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Various Aspects of Flood Plain Zoning

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NOTES

VARIOUS ASPECTS OF FLOOD PLAIN ZONING

I. INTRODUCTION

Probably before the first recorded flood in the Book of Genesis, man had to cope with the destructive effects of floods. With reliable records of past catastrophes in Europe and Asia as an historical lesson, it is rather remarkable that Congress waited until 1936 to take affirmative action on flood control problems in the United States.[1] In that year, President Roosevelt signed into law the Flood Control Act of 1936,[2] thereby initiating the first comprehensive governmental attempt to reduce flood losses. Since that time, governmental involvement at all levels has increased dramatically, culminating in the Flood Disaster Protection Act of 1973.[3] Nevertheless, damages due to flooding have been calculated in excess of one billion dollars annually[4] and are expected to increase in the future unless changes are made in flood control policy.[5] Since significant questions arise concerning the role of governments in flood plain protection, the objectives of this note are as follows: (1) to examine the phenomenon of flooding and the various devices used to lessen flood damages; (2) to examine the adequacy of the federal regulatory response; (3) to review flood plain zoning decisions in the United States; and (4) to examine flood control and flood plain zoning in North Dakota.

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1. Prior to 1936, Congress accepted responsibility for flood control in the Mississippi Valley following disastrous floods in 1917. This represented only an *ad hoc* approach however, and did not constitute a comprehensive federal policy. U.S. WATER RESOURCES COUNCIL, A UNIFIED NATIONAL PROGRAM FOR FLOOD PLAIN MANAGEMENT, V-1 (1976) [hereinafter cited as UNIFIED NATIONAL PROGRAM].

2. Pub. L. No. 74-738, 49 Stat. 1570 (codified at 33 U.S.C. §§ 701-709 (1970)).

3. Pub. L. No. 93-324, 87 Stat. 975 (codified at 42 U.S.C. §§ 4001-4027 (1970 & Supp. III 1973)).

4. TASK FORCE ON FEDERAL FLOOD CONTROL POLICY, A UNIFIED NATIONAL PROGRAM FOR MANAGING FLOOD LOSSES, H. R. DOC. NO. 465 89th Cong., 2d Sess. 3 (1966) [hereinafter cited as TASK FORCE REPORT].

5. *Id.* at 4-5.

II. BACKGROUND

A. THE FLOOD PLAIN

The flood plain has been defined as "that area of land created in the course of nature by, and still functioning as a receptacle for, overflows of water from the channels of rivers and streams."[6]

Although flood plains comprise only an estimated seven percent of the United States' surface area, problems relating to them affect an estimated 22,000 communities.[7]

The flood plain is a watercourse[8] just as much as the river channel proper is.[9] It has been carved out over the centuries as a channel designed to contain excess runoff.[10] The flood plain itself is divided into two areas, the first being the "floodway," comprising those lands immediately adjacent to the river channel, and the second being the "floodway fringe" which contains the area further from the river channel, and thus, is not subject to flooding as often as the floodway.[11] Ordinarily, a river will use part of the floodway once every two or three years, with the floodway fringe being covered at regular intervals of a greater number of years, for example, 50 or 100.[12]

B. SOME CAUSES OF FLOODS[13]

1. *Runoff*

Combined with the impermeability or saturation of the soil, the major cause of any flood is precipitation. Inability of the soil to absorb water results in excess runoff causing the river to overflow its banks, damaging property and occasionally destroying life.[14] Excessive drainage of upstream wetlands may aggravate a runoff problem.

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6. Note, *Flood Plain Zoning for Flood Loss Control*, 50 IOWA L. REV. 552, 552 (1965).

7. UNIFIED NATIONAL PROGRAM, *supra* note 1, at II-2.

8. A watercourse is defined as a channel through which water passes, either constantly or intermittently.

9. The river channel proper would be that part of a watercourse through which water flows more or less constantly.

10. L. LEOPOLD & T. MADDOCK JR., THE FLOOD CONTROL CONTROVERSY 8-15 (1954).

11. 1 U.S. WATER RESOURCES COUNCIL, REGULATION OF FLOOD HAZARD AREAS TO REDUCE FLOOD LOSSES 9 (1971) [hereinafter cited as 1 REGULATION OF FLOOD HAZARD AREAS].

12. TASK FORCE REPORT, *supra* note 4, at 3.

13. The causes of floods which are listed are by no means the only causes. They are placed here because of their importance in contributing to floods in North Dakota.

14. Precipitation may exist as rainfall or melted snow. The ground's ability to absorb precipitation is hampered when it has absorbed as much water as it possibly can, thereby leaving the unabsorbed water on the surface. Also, in dry areas, due to severe heat and lack of moisture, the ground can become so hard that water cannot penetrate. W. HOYT & W. LANGBEIN, FLOODS 18-31 (1955).

2. *Icejams*

An additional cause of flooding which occurs in the northern regions, particularly in connection with rivers that flow north, is icejams.[15] This occurs when rivers swollen by melting snow, flow into huge chunks of ice downstream which have not melted sufficiently to be carried along with the current. Thus, the river is effectively dammed, causing the water to back up and flood areas upstream.[16]

3. *Man*

Although floods may be termed an Act of God and are often precipitated by such natural occurrences as rainfall, melting snow, or ice jams, most flood damage is a result of man's own actions. By developing the flood plain areas, man seriously affects the ability of a river to handle excess runoff. For example, when large amounts of fill are used to elevate low lying areas of the flood plain, the flood level will tend to rise inordinately.[17]

The greater amount of flood damage, however, results from man's decision to live in flood prone areas.[18] Man has always been tempted to live near rivers and coastlines whether the reason be survival, as in ancient times; economic necessity, as with early industries; or recreation, as people today increasingly spend their leisure time by taking advantage of the scenic benefits such property offers.[19]

C. VARIOUS FLOOD CONTROL DEVICES

The three broad approaches used in tackling flood damage problems may be classified[20] as (1) control over the river, (2) control over the land, and (3) other measures.[21]

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15. *Id.* at 31.

16. *Id.* at 34.

17. Plater, *The Taking Issue in A Natural Setting: Floodlines and the Police Power*, 52 TEX. L. REV. 201, 204-206 (1974) [hereinafter cited as Plater, *Floodlines*].

18. This conclusion follows from the obvious fact that if people would not build in a flood-prone area, there would be little or no flood damage because there would be little or no property for the flooding river to destroy. However, post-settlement drainage of wetlands as well as dike building may increase the flood-prone area.

19. One commentator has sugested that modern Americans are less intelligent in these matters than were the Indians and the early settlers since the latter hardly ever built a permanent site next to a river. Plater, *Floodlines, supra* note 17, at 206-07 n.15.

20. This is the classification scheme used by the U. S. Army Corps of Engineers. U.S. ARMY CORPS OF ENGINEERS, GUIDELINES FOR REDUCING FLOOD DAMAGES (1967) [hereinafter cited as GUIDELINES].

21. Another approach utilized is (1) modifying the susceptibility to flood damage and disruption; (2) modifying the floods themselves; and (3) modifying the flood impact on the individual and the community. UNIFIED NATIONAL PROGRAM, *supra* note 1, at IV-1.

