

Chapter 6: Flood Plain and Stormwater Control Laws

State flood plain and stormwater control laws

All of the states surveyed that have flood plain and stormwater control laws specifically designate authoritative agencies to implement and enforce their state laws and any rules or regulations adopted pursuant to these laws. Moreover, these state laws authorize the counties, with their right of eminent domain, to acquire public or private property for the purpose of providing flood control and water outlets.

Although all of these laws authorize the municipalities or counties to adopt municipal or local flood plain management regulations or ordinances, and require the authoritative agencies to review and approve all municipal flood plain management regulations, each state law is unique in this authorization. For example, Pennsylvania requires each municipality that has been identified as having an area(s) subject to flooding to participate in the National Flood Insurance Program. The authoritative agency must promulgate regulations prohibiting the construction or substantial improvements of structures in an area that has been designated a flood hazard area. Each municipality having an area subject to flooding must adopt flood plain management regulations. Flood plain management regulations will be considered minimum standards for the management of flood plains. These laws do not limit the municipality's power to adopt more restrictive ordinances, codes, or regulations for the management of flood plains.

Alabama controls flood plains through a land-use management plan. Its law authorizes the county commission to adopt zoning ordinances and building codes for flood-prone areas. Moreover, the county commission is empowered with zoning powers that allows it to divide the portion of the county within the flood-prone area into districts to control flood plains more effectively. The California legislature enacted a two-tier law regulating at the State and local levels, whereas the Tennessee legislature only enacted a law creating the Mill Creek watershed flood control authority to control flood water in the watershed of Mill Creek, located in Davidson, Williamson, and Rutherford Counties.

Georgia authorizes every county to exercise its power of eminent domain to acquire property or other interests to institute and accomplish flood control and prevention projects. Idaho, Mississippi, New Mexico, and Texas laws allow the establishment of flood control districts.

Pennsylvania and Wisconsin laws authorize the agencies to administer grants to municipalities and counties to assist or reimburse them for costs in preparing official plans, actual administration enforcement and implementation costs, and revision to official plans for flood plain management. However, these state laws are different in the percentage and rate of grants. For example, the grant administered by the Pennsylvania authoritative agency is limited in that the total of all state and Federal grants does not exceed 50 percent of the allowable costs incurred by the municipality or county. Although Wisconsin's authoritative agency can make available 75 percent of the mapping grant award, and the remaining 25 percent will be available at the time the applicant adopts the resultant map as approved by the department.

Maryland (region 1).—In 1982, Maryland enacted a separate stormwater management law.⁹⁴⁵ This law provides that each county and municipality is required to adopt and implement a program that prohibits the granting of grading and building permits and land development for residential, commercial, industrial, or institutional use without an approved stormwater management plan. The law requires the Department of Natural Resources to establish State-level criteria and procedures for local stormwater management programs, which include the minimum content of local ordinances to be adopted, and to provide technical assistance to local governments. Furthermore, it authorizes counties and municipalities to provide by ordinance for the conservation district to review and approve stormwater management plans.

Pennsylvania (region 1).—The Floodplain Management Act⁹⁴⁶ was enacted with the following policy and purpose.⁹⁴⁷

- To encourage planning and development in flood plains that are consistent with sound land use practices.
- To protect people and property in flood plains from the dangers and damage of floodwater and from the material carried by such floodwater.
- To prevent and eliminate urban and rural blight that results from the damages of flooding.
- To authorize a comprehensive and coordinated program of flood plain management, based upon the National Flood Insurance Program, designed to preserve and restore the efficiency and carrying capacity of the streams and flood plains of Pennsylvania.
- To aid municipalities in qualifying for the National Flood Insurance Program.
- To provide for and encourage local administration and management of flood plains.
- To minimize the expenditure of public and private funds for flood control projects and for relief, rescue, and recovery efforts.

The act requires that each municipality that has an area(s) subject to flooding must participate in the National Flood Insurance Program.⁹⁴⁸ Each municipality having an area subject to flooding must adopt such flood plain management regulations as are necessary to comply with the requirements of the National Flood Insurance Program.⁹⁴⁹ The flood plain management regulations adopted by the municipality will be considered minimum standards for the management of flood plains. Moreover, this act does not limit a municipality's power to adopt more restrictive ordinances, codes, or regulations for the management of flood plains.⁹⁵⁰

The Department of Community Affairs of Pennsylvania, in consultation with the Department of Environmental Resources, must review and approve all municipal flood plain management regulations to assure compliance with the requirements of the National Flood Insurance Program. Such regulations are coordinated and

⁹⁴⁵MD. CODE ANN., ENVIR. § 4-201 et seq. (1993).

⁹⁴⁶PENN. STAT. ANN. § 679.101 et seq. (Supp. 1993).

⁹⁴⁷Id. § 679.103.

⁹⁴⁸Id. § 679.201.

⁹⁴⁹Id. § 679.202.

⁹⁵⁰Id. § 679.204 (Supp. 1993).

uniformly enforced throughout each watershed.⁹⁵¹ Each municipality participating in the program must comply with department regulations.⁹⁵²

The Department of Community Affairs must promulgate regulations prohibiting the construction or substantial improvements of structures in an area that has been determined by the Environmental Quality Board as a flood hazard area.⁹⁵³ By regulation, the department is required to publish a list of obstructions that it considers special hazards to the health and safety of the public or occupants. However, a municipality administering flood plain management regulation may issue a special exception if the applicant demonstrates and the municipality determines that the structure will be located, constructed, or maintained in a manner that—

- fully protects the health and safety of the public or occupants;
- prevents any significant possibility of pollution, increased flood levels or flows, or debris endangering life and property; and
- complies with the requirements of the program.⁹⁵⁴

The act specifies that the Department of Environmental Resources will have exclusive jurisdiction to regulate—

- any obstruction otherwise regulated under the Water Obstruction Act;
- any flood control project constructed, owned, or maintained by a governmental unit;
- any highway or other obstruction constructed, owned, or maintained by Pennsylvania or its political subdivisions; and
- any obstruction owned or maintained by a person engaged in the rendering of a public utility service.⁹⁵⁵

The act also authorizes the Department of Community Affairs to administer grants to municipalities and counties to assist or reimburse them for costs in preparing official plans and actual administrative enforcement. The grants also are for implementation costs and revision to official plans for flood plain management required by this act. However, the grant must be limited in a way that the total of all State and Federal grants does not exceed 50 percent of the allowable costs incurred by the municipality or county.⁹⁵⁶

In addition, the Pennsylvania State legislature also enacted the Pennsylvania Flood Control Districts law.⁹⁵⁷ The flood control district is established when the Water and Power Resources Board of the Department of Forests and Waters has the completed suitable flood control plans and adopts them as official plans.⁹⁵⁸

⁹⁵¹PENN. STAT. ANN. § 679.205 (Supp. 1993).

⁹⁵²Id. § 679.206.

⁹⁵³Id. § 679.207.

⁹⁵⁴Id. § 679.301 (Supp. 1993).

⁹⁵⁵Id. § 679.302.

⁹⁵⁶Id. § 679.404.

⁹⁵⁷Id. § 653 et seq. (1967 & Supp. 1993).

⁹⁵⁸Id. § 658 (Supp. 1993).

The board is authorized to receive Federal moneys⁹⁵⁹ and to enter into reciprocal compacts and agreements with other states in developing flood control projects and works.⁹⁶⁰ Moreover, the Department of Highways and Municipalities can enter into agreements with the board, or Federal agencies upon the board's approval, to relocate roads, streets, and bridges.⁹⁶¹

Furthermore, Pennsylvania legislature also enacted the Storm Water Management Act⁹⁶² that requires each county to prepare and adopt a watershed stormwater management plan for each watershed located in the county.⁹⁶³ In conjunction with this plan, each county must also establish a watershed plan advisory committee that has a number of duties, including—

- advising the county throughout the planning process,
- evaluating policy and project alternatives,
- coordinating the watershed storm plan with other municipal plans and programs, and
- reviewing the plan before adoption.⁹⁶⁴

The act requires each landowner or any person engaged in the alternation or development of land that may affect stormwater runoff to implement such measures consistent with the provision of the applicable watershed stormwater plan as necessary to prevent injury to health, safety, or other property. Such measures must—

- assure that the maximum rate of stormwater runoff is not greater after development than before development activities; or
- manage the quantity, velocity, and direction of resulting stormwater runoff in a manner that adequately protects health and property from possible injury.⁹⁶⁵

Under the Storm Water Management Act, the Department of Community Affairs is also authorized to administer grants to municipalities and counties to assist or reimburse them for costs in preparing official plans, actual administrative enforcement and implementation costs and revisions to official plans for flood plain management. However, the grant must be limited in a way that the total of all State and Federal grants does not exceed 75 percent of the allowable costs incurred by the municipality or county.⁹⁶⁶

Alabama (region 2).—Acknowledging the great financial and economic loss and human suffering caused by floods and flooding, the Alabama Legislature provides in each county a comprehensive land-use management plan by:⁹⁶⁷

- Constricting the development of land that is exposed to flood damage in the flood-prone areas.

⁹⁵⁹PENN. STAT. ANN. § 658 (Supp. 1993).

⁹⁶⁰Id. § 671.

⁹⁶¹Id. § 666.

⁹⁶²Id. § 680.1 et seq. (Supp. 1993).

⁹⁶³Id. § 680.5.

⁹⁶⁴Id. § 680.6.

