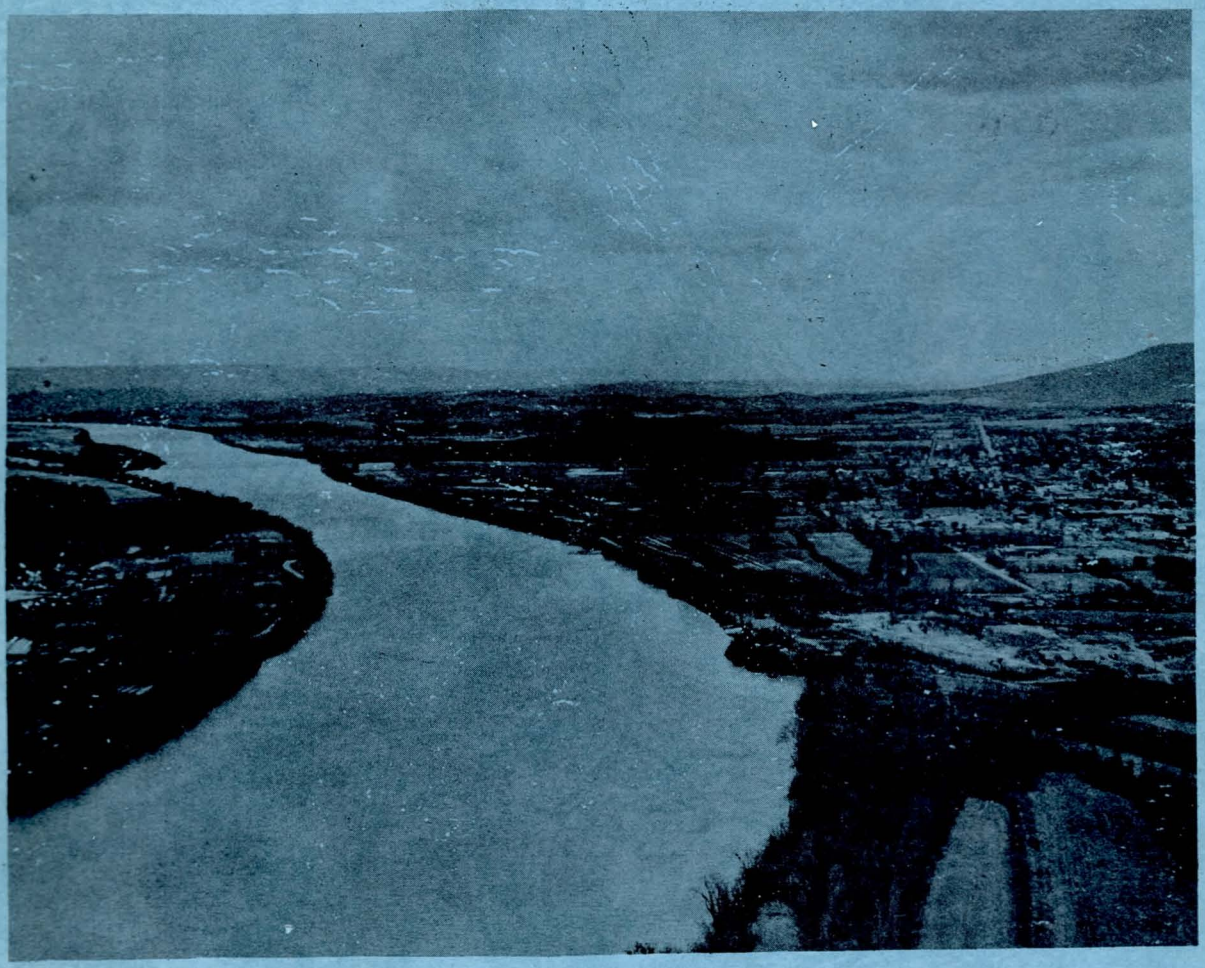
A LEGAL VIEW OF THE FLOOD PLAIN



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HARVARD LAW SCHOOL

1961

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Submitted in the Seminar on Land Use Planning of HARVARD LAW SCHOOL in satisfaction of the requirements of that Seminar and of Third Year written work.

ERRATA

(A Legal View of the Flood Plain)

Page 22, lines 12 and 13: Insert "Model" after "A" and "a"

Page 25, line 15: Begin a new paragraph under (c) beginning with "The Attorney General . . . "

Page 36, line 9: Change "Sup." to "Super."

Page 41, line 4 of footnote 54: Change "104" to "105"

Page 46, line 26 of footnote 58: Change "73-77" to "74-77"

Page 55, line 1 of footnote 75: Underline "A Standard State Zoning Enabling Act"

Page 57, lines 1 and 2: Insert "Model" after "A" and "a"

Page 57, lines 28-31: Beginning with "subject to variation. . . ", move and insert on line 17 after the word "data"

Page 71, line 1 of footnote 96: Change "91" to "92"

Page 74, footnote 103: Change "74" to "75"

Page 75, line 21 of footnote 105: Change "57" to "58"

Page 75, line 1 of footnote 106: Change "57" to "58"

Page 79, line 1 of footnote 111: Change "108" to "110"

Page 81, line 1 of footnote 112: Change "59" to "60"

CONTENTS

FOREWORD

This paper was written to satisfy a requirement for third-year law students at Harvard University. Law schools often require senior students to write a comprehensive paper in some area of the law, and the requirement may include the drafting of sample legislation as a solution to some existing problem.

The author chose the field of floodway encroachment and flood plain zoning for his paper. He has summarized the relevant legal background for the sample legislation he has drafted.

The sample legislation is a mixture of sections advancing desirable suggestions, other sections outlining views which have been tried and discarded in particular situations, and still other sections containing suggestions that would at least be questionable in their general application.

This has been reproduced with permission of the author, as a matter of interest, to add to the literature in this legal field, and for limited distribution to those working in the field of flood damage prevention through land-use regulation. The various viewpoints expressed are those of the author and do not necessarily coincide with those of the Tennessee Valley Authority.

James E. Goddard, Chief
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INTRODUCTION

Efforts to combat losses caused by floods may take two general approaches. The first, the most spectacular and common, is the erection of protective works such as dams and levees, and such lesser positive governmental projects as detention reservoirs, land filling, and channel enlargement and straightening. This rests on the theory of reducing losses by preventing the flood water from reaching susceptible areas. The second approach emerges from the fact that protective works cannot be a complete solution because of their great expense and because they are not adaptable to the flood problems of many areas.[1] It advocates instead that the flood plain itself be regulated in various ways in order to reduce loss. This may take a number of forms: zoning, channel-encroachment laws, regulation of the construction of (private) dams, subdivision regulation, building codes, conservation measures, permanent evacuation, government acquisition, warning signs, and publicity to building financing groups.[2]

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1. This was generally realized in the Flood Control Act of 1936 which provided that "the Federal Government should improve or participate in the improvement of navigable waters . . . for flood control purposes if the benefits . . . are in excess of the estimated costs." 49 Stat. 1570 (1936), as amended, 33 U. S. C. sec. 701a (1958).

2. Flood insurance might also be listed to the extent that it may incorporate requirements for the adoption of other measures. This was attempted in the Federal Flood Insurance Act of 1956 in two ways: (1) "No insurance . . . shall be issued . . . on any property . . . in violation of state or local flood zoning laws"; (2) "no insurance . . . shall be issued in any geographical location unless an appropriate public body shall have adopted . . . such flood zoning restrictions, if any, as may be deemed necessary . . . to reduce . . . damages." 70 Stat. 1082 (1956), 42 U. S. C. sec. 2411 (1958). For various reasons (particularly the fact that the act would have, in its practical operation, given a high subsidy to those frequently flooded) this particular program was abandoned, Congress refusing to give an appropriation for 1957.

A similar thought seems to be behind a 1952 declaration of policy of the Bureau of the Budget: "In the preparation of any program or project report concerned with flood control, the head of the agency proposing such program or project shall give consideration in the

The emphasis of this paper will be on two of the methods listed in the second approach: zoning and channel-encroachment. Model legislation is proposed for each, along with an analysis of the existing state of the law in each area.

It must be realized that these model laws, especially the zoning ordinances, do not purport to be able to be enacted in any state or community as they are. They assume that a certain regulatory framework is already available. Essentially they are substantive and do not set forth the procedural aspects of administration. The encroachment law, for example, assumes a state administrative procedure act setting forth the form to be followed in the issuance of rulings, the procedure by which hearings are to be conducted, the availability of the subpoena power in an investigation, and the like. It also assumes that some basic laws are already being administered in the general area, for example, one controlling the construction of dams on the rivers of the state.[3] In short, the Act intends to give a thorough coverage to a relatively narrow area in which it is felt that the present development

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report to all methods of preventing or reducing flood damage in each particular instance and shall include a report on the most effective and most economical choice or combination of one or more of the following methods of alleviating flood damage:

(1) Flood plain development and redevelopment, relocation and zoning . . .