1. *Control Over the River*

Historically, man has attempted to reduce flood damages by exercising control over the river through the construction of dams, dikes, and levees.[22] This was the approach adopted in the Flood Control Act of 1936.[23] That Act authorized federal funds for the building of dams, levees, and floodwalls at different flood-prone locations across the country.[24] Despite the expenditure of approximately nine billion dollars on such projects, flood losses continue to increase.[25]

2. *Control Over the Land*

The debate on regulating uses on flood plains supposedly opened in 1937 when a writer in the *Engineering News Record* questioned the soundness of allowing people to build on the flood plain. It was thought that a land control approach requiring people to live elsewhere would relieve the taxpayers and the flood plain residents of the terrible burden associated with such disasters.[26]

The land control approach is not designed to alter the course of a river, but to fashion development in order to blunt the effects of floods. This approach to flood control is implemented through the use of various legal devices, such as flood plain zoning,[27] designated

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22. This method also includes the use of channel improvements such as straightening, deepening, or widening a channel, and watershed treatment which, when properly effected, enables the soil to absorb more water. This latter method includes such practices as crop rotation and contour plowing. GUIDELINES, *supra* note 20, at 2-3.

23. *Supra* note 2.

24. 49 Stat. 1572.

25. Reasons for the inadequacy of relying on flood protection works include the following: (1) no area is completely safe in that most projects are not designed to handle catastrophic floods which occur infrequently; (2) protective devices give residents on the flood plain a false sense of security, thereby encouraging development where none ought to take place; (3) there may be no suitable site in the area in which to build a dam or floodwall; (4) projects such as these may be inordinately expensive, thereby making them infeasible; (5) the absence of local cooperation may kill a project; (6) many flood control structures require continuous maintenance, which is often expensive, and a failure to properly maintain a flood control structure could result in serious flood losses, if such lack of care made the structure physically unsound. 1 REGULATION OF FLOOD HAZARD AREAS, *supra* note 11 at 8-9.

26. The exact quote was as follows: "Is it sound economics to let such property be damaged year after year, to rescue and take care of the occupants, to spend millions for their 'local protection,' when a slight shift of location would assure safety." ENGINEERING NEWS-RECORD 385 (MARCH 11, 1937), *quoted in* Dunham, *Flood Control Via The Police Power*, 107 U. PA. L. REV. 1098, 1099 (1959) [hereinafter cited as Dunham, *Flood Control*]. The usual pattern of events is as follows: "(1) flooding, (2) flood losses, (3) disaster relief, (4) flood control projects attempting to modify the flood potential through provisions for storing, accelerating, blocking, or diverting flood waters, (5) renewed encroachment onto the flood plain, (6) flooding, (7) flood losses, (8) disaster relief, (9) more projects, (10) more encroachments, etc." UNIFIED NATIONAL PROGRAM, *supra* note 1, II-2.

27. Flood plain zoning is the use of the zoning power by a local government to restrain or prevent development on a flood plain for the purpose of reducing flood damages.

floodways and encroachment lines,[28] subdivision regulations,[29] and building and housing codes.[30]

The reasons given in support of governmental regulation of flood-prone areas were set forth in a highly influential article by Allison Dunham.[31] They included the following: (1) individual choices result in unwise land use patterns in a flood plain;[32] (2) individual choices result in land uses which obstruct a flood flow so as to damage other land users in use of their own land;[33] (3) there is not really a rational choice, and therefore the individual land user must be protected against being victimized to the detriment of his health, safety, or property;[34] (4) individual choices result in land uses which require extensive public works or costly disaster relief when floods occur, so that restriction on choice would promote the general welfare by reducing public expenditures.[35]

Government attempts at reducing flood losses through the use of its police power have met with varying degrees of success.[36] Nevertheless, as the inadequacies of protective works to effectively cut flood losses become increasingly more apparent, it can be expected that more governmental units will regulate the flood plain.

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28. The designated floodway is the area in which a river would reasonably be expected to carry its floodwaters. Encroachment lines are imaginary lines running laterally on either side of the river. No activity should be allowed within those lines if such activity would increase the flood levels. GUIDELINES, *supra* note 20, at 3.

29. Subdivision regulations are those exactions levied upon a developer by a local government in return for the government's permission to develop the land. Suggested regulations for the purpose of lowering flood damages include the following: (1) a requirement that the developer show both the limits of the floodway and the flood plain on his subdivision map; (2) the prevention of any filling in the floodway which could raise the flood level; (3) the requirement that a developer build all roads above the elevation of the standard flood; and (4) the requirement that each lot have a building site above a certain flood level. *Id.* at 3-4. *See also* 2 U.S. WATER RESOURCES COUNCIL, REGULATIONS OF FLOOD HAZARD AREAS TO REDUCE FLOOD LOSSES (1972).

30. Recommended actions in this area are measures guaranteed to prevent flotation of structures, requirements that electrical outlets be sufficiently flood-proofed, the restriction of use of materials that may be dangerous when covered or mixed with water, and the requirement of an adequate building design which can withstand the force of floodwaters. UNIFIED NATIONAL PROGRAM, *supra* note 1, at IV-6.

31. Dunham, *Flood Control, supra* note 26, at 1108-09.

32. *Id.* at 1108. Dunham dismisses this rationale promptly, saying, "Not since the demise of sumptuary laws in the 18th century has 'unwiseness' alone been a sufficient reason to invoke government restriction on individual choice." *Id.* at 1109.

33. *Id.* at 1108. This concept is based upon the legal mixim *sic utere tuo ut alienum laedus,* that no man may use his property so as to constitute a nuisance to another. *Id.*

34. *Id.* at 1109. Dunham lists the following as three possible situations in which this type of reasoning would be applicable: (1) when it is impossible for the average citizen to make a rational choice, such as in pure food and drug laws; (2) when a purchaser is likely to be a victim of fraud; or (3) when there is unequal bargaining power. *Id.* at 1113.

35. *Id.* at 1109. The court in Turnpike Realty Co. v. Town of Dedham, 362 Mass. 221, 284 891 (1972), stated that aesthetic concerns are also a valid objective for the exercise of the police power in flood plain zoning legislation. This, taken alone, however, is insufficient, at least in Massachusetts, to uphold a flood plain ordinance. *Contra,* State v. Diamond Motors, Inc. 50 Haw. 33, 429 P.2d 825 (1967); People v. Goodman, 31 N.Y.2d 262, 290 N.E.2d 139, 338 N.Y.S.2d 97 (1972). This is an important consideration since often a flood plain may be one of the more scenic areas in a state or region.

36. *See* text accompanying footnotes 107-29 *infra.*

3. *Other Measures*

Other ways in which governments try to lessen flood losses include the following: the practice of floodproofing,[37] temporary and permanent evacuations,[38] accurate flood forecasting,[39] dissemination of information to the public about flood plains,[40] legislation preserving open spaces,[41] and flood insurance. Flood insurance has been chosen by the federal government as the vehicle through which it hopes to coerce local governments into adopting flood plain regulations. This coercion is accomplished by prohibiting federal relief in time of flood disasters unless the affected area's governmental body has enacted a series of flood plain regulations which comply with federal standards.[42]

Generally, an effective flood control policy will not rely solely on one or two of the above devices, but will coordinate many of these tools with a well-planned overall strategy.