⁹⁶⁵Id. § 680.13.

⁹⁶⁶Id. § 680.17 (Supp. 1993).

⁹⁶⁷Comprehensive Land Use Management in Flood Prone Areas, ALA. CODE § 11-19-2 (1975).

- Guiding the development of proposed construction away from locations that are threatened by flood hazards.
- Assisting in reducing damage caused by floods.
- Improving the long-range management and use of flood-prone areas.

The law authorizes the county commission to adopt zoning ordinances and building codes for flood-prone areas.⁹⁶⁸ The county commission has broad authority to:⁹⁶⁹

- Establish comprehensive land-use and control measures that specifically include the control and development of subdivisions in flood-prone areas.
- Establish building codes and health regulations incorporating such minimum standards as are necessary to reduce flood damage in flood-prone areas.
- Provide such standards of occupancy for the prudent use of flood-prone areas.
- Provide for the preparation of maps clearly delineating flood-prone areas and floodways in the county, and keep the same for public inspection.
- Conduct studies necessary for the purposes of this chapter.
- Employ technical or advisory personnel, or both, including the establishment of a county planning commission, as deemed necessary or expedient.
- Adopt ordinances for the enforcement of all such regulations.

The law requires land use and control measures to provide land use restrictions based on probable exposure to flooding. Measures must:

- Prohibit inappropriate new construction or substantial improvements in the flood-prone areas.
- Control land use and elevations of all new construction within the flood-prone areas.
- Prescribe land use and minimum elevations of the first floors of buildings and include consideration of the need for bulkheads, seawalls, and pilings for coastal flood-prone areas.
- Be based on competent evaluation of the flood hazard.
- Be consistent with existing flood-prone land management programs affecting adjacent areas and applicable to appropriate State standards.
- Prescribe such additional standards as necessary to comply with Federal requirements for making flood insurance coverage under the National Flood Insurance Act of 1968 available in Alabama.⁹⁷⁰

In addition to land-use restrictions commensurate with the degree of the flood hazards in various parts of the area, there must be subdivision regulations that—
prevent the inappropriate development of flood-prone lands;

encourage the appropriate location and elevation of streets, sewers, and water systems and the reservation of adequate and convenient open space for utilities;

⁹⁶⁸ALA. CODE § 11-19-3.

⁹⁶⁹Id.

⁹⁷⁰Id. § 11-19-4.

provide for adequate drainage so as to minimize exposure to flood hazards and to prevent the aggravation of flood hazards; and
require such minimum elevation of all new developments.⁹⁷¹

Building codes and health regulations are required to—
include all applicable State and local provisions and
cover all public and private construction and development in flood-prone areas.⁹⁷²

A county commission that wants to participate in this program must require every person, firm, corporation, or agency to submit plans and specifications for all proposed construction and development of flood-prone areas.⁹⁷³ Moreover, if the plans and specifications conform to the applicable specifications, rules, and regulations, the county commission must issue a permit.⁹⁷⁴

For the purpose of enforcing this law, the county commission, by resolution or ordinance, can create a county planning commission that is made up of not less than 5 nor more than 11 appointed members.⁹⁷⁵

Moreover, the county commission is authorized to enact an ordinance regulating the platting and recording of any subdivision of land lying within the county flood-prone area,⁹⁷⁶ subject to approval or disapproval by the county planning commission.⁹⁷⁷ Whoever transfers or sells lands in such a subdivision before approval of the plat is guilty of a misdemeanor.⁹⁷⁸

The county commission is empowered with zoning powers that allow it to divide the portion of the county within the county flood-prone area into districts of such number, shape, and area.⁹⁷⁹

Upon conviction of violation of any provision of the building code or zoning ordinances or other regulation, ordinance or code, a fine of not more than \$500 or imprisonment of not more than 1 year, or both, will be imposed.⁹⁸⁰

The law provides that the county commission must appoint a board of adjustment, which consists of five appointed members who serve for a term of 3 years.⁹⁸¹ The board of adjustment has a number of powers, including—

hearing and deciding appeals where it is alleged there is error in any order, requirement, decision, or determination made by an administrative body or an enforcement official;

hearing and deciding requests for special exceptions to the terms or provision of the ordinance; and

⁹⁷¹ ALA. CODE § 11-19-5.

⁹⁷²Id. § 11-19-6.

⁹⁷³Id. § 11-19-7.

⁹⁷⁴Id.

⁹⁷⁵Id. § 11-19-8.

⁹⁷⁶Id. § 11-19-11.

⁹⁷⁷Id. § 11-19-13.

⁹⁷⁸Id. § 11-19-15.

⁹⁷⁹Id. § 11-19-16.

⁹⁸⁰Id. § 11-19-22.

⁹⁸¹Id. § 11-19-19.

authorizing upon appeal in special cases such variance from the yard, open space, bulk, and height requirements of the ordinance.⁹⁸²

The law also allows any party aggrieved by any final judgment to a decision of a board of adjustment to appeal to the court having jurisdiction, which will hear the case de novo.⁹⁸³

Georgia (region 2).—The Georgia legislature authorizes every county to exercise the power of eminent domain for the purpose of taking and acquiring the property or other interests necessary to enable the county to institute and accomplish flood control and prevention projects.⁹⁸⁴

Arkansas (region 3).—The Flood Control Law of Arkansas⁹⁸⁵ was enacted in response to the "urgent need to mitigate or eliminate the destruction in loss of life and property resulting from the periodic floods in the stream basins"⁹⁸⁶ The law prescribes the following mandatory powers and duties for the Arkansas Soil and Water Conservation Commission:⁹⁸⁷

- Study, consider, and determine with a sound public policy regarding the flood prevention, flood control, and flood protection.
- Compile figures on current and past flood damages and information and scientific data relative to the recurrence of floods.
- Clean out, widen, deepen, straighten, change, alter, divert, or eliminate in whole or in part the course or terminus of any natural or artificial water stream.
- Shape or protect streambanks for the improvement of hydraulic efficiency in the discharge of flood water.
- Acquire lands necessary for reservoir dam sites and lines.
- Construct, take over, maintain, and operate dams, reservoirs, holding or impounding basins, flood gates, and similar structures.
- Construct dikes, levees, or other artificial barriers to protect against inundation of property.
- Relocate or revise bridges, buildings, roads, streets, railroads, and similar structures.
- Acquire by donation, lease, purchase or condemnation and, to hold or own in the name of the state, real and personal property, easements, and the public works erected and constructed.

The commissioner, furthermore, is authorized to:

- Cooperate with the Department of Defense of the United States relating to flood control on any of the streams in Arkansas.⁹⁸⁸
- Apply for allotment or assistance from the Federal Government.⁹⁸⁹

⁹⁸²ALA. CODE § 11-19-19

⁹⁸³Id. § 11-19-20. De novo means anew, afresh. In a de novo trial, the matter is heard as if it had never been heard before, and as if there had been no previous decision rendered. *Black's Law Dictionary*.

⁹⁸⁴Construction, Operation, etc., of Watershed Projects, Flood-Control Projects, etc., by Counties, GA. CODE ANN. § 22-3-100 (1982).

⁹⁸⁵Flood Control Law, ARK. CODE ANN. § 15-24-101 et seq. (1987).

⁹⁸⁶Acts 1937, No. 212, § 20.

⁹⁸⁷Id. § 15-24-102 (1987).

⁹⁸⁸Id. § 15-24-105.

⁹⁸⁹Id. § 15-24-105

- Enter into compacts with one or more states under any act or resolution of Congress, subject to the reservations regarding the levee or drainage district.⁹⁹⁰
- Receive on behalf of the state any Federal moneys, grants, contributions, gratuities or loans available for territory and projects within the jurisdiction of the commission.⁹⁹¹

However, the State commission does not have the power to:⁹⁹²

- Control any levee or drainage district, district directors or commissioners, nor lake lands within the boundaries of any levee or drainage district.
- Acquire reports from districts or supervise or control them.
- Authorize the effect of the existence of any levee or drainage district in any manner.

Mississippi (region 3).—The 1936 Flood Control Law of Mississippi⁹⁹³ allows for the establishment of flood control districts.⁹⁹⁴ A petition is necessary for the chancery court of a majority of the members of the board of supervisors of the county for the lands to be included in the proposed district.⁹⁹⁵ The court will appoint an engineer who is responsible for studying the feasibility of the proposed plan and ascertaining accurate description of the lands that will be included in the proposed district.⁹⁹⁶ The engineer must obtain and file with the court a copy of the report of the chief of engineers of the Department of Defense (War Department), Army Corps of Engineering, recommending the flood control project, a copy of the plan for the control of floods in the proposed district, and any other reports relating to flood control projects.⁹⁹⁷ With these reports and upon hearing, the chancellor will make determination whether to allow the establishment of such district or not.⁹⁹⁸ The court or chancellor's decision to accept or dismiss the petition to establish the flood control district may be appealed by any qualified elector residing in the district.⁹⁹⁹

Upon its organization, the flood control district has the following mandatory powers:¹⁰⁰⁰

- To contract and to be contracted with.
- To sue and be sued.
- To plead and to be impleaded.
- To exercise the right of eminent domain and of taxation.
- To borrow money and to issue notes.
- To do and perform in the name of the district all acts and things expressly authorized by the Flood Control law.

⁹⁹⁰ARK. CODE ANN. § 15-24-106.

⁹⁹¹Id. § 15-24-108.

