



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF WATER

**MEMORANDUM**

**SUBJECT:** Re-Instatement of Federal Flood Risk Management Standard for State Revolving Fund Programs

**FROM:** Anita Maria Thompkins, Director, Drinking Water Protection Division  
Office of Ground Water and Drinking Water

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Raffael Stein, Director, Water Infrastructure Division  
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**TO:** Water Division Directors  
Regions I-X

Flooding is one of the most common hazards in the United States, accounting for roughly \$17 billion in damage annually between 2010 and 2018 according to the Federal Emergency Management Agency (FEMA), and it will continue to be an ongoing challenge for water infrastructure. Impacts can include physical damage to assets, soil and streambank erosion and contamination of water sources, loss of power and communication, loss of access to facilities, saltwater intrusion, and dangerous conditions for personnel.

On May 20, 2021, President Biden signed Executive Order (EO) 14030, *Climate-Related Financial Risk*, reinstating EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input* (January 30, 2015). EO 13690 amends the original floodplain management standard established in 1977 by EO 11988, and was revoked by EO 13807 in August 2017, though is now reinstated. This action reestablishes the Federal Flood Risk Management Standard (FFRMS) for federally funded projects.

The FFRMS will increase the resilience of infrastructure for flooding events caused by climate disasters. The new standard will go into effect in fiscal year 2022 for State Revolving Fund (SRF) capitalization grants (including the Bipartisan infrastructure Law funding). The FFRMS applies to actions where federal funds are used for new construction, substantial improvement (i.e., projects worth more than 50% of the market value or replacement cost of the facility), or to address substantial damage to structures and facilities. Much of the groundwork for this new standard was completed by an SRF

state/EPA workgroup in 2015 and 2016 prior to EO 13690 being revoked in 2017 but was never implemented for the SRF programs. Details about the new FFRMS can be found in the updated Floodplain Management section of the SRF Crosscutter Handbook (excerpt attached).

If a potential SRF assistance recipient needs assistance with evaluating their water system or project with respect to this new standard, EPA has several tools and resources available, including several that would assist with utilizing the climate-informed science approach.

EPA's [Creating Resilient Water Utilities](#) (CRWU) initiative assists drinking water, wastewater, and storm water (water sector) utilities by promoting a clear understanding of climate change and helps to identify potential long-term adaptation options for decision-making related to implementation and infrastructure financing. Tools and resources under CRWU to assess and address climate change risk include:

- [Climate Resilience Evaluation and Awareness Tool \(CREAT\)](#) – A climate change risk assessment application that assists water sector utilities in considering climate impacts and identifying adaptation options to increase overall climate resilience. Incorporating CREAT results into best management practices and capital investment decisions builds customer and stakeholder confidence that a utility is being proactive in identifying significant climate-related risks.
- [Resilient Strategies Guide](#) – Introduction of water sector utilities to the climate change adaptation planning process. Users identify their planning priorities, vulnerable assets, potential adaptation strategies, and available funding sources.
- [Scenario Based Projection Map](#) – Provides scenarios of projected changes in annual total precipitation, intensity, annual average temperature, 100-year storm events, and sea-level rise as a result of climate change.
- [Storm Surge Inundation Map and Hurricane Strike Frequency Map](#) – Provides the worst-case storm and inundation scenarios on the American Gulf and Atlantic coasts, including Puerto Rico. The map also includes data on: FEMA flood zones; hurricane strikes; and real time coastal flood advisories.
- [Streamflow Map](#) – Provides projections of possible changes in flow conditions for the U.S. streams and rivers under a range of future environmental conditions.
- [Case Studies Map](#) – Provides more than 60 water sector utility case studies and information on how to address climate change impacts.

Other Agency resources include:

- [Flood Resilience: A Basic Guide for Water and Wastewater Utilities](#) – This guide helps utilities become more resilient to flooding by examining the threat of flooding, determining impacts to utility assets, and identifying cost-effective mitigation options.
- [Federal Funding for Utilities – Water/Wastewater – in National Disasters](#) – Fed FUNDS provides information on SRF as well as funding from FEMA, U.S. Department of Agriculture, U.S. Department of Housing and Urban Development, and Small Business Administration.

While this requirement only applies to federal funding, EPA encourages states to consider utilizing this standard not just for equivalency projects, but for all SRF funded projects to bolster communities' climate resilience.

For inquiries, please contact Kiri Anderer, DWSRF Senior Environmental Engineer at (202) 564-3134 or [anderer.kirsten@epa.gov](mailto:anderer.kirsten@epa.gov), or Franny Josephs, CWSRF Financial Analyst at (202) 564-9541 or [josephs.frances@epa.gov](mailto:josephs.frances@epa.gov).