III. FEDERAL INVOLVEMENT IN FLOOD PLAIN ZONING

A. FLOOD INSURANCE ACT OF 1956

After a number of years, it became apparent that relying on protective works alone did not have the desired effect on flood damages. Since the cost of providing protection through projects

37. Floodproofing consists of making structural and material changes in a building to help eliminate flood damages. Such measures can, especially in time of low or moderate flooding, greatly reduce flood losses. *See generally* U.S. ARMY CORPS OF ENGINEERS, FLOOD-PROOFING REGULATIONS (1972).

38. While temporary evacuations are useful and often necessary, permanent evacuation would be so expensive as to make it unworkable. There is also a sociological problem with permanent evacuations — flood plain residents simply do not want to move. F. MURPHY, REGULATING FLOOD PLAIN DEVELOPMENT 118-19 (1958).

39. Reliable flood forecasting, which must take into account an almost innumerable number of factors, can give communities time to evacuate and prepare effective measures to lessen the impact of floods. The U.S. Weather Bureau handles the bulk of the forecasting, with the Army Corps of Engineers, Bureau of Reclamation, and the Tennessee Valley Authority having responsibility in selected areas. Unfortunately, too few communities have access to such forecasts. GUIDELINES, *supra* note 20, at 5.

40. One report, in elaborating on this aspect of flood control, stated that the federal government should have the responsibility "for the collection and dissemination of needed data." TASK FORCE REPORT, *supra* note 4, at 17.

41. The Task Force Report, in describing the difference between flood control in 1936 and flood control in the present day, explained:

> When the Flood Control Act of 1936 was passed, flood projects were seen chiefly in terms of whether or not to build protection, with little regard for other land use plans. Today, local planning of urban development, highway transport facilities and open space is an explicit aim. Financial support is provided to city planning, urban renewal, highway construction, open space acquisition construction of sewer, water, and waste disposal facilities.

Id. at 11. For a discussion of the interrelationship between flood plain zoning and preserving open spaces, *see* Comment, 10 SAN DIEGO L. REV. 381 (1973).

42. The federal standards are set forth at 24 C.F.R. §§ 1909-1925 (1978).

would be unduly expensive,[43] other methods were needed which would take some of the risk for flood losses off the federal government and place it on the general population. Thus, flood insurance became the focus of the government's attention. When efforts to form a private insurance system failed,[44] the federal government stepped in with the Federal Flood Insurance Act of 1956.[45] This Act, which was administered by the Housing and Home Agency,[46] made possible direct insurance from the federal government[47] and reinsurance from the private companies.[48] The Act enabled the administration of the program to make loans or guarantee private loans to flood victims.[49] In addition, the Act provided that after a period of years, the states were to underwrite half of the program's expenses.[50] However, because the program never received any funding,[51] no insurance was ever written under the Act.

B. THE NATIONAL FLOOD INSURANCE ACT OF 1968

The next attempt at establishing a system of national flood insurance came with the passage of the National Flood Insurance Act of 1968.[52] While the 1956 Act was designed as a supplement to protective works,[53] the 1968 Act combined an insurance program with a requirement for flood plain regulations to prevent uneconomical use and to decrease national losses. This moved the emphasis from physical prevention of flooding to the minimization of losses through regulation and the prohibition of certain uses within flood-prone areas.

Under this Act, individual land owners are allowed to purchase federally subsidized insurance on a voluntary basis.[54] The premiums are determined on the basis of the degree of flood danger in a certain area.[55] Flood danger is determined by reference to flood

43. Bartke, *Dredging, Filling, and Flood Plain Regulation in Michigan*, 17 WAYNE L. REV. 861, 892 (1971) [hereinafter cited as Bartke, *Flood Plain Regulation in Michigan*].

44. *Id.*

45. 42 U.S.C. 2401-2413 (Repealed 1968).

46. The Housing and Home Finance Agency later became the Department of Housing and Urban Development.

47. Bartke, *Flood Plain Regulation in Michigan, supra* note 43, at 893.

48. *Id.*

49. *Id.*

50. *Id.*

51. *Id.* at 894.

52. 42 U.S.C. §§ 4001-4027 (1970).

53. Insurance was to be given to areas which could not be protected, and to those areas which could be protected, but due to one reason or another, the projects had not been completed.

54. Bales, *Floodplain Problems Connected With Zoning and Development: Flood Disaster Protection Act of 1973 — Its Effect and Recent Zoning Decisions*, 1977 INSTITUTE ON PLANNING, ZONING, AND EMINENT DOMAIN 141, 147 [hereinafter cited as Bales, *Floodplain Problems*].

55. *Id.*

hazard area maps drawn up by the Federal Insurance Administration (FIA),[56] which classifies the various degrees of flood risk. The federal government bears the burden of subsidizing the system, which in some cases amounts to 90 percent of the cost.[57] All federal subsidies, however, are conditioned upon the local governments' implementation of a federally approved flood plain regulation policy.

C. THE FLOOD DISASTER PROTECTION ACT OF 1973

1. *In general*

Under the 1968 Act, it was thought that local property owners, seeing that they were unable to procure the federally subsidized insurance, would pressure the local government into adopting flood plain controls so that they would become eligible for the insurance. Congress, however, thought their incentive mechanism insufficient[58] and substantially amended the 1968 Act to create the Flood Disaster Protection Act of 1973.[59] The purpose of the new Act is to require state or local communities, as a condition of future federal financial assistance, to participate in the flood insurance program. Such participation would require the adoption of flood plain ordinances with effective enforcement provisions consistent with federal standards to reduce or avoid future flood losses.[60] Authority for administering the program has been given to the Department of Housing and Urban Development, which has in turn given responsibility for managing the program to the Federal Insurance Administration.[61] While the 1968 Act had certain loopholes,[62] *i. e.*, federal loans were available despite a lack of local flood plain regulations, the 1973 Act is made to withold all federal financial assistance to noncomplying communities.[63] This includes federally subsidized insurance,[64] federal loans,[65] and loans from any banking institution that is federally regulated or insured.[66]

56. *Id.* at 148.
57. *Id.* at 149.
58. One group of commentators noted that while the 1968 Act provided for a cutoff of federal insurance for failure to comply with the Act's provisions, the same was not true with regard to federally insured loans. F. BOSSELMANN, D. FEURER, & T. RICHTER, FEDERAL LAND USE REGULATION 3 (1977).
59. *Supra* note 3.
60. 42 U.S.C. § 4002(b)(3) (1970 & Supp. III 1973).
61. 34 Fed. Reg. 2680-81 (Feb. 27, 1968).
62. *Supra* note 3.
63. 42 U.S.C. § 4012a (1970 & Supp. V 1975).
64. *Id.* § 4012a(a) (1970 & Supp. V 1975).
65. *Id.*
66. 42 U.S.C. § 4012a(b) (1970 & Supp. V 1975).