⁹⁹²Id. § 15-24-102.

⁹⁹³MISS. CODE ANN. § 51-35-101 et seq. (1990 & Supp. 1993).

⁹⁹⁴Id. § 51-35-105 (1990).

⁹⁹⁵Id. § 51-35-109.

⁹⁹⁶Id.

⁹⁹⁷Id. § 51-35-113.

⁹⁹⁸Id. § 51-35-113 through 51-35-117.

⁹⁹⁹Id. § 51-35-119 (1990).

¹⁰⁰⁰Id. § 51-35-121.

Upon organization of the district, a board of commissioners will also be established,¹⁰⁰¹ who will not be liable for any damages sustained while performing their official duties unless the commission has acted willfully and with a corrupt and malicious intent.¹⁰⁰² The board of commissioners must adopt the plan for flood control,¹⁰⁰³ which can be modified.¹⁰⁰⁴ Moreover, the board is authorized to acquire lands, flowage rights, rights of way, easements or premises, either by purchaser, grant, donation, condemnation, or otherwise, to repair or maintain flood control works and improvements¹⁰⁰⁵ and to enlarge or combine with other flood districts for the accomplishment of the purpose of the Flood Control law.¹⁰⁰⁶

In addition to the 1936 Flood Control law, Mississippi Legislature also enacted the Urban Flood and Drainage Control law.¹⁰⁰⁷ It allows the organization of flood and drainage control districts, where any part of such district lies wholly or partially in or adjacent to any part of a municipality having a population of 100,000 or more.¹⁰⁰⁸ When authorized by a resolution of a majority of its governing authorities, any municipality that is a part of a proposed flood and drainage control district can petition the chancery court of competent jurisdiction to create such a district.¹⁰⁰⁹ Upon organization, such district is authorized to do the following:¹⁰¹⁰

- Impound, divert, change, alter, or control overflow water and the surface water of any river or its tributaries within the project area.
- Cooperate with the U.S. Government in the construction of flood and drainage control improvements.
- Furnish all lands, easements, and rights of way necessary for the construction of a project to be constructed by the Federal Government.
- Construct, acquire, and develop all facilities within the project area considered necessary or useful.
- Prevent or assist in the prevention of damage to person or property from the water of any river or any of its tributaries.
- Acquire by purchase, lease, gift, or condemnation any real, personal, or mixed property.
- Require the necessary relocation of bridges, roads, and highways, railroad, telephone and telegraph lines and properties, electric power lines, or gas pipe lines.
- Overflow and inundate any public lands and public property, including sixteenth section lands and in lieu lands, within the project area.
- Construct, extend, improve, maintain, and reconstruct to use and operate any and all facilities within the project area.
- Sue and be sued in its corporate name.
- Adopt use and alter a corporate seal.

¹⁰⁰¹MISS. CODE ANN. § 51-35-127.

¹⁰⁰²Id. § 51-35-151 (1990).

¹⁰⁰³Id. § 51-35-153.

¹⁰⁰⁴Id. § 51-35-169.

¹⁰⁰⁵Id. § 51-35-159 (1990).

¹⁰⁰⁶Id. § 51-35-167.

¹⁰⁰⁷Id. § 51-35-301 et seq. (1990 & Supp. 1993).

¹⁰⁰⁸Id. § 51-35-305 (Supp. 1993).

¹⁰⁰⁹Id. § 51-35-307.

¹⁰¹⁰Id. § 51-35-315.

- Make bylaws for the management and regulation of its affairs.
- Employ personnel.
- Make contracts and execute instruments necessary or convenient to the exercise of the powers, rights, privileges, and functions conferred upon it.
- Make surveys and engineering investigations relating to the project.
- Apply for and accept grants from the Federal Government.
- Do any and all other acts or things necessary or convenient to the exercise of the powers, rights, privileges, and functions conferred upon it.
- Make such contracts in the issuance of bonds.
- Lease, sell, or otherwise dispose of its property.
- Make changes in location of levees, channels, drains, or related facilities.
- Vary, alter, enlarge, diminish, or otherwise change the area included in the district.
- Purchase by bid all equipment, supplies, heavy equipment, contracts on lease purchaser agreement, and office supplies in excess of \$200.

The law provides that the board of directors will exercise all powers of the district.¹⁰¹¹

Wisconsin (region 4).—Under the Wisconsin Flood Control law,¹⁰¹² any 25 owners of land that have been recurrently flooded can file with the Department of Natural Resources a written petition for flood works.¹⁰¹³ The department must publish notification of the nature of the petition and the time and place of the hearing in each county in which any portion is located.¹⁰¹⁴ The hearing must focus on the question of whether the improvement requested in the petition is required for public health, safety, convenience, or welfare.¹⁰¹⁵ If the department determines that public health, safety, convenience, or welfare does not require such improvement, it will dismiss the petition. If it finds the contrary, it will order the hearing to proceed.¹⁰¹⁶ If the department's order directs the hearing to proceed, it must direct its engineering staff to make a preliminary survey and report.¹⁰¹⁷ At any time before further hearings and final findings upon matters covered by the preliminary reports, owners who represent a majority of the lands owned by the original petitions can file a written petition requesting termination of such proceeding.¹⁰¹⁸

If the department directs the work of constructing the improvement to proceed, it must inform the governor of its order who in turn will appoint a flood control board to be responsible for the construction, maintenance, and operation of the improvement.¹⁰¹⁹

¹⁰¹¹MISS. CODE ANN. § 51-35-317 (Supp. 1993).

¹⁰¹²WIS. STAT. ANN. § 87.01 et seq. (West 1990 & Supp. 1993).

¹⁰¹³Id. § 87.03 (West 1990).

¹⁰¹⁴Id. § 87.04 (West 1990 & Supp. 1993).

¹⁰¹⁵Id. § 87.05 (West 1990).

¹⁰¹⁶Id.

¹⁰¹⁷Id. § 87.07 (West 1990).

¹⁰¹⁸Id.

¹⁰¹⁹Id. § 87.12 (West 1990 & Supp. 1993).

The Wisconsin Flood Control law provides that if any county, city, or village does not adopt a reasonable and effective flood plain zoning ordinance within 1 year after hydraulic and engineering data adequate to formulate the ordinance become available, the department must determine and fix by order the limit of any or all flood plains within a county, city, or village within which serious damage may occur. After public hearing, the department is required to adopt a flood plain zoning ordinance applicable to a county, city, or village.¹⁰²⁰

The department is required to administer a flood plain and shoreland mapping assistance program—

- to provide counties, cities, and villages that have financial aid to produce adequate topographical mapping of flood plain and shoreland areas;
- to delineate flood plain and floodway boundaries; and
- to assist in the establishment and administration of flood plain and shoreland ordinances.

The department must develop a statewide priority list for awarding mapping grants. Upon the department's approval and the applicant's acceptance, the department can make available 75 percent of the mapping grant award; the remaining 25 percent will be available at the time the resultant map is approved by the department as the official map and any necessary ordinances and amendments are complete. State funds will cease if the mapping grant recipient fails to adopt the map as the official zoning map or fails to adopt any necessary ordinances or amendments within 6 months after the department approves the map without adequate justification.¹⁰²¹

Iowa (region 5).—Iowa protects has enacted the Soil Conservation and Flood Control Districts Law.¹⁰²² This law requires the board of supervisors of any county to establish districts to further the purposes of soil conservation and control of flood water.¹⁰²³ The board also has the authority to establish districts to conserve soil in the mining areas within the county.¹⁰²⁴

These districts have the power to combine in their functions activities affecting soil conservation, flood control and drainage, or any combination of any of these activities.¹⁰²⁵ Moreover, if any drainage district wants to include in its activities soil conservation or flood control projects, upon petition, the board must establish a new district covering and including the old district together with any additional lands deemed necessary.¹⁰²⁶

However, the board cannot establish a district unless—

- the organization of the district has been approved by the commissioners of the soil and water conservation district and the Department of Natural Resources; and
- the organization is contained in whole or in part within the district.¹⁰²⁷

¹⁰²⁰WIS. STAT. ANN. § 87.30 (West 1990).

¹⁰²¹Id. § 87.31.

¹⁰²²Soil Conservation and Flood Control Districts law, IOWA CODE ANN. § 467C.1 et seq. (West 1990 & Supp. 1993).

¹⁰²³Id. § 467C.2 (West 1990).

¹⁰²⁴Id.

¹⁰²⁵Id. § 467C.3.

¹⁰²⁶Id. § 467C.4.

¹⁰²⁷Id. § 467C.5.

Nebraska (region 5).—The Nebraska Legislature enacted the Nebraska Floodplain Management Act¹⁰²⁸ with various purposes, including—
 accelerating the mapping of flood-prone areas,
 assisting local governments in the promulgation and implementation of effective flood plain management regulations and practices,
 assuring that flood hazards be prevented, flood losses be minimized, and the State's eligibility for flood insurance be maintained, and
 encouraging local governments with flood-prone areas to qualify for participation in the national flood insurance program.¹⁰²⁹

The act imposes the Nebraska Natural Resources Commission the following mandatory powers and duties:¹⁰³⁰

- To coordinate flood plain management activities of local, State, and Federal agencies.
- To receive Federal funds intended to accomplish flood plain management objectives.
- To prepare and distribute information and to conduct educational activities that will help the public and local units of government in complying with the purposes of this act.
- To provide local governments having jurisdiction over flood-prone lands that have technical data and maps adequate to develop or support reasonable flood plain management regulations.
- To adopt and promulgate rules and regulations establishing minimum standards for local flood plain management regulations.
- To provide local governments and other state and local agencies with technical assistance, engineering assistance, model ordinances, assistance in evaluating permit applications and possible violations of flood plain management regulations, assistance in personnel training, and assistance in monitoring administration and enforcement activities.
- To serve as a repository for all known flood data within the State.
- To assist Federal, State, or local agencies in the planing and implementation of flood plain management activities, namely, flood warning systems, land acquisition programs, and relocation programs.
- To enter upon any lands and bodies of water in the State for the purpose of making any investigation or survey.
- To enter into contracts or other arrangements with any state or Federal agency.
- To adopt and enforce such rules and regulations as are necessary to carry out the duties and responsibilities.