(6) Channel improvement and rectification, bank stabilization, and floodway and diversions."

Reports and Budget Estimates Relating to Federal Programs and Projects for Conservation, Development, or Use of Water and Related Land Resources 15-16 (Bureau of the Budget Circular No. A-47, December 31, 1952). See also Conclusions Adopted at the Conference on Flood Plain Regulation and Insurance, 32 State Govt. 127 (1959).

3. For example, Conn. Gen. Stat. Ann. sec. 25-110 to -119 (1960); N. J. Stat. Ann. sec. 58:4-1 to -6 (1940). The main purpose of this type legislation is to insure their proper construction so that they will not break away and cause damage. Forty-five states require permits for the construction of dams, with thirty-nine requiring approval of plans before construction and thirty-five after construction. Perrey, Suggested Legislation on Flood Plain Regulation, 85 J. of the Hydraulics Div., No. HY 12, p. 48 (A.S.C.E., 1958).

of the law has been inadequate; it is meant to be a part of a greater or lesser plan of water regulation and not an isolated enactment for which a new agency must be set up.

A similar situation exists for the Model Flood Plain Zoning Ordinance. It is meant to be an amendment to the "typical" zoning ordinance (if there be any such) for the "typical" town. What is meant by this is that there is little procedure set forth for such things as appeal, variance, notice, and a Board of Zoning Appeals, on the assumption that these are already provided for in an ordinance regulating residences, industry, size and height of buildings, density, etc. By the "typical" town is meant one encompassing both urban and rural areas, perhaps of a population of about 40,000[4] on an inland river.[5] It is one which has had flood problems in the past, with the result that a certain amount of flood data is available. It is hoped that the underlying concepts of the Model Ordinance are flexible enough so that, with some variation as to permitted and prohibited uses, it can be readily adapted to most cities and towns.[6]

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4. This seems to be fairly typical of the municipalities which have already enacted such legislation, with such exceptions however as Los Angeles, Denver, and Milwaukee. Murphy, Regulating Flood Plain Development 56-59 (U. Chi. Dept. of Geog. Research Paper No. 56, 1958) (hereinafter cited as Murphy). It should be noted that throughout this paper the debt to Murphy is heavy, both for his assembling of texts of local ordinances not generally available and for his field research on the practical operation of both zoning and encroachment legislation.

5. This is meant to specifically exclude any attempt to deal with flooding arising out of tidal inundation, especially through hurricanes; this presents special problems which are not pertinent to very many areas of the country.

6. This is not to deny acknowledgment to the various factors that influence floods, e.g. the climactic factors of precipitation and its distribution in time and place, the springtime melting of snow, the land factors such as elevation, slope, composition and culture of the land surfaces, and the drainage pattern and general arrangement of natural stream channels. See generally Peirce, Floods in Alabama--Magnitude and Frequency, 1 (U. S. Geological Survey Circular 342, 1954).

The Model Ordinance is not meant to have any unusual application to subdivisions. For most of the special requirements imposed on the developers of subdivisions would necessarily seem to be those of a quasi-public nature (e.g. minor protective works, sewers, streets) and so not in harmony with the rest of this paper which generally considers the regulation of purely private-type activity.

The word "zoning" in this paper is taken in a relatively narrower sense than some writers on the subject have used it (correctly or not). Dunham, for example, includes in his concept of flood plain zoning any type of law regulating the land for the purpose of affecting flood losses.[7] Here it shall be taken to mean those specifications of the type of land use or development, according to districts, that are desirable and permissable from an over-all planning viewpoint. This would clearly seem to be the more traditional view. It also emphasizes the difference in purpose between flood plain zoning and a channel- (or floodway) encroachment law. The latter aims to maintain an adequate channel (or floodway) by preventing any flow-constricting development in such an area. Zoning, on the other hand, generally, though not excusively,[8] has been used to regulate, from a planning approach the

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7. Dunham, Flood Control Via the Police Power, 107 U. Pa. L. Rev. 1102 (1959)(hereinafter cited as Dunham). He therefore includes in his concept subdivision regulation, health, sanitation and building codes, and channel-encroachment laws. Similarly White, Human Adjustment to Floods 191-96 (U. Chi. Dept. of Geog. Research Paper No. 29, 1945); Hoyt & Langbein, Floods 99 (1954).

8. See Los Angeles County, Calif., Zoning Ordinance Art. 5, sec. 762 (1951), which basically prohibits the placing of fences, structures, etc., in certain types of streams so as to "impede, retard, or change the direction of the flow of water . . . or . . . collect debris . . . or . . . placed . . . where the natural flow . . . would carry the same downstream to the damage" of others. Flood Plain Regulation 9 (A.S.P.O. Planning Advisory Service Info. Rept. No. 53, 1953). Similar encroachment provisions can be found in West Lafayette, Ind., Zoning Ordinance Art. III-A (1956) (extending over the floodway), Murphy 180; Alburquerque, N. M., Zoning Ordinance sec. 16 (1956) (150 feet of the centerline of the flood channel), Murphy 184-85; Kingsport, Tenn., Zoning Ordinance sec. V and VI (1957) (40 to 65 feet of the centerline of the creek), Murphy 185; Lewisburg, Tenn., Zoning Ordinance Art. VIII and IX (1956) (floodway), Murphy 186-87; Milwaukee County, Wis., Zoning Ordinance

developing uses of the flood plain because of the damage to those uses themselves by flood waters. Therefore, as used here, flood plain zoning will be taken as not including encroachment provisions.

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sec. 58.16(5) (1953) (channel lines), Murphy 188. Of these only the Lewisburg and Milwaukee ordinances seem to provide for additional regulation of flood plain use; for the others this is the sole flood plain regulation for the municipality.

THE ENCROACHMENT AREA

Before entering into a discussion of statutory regulation, it would seem to be of value to briefly glance at the rights a private person has in this area at common law. Distinction is made between surface waters and those in a stream. As to surface waters, the jurisdictions have divided sharply. Some adhere to the civil law rule of natural flow: that a landowner cannot alter the manner of flow of surface water onto the land of another against the objection of that owner. Other states adhere to the so-called "common enemy" rule: that the landowner can act in any way which reduces his own damage to a minimum, irrespective of the effect on his neighbors. A few states have compromised these two approaches, applying the civil law rule in rural areas and the common enemy rule in urban districts. Some other cases seem to have taken a more ad hoc attitude, balancing the utility of the particular situation against the harm done, or adopt a general "reasonableness" test (i.e., surface water may be fended off if done reasonably, for proper objects, and with due care with reference to the adjoining property).[9]

There is much more uniformity of opinion in the area of riparian rights. The general rule is that the riparian owner has no right to obstruct the stream or to erect a levee or other structure which will throw water onto the lands of others to their injury in times of ordinary flood, unless the privilege has been obtained by grant or prescription. However the majority rule is that the riparian owner can, without liability for damages incidentally resulting to others, if he acts with due care, erect levees and embankments to prevent the course of the stream from being altered or to protect against extraordinary floods. Some states, however, treat all flood waters as a common enemy and permit the land to be protected

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9. 5 Powell, Real Property sec. 729-31 (1956); 56 Am. Jur. Waters sec. 67-70 (1947).

irrespective of injury to others and irrespective of type of flood.[10] And while a riparian owner is not bound to keep the channel free from debris coming there naturally, and is not liable if its accumulation sets the water back over the boundary line, in erecting any artificial structure in or across the stream, he is bound to take notice of any material impeded by such obstruction and will be liable if he builds in such a way as to necessarily cause the drifting material to dam back, or if he does not remove it when he sees that it is dammed.[11]

The question then arises that if the owner has these rights against one who obstructs a stream, why, as is here urged, is there such a great need for encroachment legislation. It is suggested that there

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10. 5 Powell, op. cit. supra note 9, sec. 717; 56 Am. Jur. Waters sec. 99 (1947); 6A American Law of Property sec. 28.60 (Casner ed. 1952). In Wellman v. Kelley & Harrison, 197 Ore. 553, 252 P.2d 816 (1953) the court stated that "extraordinary" floodwaters could be fended off by the owner to protect the land, but "ordinary" (i.e. annually or regularly recurring) floodwaters could not. California distinguishes the overflow of a stream from the stream itself and permits the property to be protected, although no obstruction of the stream or of surface water is allowed. Mogle v. Moore, 16 Cal.2d 1, 104 P.2d 785 (1940). In regard to obstructions not in the nature of protective works, see Soules v. Northern Pac. Ry., 34 N. D. 7, 157 N.W. 823 (1916): held that one who builds across a natural drainway has the duty to provide for the natural passage through the obstruction of water which may be reasonably anticipated, although he need not provide against unprecedented rains. Compare Ohio & Miss. Ry. v. Nuetzel, 43 Ill. App. 108 (1891)(railroad held liable where it constructed a solid embankment over a watercourse which flooded the plaintiff's land during an extraordinary rain, which was held to be no defense). Note however that an entirely different set of legal rules applies to dams and other structures (not including docks and the like) which have a direct relation to the use of water. Except for seventeen western states which hold that priority of use determines the extent of water rights, the general rule is that riparian owners have correlative rights of enjoyment. These are broken down into several subcategories varying among the states. See generally 6A American Law of Property sec. 28.55-.60 (Casner ed. 1952). Most of the injury due to encroachment seems due to structures which have no relation to water-use however.