These sanctions are placed upon owners of properties whose lands have been designated on FIA maps as (1) floodprone, *i. e.*, any land susceptible to being inundated by water from any source,[67] or (2) a special hazard area, *i. e.*, an area "in the flood plain within a community subject to a one-percent or greater chance of flooding in any given year."[68] With sanctions such as these, it is not surprising that an estimated 97 percent of the nation's flood-prone communities participate in the program.[69]

2. *Eligibility Requirements*

In order for a community to qualify for flood insurance, an application must consider the entire area within its jurisdiction.[70] A community must submit information on a number of items including: (1) copies of legislative and executive actions showing a need for flood insurance and an "explicit desire" to participate in the program; (2) citations and copies of state and local enabling statutes and ordinances; (3) a copy of the community's flood plain regulations and ordinances, (this includes such measures as building codes as well as land use regulations); (4) a list of the incorporated governmental units within the applying government's jurisdiction; (5) statutes relating to population and structures within the community and the flood-prone area; (6) a record of any federal or state flood control activities in the community; (7) a commitment to take such action reasonably necessary to carry out the program; and (8) a commitment to cooperate with the FIA and other federal, state and local agencies in the administration.[71]

Failure to submit adequate flood plain regulations to the FIA,[72] or to adequately enforce the approved regulations[73] may result in community suspension from the program. Upon suspension, the residents of the suspended community are prohibited from purchasing any more flood insurance.[74]

3. *Standards*

For purposes of determining whether a community is in

67. 24 C.F.R. § 1909.1 (1978).
68. *Id.*
69. 197 SCIENCE 848 (1977).
70. 24 C.F.R. § 1909.22(a) (1978).
71. *Id.* § 1909.22(a)(1-9).
72. *Id.* § 1909.24(a). A community, however, if suspended, can become re-eligible if it submits a copy of its regulations within the notice of suspension period given by the FIA Administrator.
73. *Id.* § 1909.24(b). A community subject to suspension is given 30 days for it to show at a hearing why it should not be suspended. In addition, the Administrator is required to give the community notice of its suspension, and in a press release, to explain the reasons for the suspension.
74. *Id.* § 1909.24(c).

compliance with federal criteria of flood management, the FIA has classified the participating communities into one of four levels. Each level is dependent upon the amount of data given to the community by the FIA;[75] *i. e.*, the more information a community has, the higher the level of classification. A community in a higher level will be required to meet stricter federal standards.[76]

The first level provides the absolute minimum standards that every community that wishes to remain in the program must meet. A community is placed in the first level when the FIA has supplied insufficient data to identify the flood hazard area with any particularity.[77] A community placed in this level must: (1) require permits for any new construction for purposes of discovering whether such building is in the flood-prone area;[78] (2) check proposed development to find that such development has complied with all federal and state statutes and regulations;[79] (3) make certain all new structures be reasonably safe from flood damage, *i. e.*, if a new building is in a flood-prone area, it must be anchored to prevent flotation, and be constructed of materials and by methods that reduce flood damage;[80] (4) make certain all new subdivisions will be reasonably safe from floods; *i. e.*, if a subdivision is in a flood-prone area, all utilities must be located or constructed to minimize damage;[81] and (5) require that new water and sewage facilities be designed to minimize infiltration of flood waters into the system.[82]

The second level standards are applicable when, based on sufficient data, the FIA has designated the special flood hazard area on a FIA map. In addition to the minimum standards, a second level community must, among other things, adopt more stringent permit requirements, obtain elevation data of the lowest habitable

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75. *Id.*

76. The four levels are as follows:

1. A community which has not had supplied to it by the FIA Administrator a definition of the special hazard areas, water surface elevation data, or sufficient information to identify the floodway or coastal high hazard area, but the community has shown interest in participating in the insurance program by its filing an application with the FIA.
2. A community has received designation of its special flood hazard areas, but has not been given the necessary water surface elevation data or a floodway designation.
3. A community has been given the surface elevation data and knows the location of its special flood hazard area but does not have an identified floodway.
4. A community has designated special flood hazard areas, sufficient water surface data, and an identified floodway.

Id. § 1910.3 (a)-(d).

77. *Id.* § 1910.2(a).
78. *Id.* § 1910.3(a)(1).
79. *Id.* § 1910.3(a)(2).
80. *Id.* § 1910.3(a)(3).
81. *Id.* § 1910.3(a)(4).
82. *Id.* § 1910.3(a)(5)-(6).

floors (including basements) in the hazard area, make sure mobile homes are adequately anchored, file an evacuation plan with the appropriate authorities, and require certain subdivision proposals to include flood elevation information.[83]

A community is subject to the third level standards when the FIA has made available, in addition to the FIA flood hazard maps, the final base flood elevations,[84] but has not designated a regulatory floodway.[85] When this information is made available, the local government is required to follow all the first and second level guidelines. The community must also prevent any new structure within the special hazard areas from being built that would have its lowest habitable floor below the base flood elevation level. Furthermore, the community must prohibit any new construction in the designated hazard areas unless it can be shown that the overall effect of the development, considering all present and future development will not raise the flood level more than one foot. Residential and nonresidential structures must also be sufficiently floodproofed to withstand the base flood.[86]

When the FIA has given sufficient data to determine the regulatory floodway, a community is placed at the fourth level. When placed in the fourth level, the community must meet all the standards connected with the previous levels plus adopt strict requirements concerning the use of the floodway. This includes such measures as prohibiting any encroachments on the floodway which would raise the level of the base flood more than one foot, and the placement of any mobile homes on the floodway, except if the mobile home is located in an existing trailer park.[87]

4. *Variances*

The FIA regulations provide for local governments to issue variances,[88] so long as they meet federal standards. A variance will be granted only if "good and sufficient" cause is shown,[89] if the denial of a variance will work an "exceptional hardship" upon the petitioner,[90] and if the proposed variance will not increase the flood

83. *Id.* § 1910.3(b)(1)-(9).

84. Base flood elevation simply means the water surface elevation of the base flood. Base flood "means the flood having a one percent chance of being equalled or exceeded in any given year." *Id.* § 1909.1.

85. " 'Regulatory floodway' means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height." *Id.* § 1909.1.

86. *Id.* § 1910.3(c)(1)-(10).

87. *Id.* § 1910.3(d)(1)-(4).

88. *Id.* § 1910.6.

89. *Id.* § 1910.6(a)(3)(i).

90. *Id.* § 1910.6(a)(3)(ii).

height or create a hazard to the public safety.[91] The FIA has the power to review a local government's issuance of a variance, and if it is shown that the community abused its privileges, the community may be suspended from the program.[92]

D. PROBLEMS WITH THE FLOOD INSURANCE PROGRAM

As is the case with so many federal programs, there is a rather large discrepancy between how the program is intended to work, and how it actually functions. A General Accounting Office (GAO) report pointed to a number of problems with the 1973 program, some of which are as follows: (1) the FIA has not supplied the communities with sufficient information to adequately zone the flood plains;[93] (2) not all communities are enabled by their states to pass flood plain zoning ordinances; (3) some of the communities involved have never had a flood in their history, *i. e.*, the designation as a flood-prone area is not based upon actual historical events, but upon theoretical calculations; (4) some areas' flood plains are so developed that it would be impractical to regulate the flood plain; (5) many people who inhabit the flood plain are low income, such that even with federally subsidized insurance, most of these people cannot afford it.[94]

In addition, the 1973 Act is under attack in the courts. A large number of communities and private landowners have brought a class action suit challenging the constitutionality of the Act. The challenge is based upon the contention that the federal government, by compelling the states to exercise their traditional police powers is infringing upon an area that has been delegated to the states.[95]

E. *Conclusion*

In the area of flood plain zoning, as in other areas, the federal government has stepped in to force states to act when the federal government feels the states are not doing their job. As is so often the case, the federal agencies act in a heavy-handed manner. The Federal Flood Disaster Protection Act of 1973 is no exception. The scope of the Act is very broad and the sanctions for failure to

91. *Id.* § 1910.6(a)(3)(iii).
92. *Id.* § 1910.6(a) and 1910.24(b).
93. The study showed that less than 4,000 of the approximately 21,600 communities participating had received adequate information. Bales, *Floodplain Problems*, *supra* note 54, at 156.
94. The GAO also reported that a majority of the communities involved did not have effective flood zone regulations. *Id.*
95. Texas Landowners Ass'n v. Harris, Complaint.

participate are severe. However, while the Act is not exactly a model of flexibility, it should not be discarded. Floods and flood damage are a national problem. A rampaging river does not respect state lines. To effectively deal with flood losses, a national approach is required because only the federal government has the available resources to deal with large area flood problems. The Federal Flood Disaster Protection Act attempts to provide the national approach. It requires the states and cities to act reasonably in regard to flood plain management; that is, it requires them to do what they should have logically been doing all along.