The act specifies that once the commission, a Federal agency, or any other entity has provided a local government with sufficient data and maps with which to reasonably locate within its zoning jurisdiction any portion of the flood plain for the base flood of any watercourse or drainage way, it is the responsibility of the

¹⁰²⁸Nebraska Flood Plain Management Act, NEB. REV. STAT. § 31-1001 et seq. (updated through 1994).

¹⁰²⁹Id. § 31-1001.

¹⁰³⁰Id. § 31-1017.

local government to adopt, administer, and enforce flood plain management regulations.¹⁰³¹ If it fails to do so within 1 year after flood hazard maps have been provided, the commission has the authority to adopt flood plain management regulations and must adopt and promulgate regulations for the identified base flood within the zoning jurisdiction of such local government. All local ordinances or other laws that are contrary to the commission's adopted regulations will be null and void.¹⁰³² Furthermore, the local government has a mandatory duty to administer and enforce any regulations adopted by the commission in the same manner as if the local government has enacted such regulations.¹⁰³³

New Mexico (region 6).—The State legislature enacted a number of laws concerning flood control. Each shall be discussed in turn.

General flood control.—The New Mexico Flood Control law¹⁰³⁴ allows for the creation of the office of county flood commissioner within each county through which runs any river or stream that is subject to flood conditions destructive to property or dangerous to human life.¹⁰³⁵ The county flood commissioners are authorized to borrow funds through State or Federal agencies for flood control purposes and to levy tax for flood control projects.¹⁰³⁶ In addition, the commissioners can do a number of things, including—

causing construction and maintenance of dikes, embankments, dams, ditches, or other structures or excavation necessary to control flood water and protect life and property;

employing engineering and other personnel; and

contracting for financing flood control projects from State or Federal agencies.¹⁰³⁷

With their power of eminent domain, the county flood commissioners are authorized to condemn property for carrying the purpose of this law.¹⁰³⁸

Moreover, the New Mexico Flood Control Law allows the establishment of emergency flood districts.¹⁰³⁹ The board of county commissioners must appoint an emergency flood superintendent for each district. In addition to other authorized powers and duties, the superintendent can, with consent of the county commissioners, call upon the able-bodied male persons under 60 years of age residing within his or her district and within 5 miles on each side of the flood river or stream, to work in the control and diversion of the flood water in cases where property or life is threatened by flood water.

¹⁰³¹NEB. REV. STAT. § 31-1019.

¹⁰³²Id. § 31-1020.

¹⁰³³Id. § 31-1021.

¹⁰³⁴NEW MEXICO STAT. ANN. § 4-50-1 et seq. (Michie 1992).

¹⁰³⁵Id. § 40-50-1.

¹⁰³⁶Id. § 40-50-2.

¹⁰³⁷Id. § 40-50-3.

¹⁰³⁸Id. § 40-50-5.

¹⁰³⁹Id. § 40-50-10.

Flood Control District Act.—Under the Flood Control District Act,¹⁰⁴⁰ a flood district may be formed by petition to the office of the clerk of the district court of competent jurisdiction by registered electors of the proposed district.¹⁰⁴¹ The owners of real property may petition for inclusion of additional property¹⁰⁴² or for exclusion from the district.¹⁰⁴³ Furthermore, when a majority of the district board of directors determines that it is in the best interests of the district to dissolve the district, the board must apply for its dissolution in the district court.¹⁰⁴⁴

The district board has a number of powers, including—

- acquire, improve, equip, maintain, and operate any project or facility;
- protect the watercourses, watersheds, public highways, life and property in the district from floods or stormwater;
- exercise the right of eminent domain within the district and take property necessary to carry out any of the purposes of the act;
- borrow money and issue securities evidencing any loan to or amount due from the district;
- levy and cause to be collected a property tax on all property subject to property taxation within the district;
- acquire, improve, equip, hold, operate, maintain, and dispose of a flood control system, project, and appurtenant works; and
- sell any securities.¹⁰⁴⁵

Southern Sandoval County Arroyo Flood Control Act.—The Southern Sandoval County Arroyo Flood Control Act¹⁰⁴⁶ creates a flood control authority,¹⁰⁴⁷ whose boundary of authority includes a portion of southern Sandoval County.¹⁰⁴⁸ In addition to its additional powers,¹⁰⁴⁹ the authority is authorized to acquire, equip, maintain and operate a flood control system for the benefit of the people.¹⁰⁵⁰

The board of directors, the governing body of the authority,¹⁰⁵¹ has the following implementing powers:¹⁰⁵²

- To acquire, improve, equip, maintain, and operate any project or facility for the control of flood and stormwater.

¹⁰⁴⁰Flood Control District Act, NEW MEXICO STAT. ANN. § 72-18-1 et seq. (Michie 1985 & Supp. 1993).

¹⁰⁴¹Id. § 72-18-5. Qualified registered elector means any person who (1) at the designated time or event is qualified to vote under the provisions of the New Mexico and U.S. constitutions, (2) is registered to vote under the provisions of the New Mexico Election Code, and (3) resides in the district or proposed district. Id. § 72-18-3(R).

¹⁰⁴²Id. § 72-18-24.

¹⁰⁴³Id. § 72-18-25, § 72-18-25.1.

¹⁰⁴⁴Id. § 72-18-27. For process of dissolution, see Id. § 72-19-28 through § 72-18-34.

¹⁰⁴⁵Id. § 72-18-20 (Michie Supp. 1993).

¹⁰⁴⁶Southern Sandoval County Arroyo Flood Control Act, N.M. STAT. ANN. § 72-19-1 et seq., effective February 22, 1990 (Michie Supp. 1993).

¹⁰⁴⁷Id. § 72-19-5.

¹⁰⁴⁸Id. § 72-19-6. The boundary of authority includes a portion of southern Sandoval County bounded on the east by the Rio Grande, on the south by the Bernalillo and Sandoval County lines, on the west by the top of the Rio Puerco drainage and on the north by the top of the drainage that lies on the southern boundary of the Zia Indian reservation and state highway 44. Id.

¹⁰⁴⁹Id. § 72-19-22.

¹⁰⁵⁰Id. § 72-19-19.

¹⁰⁵¹Id. § 72-19-8 (providing that the board is composed of five qualified electors).

¹⁰⁵²Id. § 72-19-20.

- To protect the water courses, watersheds, public highways, life, and property in the authority from such floods or stormwater.
- To exercise the right of eminent domain in the manner provided by law for the condemnation of private property for public use.

However, the board must dissolve the authority if it receives a remonstrance denying the board the power to acquire a flood control system if the first proposal for the issuance of bonds fails to receive a favorable vote by the majority of the qualified electors.¹⁰⁵³

Texas (regions 6 & 7).—Under the Texas Stormwater Control Districts law,¹⁰⁵⁴ a stormwater control district may be created to control stormwater and floodwater and to prevent downstream flooding in all or part of a watershed.¹⁰⁵⁵ To create a stormwater control district, a person or the commissioners court in the counties in which all or part of the district will be located must petition with the executive director requesting such creation. The petition must be signed by at least 50 persons who reside within the boundaries of the proposed district or by the majority of the commissioners court.¹⁰⁵⁶ After notice and hearing,¹⁰⁵⁷ the Natural Resource Conservation Commission then decides whether to grant or deny such petition.¹⁰⁵⁸

However, the commission's order of granting or denying such petition may be appealed as provided by the Administrative Procedure and Texas Register Act.¹⁰⁵⁹ If the petition is granted, thereby creating a stormwater control district, a board of directors, composed of five members of the district will be elected.¹⁰⁶⁰ After notice and hearing, the board is required to adopt rules to carry out the Texas Stormwater Control Districts law.¹⁰⁶¹

Under the Texas Stormwater Control Districts law, the district (nonmandatory) does the following:¹⁰⁶²

- Acquire land to construct facilities for the district.
- Construct regional stormwater retention and detention pond facilities to retain stormwater runoff and to prevent area and downstream flooding in the district.
- Construct outfall drainage ditches and similar facilities to control stormwater and floodwater and prevent area and downstream flooding.
- Provide for and use the land on which regional stormwater retention and detention pond facilities are located for park and recreational areas when the area is not used for holding water.
- Provide financing for land and facilities and for construction of facilities from money obtained from different sources.

¹⁰⁵³NEW MEXICO STAT. ANN. § 72-19-35.

¹⁰⁵⁴Texas Stormwater Control Districts Law, TEXAS WATER CODE ANN. § 66.001 et seq. (West 1988 & Supp. 1995).

¹⁰⁵⁵Id. § 66.012 (West 1988).

¹⁰⁵⁶Id. § 66.014.

