

Part 520 – Soil and Water Resource Development

Subpart B – Floodplain Management

520.10 General

Floodplain management is essential in the development of plans to reduce flood damages and requires the application of sound engineering principles.

520.11 Scope

Floodplain management includes structural and nonstructural measures to reduce flood damages and is subject to the rules and regulations in 7 CFR Section 650.25.

520.12 Description

- A. Floodplain management is a tool for reducing flood damage, protecting human safety, health, and welfare; preserving and restoring important environmental values; and ensuring the risk of floodplain use is compatible with the degree of flooding expected. A floodplain management system avoids direct or indirect development in the floodplain if there is a feasible alternative.
- B. There are two methods for meeting floodplain management goals: those for “people control” that reduce the effect of and susceptibility to flooding and those for “flood control” that reduce the amount of flooding.

520.13 Types of Measures

- A. This subpart does not include well-understood structural measures, such as dams, channels, and diversions, used to control and modify floodwater flows.
- B. Nonstructural measures include—
 - (1) Acquisition, including purchase in fee title or suitable easements, to preclude future uses incompatible with the expected degree of flooding or setting time limits for use of inhabitable buildings.
 - (2) Relocation of residential, commercial, industrial, and other buildings to flood-free areas to reduce or prevent flood damages.
 - (3) Regulation, including actions by local government entities through zoning, building codes, etc., to ensure land use compatibility with the expected degree of flooding. Regulation often applies to a floodway, which is the part of the floodplain that can contain a flood without causing an excessive increase in the elevation of the water surface. This increase is usually 1 foot, but some communities set a lower limit. The flood fringe is the area of the floodplain below the increased elevation (as defined above) and outside the floodway. The floodway is to remain unobstructed. Development may be allowed in the flood fringe if structures are elevated above the area of flooding. In these areas, consider the need for ingress and egress as well as the possibility of larger floods.
 - (4) Floodproofing consists of modifications of existing structures, their sites, and building contents to reduce the probability and adverse effects of water entry.
 - (5) Flood warning systems and emergency action plans provide information on the time of occurrence and magnitude of flooding to be expected. Features include, but are not limited to, visual observations, stage recorders in streams, precipitation gages in the uplands,

- continuous or periodic rainfall and/or streamflow data collection, manual or automatic relay systems, flood warning markers, etc. The degree of sophistication varies with the needs of the local community and the hydrologic characteristics of the area. Integrate flood warning with the emergency action plan compatible with local situations. It is desirable to provide a warning time of several hours—perhaps 10 to 12 hours. However, if only a 1- or 2-hour warning is possible, give due consideration to short warning times in implementing the emergency plan.
- (6) Information and education are essential to any floodplain management system. The development of needed technical information and its dissemination to the public, especially local government officials, planners, and affected landowners, are essential. Included are flood-warning markers designating flood-prone areas to increase recognition of hazards. Where possible, reference these to historic floods, frequency of historic floods, and/or the floodway location.
 - (7) Flood insurance is a method of spreading economic loss over time and among a relatively large number of people. It does not directly reduce damage. The Department of Homeland Security's Federal Emergency Management Administration administers the National Flood Insurance Program.
 - (8) Flood emergency measures include contingency and emergency floodproofing completed in anticipation of flooding. One of the functions of overall flood plain management is to reduce the need for emergency action.

520.14 Risk to Life and Property

Consider the risk to human life and property in evaluating various floodplain management alternatives. Although risk is difficult to measure, there are certain physical parameters useful for assessing the potential risk for individual structures.

- (1) Frequency of flooding defines the probability of occurrence. The 100-year frequency flood (1 percent chance in any 1 year) is the minimum acceptable if there is risk to human life. For certain critical facilities, such as hospitals, schools, nursing homes, utilities, and facilities for producing or storing volatile, toxic, or water-reactive materials, regulations require considering the effects of the 500-year frequency flood.
- (2) Depth of flooding is a crucial factor. In some areas, depths of from 1 to 3 feet are not considered hazardous to life.
- (3) Estimated warning time for evacuation may be significant.
- (4) Consider velocities either along with or in combination with depth and other parameters.
- (5) In general, combinations of depth (in feet) and velocity (in feet per second) are indicators of risk. Products of 4 or greater are often used as a limit for "people safety" and values of 15 or 20 for "structural safety."
- (6) Duration of flooding is a significant factor for some agricultural crops.
- (7) Other factors are also available to evaluate risk.