IV. FLOOD PLAIN ZONING IN THE COURTS

A. CONSTITUTIONALITY

A community which passes a flood plain zoning ordinance must not only comply with federal regulations, it also must be certain that the ordinance is constitional both on its face and as applied to individual landowners. In *Lawton v. Steele,*[96] the United States Supreme Court set forth a three part test to determine the constitutionality of a law passed for the benefit of the public: (1) the law must benefit the public generally, rather than a particular group, (2) the means chosen to further the public interest must be "reasonably necessary" to achieve the purpose, and (3) the law must not be "unduly oppressive upon individuals."[97]

B. ENABLING

Since the police powers reside in the states and not lesser political entities, the first consideration which a local government must take into account is whether the state has given the local government the authority to pass a flood plain ordinance.

At present, all 50 states have statutes which grant smaller political units such as cities, townships, or counties the power to zone.[98] Many of these statutes are similar since many states have adopted the Standard State Zoning Enabling Act[99] as a basis for

96. 152 U.S. 133 (1894).

97. Lawton v. Steele, 152 U.S. 133, 137 (1894). This test was mentioned with approval by Justice Clark in Goldblatt v. Town of Hempstead, 369 U.S. 590, 594-95 (1962).

98. 1 REGULATION OF FLOOD HAZARD AREAS, *supra* note 11, at 112.

99. The Standard Zone Enabling Act was drafted in the 1920's by an advisory committee appointed by then Secretary of Commerce Herbert Hoover. The Act was designed to serve as a guide for state enabling legislation. Statutes modeled after this Act are still in force in a number of states. J.H. BEUSCHER, LAND USE CONTROLS 286 (1964).

their enabling acts. Although the Standard Act does not specifically authorize flood plain zoning, it is apparently sufficient to allow local governments to pass such regulations.[100] A few states have amended their enabling statutes to provide specifically for flood plain zoning.[101]

C. DECISION ANALOGOUS TO FLOOD PLAIN ZONING

There are few decisions ruling on the validity of flood plain zoning ordinances.[102] From the opinions that do exist, however, it is possible to predict the future of flood plain zoning.

Prior to cases deciding the constitutionality of flood plain zoning, ordinances with set-back requirements, which are analogous to flood plain zoning ordinances, have been upheld.[103] The leading case of this type was *American Land Co. v. City of Keene.*[104] In that case the plaintiff wished to develop the land in question. Since the land was subject to periodic flooding, the city of Keene had passed an ordinance prohibiting the erection of residential homes in the area unless a board of adjustment consented to the building of the structures. The court upheld the ordinance, declaring that the city had exercise of the "sovereign powers of the state,"[105] and that if the petitioner suffered any loss, financial or otherwise, it was not a "a justiciable wrong."[106]

D. FLOOD PLAIN ZONING CASES

With the set-back requirement cases as precedent, and zoning having been recognized as a valid exercise of the police power since *Euclid v. Amber Realty,*[107] one would have believed that flood plain zoning would have had realatively easy acceptance by the courts. This, however, did not prove to be the case.

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100. *See, e.g.*, Turner v. County of Del Norte, 24 Cal. App. 3d 311, 101 Cal. Rptr. 93 (1972); Turnpike Realty Co. v. Town of Dedham, 362 Mass. 221, 284 N.E.2d 891 (1972).

101. *See, e.g.*, N.J. STAT. ANN. § 58:16A-50 (Supp. 1978); Wash. Rev. Code § 86.16.010 (1962).

102. Bartlett v. Zoning Comm'n, 161 Conn. 24, 282 A.2d 907 (1971); Dooley v. Town Plan & Zoning Comm'n, 151 Conn. 304, 197 A.2d 770 (1964); Sturdy Homes, Inc. v. Township of Redford, 30 Mich. App. 53, 186 N.W.2d 43 (1971); Hofkin v. Whitemarsh Township, 88 Mont. Co. 68, 42 Pa.D & C.2d 417 (1967). Zoning has been held valid in Turner v. County of Del Norte, Cal. App. 3d 311, 101 Cal. Rptr. 93 (1972); Turnpike Realty Co. v. Town of Dedham, 362 Mass. 221, 284 N.E.2d 891 (1972); Maple Leaf Inv. v. State, Dept. of Ecology, 88 Wash. 2d 726, 565 P.2d 1162 (1977).

103. Vartelas v. Water Resources Comm'n, 146 Conn. 650, 153 A.2d 822 (1959); Water & Power Resources Bd. v. Green Springs Co., 394 Pa. 1, 145 A.2d 178 (1958); City of Welch v. Mitchell, 95 W.Va. 377, 121 S.E. 165 (1924).

104. 41 F.2d 484 (1st Cir. 1930).

105. American Land Co. v. City of Keene, 41 F.2d 484, 487 (1st Cir. 1930).

106. *Id.*

107. 272 U.S. 365 (1926).

In the first flood plain zoning case, *Dooley v. Town Plan and Zoning Commission,*[108] the high court of Connecticut declared the ordinance unconstitutional as applied to the plaintiff. In *Dooley,* the local zoning regulations were changed to create a flood plain district. Uses permitted in the district were restricted to low income producing uses such as parks, marinas, wildlife sanctuaries, farming, and parking lots. The plaintiff, whose land was zoned as a flood plain district, was not able to put it to the use intended. The plaintiff then brought suit against the zoning commission, alleging an unconstitutional taking without compensation.[109] The court, in holding there was a taking, noted that the uses permitted were illusory because parks and wildlife preserves were essentially public uses which substantially diminished the value of such land.[110] The court also pointed out that the use of the land for a marina or farming was impractical since plaintiff's land was too far away from Long Island Sound to be used for a marina, and farming had long been ruled out due to the poor quality of the soil.[111] Finally, in regard to using the land as a parking lot, strict governmental regulations made such a use virtually impossible.[112] The court concluded that Fairfield Township's actions had placed plaintiff's land "into a practically unusable state."[113]

The more recent cases, on the other hand, show a more receptive attitude on the part of the courts to flood plane zoning. In *Turnpikes Realty Co. v. Town of Dedham,*[114] the plaintiff owned a lowland which was occasionally flooded. At its annual town meeting, the Town of Dedham adopted a by-law, changing a residential zone into a flood plain district.[115] The by-law specifically provided that the purposes of the legislation were to maintain the

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108. 151 Conn. 304, 197 A.2d 770 (1964). A number of writers cite Morris County Land *Improvement Co. v. Township of Parsippany-Troy Hills,* 40 N.J. 539, 193 A.2d 232 (1963), as the first flood plain zoning case. Although the ordinance involved was analogous to a flood plain zoning law (it was basically an open space preservation regulation), it should not be read as a flood plain zoning case. The court, in a footnote to the opinion stated:

> This case, therefore, does not involve the matter of police power regulation of the use of land in a flood plain on the lower reaches of a river by zoning, building restrictions, channel encroachment lines or otherwise and nothing in this opinion is intended to upon the validity of any such regulations.