¹⁰⁵⁷Id. § 66.018.

¹⁰⁵⁸Id. § 66.019.

¹⁰⁵⁹Id. § 66.020.

¹⁰⁶⁰Id. § 66.023, § 66.104.

¹⁰⁶¹Id. § 66.118.

¹⁰⁶²Id. § 66.201.

- Advise, consult, contract, cooperate with, and enter into agreements with the Federal Government and its agencies, the State and its agencies, local governments, and persons.
- Apply for, accept, receive, and administer gifts, grants, loans, and other funds available from any source.

Among other mandatory duties, the board must prepare and approve an annual audit of the financial condition of the district.¹⁰⁶³ Money may not be spent for an expense not included in the annual budget or the budget's amendment.¹⁰⁶⁴

Moreover, the board may—

invest and re-invest the district's funds,¹⁰⁶⁵

borrow money for any purpose authorized under this law,¹⁰⁶⁶

issue and sell bonds in the name of the district to acquire land and construct facilities,¹⁰⁶⁷ and

levy and collect an operating tax in the district to pay operating expenses of the district (subject to the approval of a majority of voters in the district).¹⁰⁶⁸

The district must petition for dissolution after it has completed all construction of facilities provided in the plan and conveyed those facilities to the designated counties and after all bonds and other indebtedness of the district are paid in full.¹⁰⁶⁹ The commission must order the district dissolved if it finds that the work is completed and all bonds and indebtedness have been retired.¹⁰⁷⁰

Texas, with its right of eminent domain, a county can acquire public or private real property for the purpose of providing for flood control and water outlets.¹⁰⁷¹

Idaho (region 8).—The Idaho Legislature enacted a Flood Control District Act¹⁰⁷² for the “prevention of flood damage in a manner consistent with the conservation and wise development of [the State’s] water resources....”¹⁰⁷³ The act provides that a flood control district, which will be divided into not less than three nor more than nine divisions to provide adequate representation to all of the interests within the proposed district,¹⁰⁷⁴ can be established¹⁰⁷⁵ by a petition signed by one-third or more of the qualified voters residing in the proposed district.¹⁰⁷⁶ Upon establishment of the flood control district, a board of commissioners is organized, where each

¹⁰⁶³TEXAS WATER CODE ANN. § 66.303.

¹⁰⁶⁴Id. § 66.305.

¹⁰⁶⁵Id. § 66.307.

¹⁰⁶⁶Id. § 66.309.

¹⁰⁶⁷Id. § 66.310.

¹⁰⁶⁸Id. § 66.323.

¹⁰⁶⁹Id. § 66.410.

¹⁰⁷⁰Id. § 66.402.

¹⁰⁷¹Id. § 411.001 (West 1988).

¹⁰⁷²Flood Control District Act, IDAHO CODE ANN. § 42-3101 et seq. (Michie 1990 & Supp. 1993).

¹⁰⁷³Id. § 42-3102 (Michie 1990).

¹⁰⁷⁴Id. § 42-3106.

¹⁰⁷⁵Id. § 42-3104.

¹⁰⁷⁶Id. § 42-3105 (Michie 1990).

commissioner represents one division within the district.¹⁰⁷⁷ Moreover, the commissioners are entrusted with a series of powers and duties.¹⁰⁷⁸

An existing district may be enlarged¹⁰⁷⁹ or consolidated upon petition.¹⁰⁸⁰ Qualified electors residing in a division of a flood control district can petition the director requesting to be excluded from a district; such a petition must be signed by at least one third of the qualified electors residing within the division.¹⁰⁸¹

In addition, a district may be dissolved by the district court of competent jurisdiction on complaint or petition of parties holding and owning—
50 percent or more of the issued, outstanding, unpaid bonds of such district;

50 percent or more of all land located within the boundaries of such district;

claims, warrants, liens, or other legal obligations of such district in an amount of at least 30 percent of the issued, outstanding, and unpaid bonds of such district; or

upon the complaint of the director of the department of water resources.¹⁰⁸²

Utah (region 8).—The Utah Flood Control and Prevention law provides that the Division of State Lands and Forestry can authorize surveys of any State lands or other areas of the State for the purpose of controlling and preventing floods.¹⁰⁸³ After a survey, if the division concludes that floods are likely to affect any State lands and will endanger life and property, the division must take action necessary to control or to prevent the occurrence of those floods.¹⁰⁸⁴ For the purpose of controlling and preventing floods, the division can do the following:

- Cooperate with public and private entities.¹⁰⁸⁵
- Authorize construction of necessary control works on a basis of equitable participation, and, for these purposes, acquire any additional lands necessary for the control or the prevention of floods either by purchase, exchange, lease, gift, or condemnation.¹⁰⁸⁶
- Transfer these lands to any existing agencies or agencies created to maintain prevention or control works.¹⁰⁸⁷
- Cooperate with the Federal Government in acquiring watershed lands becoming barren and susceptible to flooding.¹⁰⁸⁸

¹⁰⁷⁷TEXAS WATER CODE ANN. § 42-3109.

¹⁰⁷⁸Id. § 42-3115 (Michie Supp. 1993).

¹⁰⁷⁹Id. § 42-3120.

¹⁰⁸⁰Id. § 42-3122 (Michie 1990).

¹⁰⁸¹Id. § 42-3127.

¹⁰⁸²Id. § 42-3126 (1990).

¹⁰⁸³UTAH CODE ANN. § 65A-11-1(1) (Supp. 1995).

¹⁰⁸⁴Id. § 65A-11-1(2).

¹⁰⁸⁵Id. § 65A-11-1(3).

¹⁰⁸⁶Id. § 65A-11-1(4).

¹⁰⁸⁷Id. § 65A-11-1(5).

¹⁰⁸⁸Id. § 65A-11-1(6).

In addition to the Flood Control and Prevention law, the Utah Legislature also enacted a number of provisions pertaining to flood control projects and drought emergencies.¹⁰⁸⁹ Under these provisions, a county can do the following:

- Contract with the Federal Government to construct any flood control project within the county designed to abate or control flood water or any excessive or unusual accumulation of water.¹⁰⁹⁰
- Contract to and acquire easements and rights of way to relocate public roads or bridges when the replacement is made necessary by the construction of any flood control project.¹⁰⁹¹
- Remove any obstacle, in anticipation of storm and flood water, from any neutral channels within the county and the incorporated municipalities in the county.¹⁰⁹²
- Establish by ordinance the dimensions and location of channels, storm sewers, and drains; promulgate regulations to prevent the destruction or obstruction of these channels, storm sewers, and drains; and acquire, by right of eminent domain, necessary easement and rights of way in implementing the establishment, clearing, protection, and continued use of channels, storm sewers and drains.¹⁰⁹³
- Provide by ordinance for the protection and use of flood channels and present flood plains on rivers, streams, and canals located within the county and the incorporated municipalities. The division can acquire lands, rights of way, easements, or other interests in property within the boundaries of these flood channels and present flood plains.¹⁰⁹⁴
- Declare that an emergency drought exists in said county, and appropriate or levy tax to aid in any program to increase precipitation.¹⁰⁹⁵

Oregon (region 9).—Under the Oregon Drainage and Flood Control law,¹⁰⁹⁶ the Water Resources Commission is required to carry out the State's participation in Federal flood control projects.¹⁰⁹⁷ To carry out its duty, the commission is authorized to do the following:

- Sign agreements with the Federal Government regarding the Federal flood project.¹⁰⁹⁸
- Enter upon lands to gather information.¹⁰⁹⁹
- Acquire property by purchase, donation, or condemnation.¹¹⁰⁰
- Sell, donate, exchange or lease, or grant easement of the acquired property, on terms, which are beneficial to the State and meet all Federal flood control project requirements.¹¹⁰¹

¹⁰⁸⁹UTAH CODE ANN. § 17-8-1 et seq. (1991 & Supp. 1995).

¹⁰⁹⁰Id. § 17-8-1 (Supp. 1995).

¹⁰⁹¹Id. § 17-8-2.

¹⁰⁹²Id. § 17-8-5 (Supp. 1995).

¹⁰⁹³Id.

¹⁰⁹⁴Id. § 17-8-5.5.

¹⁰⁹⁵Id. § 17-8-7 (Supp. 1995).

¹⁰⁹⁶OR. REV. STAT. § 549.010 et seq. (1995).

¹⁰⁹⁷Id. § 549.605.

¹⁰⁹⁸Id.

¹⁰⁹⁹Id. § 549.615.

¹¹⁰⁰Id. § 549.620.

¹¹⁰¹Id. § 549.625.

- Maintain and operate a flood control project after it is completed and turned over by the Federal Government.¹¹⁰²
- Enter into agreements with the Federal Government, public and quasi-public bodies, including but not limited to drainage and irrigation districts, water control districts and subdistricts, district improvement companies, and other persons.¹¹⁰³

The Oregon law also gives powers to certain counties with respect to water conservation and flood control. If the county has a population of 50,000 or more, the county court or board of county commissioners can—

carry out surveys and plan and engage in projects regarding water conservation and flood control;

contract and cooperate with Federal and State agencies in making surveys and planning and engaging in projects regarding water conservation and flood control;

provide lands and rights of way, operate and maintain flood control projects, and do things which are considered necessary for county participation in Federal flood control and water conservation projects; and remove or destroy drifts and drifting materials in rivers and streams or on land that has been flooded.¹¹⁰⁴

When removing or destroying drifts or drifting materials in rivers or streams or on land that has been flooded, the county has a number of mandatory powers, including—

entering upon any land for purposes of inspection, removal, and destruction of drifts and drifting material;

giving reasonable notice to owners of salvable materials that the county has salvaged their property and if such property has not been claimed within a defined period, such property will be disposed by sale.¹¹⁰⁵

Furthermore, the county court of each county can budget and appropriate money for water conservation and flood control.¹¹⁰⁶

California (region 10).—Among other provisions, the California Flood Control law¹¹⁰⁷ provides for local flood control and state flood control. Each shall be discussed in turn.