11. 2 Farnham, Water and Water Rights 1832 (1904).

are five compelling reasons. First, it is often extremely difficult to prove, where flood waters have swept over an entire area, exactly what part of the resultant damage may be attributed to an obstruction belonging to a particular defendant. Second, even if a direct causal relation could be shown, floods are typically of such a catastrophic nature that to press a judgment a court has awarded would only involve the plaintiff as a creditor in a bankruptcy proceeding. Third, since a number of jurisdictions allow protective works against "extraordinary" flood waters, and since this may mean any non-annual flood, a private person would seem fully helpless in such a situation.[12] Fourth, cases seeking to enjoin obstructions seem nonexistent except after damage has occurred. While it may be possible to obtain an injunction before severe damage has occurred where the obstruction is directly within the channel of the stream since the ordinary flow of the water may cause an overflow in a moderate way, it would seem extremely difficult where the obstruction is in a floodway[13] since the damage would only result in time of more severe flood and would really be an attempt to obtain an injunction on a more or less hypothetical situation, even if a neighboring owner could foresee the danger. Fifth, there is a clear social utility in attempting to prevent the situation which will cause injury from arising, rather than attempting to see recovery in a lawsuit after it has occurred.[14]

The first step toward statutory regulation began in the 19th century when a number of states passed laws requiring railroads to provide for the drainage or flow of waters. They were of two types. Some required the construction and/or maintenance of drainage facilities such as openings, ditches, or other outlets through, across, or along

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12. See note 10 supra and text pertaining thereto.

13. See Section 1(g) of the Model Floodway-Encroachment Act infra p. 24 for a common definition of "floodway."

14. Admittedly this social utility may be outweighed if the benefits arising from the obstruction during the interval between floods exceed the damage caused by the obstruction during the flood.

the railroad right-of-way or roadbed. A majority of the statutes however declared that if a railroad is built along a stream or watercourse, it must be constructed in such a manner as not to impair the usefulness of the stream or watercourse, or that it be restored to its former state or condition.[15] The validity of the statutes has been upheld in the two cases where they were specifically challenged. In Chicago & Alton R.R. v. Tranbarger, 238 U. S. 67, 35 Sup. Ct. 678 (1915), the Supreme Court upheld a Missouri statute (requiring provision be made for the passage of water under embankments and imposing punitive and compensatory damages) against a claim that the statute took a right-of-way for drainage for which compensation had to be paid. It was a valid exercise of the police power despite the fact that the state adhered to the common enemy rule. And in Peterson v. Northern Pac. Ry. 132 Minn. 265, 156 N.W. 121 (1916) the Minnesota statute imposing a requirement to keep railroad ditches clean between certain dates each year was held by the court to be a reasonable exercise of the police power.

A common attitude as to encroachments and public responsibility in general might perhaps be gleaned from the following by W. L. Webb, Railroad Construction: Theory and Practice:

> "The advisability of designing a culvert to withstand any storm-flow that may ever occur is considered doubtful. Several years ago a record breaking storm . . . carried away a very large number of bridges, etc., hitherto supposed to be safe. It was not afterward considered that the design of those bridges was faulty, because the extra cost of constructing bridges capable of withstanding such a flood, added to interest over a long period of years, would be enormously greater than the cost of repairing the damages of such a storm once or twice a century."[16]

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15. Examples of the former type are Minn. Stat. Ann. sec. 219.37 (1947)(duty to keep ditches and culverts clean between certain dates each year) and Mont. Rev. Code sec. 72-644 (1947)(construction of such facilities required); of the latter, Kan. Gen. Stat. Ann. sec. 66-501 (1949). See Annot., 19 A.L.R.2d 967 (1950).

16. At 254 (1932).

At any rate it was slowly realized that encroachments upon channels and floodways so constricting their width that flood conditions would be aggravated would become ever more serious as population increased and was pressured into locating on the less desirable flood plain areas. For

> "[to] the extent that new occupance encroaches upon natural stream channels so as to increase flood heights and velocities, it adds to the flood hazard. In virtually all of the areas studied there was evidence of some encroachment, but it carried the most serious consequences in two types of situations. One of these is where bridges and highway fills constrict the channel so as to cause ponding. The other is where new structures, usually residences, are built in the bottom of dry washes or close to the channels of small streams having drainage areas of less than 10 square miles."[17]

In 1913 Pennsylvania enacted the first channel-encroachment law of general application on a statewide level. This was followed by New Jersey (1929), Washington (1935), Massachusetts (1939), Indiana (1945), Iowa (1949) and Connecticut (1955). In New York the power to establish encroachment lines was given to one county, Westchester. Los Angeles County has made it a part of its zoning ordinance, and Hayward, California, has an ordinance relating to it. Welch, West Virginia, seems to have been given the power by its city charter.[18] There are also a number of others.[19] This does not include legislation giving a private

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17. White, et al., Changes in Urban Occupance of Flood Plains in the United States 229 (U. Chi. Dept. of Geog. Research Paper No. 57, 1958).

18. Conn. Gen. Stat. Ann. sec. 25-3, -5, -69 (1960); Ind. Ann. Stat. sec. 27-1102 to -1123 (1948); Iowa Code Ann. sec. 455A.33-.39 (1958); Mass. Ann. Laws ch. 91, sec. 23 (1954); also Mass. Acts 1939, ch. 513; N. J. Stat. Ann. sec. 58:1-26 (1940); N. Y. Laws 1956, ch. 853, as amended Westchester County Local Law 1-1957, as amended N. Y. Laws 1959, ch. 97; Pa. Stat. Ann. tit. 32, sec. 681-91 (1949); Wash. Rev. Code sec. 86.16 (1951); Los Angeles County, Calif., Zoning Ordinance Art. 5, sec. 760-64 (1951) supra note 8; Hayward, Calif., Ordinance No. 546 N. S. (1953), Murphy 103; City of Welch v. Mitchell, 95 W. Va. 377, 121 S. E. 165 (1924).

19. See note 8, supra.

person the right to cause removal of the obstruction[20] nor to legislation giving a public agency the power to remove natural obstructions such as trees and silt from watercourses.[21] The great majority of all these laws were enacted after severe floods.

The effectiveness and enforcement of these statutes has varied.[22] In Pennsylvania the main purpose of the act in which the encroachment provisions were contained was to prevent the failure of dams, and while over 25,000 permits of all types have been granted since 1913, no encroachment lines have been established. In New Jersey the statute only covers structures within the high water mark of streams. Within this limitation, however, application of the act has been reasonably good, with a fairly extensive system of encroachment lines established and 3100 applications processed.

In Washington the law is weak and standards low. Fourteen "flood-control zones" were set up immediately after enactment, but no new zones have been added although subsequent major floods outside the zones have occurred. The zone boundaries are based on political and subdivision lines rather than flood data. The agency does no policing and so there has been no enforcement. Only 380 permits have been issued. In Massachusetts the situation is similar. The standard is the high-water mark, which is normally reached annually. No encroachment lines have been specifically delineated, there is much unlicensed construction, and no effort to police is made.

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20. Wis. Stat. Ann. sec. 88.41 (1957), which gives any person injured by an obstruction which is due to the negligence of its owner the right to request its removal, which if not followed and if justified, imposes the duty on the supervisors of the town to order its removal at the cost of the owner. This seems to be declaratory of the injured party's common law rights, except that he may go to the town supervisors instead of to a court of equity for an injunction.

21. Mass. Acts 1939, ch. 513, sec. 1; Neb. Rev. Stat. sec. 31-202.02 (1952).

22. The information on the administration of these state laws is based largely on the study made by Murphy 16-32, 101-04; also Letter of James W. White, Westchester County Dept. of Public Works, dated September 30, 1960.

In Indiana, although the coverage of the act includes the floodway, the commission has attempted to regulate only channel obstructions. No prior permits are required so that once an obstruction has been built, it is generally not disturbed unless it is most flagrant. There are no pre-determined standards, and each of the 667 applications processed have been evaluated individually. The statute in Iowa also extends to floodways and until 1957 no prior permits were required, with the result that the law was ineffective. No standards or encroachment lines have yet been set, and once a structure is built, it is not removed unless it constitutes a nuisance (apparently apart from the act since that declares all violations a nuisance). However, recently several abatements have occurred and about 100 applications per year are being processed.

