficiencies caused by inadequate dam design, construction methods, or the results of inadequate operation and maintenance.

For a dam to be considered an **unacceptable risk to the public** for funding under the HHPD, it must meet all the following conditions:

1. Does not meet the minimum dam safety standards of the state (not including routine operations and maintenance actions)
2. State dam safety program has documented the deficiencies at the dam that must be reduced, eliminated or mitigated
3. Official Regulatory Notice (see definition) of the determination of the documented deficiency(s) has been communicated to the dam owner to address the **unacceptable risk to the public** to implement interim risk reduction measures until permanent risk reduction measures are implemented in a manner that is acceptable to the state. Official Regulatory Notice must be on official state or state dam safety program letterhead and may include official citations issued from the state dam safety program to the dam owner.

## 5. Official Regulatory Notice

*Source: FY21 HHPD NOFO (18. Definitions, page 66)*

A specific Dam Safety Deficiency (meeting the NID definition) is recognized and cannot be resolved with routine maintenance. The state dam safety agency has issued an official regulatory notice to the dam owner that includes all of the following elements:

1. The dam owner is notified of the specific deficiency and a regulatory requirement to immediately implement risk-reduction measures. (Required risk-reduction measures may include activities such as hiring an engineer to conduct risk-based failure mode studies, design of risk-reduction measures, construction of risk-reduction measures, or other actions.)
2. The regulatory notice indicates whether temporary risk-reduction measures (such as reservoir restrictions) are required.
3. The regulatory notice indicates a specific time allowance for the completion of the risk-reduction measures.
4. The regulatory notice includes a statement of the state dam safety's authority to issue regulatory actions and/or specific regulatory enforcement actions for failure to comply.