Local flood control.—The local flood control provisions provide for flood control in cities and counties.

In cities.—Each city is allowed to incur indebtedness and liability (but not in excess of the income and revenue provided by it) to protect the city from overflow by water, to drain the city, and to secure an outlet for overflow water and drainage.¹¹⁰⁸ The city council must have some competent persons to make general

¹¹⁰²OR. REV. STAT. § 549.630.

¹¹⁰³Id. § 549.635.

¹¹⁰⁴Id. § 549.710.

¹¹⁰⁵Id. § 549.720.

¹¹⁰⁶Id. § 549.730.

¹¹⁰⁷CAL. WATER CODE § 8000 through § 9250 (West 1992).

¹¹⁰⁸Id. § 8010.

plans and estimates of the cost of the contemplated works (including canals, ditches, levees, dikes, embankments, dams, machinery, and other appropriate or ancillary means of accomplishing flood control); these plans and estimates, after adoption, must be filed in the office of the city's clerk and adhered to.¹¹⁰⁹ After filing the general plans and estimates, and by resolution or ordinance of intention, the city council must determine that the public good demands the construction, acquisition, and completion (or any of these) of the works.¹¹¹⁰

The city council has a number of powers, including—

- making all necessary rules and regulations for acquisition, construction, and completion of the works;
- appointing all necessary agents, superintendents, and engineers to supervise and construct the works; and
- protecting and preserving the rights and interests of the city in respect to the works.¹¹¹¹

Each city within the limits of which any drainage improvement has been constructed and which drainage improvement also lies within the territorial limits of a flood control district, can transfer such drainage improvement to any flood control district in the county by a four-fifths vote of the legislative body of the city.¹¹¹² Once transfer is made, the flood control district will assume and provide for the operation, maintenance, repair, and improvement of such drainage improvement.¹¹¹³

In counties.—The board of supervisors of each county is authorized to appropriate and expend money from the county's general fund for a number of purposes, including—

- constructing works, improvements, levees, or check dams to prevent overflow and flooding;
- protecting and reforesting watersheds;
- conserving flood water;
- making of all surveys, maps, and plats necessary to carry out any work, construction, or improvement; and
- carrying out of authorized work, construction, or improvement outside the county if the rivers or streams affected flow in or through more than one county.¹¹¹⁴

However, any work performed outside the county must be done with the consent of the legislative body of the county in which the work is to be done.¹¹¹⁵

¹¹⁰⁹CAL. WATER CODE § 8013.

¹¹¹⁰Id. § 8014.

¹¹¹¹Id. § 8050.

¹¹¹²Id. § 8060.

¹¹¹³Id. § 8061.

¹¹¹⁴Id. § 8100.

¹¹¹⁵Id. § 8106.

The board of supervisors can also provide by ordinance for the establishment and government of districts to carry out the following purposes:¹¹¹⁶

- Protect and preserve banks of rivers and streams and lands lying contiguous from injury by overflow or washing.
- Provide for the improvement of rivers and streams.
- Prevent the obstruction of rivers and streams.
- To assess, levy, and collect within each district a tax for the district.¹¹¹⁷

The board can provide for widening, deepening, straightening, removing obstructions from, and improving nonnavigable streams to control overflow, which interferes with highways, and for protection of the banks and adjacent lands from overflow of non-navigable streams.¹¹¹⁸ However, the board cannot direct improvements that interfere with the private rights or privileges of riparian owners, miners, or others.¹¹¹⁹

Each county can transfer drainage improvements to any flood control district in the county by a four-fifths vote of the members of the board. Once transfer is made, the flood control district will have sole control and jurisdiction over such drainage improvements.¹¹²⁰

State flood control.—The Department of Water Resources is authorized to do the following:

- Make examinations of lands subject to inundation and overflow by flood water and of the water causing the inundation or overflow and make plans and estimates of the cost of works to regulate and control the flood water.¹¹²¹
- Manage and control the work on any river or slough flowing into San Francisco Bay, San Pablo Bay, and Suisun Bay, or on the tide water flowing into such bays, if no other agency is specified.¹¹²²
- Purchase, construct, and operate one or more dredges or any other necessary appliances to promote or properly carry out the work of the department.¹¹²³
- Obtain or condemn any right-of-way for authorized construction.¹¹²⁴
- Cooperate with the Federal Government under a national flood insurance program. To do so, the department can do a number of things, including—

¹¹¹⁶CAL. WATER CODE § 8110.

¹¹¹⁷There are a number of flood control districts, including American River (see App. 37-1 et seq.), Contra Costa County (see App. 63-1 et seq.), Del Norte County (see App. 72-1 et seq.), Fresno Metropolitan (see App. 73-1 et seq.), Humboldt County (see App. 47- et seq.), Lake County (see App. 62-1 et seq.), Los Angeles County (see App. 28-1 et seq.), Marin County (see App. 68-1 et seq.), Mendocino County (see App. 54- et seq.), Napa County (see App. 61-1 et seq.), Orange County (see App. 36-1 et seq.), Riverside County (see App. 48-1 et seq.), San Benito County (see App. 70-1 et seq.), San Bernardino County (see App. 43-1 et seq.), San Diego County (see App. 105-1.5 et seq.), San Joaquin County (App. 79-1 et seq.), San Luis Obispo County (App. 49-1 et seq.), Santa Barbara County (App. 73-1 et seq.), Santa Clara County App. 60-1 et seq.), Santa Cruz County (App. 77-1 et seq.), Sonoma County App. 53-1 et seq.), Vallejo County (App. 67-1 et seq.), Ventura County (App. 46- et seq.), and Yolo County (App. 65-1 et seq.).

¹¹¹⁸CAL. WATER CODE § 8126.

¹¹¹⁹Id. § 8128.

¹¹²⁰Id. § 8156.

¹¹²¹Id. § 8300.

¹¹²²Id. § 8301.

¹¹²³Id. § 8303.

¹¹²⁴Id. § 8304.

carry out studies and investigations with respect to the adequacy of local measures in flood-prone areas as to land management and use, flood control, flood zoning, and flood damage prevention;

review and comment upon application of local public agencies to the Federal Government for making flood insurance available in specific areas; and

provide assistance to local public agencies by furnishing evidence on flood plains and in developing flood plain management plans.¹¹²⁵

- Supervise the maintenance and operation of the flood control works of the Sacramento River Flood Control Project.¹¹²⁶

The Cobey-Alquist Floodplain Management Act¹¹²⁷ provides that within any area classified as *designated floodway*, the appropriate public agency (which is defined to mean any city, county, or district) must establish the necessary flood plain regulations within 1 year following notification by the department or board. However, the State will not pay for any of the cost of lands, easements, and rights-of-way associated with flood control project unless flood plain regulations for the designated floodway are adopted.¹¹²⁸

Before adoption of flood plain management regulations, the public agency can request and receive review of its flood plain management plans by the California Department of Water Resources or the State Reclamation board.¹¹²⁹ Flood plain regulations, moreover, must meet the following criteria:¹¹³⁰

- Construction or structures in the designated floodway that may endanger life or significantly restrict the carrying capacity of the designated floodway will be prohibited.
- Development will be permitted within the restrictive zone in compliance with local agency policy, giving full consideration to the protection of human life and to the carrying capacity of the flood plain.

The department or board will review the adequacy of flood plain regulations established by a public agency and notify the public agency, in the event the flood plain regulations are held to be inadequate, to comply with the requirement. The department or board will recommend any provisions necessary to provide adequate flood plain regulations. Moreover, the public agency must adopt the new flood plain regulations within 180 days of receipt of the notice from the department or board.¹¹³¹ However, the public agency cannot revise the flood plain regulations nor grant variance from such regulations without the consent of the department or board and of the local flood control agency having jurisdiction over the project area.¹¹³²

¹¹²⁵CAL. WATER CODE § 8326.

¹¹²⁶Id. § 8360.

¹¹²⁷Id. § 8400 through 8415.

¹¹²⁸Id. § 8411.

¹¹²⁹Id. § 8403.

¹¹³⁰Id. § 8410.

¹¹³¹Id. § 8412.

¹¹³²Id. § 8414.2.

Tennessee (regions 11 & 12).—The Mill Creek watershed flood control authority was created to control flood water in the watershed of Mill Creek located in Davidson, Williamson, and Rutherford Counties.¹¹³³ The Mill Creek authority is a body politic and corporate that is governed by a board of directors.¹¹³⁴

The authority is authorized to do all things necessary or desirable in establishing and executing a comprehensive plan for controlling flooding in the Mill Creek watershed. It can cooperate with appropriate local, State, and Federal agencies in prosecuting adopted and authorized projects for the construction of dams, floodways, drainage canals, reservoirs, channel rectification, and other flood control and drainage works within Mill Creek watershed. Among other powers, the authority has the final ruling to disallow development within the 100-year flood plain along Mill Creek. Furthermore, property held by the authority is exempt from all taxes levied by the State or any of its political subdivisions.¹¹³⁵

Williamson, Rutherford, and Metropolitan Nashville-Davidson Counties can participate in the programs established by the authority by resolution passed with two-thirds vote of each county's general assembly.¹¹³⁶ Moreover, Williamson and Rutherford Counties are authorized to contribute funds to the work of the Mill Creek watershed flood control authority.¹¹³⁷

Flood plain and stormwater control laws in selected counties

A few of the surveyed counties have flood plain and stormwater control laws.