The Connecticut program seems to have progressed most effectively. The standards for the substantial number of miles of encroachment lines that have already been charted have been relatively high, falling between a 34- and 150-year flood frequency range. At least eleven court cases have resulted from enforcement. In Westchester County, New York, statute, encroachment lines have been established and some permits passed upon, but no legal action taken.

It would seem that a major factor in the lack of efficacy of these statutes is the unavailability of funds. This is something only the legislature can cure.[23] When the memories of the last major flood fade, the sense of urgency about curbing encroachment fades with it. It is suggested however that if a statute is enacted which is so drafted that the public is induced to file permits (thus automatically giving work to the agency), coupled with the imposition of certain duties upon the agency (rather than mere powers), that agency is more likely to obtain at least the minimum funds for effective operation in subsequent years.

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23. The Indiana statute attempts to avoid this by providing for an automatic annual appropriation of $50,000 to be diverted into a special fund for the sole use of the Commission. Ind. Ann. Stat. sec. 27-1123 (1948). Such a procedure appears to recommend itself should local legislative custom not be hostile to it.

This presents, therefore, a discussion of what is seen as the chief defects of at least the majority of the encroachment statutes:

1. Too many aspects of the laws are permissive rather than mandatory, both as to the agency (e.g. the establishment of encroachment lines) and the public (e.g. permits);

2. A general lack of clarity, not only in terms used (i.e. lack of definition) but in lack of standards to be applied (as to the establishing of encroachment lines and the granting of permits);

3. Failure to provide flexibility of remedies to the agency;

4. Failure to have a plan to inform the public of the requirements of the statute;

5. Limitation of the coverage of the statute to channel-encroachment rather than floodway-encroachment.[24]

The detailed discussion of the provisions of the Model Act following its text will show how these defects are cured.

As we have seen, some attempts at encroachment legislation have been at the county and city level. It would not seem that this is preferred. Apart from the general availability of funds, enforcement on a lower level would seem to be proportionately more expensive since there is greater likelihood that a new agency would have to be set up, instead of being able to fit the program within the framework of an existing one. And there is a need to correlate flood data on a fairly

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24. Of the state legislation referred to in note 18 supra four are limited to channel-encroachment (either expressly or by interpretation where ambiguous) and only four are broader. But only the Iowa and possibly the Connecticut law is being truly enforced as a floodway-encroachment statute (although the Connecticut statute does not speak in terms of "floodway" but merely provides generally for the establishment of encroachment lines; see note 29 infra). As noted, the Indiana law has in practice been limited to channel-encroachment. The Westchester County, N. Y., law extends its protection for 100 feet on each side of the channel lines, irrespective of what the true width of the floodway may be.

wide geographical basis; while the information made available by the TVA, the Corps of Engineers, the U. S. Geological Survey or similar groups may suffice, if the agency must also obtain information on its own and pay for technical services, difficulties, especially financial, are likely to be encountered. Moreover the danger such encroachments cause may not be as local as they seem: ponding behind a bridge may cause flooding of a wide area, and if structures are swept away by the current, they may cause damming miles downstream with the same ponding results. If one community does pass such a law, it may still be injured if its neighbors do not. Lastly, such legislation, if it is effective, will meet opposition from the local populace affected.[25] A state agency will be better able to withstand such pressure than a local City Council.[26]

Typical of the entire area, there have been few cases dealing with the validity of encroachment laws. The first was City of Welch v. Mitchell, 95 W. Va. 377, 121 S.E. 165 (1924), where the city, under due charter authorization, adopted an ordinance fixing building lines on each side of the stream in order to prevent the obstruction of its flow. The court said that this was a valid exercise of the police power, and the owner need not be paid compensation if the restriction is reasonable. However the court then held that the city could not permit encroachment beyond the line on one side of the stream to the disadvantage of those on the opposite side without compensation.[27] The case basically reflects the idea of equal protection of the laws, and emphasizes to the draftsman

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25. Murphy 22, 29 indicates this was the case with the Connecticut and New Jersey statutes (note 18 supra).

26. Nor would giving the specific power to establish encroachment lines to cities and towns seem to be of much effect. Both Connecticut (since 1945) and Pennsylvania (since 1931) gave its political subdivisions such power, but no community ever took advantage of it. Murphy 20, 31.

27. What the city attempted to do was to relocate the building lines, moving one toward the stream on one side in order to permit the completion of a building for which it had negligently issued a permit, and moving the other away from the stream on the other side, farther onto the defendant's land, in order to maintain its 60-foot clearance area.

that care must be taken if the legislation sets up standards for permits, or if it is to apply only to certain types of streams, or only to certain types of applicants for permits.

The next case came 34 years later. In Water & Power Resources Bd. v. Green Spring Co., 394 Pa. 1, 145 A.2d 178 (1958) the defendant increased the height of its dam 17" without a permit and the plaintiff sought to enjoin. The court held that the statute, giving the Board the power to grant or withhold consent for a permit to construct a dam or water obstruction, was not an invalid delgation of power since the standards were sufficient (i.e. does the obstruction cause danger to life and property, or will it divert the natural course of the stream). A strong dissent urged that there was no stated purpose to the act, that the standards were insufficient, and that the majority rested mainly on the presumption of constitutionality (which it did).

The Connecticut statute came under attack in Vartelas v. Water Resources Commission, 146 Conn. 650, 153 A.2d 822 (1959), perhaps the most significant case in the area. The plaintiff owned land adjacent to a river, and buildings which had been located there had been swept away by the 1955 flood. Almost all the land fell within the encroachment line later established by the Commission, and the Commission refused permission to build the type of structure he applied for, a retail market, on the ground that it would "impair the capacity of the channel and result in increased upstream water stages in time of flood." The trial court upheld the contention that it was an unconstitutional taking of property for public use without compensation. This was reversed on appeal, the court holding that the statute which authorized the establishment of encroachment lines, with the police power to be used where there are no existing structures or encroachments within the lines, and with the use of the power of eminent domain where there are structures, created a classification within the power of the legislature to make. It was not unconstitutional on the theory that it worked an illegal discrimination in respect to situations where there were no existing structures since there is a natural and substantial difference between the two situations.

The legislation, with the aim of facilitating channel clearance and improvement, is an exercise of the police power. The police power regulates the use of property because its uncontrolled use would be harmful to the public interest; eminent domain takes private property because it is useful to the public. In addition, just because the plaintiff was refused as to one type of structure did not mean that another type, for example on piers or cantilevers, which would not impair channel capacity, would be refused. Thus, it was not shown that the plaintiff had been deprived of a reasonable and proper use of his property.[28]

Thus it is seen that there has been little question that such channel-encroachment laws are a valid exercise of the police power. However it will be seen that the Model Act goes beyond the legislation that was before the West Virginia and Connecticut courts in two significant respects: the jurisdiction of the agency clearly extends over the

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28. Dunham (at 1123) felt that the Connecticut statute might be unconstitutional on another ground. For the act applies only to streams which are being considered for flood control work. This may imply that perhaps its real purpose is to prevent encroachment on the right-of-way of proposed channel improvements, and so save the government acquisition costs at a later date. This would be a violation of due process since it compels one owner to confer a benefit on all taxpayers. The more a statute excludes activities needing regulation as much as those regulated, the more difficult it is to say that the prevention of uncompensated-for harm is the real objective.

It should also be noted that the Connecticut statute is the only one providing for the use of eminent domain, thus lending support to the position that the purpose is not really to prevent ponding because of channel constriction but rather is part of a program for the acquisition of a right-of-way for channel improvement. (The Indiana Commission does have the power to be used as part of its general flood control program, but it does not seem to be designed as part of the encroachment provisions. Ind. Ann. Stat. sec. 27-1114 (1948).)