Id. at ____, 193 A.2d at 242 n.3.

109. The approach taken today, that an excess of governmental regulation of a person's land constitutes a taking received its gensis in Pennsylvania Coal Co. v. Mahon, 260 U.S. 393 (1922).

110. Dooley v. Town Plan & Zoning Comm'n., 151 Conn. 304, ____, 197 A.2d 770, 772-73.

111. *Id.* at ____, 197 A.2d at 773.

112. *Id.*

113. One commentator pointed out the following as the deficiencies with the ordinance involved: (1) it did not allow the plaintiff to receive a fair return on the use of his land; (2) the law treated the entire flood plain in a similar manner when it should have classified the flood plain according to its hazard potential; and, (3) there did not appear to be adequate hydrological data to support the commission's action. Comment, 4 NAT. RESOURCES J. 445, 447-48 (1965).

114. 362 Mass. 221, 284 N.E.2d 891 (1972).

115. *Id.* at ____, 284 N.E.2d at 894.

present water table, to protect the community from the dangers of flooding, to protect the community from the costs associated with development in flood-prone areas, and to conserve open spaces.[116] The by-law prohibited the erection, alteration or use of any structure, and no uses were permitted except agricultural and recreational.[117] In addition, filling or any other alteration was banned unless part of a government program.[118] There was, however, a board of appeals which could grant exceptions if certain conditions were met.[119] After the court dismissed some preliminary arguments by the plaintiff,[120] it addressed the taking issue.The court in this instance appeared to take into account a wider range of factors than the *Dooley* court. While the *Dooley* decision appeared to concentrate on the diminution in value of the plaintiff's property, the court in *Turnpike* stated that "[t]he principal criterion as to the reasonableness of the inclusion of the petitioner's land in the flood plain district is the extent of the flood hazard to its land."[121] This standard was used because, unlike the *Dooley* case, there appeared to be an ample supply of flood data on which the court could base its decision.[122] The court noted that the by-law clearly carried out its purpose, and that while conceding that the plaintiff had been severely restricted in his use of the land, he had not been "deprived of all beneficial uses of (his) property."[123]

The approach taken in *Turnpike* was followed by a California court in *Turner v. County of Del Norte.*[124] The plaintiffs, a class of landowners in the affected area, instituted the action claiming a taking of their property without compensation. The county had enacted regulations which barred any permanent residents and commercial or public buildings in the designated flood plain

116. *Id.*
117. *Id.*
118. *Id.*
119. *Id.*
120. Among these were plaintiffs' contention that the town intended the ordinance to serve as a device for preserving the area in its natural state and that the flooding on plaintiffs' land had been artificial in that the water which covered their land had been released through floodgates of a dam upstream. The court dismissed the first argument by saying that the validity of a law does not depend upon the motive for its passage, and that since the evidence showed no mismanagement on the part of anyone in the operation of the floodgates, the plaintiffs had no right to complain. *Id.* at 221, ____, 284 N.E.2d at 894, 895.
121. *Id.* at ____, 284 N.E.2d at 899.
122. The court, quoting the lower court judge's findings, stated as follows:
> There was extensive evidence on elevation, topography, dams, flood control, flood gates all bearing on the issue whether or not the locus was subject to "seasonal" or "periodic" flooding: this included photographs, exhibits reflecting the elevation of the locus in relation to the Charles River. . . as well as evidence concerning the level of the Charles River from 1954 to 1967.

Id. at ____, 284 N.E.2d at 899.
123. *Id.* at ____, 284 N.E.2d at 899.
124. Turner v. County of Del Norte, 24 Cal. App.3d 311, 101 Cal. Rptr. 93 (1972).

zone.[125] The zoning regulation allowed agricultural and recreational uses.[126] As in the *Turnpike* case, the court had a large amount of information which was used in making the decision.[127] Since any permanent house would be destroyed by a flood, and the structure in the flood zone would likely increase the flood level, which would endanger people downstream, the court found the ordinance to be reasonable.[128] The court stated that "the zoning ordinance in question imposes no restrictions more stringent than the existing danger demands. Respondents may use their lands in a number of ways which may be of economic benefit to them."[129]

E. The Taking Issue: What Standard to Use?

1. *Diminution*

Courts called upon to decide whether an ordinance is a valid regulation or an unconstitutional taking are required to deal with one of the murkiest areas of the law. As the United States Supreme Court stated in *Goldblatt v. Town of Hempstead,* "there is no set formula to determine where regulation ends and taking begins."[130] Despite this rather despairing remark, courts and commentators have sought to formulate a uniform test for deciding the taking question.

The dominant test today is the diminution test,[131] which had its origin with Justice Holmes in *Pennsylvania Coal Co. v. Mahon.*[132] Writing for the court, Holmes stated as follows:

> As long recognized, some values are enjoyed under an implied limitation and must yield to the police power. But obviously the limitation must have its limits. . . . One fact for consideration in determining such limits is the extent of the diminution. When it reaches a certain magnitude, in most if not all cases there must be an exercise of eminent domain and compensation to sustain the act.[133]

Later in *Goldblatt,* Justice Clark explained that "[a]lthough a

125. *Id.* at 314, 101 Cal. Rptr. at 95.
126. *Id.*
127. *Id.* at 313, 101 Cal. Rptr. at 95.
128. *Id.* at 315, 101 Cal. Rptr. at 96.
129. *Id.*
130. 369 U. S. 590, 594 (1961).
131. This is the name given the test in Plater, *Floodlines, supra* note 17.
132. 260 U. S. 393 (1922).
133. *Id.* at 413.

comparison of values before and after is relevant, it is by no means conclusive."[134] Thus, this test, appealing as it may be, has its weaknesses. One commentator explained as follows:

> The floodplain cases reveal particularly well the diminution test's greatest shortcoming — its tendency to ignore the regulatory circumstances surrounding private losses. The courts in most floodplain cases quite properly examine the public interest in deciding whether the legislature has a proper regulatory purpose in the first place. But they purported to drop public interest considerations in deciding the determinative compensation issue. In this way the courts could find excessive private loss without even considering the danger of flooding. The legislature's original balancing of interests, however, is as relevant to the taking question as it is to the question of authority to regulate. Thus, while the diminution test may work very liberal results in zoning cases where property ususally has a profitable fallback use, its adoption in different fact situations leads courts to ignore the police power's fundamental function of protecting against public harms.[135]

2. *Alternatives*

A number of attempts have been made to provide an alternative to the diminution test. One such effort was made by Professor Frank J. Michelman, who proposed a utilitarian approach to the taking question.[136] Michelman began by setting forth three factors to be considered: "efficiency gains," "demoralization costs," and "settlement costs."[137] "Efficiency gains" consist of the surplus of benefits of a regulation over the losses it produces.[138] "Demoralization costs" are those that result from an individual's fear that his land may be taken without compensation.[139] "Settlement costs" are costs necessary to prevent

134. 369 U. S. 590, 594 (1961).

