



PE7 Action: Design Flood Elevation & Flood Maps

2 — 14 Points

A. Why is this action important?

New York's communities are exposed to flooding along rivers, streams, coastlines, and lakefronts. The frequency of damaging floods is increasing as extreme precipitation events become more common and sea levels rise. Local governments can take a variety of action to adapt to changing floodplains, protect human health, and potentially save millions of dollars in flood-related damages. Under this Climate Smart Communities (CSC) action, local governments can train staff, increase their design flood elevation, and update local flood maps. Completing this action can help a municipality that participates in the National Flood Insurance Program (NFIP) Community Rating System earn points toward discounted flood insurance rate premiums.

This action can be completed in addition to, or in place of, [PE7 Action: Freeboard Policies](#). The most protective approach would be to implement a combination of actions to increase both the vertical elevation and horizontal extent of flood risk management areas. The New York State (NYS) Department of Environmental Conservation (DEC) recommends using a climate-informed science approach to updating flood maps whenever possible.

B. How to implement this action

The 1% annual chance (or "100-year") flood is known as the base flood. The water surface elevation of the base flood is known as the base flood elevation. FEMA's flood insurance rate maps (FIRMs) depict the areas inundated by the base flood as special flood hazard areas (SFHAs). Most municipal flood management programs regulate projects within SFHAs, but properties outside mapped SFHAs may also be at significant risk of flooding. In addition, FIRMs are based on historical data and are often outdated. Further, FIRMs do not account for sea-level rise or other factors related to climate change.

For help in understanding these issues and choosing the best policy options for your community, use the [Increasing Resilience to Flooding Flowchart](#). This CSC action focuses on training staff, increasing the local design flood elevation (DFE), and updating local flood maps.

Train municipal staff. Train staff to understand climate change science and how it relates to projections of sea-level rise and flooding, state-provided flood guidance, and mapping resources. For some of the training sessions, consider inviting residents, businesses, and developers in and near the floodplain to educate them about increased flooding risks in your community, the importance of being prepared, and the need for resilient building standards. To help participants visualize and understand future flood risk, use the resources and illustrations in the [State Flood Risk Management Guidance \(SFRMG\)](#) and in NYSERDA [Considering Current and Future Inland Flood Risk: A Consumers' Guide to Flooding Tools for Communities in New York State](#). Also see the additional resources below in Section G.

Increase design flood elevation. To safeguard against uncertainties in flood mapping, the NYS Uniform Code requires two feet of freeboard between the lowest floor of a building and the base flood elevation (BFE) in SFHAs. Freeboard is the safety factor between the estimated 1% annual chance ("100-year") flood height and the lowest floor of a structure. The design flood elevation (DFE) is typically equal to the BFE, but municipalities may adopt a DFE that is higher than the BFE as a protective measure against flood damage. For example language refer to [Chapter 4.3.2 of the Model Local Laws to Increase Resilience](#). The Uniform Code of New York requires that design flood elevations be obtained from a federal, state or other source, or determined with accepted hydrologic and hydraulic engineering practices.

For points under this CSC action, amend the local flood damage prevention law (or other relevant zoning law) to define the DFE using one of the following two methods:

- Increase DFE to the elevation of the 0.2% annual chance (“500-year”) flood event within the mapped SFHA.
- Use climate-informed science projections to designate an increased DFE based on future flood projections. Municipalities will need to determine which projections to use based on the level of risk they want to plan for.
 - For tidal areas, refer to [6 NYCRR Part 490](#) for regional sea-level rise projections. By directly referencing Part 490, your community can benefit from future state updates to sea-level rise projections without needing to adjust its policy. NYS recommends the high sea-level rise projection for critical facilities and infrastructure and the medium projection for non-critical structures over the design life of the project.
 - For non-tidal areas, refer to the NYSERDA Considering Current and Future Inland Flood Risk guide for resources on estimating future floods. Table 3 in the SFRMG provides design flow multipliers to estimate future peak flows.