A similar argument may also be made as to the Massachusetts statute which provides: "The Department may license . . . the construction . . . of a dam [etc.] . . . upon the waters . . . with respect to which expenditures from federal, state or municipal funds have been made for . . . flood control or prevention work." Mass. Ann. Laws ch. 91, sec. 12A (1954).

entire floodway and not merely to channel-encroachments[29] and, secondly, the power to order the removal of an obstruction which existed at the time of the passage of the statute is given.[30] It is felt, however, that these provisions can be upheld on the basis of the police power. As to the second point, the Model Act declares any obstruction in violation of the Act a public nuisance.[31] If this classification can be sustained, there would seem little problem about enjoining an obstruction existing at the time of the enactment of the statute since, even if it were not a nuisance before, it is clear that what was not a nuisance previously can become one and be enjoinable at such later time, even if what caused it to become a nuisance was a legislative act.[32]

The general rule is that the legislature may declare anything to be a nuisance which is detrimental to the health, morals, peace or

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29. As do the Indiana, Iowa, and New York statutes. See note 24 supra. The Connecticut statute does not speak in terms of a "floodway" but just provides generally that "the Commission shall establish . . . on any waterway under consideration for . . . flood control . . . lines beyond which . . . no obstruction . . . shall be placed." Conn. Stat. Ann. sec. 25-3 (1960). It might be argued that the use of the word "on" implied a channel-encroachment rather than a floodway-encroachment statute. This point was not raised in the Vartelas case and the Commission has interpreted its power more broadly it seems. See Murphy 23, 35. It may well be that both the Welch and Vartelas cases actually dealt with floodway-encroachment; however, it is not clear from the facts as stated in the reports.

30. This is also true of the Indiana, Iowa, New Jersey, and Pennsylvania statutes. Ind. Ann. Stat. sec. 27-1117 (1948); Iowa Code Ann. sec. 455A.33 (1958); N. J. Stat. Ann. sec. 58:1-26 (1940); Pa. Stat. Ann. tit. 32, sec. 685 (1949). The Connecticut law provides for the use of eminent domain as to existing structures. Conn. Gen. Stat. Ann. sec. 25-3 (1960). The Massachusetts and New York legislation is only prospective. Mass. Ann. Laws. ch. 91, sec. 12A (1954); N. Y. Laws 1956, ch. 853, tit. D, sec. 198(a). The Washington statute apparently leaves the question to be settled by agency regulation. Wash. Rev. Code sec. 86.16.030 (1951).

31. As do the statutes of Indiana, Iowa, and Massachusetts. See citations, note 30 supra.

32. Lawton v. Steele, 152 U. S. 133, 14 Sup. Ct. 499 (1894) (statute which declared that any net used to catch fish illegally was a public nuisance which could be summarily destroyed upheld).

welfare of the citizens of the state.[33] It may also enlarge the category of nuisances by declaring acts or things to be nuisances which were not so at common law. However it cannot make that a nuisance which is not so in fact.[34] But this does not mean that it must be a nuisance at the present time. Whenever a thing is of such a nature that it may become a nuisance, it may be regulated or prohibited. And where there is a

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33. Id. at 136-37: "The police power . . . is universally conceded to include everything essential to the public safety, health and morals and to justify the destruction or abatement, by summary proceedings, of whatever may be regarded as a public nuisance. Under this power it has been held that the State may order the destruction of a house falling to decay or otherwise endangering the lives of passers-by . . . Beyond this, however, the State may interfere wherever the public interest demands it, and in this particular a large discretion is vested in the legislature to determine not only what the interests of the public require, but what measures are necessary for the protection of such interests . . . To justify the State in thus interposing its authority in behalf of the public, it must appear, first, that the interests of the public generally, as distinguished from those of a particular class, require such interference, and, second, that the means are reasonably necessary for the accomplishment of the purpose, and not unduly oppressive on individuals."

34. In Pompano Horse Club v. State, 93 Fla. 415, 441, 111 So. 801 (1927) the court upheld a legislative declaration that any premises where gambling is carried on is a public nuisance: "It does not lie within the legislative power to arbitrarily declare any or every act a nuisance . . . It does not at all follow that every statute enacted ostensibly for the promotion of . . . health, safety, and morals is to be accepted as a legitimate exercise of the police power of the state . . . It rests, however, very largely within the province of the legislative body to prescribe what shall constitute a nuisance, and in defining nuisances, the Legislature may rightfully exercise a broad and extended discretion." In State v. Chicago, M. & St. P. Ry., 114 Minn. 122, 125-26, 130 N. W. 545 (1911) the court upheld an ordinance enacted by a city on special state legislative authority, declaring the use of soft coal by locomotives within the city a public nuisance. "The legislature cannot . . . declar[e] a certain use to be a nuisance which is not in fact a nuisance. [But it is] clear that acts or conditions which are detrimental to the comfort and health of the community may be effectively declared nuisances by the legislature . . . although not so determined at common law . . . The scope of legislative action, when invoked to promote the general welfare, is very great." Compare Des Plaines v. Poyer, 123 Ill. 348, 14 N.E. 677 (1888) which held that picnics and dances cannot be declared nuisances as a matter of law.

substantial difference of opinion as to if there is real danger of a future nuisance, great deference will be given to the legislature.[35]

At common law it is clear that private nuisance would lie where an obstruction was so placed in the watercourse that the lands of riparian proprietors and other land owners were inundated.[36] Although there are numerous cases finding liability where an obstruction has been placed outside the normal channel area, that is in the floodway,[37] there have been relatively few discussing such liability in terms

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35. Laurel Hill Cemetery v. San Francisco, 152 Cal. 464, 93 Pac. 70 (1907), aff'd 216 U. S. 358, 30 Sup. Ct. 301 (1910). The California court held that it was not an unreasonable legislative act to prohibit further internments in a cemetery in a thickly populated district due to the health danger. The United States Supreme Court, per Holmes, J., affirmed, holding that while it might not agree that there was a health danger, since there was no "consensus of civilized opinion" favoring either party on the subject, and since the ordinance would be valid if the danger were real, the legislative judgment would stand.

36. Haage v. Kansas City So. Ry., 104 Fed. 391 (C.C.W.D. Mo. 1900) (nuisance held to exist where the railroad cut off pilings used in the construction of a bridge but left them at such a height as to cause accumulation of debris so that it obstructed the natural current and caused flooding); Omaha & R.V.R.R. v. Standen, 22 Neb. 343, 35 N.W. 183 (1887)(bridge which, due to negligent construction, prevented the passage of ice and water, was a nuisance); Great Falls Co. v. Worster, 15 N. H. 412 (1844) (dam which caused water to overflow onto lands of others was a nuisance which could be abated by breaking the dam if done in a reasonable manner); Casebeer v. Mowry, 55 Pa. 419 (1867) (dam held to be a nuisance, and there would be liability not only for injury caused or enhanced by ordinary stages of water but also for stages occasioned by ordinarily recurring freshets); Angell, Law of Watercourses sec. 330 (7th ed. 1877); "The obstruction of a natural stream in such a manner or to such an extent as to infringe the rights or injure the property of others has frequently been held to constitute a nuisance." 56 Am. Jur. Waters sec. 18, p. 511 (1947), and cases cited in n.12 therein.

37. Evansville & C.R.R. v. Dick, 9 Ind. 433 (1857) (an embankment across bottom land caused liability where it increased the height of the stream at high stages so as to overflow plaintiff's land); Noe v. Chicago, B. & Q. Ry., 76 Iowa 360, 41 N.W. 42 (1889) (defendant's trestle, an obstruction not in the main channel of the river but in that part which would be overflowed in times of freshet, held to cause liability where it increased the overflow on plaintiff's land); St. Louis & S.F. Ry. v. Craigo, 10 Tex. Civ. App. 238, 31 S.W. 207 (1895) (an embankment which prevented the water from passing in its usual course in time of high water resulted in liability when the water was turned back onto plaintiff's land). See cases cited 56 Am. Jur. Waters sec. 99, p. 582, n.16.

of nuisance, although it may have been present by implication. However, in Farris & McCurdy v. Dudley, 78 Ala. 124, 56 Am. Rep. 24 (1889) the defendants built an embankment on their own land along a creek and in time of heavy rain, the waters were thrown in increased volume onto plaintiff's land on the other side of the creek. The court held it was a nuisance which could be abated. In Moore v. Chicago, B. & Q. Ry., 75 Iowa 263, 39 N.W. 390 (1888) the defendant so built a culvert that, while it apparently was sufficient for the stream itself, in time of flood when the entire bottom land became a part of the stream, the plaintiff's lands were more inundated than previously. The court held this obstruction of flow was a nuisance which could be enjoined. In the case of West & Brother v. Louisville, C. & L. R.R., 71 Ky. (8 Bush) 404 (1871), the erection by the defendant of a culvert of insufficient capacity to take care of waters swollen by heavy rain, causing the flooding of adjacent property, was held to be a private nuisance. And Farnham states: "The flood channel [i.e. the floodway] of the stream is as much a natural part of it as the ordinary channel . . . With this flood channel, no one is permitted to interfere to the injury of other riparian owners."[38]

That these may actually have been nuisances, see Prosser, Torts 389 (1955) which defines private nuisance as a "[substantial and] unreasonable interference with the interest of an individual in the use or enjoyment of land." However many courts say that it must also involve a continuance or recurrence of injury over a considerable period of time. Prosser however feels that what is really meant is that this is to be taken as a factor in determining whether the damage is substantial. At 397. One reason why the language of nuisance may not have been employed in the above cases is that they were suits for damages, as most others in tort; "nuisance" is more likely to be applied in a suit for an injunction.