Anne Arundel County, Maryland, requires each person who wants to develop land for residential, commercial, recreational, industrial, or any other purpose to provide appropriate stormwater management measures that control or manage runoff. The ordinance requires a stormwater management plan to be submitted to the Department of Planning and Code Enforcement for review and approval.

Lee County, Georgia, prevents flood hazard through its Land Development Ordinance that sets forth a number of provisions applicable to all county's areas of special flood hazard. Before commencement of any development activities, a flood damage prevention permit is required. All areas of special flood hazards in Lee County are subject to a set of *general* and *specific* standards.

Clark and Adams Counties of Wisconsin have identical flood plain zoning ordinances. These ordinances regulate all areas within the unincorporated limits of the counties covered by the *regional flood* and *flood plain islands* as designated on the official map. All cities, villages, and towns must comply with the ordinances. These ordinances provide that in all flood plain districts (including floodway districts, floodfringe districts, and general flood plain districts), no development is allowed in flood plain areas that can cause an obstruction to flow or an increase in regional flood height equal to or exceeding 0.01 foot due to loss of flood plain storage area.

¹¹³³TENN. CODE ANN. § 64-3-102 (1990).

¹¹³⁴Id. § 64-3-103.

¹¹³⁵Id. § 64-3-104.

¹¹³⁶Id. § 64-3-106.

¹¹³⁷Id. § 64-3-105.

Anne Arundel County, Maryland (region 1).—In 1994, the County Council of Anne Arundel County passed the amendment of Stormwater Management Ordinance, thereby repealing the existing stormwater management requirements, which were enacted in 1985.¹¹³⁸ The ordinance provides that no person may develop land for residential, commercial, recreational, industrial, or any other purposes without providing appropriate stormwater management measures that control or manage runoff.¹¹³⁹ Moreover, it requires a Stormwater Management Plan to be submitted to the Department of Planning and Code Enforcement for review and approval.¹¹⁴⁰ This plan must:

- Include supporting computations, drawings, and sufficient information describing the manner, location, and type of measures in which stormwater runoff will be managed from the entire development.
- Comply with the provisions of this Ordinance and the Stormwater Management Technical Manual,¹¹⁴¹ which must be adopted and amended following public review and comment by the Director of the Planning and Code Enforcement.¹¹⁴²

Under this ordinance, a person must install or construct stormwater management facilities for a proposed development to meet the minimum performance requirement for managing increased runoff.¹¹⁴³ It must be done in a way, so that,—
the 2-year and 10-year development peak discharge rates are not exceeded and predevelopment volume is not exceeded in 36 hours for sites in the critical area;¹¹⁴⁴

accelerated channel erosion will not occur as a result of the proposed development;¹¹⁴⁵ and

water quality will be improved for sites in the critical area.¹¹⁴⁶

When developing a Stormwater Management Plan, the following stormwater management practices must be investigated in the following order of preference:¹¹⁴⁷

1. Infiltration of runoff onsite;
2. Flow attenuation by use of open vegetated swales and natural depressions;
3. Stormwater retention structures;
4. Stormwater detention structures; and
5. A combination of the practices listed above.

¹¹³⁸County Council of Anne Arundel County, Maryland, Legislative Session 1994, Legislative Day No. 33, Bill No. 87-94, amended bill final on September 8, 1994.

¹¹³⁹MD. CODE ANN. § 3-103.

¹¹⁴⁰Id. § 3-201(A).

¹¹⁴¹Id. § 3-201(B).

¹¹⁴²Id. § 3-104(B).

¹¹⁴³Id. § 3-202(A).

¹¹⁴⁴Id. § 3-202(A)(1).

¹¹⁴⁵Id. § 3-202(A)(2).

¹¹⁴⁶Id. § 3-202(A)(3).

¹¹⁴⁷Id. § 3-202(B).

Moreover, any development resource conservation areas, limited development areas, or intensely developed areas of the critical area must be undertaken only in compliance with the following:¹¹⁴⁸

- Permeable areas must be established in vegetation and innovation, development techniques must be used to the extent practicable to reduce impervious areas and to maximize areas of natural vegetation.
- Re-development must have pollutant loading reduced by at least 10 percent below the level of pollution from the site before re-development.
- New development must have pollutant loading reduced by at least 10 percent below the level of pollution from the site before development.
- New development activity and re-development within intensely developed areas must be undertaken only in compliance with the design manual and technical report called *A Framework for Evaluating Compliance with the 10 Percent Rule in the Critical Area*.
- All computations and data necessary to ensure that any development or re-development meets the 10 percent pollutant reduction requirement must be provided by the developer to the department for approval.
- Offsets allowed by the design manual and technical report may be used either onsite or offsite in the same critical area-watershed to reach the 10 percent pollutant reduction requirement.
- Development activity may not cause downstream property, watercourses, channels, or conduits to receive stormwater runoff at a higher volume or rate than permitted by the ordinance.
- All stormwater management facilities are designed with sufficient capacity to manage at a minimum the first one-half inch of runoff from impervious surfaces or extended detention of a 1-year storm for 24 hours to achieve water quality improvement.

Before engaging in activities subject to this ordinance, a person must secure a permit. Moreover, a building permit or grading permit may not be issued unless the applicant complies with one of the following requirements:¹¹⁴⁹

- Proofs from the applicant that facilities to manage stormwater quantity and quality have been installed as a part of the required improvements during subdivision approval.
- Submission of a stormwater management plan for a proposed development in accordance with the ordinance, the stormwater management technical manual, stormwater management plan, and obtaining of an approval of the plans and design criteria from the development.
- Certification providing that the site is part of a subdivision or development that—
 - has been approved for compliance with this ordinance;
 - will not increase the 2-year predevelopment peak discharge more than 10 percent;
 - will not adversely affect the receiving channel or facility; and

¹¹⁴⁸MD. CODE ANN. § 3-202(D).

¹¹⁴⁹Id. § 3-301(B).

has facilities to manage stormwater quantity and quality.

Furthermore, the ordinance also provides a number of exemptions from the ordinance for land development.¹¹⁵⁰ These exemptions are as follows:

- Agricultural land management practices that—
include an active soil and water conservation plan; and
have been reviewed and approved by the Anne Arundel Soil Conservation District.
- Additions or modification to existing residential structures.
- Development that does not disturb more than 5,000 square feet of land area.
- Land development activities that the State determines are regulated by State law.
- Residential developments of single-family houses on lots of 2 acres or more outside of the critical area.¹¹⁵¹

In addition to these exemptions, an applicant can also seek a waiver from the department.¹¹⁵² With the grant of a waiver, the applicant does not need to comply with the requirements set forth in the ordinance. However, this waiver provision does not apply to the critical area.¹¹⁵³ Furthermore, the ordinance specifies that any person who violates any provision of this ordinance is guilty of a misdemeanor, and upon conviction, is subjected to a fine not exceeding \$1,000 or imprisonment exceeding 6 months, or both.¹¹⁵⁴ Each day's violation constitutes a separate offense.¹¹⁵⁵

Lee County, Georgia (region 2).—To prevent flood hazard, Lee County Land Development Ordinance sets forth a number of provisions applicable to all county's areas of special flood hazard,¹¹⁵⁶ which are established by the Federal Emergency Management Agency in its Flood Insurance Rate Map, dated May 15, 1991.¹¹⁵⁷

The ordinance provides that before any development activities, a Flood Damage Prevent Permit is required.¹¹⁵⁸ All areas of special flood hazards in Lee County are subject to general and specific standards.¹¹⁵⁹ The general standards provide as follows:¹¹⁶⁰

- New constructions and substantial improvements must be anchored to prevent flotation, collapse, or lateral movement of the structure.
- Manufactured homes must be anchored to prevent flotation, collapse, or lateral movements.
- New construction and substantial improvements must be constructed with materials and utility equipment resistant to flood damage.

¹¹⁵⁰MD. CODE ANN. § 3-302.

¹¹⁵¹Id. § 3-302

¹¹⁵²Id. § 3-303(A).

¹¹⁵³Id. § 3-303(A).

¹¹⁵⁴Id. § 3-403(A).

¹¹⁵⁵Id. § 3-403(B).

¹¹⁵⁶Lee County Land Development Ordinance, GA § 10.2.1.

¹¹⁵⁷Id. § 10.2.2.

¹¹⁵⁸Id. § 10.2.3.

¹¹⁵⁹Id. § 10.3.

¹¹⁶⁰Id. § 10.3.1.