135. Plater, *Floodlines*, *supra* note 17, at 229. Plater notes, however, that this is not always the case. *See, e. g.*, Hadacheck v. Sebastian, 239 U. S. 394 (1915); City of St. Paul v. Chicago, St. Paul, Minneapolis and Omaha R. R. Co., 413 F.2d 762 (8th Cir. 1969); Consolidated Rock Products Co. v. City of Los Angeles, 57 Cal.2d 515, 370 P.2d 342, 20 Cal.Rptr. 638 (1962).

136. Michelman, *Property, Utility and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law*, 80 HARV. L. REV. 1165 (1967).

137. *Id.* at 1214.

138. *Id.*

139. *Id.*

"demoralization costs."[140] Using these criteria, if a proposed ordinance's efficiency gains exceed either demoralization or settlement costs, it should be passed, and therefore, upheld to by a court.[141] This approach, however, supplies no standards by which measure the three factors, thereby placing a property owner at the mercy of a legislator's or judge's subjective opinion.[142]

Professor Joseph L. Sax has formulated a test based on a nuisance theory.[143] Sax states that there are a variety of competing claims for common resources, *e. g.,* air and water.[144] Because of this competition, no one person had a right to completely exclude another from the use of that resource, and a person must necessarily live with some restrictions on his rights.[145] Thus a person has no right to use a common resource in a way displeasing to others. Under Sax's proposal, the legislature, not the courts, would be the main arena for consideration of private interests.[146] Theoretically, the legislature would weigh all relevant considerations, public and private, before passing its law. However, this is not the way the ordinary lawmaking body works, since many bills and ordinances are often rushed through with only minimal discussion. This is probably more true in cases of regulatory agencies such as the FIA, where there is a greater danger that private interests may be ignored.[147] Since courts have historically considered the effect of regulations upon the individual property owners as the major factor in deciding the taking issue, it is unlikely that Sax's test will be followed to any great degree.[148]

A new way of dealing with the taking issue, which could be of importance in further flood plain zoning cases, was devised by the Wisconsin Supreme Court in *Just v. Marinette County.*[149] That case involved an ordinance designed to maintain the environmental quality of Wisconsin's shorelands. In sustaining the ordinance, the Court drew a distinction between providing for a public purpose and preventing a public harm. The former involved the power of eminent domain and the latter the police power.[150] The court found that the ordinance was preventing a public harm since the

140. *Id.*
140. *Id.*
141. *Id.* at 1215 n.100.
142. *Id.* at 1248-49.
143. Sax, *Takings, Private Property and Public Rights,* 81 YALE L. J. 149 (1971).
144. *Id.* AT 154-55.
145. *Id.*
146. *Id.* at 176.
147. Plater, *Floodlines, supra* note 17, at 242.
148. This conclusion appears justified by the fact that in each of the flood plain zoning cases cited, diminution in value was taken into account by the court.
149. 56 Wisc. 2d 7, 201 N.W.2d 761 (1972).
150. Just v. Marinette County, 56 Wisc. 2d 7, ____, 201 N.W.2d 761, 767 (1972).

ordinance preserved the land in its natual state, rather than providing for an affirmative government action such as road-building.[151] The problem with this approach is that a regulation can be classified either as a prevention of a public harm or as providing a public benefit, depending on the outlook a court would care to take.

E. CONCLUSION

Due to the influence of the Flood Disaster Act of 1973, it is reasonable to assume that more flood zoning enabling statutes will be enacted, or that state courts will construe the present enabling acts more broadly to include flood plain zoning.

With regard to flood plain zoning decisions, the apparent trend, especially in light of the more recent decisions, is that flood plain zoning is a legitimate exercise of the police power. A party attacking a flood plain zoning as unconstitutional as applied to himself must show that he has been deprived of almost any productive use of his land. A successful challenge to an ordinance on its face would be required to show that the ordinance is unconstitutional as applied to all or a sufficient number of landowners in the zoned area.[152]

As a result of the courts' growing acceptance of flood plain zoning, it will be increasingly used to reduce flood losses. Courts are, however, looking for a more appropriate standard than the diminution test to apply in determining the validity of such regulations. Even the courts in *Turnpike* and *Turner,* while upholding a regulation which substantially diminished the value of the plaintiff's property, felt it necessary to mention that the landowners involved could still make some beneficial use of their lands. A new, less restrictive, test is almost certain to evolve out of the myriad of compensation cases involving flood plain zoning, environmental restrictions, and wetlands preservation statutes. Because the public interest in flood plain regulation is very high, this must be viewed as a positive development.

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151. Id at ____, 201 N.W.2d 768.

152. Consider the comment by the New Jersey court in Morris Land Improvement Co. v. Township of Parsippany-Troy Hills, 40 N.J. 539, 193 A.2d 232 (1963):

> It is quite impossible or at least impracticable, even if a proper function or responsibility of a court, to attempt to sift any wheat from the chaff and pick out certain uses or certain land reclamation provisions which might individually be valid. That which thereby could be saved would be so fractional and incomplete as not to amount to a comprehensive, reasonable regulation of the area. Therefore, we must hold the provisions invalid in their entirety.

Id. at ____, 193 A.2d at 243.

V. FLOOD CONTROL AND FLOOD PLAIN ZONING IN NORTH DAKOTA

A. BACKGROUND

North Dakota has a long history of flood problems.[153] Prior to the construction of the Garrison Dam, the Missouri River had been a source of trouble for residents along its banks.[154] After construction of the dam, however, flood problems caused by the Missouri have been substantially reduced.[155] Occasional flood problems do occur along the Missouri located above the dam, and along its tributaries.[156]

In more recent years, the more serious flooding has been along the Souris River, located in the northwest region of the state,[157] the Red River of the North, which flows along the eastern boundary of the state,[158] and some of the Red's tributaries.[159]

According to United States Army Corps of Engineers estimates, the Souris can be expected to flood approximately once every five years.[160] Since its first recorded overflow in 1882, the Souris has flooded on 19 additional occasions,[161] the worst of which occurred in 1969.[162]

Since 1873,[163] major flooding has taken place along the Red 13 times.[164] Estimated annual damages amount to $7,298,000.[165]

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153. Flooding in North Dakota almost always occurs in spring due to the excess runoff of melted snow. On some occasions, such as in 1965 and 1975, large amounts of summer rainfall will cause flooding.

154. U. S. ARMY CORPS OF ENGINEERS, WATER RESOURCES DEVELOPMENT NORTH DAKOTA 18 (1975).

155. *Id.* at 18-19.

156. Among the tributaries which cause the most camage are the Knife, Heart, Cannonball, Little Missouri, and Yellowstone Rivers. During the spring of 1978, forced evacuations occurred in Mott, on the Cannonball, and in Williston, on the portion of the Missouri located upstream from Garrison Dam.

157. Flooding on the Souris results from the river's winding channel which prevents a faster flow of the river, and the fact that the river flows north which brings into play icejams which cause the Souris' floodwaters to back up.

158. The Red, like the Souris, is a northerly flowing river. Because of this, icejams often aggravate the magnitude of the spring flooding. Flood damage is also increased due to the Red River Valley's extremely flat surface and poor drainage. U. S. ARMY CORPS OF ENGINEERS, RED RIVER OF THE NORTH BASIN STUDY 76-77 (1976) [hereinafter cited as BASIN STUDY].