38. 3 Farnham, Water and Water Rights 2562 (1904). He also says: "The principles which prevent interference with the water when a part of the rushing torrent, or when finding its way by well defined outlets from one stream to another do not apply with equal force to water when spread out over the face of the country in such a way as to have lost its power to maintain a continued flow." This would seem to indicate that it would be much more difficult to sustain a legislative enactment declaring all structures on the flood plain "public nuisances," if they are not obstructions of the floodway.

Therefore it would seem quite likely that legislation declaring an obstruction of the floodway a public nuisance would be upheld. It is true that the above cases all referred to private nuisance. However the constriction of the floodway may well affect the entire community since generally such ponding is not limited to a narrow area. And the entire community will have to bear the cost of any flood relief program, the burden of which is increased in proportion to the increased damage caused by floodway encroachment. Moreover the remedy of a suit for damages or injunction under private nuisance may often be unavailable due to the difficulty of proving any particular damage or causal relationship between any one obstruction and particular realty.

A Floodway Encroachment Act

The following is the text of a Floodway Encroachment Act:

Section 1. Definitions. For the purposes of this act:

(a) "Department" means the Department of Water Resources.

(b) "Watercourse" means any depression two feet or more below the surrounding land serving to give direction to a current of water at least nine months of the year, having a bed and well-defined banks; provided, however, that it shall, upon order of the Department, also include any particular depression which would otherwise not be within the definition of a watercourse.

(c) "Drainway" means any depression two feet or more below the surrounding land serving to give direction to a current of water less than nine months of the year, having a bed and well-defined banks; provided, however, that in the event of doubt as to if a depression is a watercourse or a drainway, it shall be presumed to be a watercourse.

(d) "Channel" means the geographical area within either the natural or artificial banks of a watercourse or drainway.

(e) "Flood" means the water of any watercourse or drainway which is above the bank and/or outside the channel and banks of such watercourse or drainway.

(f) "Flood plain" means the area adjoining the watercourse or drainway which has been or may hereafter be covered by flood water.

(g) "Floodway" means the channel of a watercourse or drainway and those portions of the flood plain adjoining the channel which are reasonably required to carry and discharge the flood water of any watercourse or drainway.

(h) "Statutory Floodway" means a floodway whose limits are measured by the channel of the watercourse or drainway plus, at any particular point, 200 feet on each side of the channel or three times the width of the channel, whichever is greater.

(i) "Department Floodway" means a floodway whose limits have been designated and established by order of the Department.

(j) "Obstruction" means any dam, wall, wharf, embankment, levee, dike, pile, abutment, projection, excavation, bridge, conduit, culvert, building, wire, fence, rock, gravel, refuse, or any other analogous structure or matter in, along, across, or projecting into any floodway which may impede, retard, or change the direction of the flow of water, either in itself or by catching or collecting debris carried by such water, or that is placed where the natural flow of the water would carry the same downstream to the damage or detriment of either life or property.

(k) "Natural obstruction" means any rock, trees, gravel, or analogous natural matter that is an obstruction and is located within the floodway by a non-human cause.

(l) "Artificial obstruction" means any obstruction which is not a natural obstruction.

(m) "Floodway-encroachment lines" mean the lines limiting a Department Floodway.

(n) "Locate" means construct, place, insert, or excavate.

(o) "Owner" means any person who has dominion over, control of, or title to an obstruction.

(p) "Person" means any individual, firm, partnership, association, corporation, the State of - - -, any agency of the State, municipal corporation, political subdivision of the State, or any other legal entity.

Section 2. Statement of Purpose. It is hereby declared that, because of the loss of lives and property caused by floods in various areas of the state, in the interest of public health, safety and general welfare, floodway-encroachment lines are to be established along watercourses, and other appropriate regulations made as to the floodways of watercourses and drainways, in order to minimize the extent of floods and reduce the height and violence thereof in so far as such are caused by any natural or artificial obstruction restricting the capacity of the floodways of the inland waters of the State.

Section 3. Establishment of Department Floodways. The Department shall initiate a program for the delineation of Department Floodways for every watercourse in the State. It shall make a comprehensive study relating to the acquiring of flood data, establish means for the acquisition of such data, and have authority to enter into arrangements with the United States Geological Survey or any other state or federal group for such acquisition. When sufficient data has been acquired to reasonably locate the mangitude of a flood of 50-year frequency, the Department shall establish, by order after a public hearing, floodway-encroachment lines beyond which, in the direction of the watercourse, no artificial obstruction shall be located by any person or allowed to remain by any owner unless specifically authorized by the Department. The location of the lines shall be the estimated outer boundary of the floodway of a 50-year frequency flood, as determined from the available data. The Department shall have the power to alter said lines at any later time if a re-evaluation of the then-available flood data warrants it. Notice of any such hearing or order of the Department establishing or altering any such line shall be given by mailing notice thereof to all persons known to be affected thereby and by publishing such notice for three successive days in a newspaper having a general circulation in the area involved.

The designation of a floodway as a Department Floodway shall supersede any reference to it as a Statutory Floodway, except that for the purposes of Section 5(b) such designation shall not become effective until such floodway is protected by Section 5(c).

The Department shall record all floodway-encroachment lines established by it in such local office as also records deeds to real property.

Section 4. Nuisance. Any artificial obstruction in any Statutory Floodway, Department Floodway, or floodway of a flood of the magnitude of the highest flood of record is hereby declared to be a public nuisance unless a permit has been obtained from the Department under this act.

Section 5. Unlawful Acts. It shall be unlawful

(a) for any person to locate any artificial obstruction within any Statutory Floodway or any Department Floodway, or

(b) for any owner to allow to remain any artificial obstruction within any Statutory Floodway after 6 months of the effective date of this act, or

(c) for any owner to allow to remain any artificial obstruction within any Department Floodway after 6 months of the effective date of this act or, if the Department Floodway is established within 6 months of the effective date of this act, then after 6 months after the floodway is declared to be a Department Floodway, in this State without a permit from the Department. The Attorney General of the State shall, at the request of the Department, institute proceedings to prosecute any such person under Section 11 of this act, and/or enjoin or abate any obstruction declared to be a public nuisance by Section 4 of this act.

Section 6. Permits. The Department shall have the power to issue permits for the location, continuance, or alteration of obstructions which would otherwise violate or be enjoinable under Section 5 of this act. The application for the permit shall contain such information as the Department shall by rule require, including complete maps, plans, profiles, and specifications of the obstruction and watercourse or drainway, or of the changes or additions proposed to be made.

In passing upon the application, the Department shall consider the danger to life and property by water which may be backed up or diverted by such obstruction, the danger that the obstruction will be swept downstream to the injury of others, the availability of alternate locations, the construction or alteration of the obstruction in such a way as to lessen the danger, the permanence of the obstruction, the anticipated development in the foreseeable future of the area which may be affected by the obstruction, and such other factors as are in harmony with the purpose of the act. In respect to an application to allow an artificial obstruction to remain, the Department shall also consider the investment involved to the extent that such obstruction existed on the effective date of the act. The Department may make a part of such permit such conditions as may be deemed by it advisable. In order for the permit to continue to remain in force, the obstruction must be maintained so as to comply with the specifications of the permit.

Permits for obstructions to be located or to be allowed to remain in the floodways of watercourses must be specifically approved by the Department; permits for obstructions in the floodways of drainways shall be conclusively deemed to have been granted 30 days after the receipt of such application by the Department, or after such time as the Department shall by rule specify, unless the Department notifies the applicant that the permit is denied.

In all cases where there is an application for a permit for an obstruction to be allowed to remain in the floodway, the Department may, in its discretion, grant a renewable temporary permit good for not over 6 months; the granting of such temporary permit shall in no way prejudice the right of the Department to revoke such permit at any time, or to deny an application for a regular permit.

Section 7. Power of Removal of Obstruction. As to obstructions in a Statutory Floodway, Department Floodway, or floodway of a flood of the magnitude of the highest flood of record for which permits have not been obtained from the Department, the powers and duties of the Department shall include the following:

(a) where a natural obstruction to a floodway has been created by fallen trees, silt, debris, and like matter, the Department shall have the power to remove the obstruction, in which case the cost of removal shall be borne by the Department;

(b) where, after investigation, the condition of an artificial obstruction is found to be so dangerous to the public safety as not to permit the giving of notice and hearing as provided for in Section 10 of this act to the titleholder of the land affected and to the owner of such obstruction to remove or repair the dangerous condition, the Department shall have the duty to remedy such condition by repair, removal, or otherwise, the cost of which shall be borne by the owner and shall be recoverable in the same manner as debts are now by law recoverable;

(c) where, after investigation, notice and hearing, an order has been issued to the owner of an obstruction for its removal or repair, and the order is not complied with within such reasonable time as may be prescribed, or if the owner cannot be found or determined, the Department shall have the power to make or cause such removal or repairs, the cost of which shall be borne by the owner and shall be recoverable in the same manner as debts are now by law recoverable.