- New construction or substantial improvements must be constructed by methods and practices that minimize flood damage.
- Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities must be designed or located, or both, to prevent water from entering or accumulating within the components during conditions of flooding.
- New and replacement water supply systems must be designed to minimize or eliminate infiltration of flood water into the system.
- New and replacement sanitary sewage systems must be designed to minimize or eliminate infiltration of flood water into the system and discharges from the systems into flood water.
- Onsite waste disposal systems must be located and constructed to avoid impairment to them or contamination from them during flood.
- Any alteration, repair, reconstruction, or improvements to a building that is in compliance with the Flood Damage Prevention provisions, must meet the requirements of *new construction* as specified in this ordinance.
- Any alteration, repair, reconstruction, or improvements to a building which is not in compliance with the Flood Damage Prevention provisions must be undertaken only if the nonconformity is not furthered, extended, or replaced.

All areas of special flood hazard where base flood elevation have been provided must comply with a set of specific standards.¹¹⁶¹

Clark County, Wisconsin (region 4).—The Clark County flood plain zoning ordinance was enacted to regulate the development in flood hazard areas to protect life, health, and property.¹¹⁶² This ordinance regulates all areas within the unincorporated limits of the county covered by the *regional flood* and *flood plain islands* designated on the official map.¹¹⁶³

The term *regional flood* is a "flood determined to be representative of large floods known to have occurred in Wisconsin or which may be expected to occur on a particular lake, river or stream once in every one hundred years."¹¹⁶⁴

The term *flood plain islands* is a "natural geologic land formation within the flood plain that is surrounded, but not covered, by floodwater during the regional flood."¹¹⁶⁵

The ordinance specifies that all cities, villages, towns, and counties are required to comply with the Floodplains Ordinance.¹¹⁶⁶ It provides that in all flood plain districts (including floodway districts, floodfringe district, and general flood plain district), no development is allowed in flood plain areas. Specifically developments that can cause an obstruction to flow (development that physically blocks the conveyance of floodwater by itself or in conjunction with future similar development causing an increase in regional flood height) or an increase in regional flood height because flood plain storage area lost, which is equal to or exceeding

¹¹⁶¹Lee County Land Development Ordinance, GA § 10.3.2.

¹¹⁶²Clark County flood plain zoning ordinance, WI § 18.04.005 et seq. (1993).

¹¹⁶³Id. § 18.04.050.A.

¹¹⁶⁴Id. § 18.04.460.

¹¹⁶⁵Id. § 18.04.200.

¹¹⁶⁶Id. § 18.04.050.G.

0.01 foot.¹¹⁶⁷ Furthermore, in seeking watercourse alterations, the local zoning official must notify adjacent municipalities, the appropriate district offices of DNR and FEMA and must require applicants to secure all necessary State and Federal permits.¹¹⁶⁸

Flood plain areas are further divided into three districts. They are as follows:

Floodway district.—This district consists of the channel of a river or stream and those portions of the flood plain adjoining the channel required to carry the water associated with a regional flood.¹¹⁶⁹

The ordinance requires that all developers of structures in floodway districts secure permits. It allows a number of permitted uses in the floodway district and the floodway portion of the general flood plain district, providing that they are not prohibited by any other ordinances.

The permitted uses include—

agricultural uses;¹¹⁷⁰

nonstructural industrial and commercial uses;¹¹⁷¹

nonstructural private and public recreational uses;¹¹⁷²

uses or structures accessory to open uses, or essential for historical areas;¹¹⁷³

extraction of sand, gravel, or other materials;¹¹⁷⁴

functionally water-dependent uses and other water-related uses;¹¹⁷⁵ and public utilities, streets, and bridges.¹¹⁷⁶

However, there are a number of uses that are always prohibited in the floodway district and the floodway portion of the general flood plain district. They include— the structures in, on, or over floodway areas that are designed for human habitation;

the storage of any materials that are capable of floating, flammable, explosive or injurious to property, water quality or human, animal, plant, fish, or other aquatic life;

any private or public sewage systems except portable latrines that are removed prior to flooding;

¹¹⁶⁷Clark County flood plain zoning ordinance, WI § 18.12.010.A. (1993).

¹¹⁶⁸Id. § 18.12.020.

¹¹⁶⁹Id. § 18.04.050.C.1.

¹¹⁷⁰Id. § 18.16.020.A. The ordinance provides examples of agricultural uses. They are: general farming, pasturing, outdoor plant nurseries, horticulture, viticulture, truck farming, forestry, sod farming, and wild crop harvesting.

¹¹⁷¹§ 18.16.020.B. Some of the examples of the non-structural industrial and commercial uses provided by the ordinance are: loading areas, parking areas, and airport landing strips.

¹¹⁷²Id. § 18.16.020.C. Some of the examples of the non-structural private and public recreational uses provided by the ordinance include golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, boat launching ramps, swimming areas, parks, wildlife and natural preserves, game farms, fish hatcheries, shooting preserves, target ranges, trap and skeet ranges, hunting and fishing areas, and hiking and horseback riding trails.

¹¹⁷³Id. § 18.16.020.D. (1993).

¹¹⁷⁴Id. § 18.16.020.E.

¹¹⁷⁵Id. § 18.16.020.F. Some examples of the functionally water-dependent uses are: docks, piers, or wharves, including those used as part of a marina. Examples of other water-related uses are dams, flowage areas, culverts, navigational aids and river crossing of transmission lines, and pipelines.

¹¹⁷⁶Id. § 18.16.020.G (1993).

any public or private wells which are used to obtain water for ultimate human consumption;

any solid and hazardous waste disposal sites, whether public or private;

any waste water treatment ponds or facilities;

any uses which are not in harmony, or may be detrimental to, the uses permitted in the adjoining districts; and

any sanitary sewer or water supply lines.¹¹⁷⁷

Floodfringe District.—This district consists of the portion of the flood plain between the regional flood limits and floodway.¹¹⁷⁸

The ordinance provides different sets of standards for different types of uses, including residential uses,¹¹⁷⁹ accessory structures or uses,¹¹⁸⁰ commercial uses,¹¹⁸¹ manufacturing and industrial uses,¹¹⁸² storage material,¹¹⁸³ public utilities, streets and bridges,¹¹⁸⁴ sewage systems,¹¹⁸⁵ wells,¹¹⁸⁶ solid waste disposal sites,¹¹⁸⁷ deposition of materials,¹¹⁸⁸ and mobile homes and manufactured homes.¹¹⁸⁹ For example, for residential uses,¹¹⁹⁰ the standards are as follows:

- The elevation of the lowest floor, excluding the basement or crawl way, must be at or above the flood protection elevation on fill. The fill elevation must be one foot or more above the regional flood elevation extending at least 15 feet beyond the limits of the structure.
- The basement or crawl way floor may be placed at the regional flood elevation, if it is flood-proofed to the flood protection elevation.
- Contiguous dryland access, meaning a vehicle access route above regional flood elevation, must be provided from a structure or building to land that is outside of the flood plain.

General flood plain district.—This district consists of all areas that have been or may be covered by flood water during the regional flood. It includes both the floodway and floodfringe districts.¹¹⁹¹ Because it encompasses both areas, the zoning administrator must determine whether the proposed use is located within a floodway or floodfringe area. Moreover, those uses permitted in floodways and

¹¹⁷⁷Clark County flood plain zoning ordinance, WI § 18.16.040.

¹¹⁷⁸Id. § 18.04.050.C.2. The term "floodway" is defined to mean the "channel of a river or stream and those portions of the floodplain adjoining the channel required to carry the regional flood discharge." Id. § 18.04.260.

¹¹⁷⁹Id. § 18.20.030.B.

¹¹⁸⁰Id. § 18.20.030.C.

¹¹⁸¹Id. § 18.20.030.D.

¹¹⁸²Id. § 18.20.030.E.

¹¹⁸³Id. § 18.20.030.F (1993).

¹¹⁸⁴Id. § 18.20.030.G.

¹¹⁸⁵Id. § 18.20.030.H.

¹¹⁸⁶Id. § 18.20.030.I.

¹¹⁸⁷Id. § 18.20.030.J.

¹¹⁸⁸Id. § 18.20.030.K.

¹¹⁸⁹Id. § 18.20.030.L.

¹¹⁹⁰Id. § 18.20.030.B.

¹¹⁹¹Id. § 18.04.050.C.3 (1993).

floodfringe areas are also allowed within the general flood plain district.¹¹⁹² If it is determined that the proposed use is located within the floodway area, all rules and standards pertaining to a floodway district will apply; if it is within the floodfringe area, all rules and standards pertaining to a floodfringe district will apply.¹¹⁹³

The ordinance specifies that existing lawful but nonconforming use of the structure or building of its accessory use may continue, providing that no modification or addition to a nonconforming use or structure will be permitted unless it complies with the ordinance.¹¹⁹⁴ Nonconforming uses may be allowed if a variance is secured.

In addition, the ordinance imposes violator of any provision of the ordinance a fine of at least \$10 and not more than \$200, plus taxable cost of such action. Each day of continued violation constitutes a separate offense.¹¹⁹⁵

Adams County, Wisconsin (region 4).—Adams County, Wisconsin, has adopted the Flood plain Ordinance¹¹⁹⁶ almost identical to the Floodplain Ordinance of Clark County, Wisconsin. The only difference is the organization of the definition section. In the Clark County ordinance, the definition section was in front of the ordinance; in the Adams County ordinance, it was put at the end of the ordinance.

¹¹⁹²Clark County flood plain zoning ordinance, WI § 18.24.020.

¹¹⁹³Id. § 18.24.030.

¹¹⁹⁴Id. § 18.24.010.

¹¹⁹⁵Id. § 18.40.020.

¹¹⁹⁶Floodplain Zoning Ordinance for Adams County, WI § 1.0 et seq. (1990).