159. The three tributaries of the Red which have caused the most damage are the Pembina, Park, and Sheyenne Rivers. *Id.* at 84.

160. U. S. ARMY CORPS OF ENGINEERS, FINAL UPDATED ENVIRONMENTAL IMPACT STATEMENT ON MINOT CHANNEL MODIFICATIONS 29 (1974).

161. Minot recorded floods in 1882, 1897, 1899, 1901, 1904, 1916, 1923, 1925, 1927, 1951, 1955, 1969, 1970, 1974, and 1976. *Id.*

162. The 1969 flood inundated 3,000 homes, forced 12,000 persons to evacuate and caused an estimated $12,500,000 worth of damage, $10,900,000 of which was suffered by the city of Minot. *Id.*

163. Prior to 1873, floods more severe than any in the twentieth century were recorded in Winnipeg in 1826, 1852, and 1861. BASIN STUDY, *supra* note 158, at 78.

164. *Id.*

165. *Id.* at 84.

Of the Red's tributaries, the Pembina, Park, and Sheyenne Rivers have been the most troublesome, causing annual damages of $2,145,000; $1,991,000; and $1,190,000 respectively.[166]

B. FLOOD CONTROL PROJECTS IN NORTH DAKOTA

The Army Corps of Engineers has completed a number of flood prevention projects which have been very successful in reducing flood damages in this state. The projects completed include dams and protective works. Among the projects finished are the Garrison Dam on the Missouri River, Baldhill Dam on the Sheyenne River, Homme Dam on the Park River, Bowman-Haley Dam on the North Fork of the Grand River,[167] and local protective works at Mandan, Marmarth, and Scranton and at several locations in the basin of the Red River, including Fargo and Grand Forks.[168]

C. FLOOD PLAIN ZONING IN NORTH DAKOTA

1. *State Law*

Despite the efforts of the Corps of Engineers, floods continue to plague persons living near the state's rivers. Chiefly as a result of the Federal Flood Disaster Act of 1973,[169] flood plain zoning has been one of the alternate methods utilized by flood-prone areas of the state to lower flood damages.

The North Dakota state legislature has delegated the power to zone to various political subdivisions of the state, including cities,[170] counties,[171] townships,[172] and regional planning and zoning commissions.[173]

The North Dakota Century Code would appear to enable a local government to zone a flood plain. While the purposes section of the grant of the zoning power to the cities does not mention protecting people from the dangers associated with flooding,[174] the

166. *Id.*
167. U.S. ARMY CORPS OF ENGINEERS, WATER RESOURCES DEVELOPMENT NORTH DAKOTA 6 (1975).
168. *Id.*
169. *Supra* note 3.
170. N.D. CENT. CODE ch. 40-47 (1968).
171. *Id.* ch. 11-33 (1976).
172. *Id.* §§ 58-03-11 to 15 (1972).
173. *Id.* ch. 11-35 (1976).
174. N.D. CENT. CODE § *40-47-03 (1968) provides in part as follows:*
The regulations provided for in this chapter shall be made in accordance with a comprehensive plan and shall be designed to:
1. Lessen congestion in the streets;
2. Secure safety from fire, panic, and other dangers;
3. Promote health and the general welfare;

counties' enabling statute does. They are empowered to "secure safety from fire, flood, and other dangers."[175] The townships, like the cities, are not specifically authorized to regulate flood plain uses.[176] Despite these varying statutory provisions, it seems that any of the above governmental units could pass a flood plain zoning ordinance. Section 61-16-11(19) of the North Dakota Century Code provides that a Water Management District may petition any of the above political subdivisions to "assume jurisdiction over a flood plain for zoning purposes."[177]

2. *Local Government*

A number of North Dakota's local governments have comprehensive flood plain ordinances, including three of North Dakota's cities hardest hit by floods: Minot,[178] Fargo,[179] and Grand Forks.[180] The influence of the Federal Flood Disaster Protection Act is unmistakably present in that the ordinances all refer to various aspects of the Act, such as FIA maps.

3. *North Dakota Supreme Court Decisions*

The North Dakota Supreme Court has not had an opportunity to decide the constitutionality of a flood plain zoning ordinance. The closest analogy to a flood plain decision, if only because the plaintiff's land was allegedly flooded often, is *Midgarden v. City of Grand Forks*.[181] The plaintiff desired to build a trailer park, but was prohibited from doing so because the area was zoned residential. The court, in sustaining the ordinance from attack as an unconstitutional taking stated that "[i]n enacting zoning ordinances the governing body of a city is exercising a legislative function, and unless such ordinances are clearly arbitrary and

4. Provide adequate light and air;
5. Prevent the over-crowding of land;
6. Avoid undue concentration of population; and
7. Facilitate adequate provisions for transportation, water, sewage, schools, parks, and other public requirements. . . .

175. N.D. CENT. CODE § 11-33-03(2) (1976).
176. *Id.* § 58-03-11 (1972).
177. N.D. CENT. CODE § 61-16-11(19) (Supp. 1977) reads in part as follows:
To petition any zoning authority established pursuant to chapters 11-33, 11-35, or 40-47 or section 58-03-13 to assume jurisdiction over a flood plain for zoning purposes when such zoning is required to regulate and enforce the placement, erection, construction, reconstruction, repair and use of buildings and structures in order to protect and promote the health, safety, and general welfare of the public lying within a flood-prone area. . . .
178. Minot, N.D., Ordinance 2145 (May 2, 1977).
179. FARGO, N.D., REV. ORDINANCES ch. 21, art. 21-06 (1965).
180. GRAND FORKS, N.D., CODE ch. XIX, art. 6, §§ 19-0601 to 19-0608 (1963).
181. 79 N.D. 18, 54 N.W.2d 659 (1952).

unreasonable they will be upheld by the courts."[182] From that, it would seem that a flood plain ordinance would be entitled to a strong presumption of validity.

4. *Summary*

Considering North Dakota's long history of serious flooding,[183] the statutory authorization to zone flood plains,[184] and the presumptions in favor of the validity of zoning ordinances set forth in *Midgarden,* it would appear that the North Dakota Supreme Court would uphold a flood plain ordinance so long as it is not "clearly arbitrary and unreasonable."[185]

VI. CONCLUSION

In light of the previous discussion, it is apparent that the use of flood plain zoning as a means to reduce flood losses will continue to increase. Projects designed to impound floodwaters, while successful, were not by themselves adequate to sufficiently prevent the loss in human life and property. Having recognized this, policy-makers turned to land use controls to lessen flood losses. While earlier attempts at flood plain zoning met resistance in the courts, the trend would seem to be a growing acceptance of this use of the zoning power. Finally, the Flood Disaster Protection Act has served as a powerful catalyst in forcing communities to adopt flood plain zoning ordinances.

This must be viewed as a positive development. Landowners who complain about government taking of their land are being forced to realize that their building on the flood plain is a drain on public resources, and that government will no longer subsidize an individual citizen's foolishness. But more importantly, it is an example of government taking responsibility for the safety and well-being of its people.

JAMES HOPE

182. Midgarden v. City of Grand Forks, 79 N.D. 18, 23, 54 N.W.2d 659, 662 (1952).
183. *See* text accompanying *supra* notes 153-66.
184. *See* text accompanying *supra* notes 171-78.
185. 79 N.D. at 23, 54 N.W.2d at 662 (1952).