Section 8. Right of Entry on Lands and Waters. The Department, its agents, surveyors and other employees may make reasonable entry upon any lands or waters in the State for the purpose of making any investigation, survey, removal or repair contemplated by this act. An investigation of any natural or artificial obstruction shall be made by the Department either on its own initiative, on the written request of any three titleholders of land abutting on the watercourse or drainway involved, or on the written request of any political subdivision of the State.

Section 9. Exception for Certain Watercourses and Drainways. This act shall not extend to any obstruction in the floodway of a watercourse or drainway where the draining area above the same, either within or without the State, is less than one square mile in extent, except if a particular watercourse or drainway is expressly declared to be within the act by order of the Department.

Section 10. Orders and Rules of the Department. Appeal. The Department shall have the power to issue such orders and rules as are necessary to execute the provisions of this act. If an order is issued to the owner of an artificial obstruction for its removal or repair, such order shall not become effective less than 10 days after a hearing is held relating to such order; provided, however, such hearing need not be held for an order issued pursuant to Section 7(b) of this act. Where any order is issued which affects with particularity the land adjacent to any watercourse or drainway, notice of the contents of such order and of any required hearing shall be mailed by the Department to the titleholder of such land not less than 10 days before the effective date of such order, or, if there is a required hearing, to the titleholder of such land and to the owner of the obstruction not less than 10 days before the date of such hearing; provided, however, that such notice need not be mailed for an order issued pursuant to Section 7(b) of this act, nor to the owner of the obstruction for an order issued pursuant to Section 7(c) if the owner cannot be found or determined.

All orders and rules issued by the Department shall be on file at the offices of the Department and in the office of the county clerk of each county affected by such order and rule.

Any person aggrieved by any order of the Department issued under this act may appeal from such order to a court of competent jurisdiction within 30 days after its effective date. Service of notice of the appeal shall be made upon the Chairman of the Department.

Section 11. Penalties. Any person who violates Section 5 of this act shall be guilty of a misdemeanor, and shall be fined not over $100, or be imprisoned not over 10 days, or both, for each and every offense. Every day's continuance of a violation shall be deemed a separate and distinct offense.

Section 12. Effect of Permit. The granting of a permit under the provisions of this act shall in no way affect any other type of approval required by any other statute or ordinance of the State, of any political subdivision of the State, or of the United States, but shall be construed as an added requirement. Nor shall the grant or denial of a permit have any effect on any remedy of any person at law or in equity; provided, however, that where it is shown that there was a wrongful failure to comply with this act, there shall be a rebuttable presumption that the obstruction was the proximate cause of the flooding of the land of the person bringing the suit.

No permit for the construction of any structure to be located within a Statutory Floodway or a Department Floodway shall be granted by any political subdivision of the State unless the applicant shall first obtain the permit required by this act from the Department, or until the Department acknowledges that such structure would not be an obstruction within the meaning of this act.

No action for damages sustained because of injury caused by an obstruction for which a permit has been granted under this act shall be brought against the State, the Department, a member of the Department, or its employees or agents. Nor shall any proviso of this act be construed as interfering in any way with the right of the Federal Government to regulate the interstate commerce or the navigable waters of the United States.

Section 13. Remedies. The use of any one of the remedies or powers given to the Department by this act shall not constitute a bar to the exercise of any other remedy or power given by the act.

Section 14. Severability. The provisions of this act are severable and in the event a court shall declare any section or provision of this act invalid, then such decision shall affect only the section or provision declared invalid and shall not affect the validity of any other section or provision of this act.

Before examining the provisions of the Act in detail, the general scheme may be examined. That scheme rests on the concept of "floodway." There are three types, admittedly somewhat artificial,

that are presented. First is the traditional[39] "Department Floodway" whose limits are specifically set by the Department on the basis of flood data. The second is the "Statutory Floodway" whose limits are a specified number of feet on each side of the banks of the channel, or a specified multiple of the width of the channel, whichever is greater.[40] Its purpose is to prevent major floodway encroachment in that period of time preceding the establishment of a Department Floodway (which supersedes the Statutory Floodway). The third type of floodway is that of a flood of the magnitude of the highest flood of record. Only obstructions in the first two types are made unlawful under Section 5 of the Act (and so subject to the penalties of Section 11) but obstructions in all three types are enjoinable as public nuisances.

It is realized that the definition of a Statutory Floodway may not correspond to the actual floodway of a particular stream. However it would seem necessary to have a standard that would permit fairly mechanical application because it might otherwise be too vague since possible criminal penalties are involved. And to have any less precise standard might also result in undue delay of construction throughout the state since the Department might be overcome with applications for permits when the applicants do not have the ability to

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39. Traditional only in the sense that it is the only one of the three specified floodways that has any close resemblance to provisions in previous encroachment statutes. For the Connecticut, Indiana, Iowa, and New York statutes are the only ones (passed by a state legislature) which provide for the specific agency establishment of encroachment lines. Conn. Gen. Stat. Ann. sec. 25-3 (1960); Ind. Ann. Stat. sec. 27-1118 (1948); Iowa Code Ann. sec. 455A.35 (1958); N. Y. Laws 1956, ch. 853, tit. D, sec. 196.

40. While certain figures have been inserted in the text of the Model Act reproduced above, i.e. 200 feet on each side of the channel or three times the width of the channel, these are by no means intended to be a specific recommendation. The figures should vary depending on the general topography of the state. For example, a low-lying plains state would probably be advised to increase the area of the Statutory Floodway, while a mountainous state might even decrease it. If need be, the requirement might vary according to county.

discern for themselves whether their project falls within the coverage of the Act, for example if the standard were based on flood data which could not be readily computed by the applicant. Possible delay would be further accentuated on these grounds since Section 12 would prohibit any city building permit to be issued unless a permit under the Act is first acquired.

The third type of floodway, that of one of the highest flood of record, is designed to give the Department the power to obtain at least an injunction against an obstruction, even if it is not within the Statutory or Department Floodway. It is admitted that the standard chosen--the highest flood of record--is far from ideal. But it would seem to be necessary on the basis of practicality, and even fairness. For what the Department would have to show would be that it is in the floodway of a specific flood that has already occurred; it does not take the greater risk that action by the Department would be barred altogether because of a lack of enough flood data to satisfy a court that it is within a floodway of a theoretical rather than some specific flood. Thus, while some standard like the "maximum probable flood" or that of one of a 150-year frequency[41] might be preferable, it does seem that any really dangerous obstruction will be able to be enjoined under this "catch-all" floodway provision.

It is admitted that even so in some cases there may be difficulty of proof if the high water marks of the highest flood of record are not adequate. But available flood data for the general area should suffice in most instances to enable proof for at least the minimum floodway that was required for that record flood. It is not to be supposed that the Department will make any great effort to enjoin borderline cases.

Looking at the Act in detail, Section 1 provides for a fairly complete list of definitions. As has been discussed, it is suggested

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41. A detailed discussion of these terms is presented in the explanation of the Model Flood Plain Zoning Ordinance, p. 61-66 infra.

that the task of administering the statute be given to an existing agency in some related area such as the regulation of dam construction, flood control, or the like.[42]

All but four of the definitions are more or less standard. Of these four, two, the Department and Statutory Floodways, have been discussed above. The other two are the definitions of "watercourse" and "drainway." Drainway, in general usage, often refers to depressions which carry off surface water. Watercourse generally implies a running stream (which may be dry at times) with more or less definite banks.[43] Under Section 1, however, watercourse means a well-defined depression with water flowing nine months of the year, while a drainway refers to a similar depression with water flowing less than nine months of the year, with a presumption as to a watercourse in case of doubt. The purpose of this distinction is to facilitate the handling of permits under Section 6. For an obstruction in a watercourse, a permit must be specifically approved, while with a drainway it is deemed granted in 30 days unless the Department specifically denies it. This rests, of course, on the assumption that drainways do not present as serious a danger since the water does not flow as often. This may not always be true and so the Department is given the express power to classify any type depression as a watercourse if it feels the conditions warrant it.[44] The nine-month dividing line is intended to exclude from "watercourse" the

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42. Some states however have created entirely new agencies to administer their statutes, e.g. the Iowa Natural Resources Council. Iowa Code Ann. sec. 455A.3 (1958).