Attachment

SRF Crosscutter Handbook, Floodplain Management section revision

## **Floodplain Management**

### **Executive Order No. 11988 (1977), as amended by Executive Order No. 13690 (2015)**

Federal policy designed to promote the prudent management of floodplains has been in effect since 1968, with the passage of the National Flood Insurance Act. Pub. L. No. 90-448, 42 U.S.C. § 4001 *et seq.* By providing federal subsidies for private flood insurance and by requiring flood-prone communities to have the insurance as a condition to receiving federal assistance, that law and the Flood Disaster Protection Act of 1973, Pub. L. No. 93-234, 87 Stat. 939 (1973), recognized the serious economic and environmental damage that can result from flooding in developed lowland areas.

Executive Order No. 11988, as amended by Executive Order No. 13690<sup>1</sup>, regulates the actions of federal agencies that affect floodplains. This order requires all agencies undertaking, financing, or assisting proposed activities to determine whether they will occur in or affect a floodplain and to evaluate potential measures to avoid adversely affecting the floodplain. When determining whether or not an action is in a floodplain, agencies should draw on existing resources where possible. Federal Emergency Management Agency (FEMA) products, such as flood maps and Flood Insurance Studies (FIS), may serve as a good starting source. E.O. 13690 amended the term “floodplain” as used in the 1977 version of E.O. 11988 by establishing a Federal Flood Risk Management Standard (FFRMS) which describes three available approaches for determining the vertical flood elevation and corresponding horizontal floodplain for federally funded projects. These approaches are designed to recognize and incorporate future conditions rather than rely solely on existing data and information. One of these approaches must be used for determining the FFRMS floodplain for federal actions. The approaches currently described in the FFRMS are the following:

1. *Climate-informed Science Approach* – use best available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science and other factors or changes affecting flood risk to determine the vertical flood elevation and corresponding horizontal floodplain in a manner appropriate to policies, practices, criticality, and consequences.
2. *Freeboard Value Approach* – use the Base Flood Elevation (or 1-percent-annual-chance flood determined using best available data) and an additional height to calculate the freeboard value. The additional height (2’ non-critical or 3’ critical) will depend on whether or not the action is a critical action (i.e., any activity for which even a slight chance of flooding would be too great).
3. *The 0.2-percent-annual-chance Flood Approach* – use the 0.2-percent-annual-chance flood elevation (also known as the 500-year flood elevation).

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<sup>1</sup> The Federal Flood Risk Management Standard and amendments found in E.O. 13690 include the following:

- Agencies, where possible, shall use natural systems, ecosystem processes, and nature-based approaches in the development of alternatives for all actions to which E.O. 11988 applies.
- Agencies are required to expand management from the base flood elevation to a higher vertical flood elevation and corresponding horizontal floodplain for federally funded projects.

Agencies must select, if they are available, viable alternative locations for their undertakings that will not affect floodplains. If construction or substantial improvements (i.e., projects worth more than 50% of the market value or replacement cost of the facility<sup>2</sup>) will be undertaken or supported in a floodplain because no practicable alternative locations are available, and the SRF agency has otherwise ensured compliance with the Executive Order, measures must be taken to minimize the risk of flood damage to or within the floodplain. Such measures could include flood proofing the facility to be constructed, elevating structures above base flood levels, providing compensatory flood storage, or any other means that allow structures and facilities to adapt to, withstand and rapidly recover from a flood event. In addition, public review is required for each plan or proposal for action taking place within a floodplain.

### **Implementation in the SRF Programs**

In consultation with the state SRF agency and the appropriate state floodplain management office, the SRF assistance recipient must first determine whether the proposed project will be located in or affect a floodplain. SRF assistance recipients will be required to use higher standards for actions determined to be critical actions. Critical actions are defined as any activity for which even a slight chance of flooding would be too great.

If the proposed project will be located in or will affect a floodplain, the assistance recipient must prepare a floodplain assessment. If there are no practicable alternatives to the proposed site, the assistance recipient must document the mitigating measures or design modifications that will be taken to reduce the threats from locating the project in the floodplain. In conjunction with the public notice procedures in the SERP, the project area community must be informed why the proposed project is to be located in a floodplain.

The environmental information documentation describing mitigating and design measures must be submitted by the assistance recipient to the SRF agency, which prepares a preliminary finding on whether the assistance recipient has ensured compliance with Executive Order No. 11988, as amended by Executive Order No. 13690. Notice of this finding should be given to FEMA, which may provide recommendations for improving mitigation measures or further modifying the project's design to enhance flood protection.

### **Additional References**

- 40 CFR Part 6 Appendix A: Statement of Procedures on Floodplain Management and Wetlands Protection.
- October 8, 2015: Water Resources Council's Guidelines for Implementing Executive Order 11988, Floodplain Management, and Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input. The Guidelines include a step-by-step decision making process.

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<sup>2</sup> EPA has adopted the USDA Rural Development definition of "substantial improvement" as defined in "Environmental Policies and Procedures" 81 Fed. Reg. 41 (March 2, 2016)