Update flood maps. Amend local flood hazard area maps to correspond to the increased DFE based on one of the following three methods:

- Use the 0.2% annual chance (“500-year”) floodplain. (This is available on many FEMA FIRMs.)
- Use climate-informed science projections to designate the floodplain area based on future flood projections. Municipalities will need to determine which projection to use based on the level of risk they want to plan for.
 - For tidal areas, refer to 6 NYCRR Part 490, as mentioned above (in relation to increasing DFE).
 - For non-tidal areas, refer to the NYSERDA Considering Current and Future Inland Flood Risk guide for resources on estimating future floods. Table 3 in the SFRMG provides design flow multipliers to estimate future peak flows.
- Use the area defined by extending horizontally the increased DFE (or BFE) plus freeboard to the ground.

As with any change in local laws and policies, please consult with the local government attorney for guidance on drafting and enacting the new legislation or policy. The NFIP Coordinating Office must review amendments to the Local Law for Flood Damage Prevention prior to their filing with the NYS Department of State (DOS).

C. Timeframe, project costs, and resources needed

This action contains both short-term and long-term strategies with varying degrees of implementation costs. In general, the local government can expect to make progress on the staff training element of this action within three to six months, while progress on the other components may take up to twelve months. To facilitate understanding of the policies, resources may be needed to support community education and engagement. As the policies are enforced, there may be costs to some residents, but these costs may be balanced by savings from the prevention of future flood damages. Consider reducing implementation costs by applying for FEMA grant funding to accomplish building elevation and floodproofing.

D. Which local governments implement this action? Which departments within the local governments are most likely to have responsibility for this action?

This action is applicable to all cities, towns and villages with the authority to update the local DFE. The departments or people responsible for building and planning, and the designated local floodplain administrator, are most appropriate to lead this effort. Cross-department involvement and support are recommended. Municipal committees, such as CSC task forces, conservation advisory councils, or environmental conservation committees may also be involved.

E. How to obtain points for this action

Points for this action are tiered based on completion of the components listed below.

	<i>POSSIBLE POINTS</i>
Train municipal staff on the most recent climate change science, sea-level rise and flood projections, mapping tools, and other climate-informed flood mitigation resources.	2
Increase the design flood elevation (DFE)	

* Increase the DFE to the elevation of the 0.2% annual chance flood event. 5

* Use climate-informed science projections to designate an increased DFE based on future flood projections. 6

Update Flood Maps - Amend local flood hazard area maps based on one of the following three methods:

* The 0.2% annual chance floodplain 5

* The future 1% annual chance floodplain, as defined by the relevant climate-informed science guideline elevation (as per Table 4 of the SFRMG) 6

* The area defined by extending horizontally the increased DFE (or BFE) plus freeboard to the ground 8

F. What to submit

Training: Submit documentation of staff training sessions, including dates, name of attendees, and resources utilized, completed within the previous 5 years.

Increased DFE: Submit a copy of (or link to) the updated zoning law demonstrating the increase in DFE. Show that it was completed within the previous 15 years. Provide an explanation of the method used to create the increased DFE and how it corresponds to the point tiers in Section E.

Updated flood maps: Submit a copy of (or link to) the amended flood hazard areas map. Show that the update was completed within the previous 15 years. Provide an explanation of the method used to create the map and how it corresponds to the point tiers in Section E.

All CSC action documentation is available for public viewing after an action is approved. Action submittals should not include any information or documents that are not intended to be viewed by the public.

G. Links to additional resources or examples

- [Cornell Water Resources Institute, Increasing Resilience to Flooding Flowchart](#)
- [NYS Flood Risk Management Guidance](#)
- [NYS DEC Estimating Guideline Elevations](#)
- [NYS DEC Part 490 Sea-level Rise Projections](#)
- [NYSERDA Considering Current and Future Inland Flood Risk: A Consumers' Guide to Flooding Tools for Communities in New York State](#)
- [NYS DOS Model Local Laws to Increase Resilience](#)
- [NYSERDA Responding to Climate Change in New York State \(ClimAID\)](#)
- [Cornell Water Resources Institute, Resources for Adapting: see the comparison of flooding and sea-level rise mappers](#)
- [NYS DEC NFIP Coordinating Office: website and contact information](#)

H. Recertification requirements

The recertification requirements are the same as the initial certification requirement.