43. Neb. Rev. Stat. sec. 31-202 (1952): "'Watercourse' defined. Any depression or draw two feet below the surrounding lands and having a continuous outlet to a stream of water or river or brook shall be deemed a watercourse." Wood v. Brown, 98 Kan. 597, 159 Pac. 396 (1916) (watercourse must have a distinct channel cut in the soil by the force of running water and having a bed and banks discernable by casual glance). Compare Lambert v. Alcorn, 144 Ill. 313, 33 N.E. 53 (1893) (definite or well-marked sides or banks are not necessary for a depression to be a watercourse).

44. Arthur v. Glover, 82 Neb. 528, 118 N.W. 111 (1908) (draw 10 feet deep which was a natural outlet for surface water held to be a natural drainway despite the fact that at a point the draw disappeared

depression that is dry for more than a three-month summer drought period; if this is not appropriate for a particular state, it may be varied. It should be noted that despite the apparent all-inclusive language of the Act as referring to "any watercourse or drainway," Section 9 provides for an exemption if the drainage area is less than one square mile, in the absence of a contrary Department order, thus excluding the great number of small streams and drainways which present no serious flood problem. Presumably this would lessen the administrative burden on the Department to manageable proportions.

Any doubt as to if a watercourse or drainway may be artificial (e.g. a canal) as well as natural should be dispelled by the phrase "natural or artificial banks" in the Section 1(d) definition of "channel."[45]

The definition of "obstruction" in Section 1(j) is intended to be all-inclusive. However it is particularly intended to affect several situations. For the current law generally permits a structure to be erected in a stream if the current has cut away part of the riparian owner's bank, if the purpose of the structure is to hold in the bank with pilings or to restore the bank to the condition it originally had, even if it causes the current to shift so as to erode

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and there was just a very wide and slight depression that marked the course of channel) might present such a situation. That is, the type of rock and general topography may not have permitted the cutting of well-defined banks, even though an annual spring flood may rush through it.

45. Thus avoiding the litigated issue in Ranney v. St. Louis & S. F. Ry., 137 Mo. App. 537, 119 S.W. 484 (1909) (statute requiring lateral ditches to be dug wherever there was a watercourse does not refer only to natural streams but includes artificial ditches and canals).

the bank belonging to another or if it deflects water onto another's land, as long as the original bank would have had the same effect.[46] While there is no specific statutory intent to change this rule (although it may well do so), such structures should at least be regulated to accord with the purpose of the Act. For example, in Sinclair Prairie Oil Co. v. Fleming, 203 Okla. 600, 225 P. 2d 348 (1949) the defendant's land had been eroded by a river and, in order to protect its land, it built a fence within the washed-out area. Eventually silt accumulated, formed an island and sand bar larger than the original washed-out area, and changed the course of the channel so as to erode the plaintiff's bank. No recovery was permitted. While the principle of law may stand, it would seem that such a fence ought not to be permitted under this statute. Not only is such an island an obstruction[47] but if the fence was of such a nature as to cause the formation of such an island, there would also seem to be substantial danger that it would cause the accumulation of hazardous debris during a flood. Perhaps the most the defendant should be permitted to do would be to refill the land and build a bulkhead no higher than the original bank, so constructed as not to catch debris or silt.[48]

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46. Gulf, C. & S. F. Ry. v. Clark, 101 Fed. 678 (8th Cir. 1900) (where the railroad was charged with deflecting water onto the plaintiff's land when it built dikes in order to protect its roadbed which was being eroded, the court held it could so construct in order to maintain the bank of the stream in its original place or to restore it to that condition when it has encroached upon the defendant's land; if it does no more, other riparian owners cannot recover for any injury caused).

47. And illegal under Section 5 since it is an artificial obstruction; for its true cause is not natural but an artificial object, the fence. In the Sinclair case the accumulation of such silt was expected, being part of the defendant's "reclamation" plan.

48. This of course would not necessarily prevent injury to other riparian owners. However in any case Section 12 insures that the granting of a permit will not affect the remedy any other riparian owner may have against the permittee.

A further instance of the lack of judicial consideration of possible flood obstruction may be found in Knight v. Barr, 130 Mich. 673, 90 N.W. 849 (1902) where the court held that a riparian owner who owned to the center of the stream would not be restrained from driving piles into the bed of the river belonging to him as long as they did not obstruct the

The definition also includes excavations if they change the direction of the flow of water. It was thought this should be included since it may well have the same practical effect as a structure that is an obstruction in the more usual sense. The agencies in the Iowa and Massachusetts encroachment laws have a similar power over excavations.[49] It seems that the danger of increased damage through excavation is especially prominent when a municipality undertakes some minor flood prevention work by straightening a watercourse without full consideration of possible consequences. For example, in Diamond Match Co. v. Town of New Haven, 55 Conn. 510, 13 Atl. 409 (1888) the town ordered the straightening of a river and at one point it was narrowed and deepened, but with apparently no added channel capacity. This, plus the factor of a new embankment, caused the plaintiff's land to be flooded by a rain that might "reasonably . . . be expected occasionally to occur," and the town was held liable for negligence.[50]

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flow of water. There is no indication however that the court considered the possibility that the piles might catch debris during a flood. Of course the failure to note this may well be attributable to counsel.

49. Iowa Code Ann. sec. 455A.33 (1958); Mass. Ann. Laws ch. 91, sec. 12A (1954). Los Angeles County, Cal., Zoning Ordinance Art. 5, sec. 763-64 (1951), supra note 8, exerts a similar authority over excavations that result from quarrying. If a flood hazard would be created, it provides that permits are required which are to be conditional on the erection of dikes and other barriers which will give the same protection as if no excavation were made, or at least adequate to prevent the flow of flood waters out of their natural channels.

50. See also Kiddie Manufacturing Co. v. Town of Bloomfield, 20 N. J. 52, 118 A.2d 530 (1955), where the defendant made improvements which accelerated the velocity of a stream and the plaintiff alleged that this caused damage to a structure located on the stream. The court stated that if the city should have known of possible damage, there would be liability. It found however that there was insufficient evidence to support the plaintiff's allegations.

Section 1 makes a further distinction between a natural obstruction (natural matter located by a non-human cause) and an artificial obstruction (whatever is not a natural obstruction), the Act generally dealing only with the latter. However Section 7(a) does give the Department the power to remove any natural obstruction at public expense. Perhaps of more importance in the definition however is the fact that it would alter cases like Commonwealth v. Temple Coal Co., 76 D. & C. 7 (C.P. Pa. 1949). There a stream passed through refuse culm piles on the defendant's land and during a flood the erosion of this debris created an obstruction in the creek. Acting under the Pennsylvania encroachment statute (which defined "water obstruction" as "any dam . . . embankment . . . or any other obstruction whatsoever"), the Board ordered the defendant to construct satisfactory protection to stabilize the refuse. The court however held that such an accumulation of flood debris was not a water obstruction as defined in the act, but must be an artificial structure. While the Board had authority to remove such debris, no duty was imposed on riparian owners. However under the Model Act, the culm would be considered an "artificial obstruction" since it probably is not natural matter (i.e. not in its natural state) but anyway had not been located within the floodway by a non-human cause. But a further holding in the case is followed in the Act: the Department does not have the power to order a riparian owner to do any work in a stream or on his land but can only order him to remove or alter the obstruction.

It may be noted that the definition of obstruction also includes structures which may be carried downstream to the detriment of either life or property. This forestalls any argument that an object like a storage tank is not an obstruction because a flood will carry it along as soon as it comes. Needless to say, such a structure may be just as dangerous as a building since it may be swept downstream and catch on a bridge and restrict the capacity of the floodway at a most crucial point.

Section 2 sets forth the general statement of purpose of the Act. It is hoped that its language is comprehensive enough to hinder any restrictive interpretation by a court so that the difficulty which existed in Connecticut in an analogous situation may be avoided. Under the Connecticut statute which provides for the supervision of dams, at a time when the encroachment law had not yet been enacted, the scope of the statute covered "All dams . . . . in any locality where, by breaking away of the same, life and property may be endangered." In The Cox Shops v. Collins Co., 4 Conn. Supp. 374 (Sup. Ct. 1936) the defendant constructed flashboards on its dam which permitted ice to accumulate and so forced water back onto the land of the plaintiff, an upstream proprietor. The court held that the plaintiff could not show that the defendant had not obtained the requisite statutory approval since the purpose of the act was just to protect downstream proprietors against a dam giving away and not to protect upstream proprietors. The defendant was not within the class the statute intended to protect. The legislature then changed the wording of the law so that it now reads "by breaking away or otherwise,"[51] thus avoiding a repetition of the above result.

Section 3 provides for a comprehensive program to delineate encroachment lines for every watercourse in the state draining one square mile or more. Of course once it is determined that no flood problem exists on a particular watercourse, the lines may be set at the banks. No existing statute provides for any definite plan to be followed, the agency merely being given the power to establish such lines generally.

Another feature of Section 3 is the establishment of a definite standard upon which encroachment lines are to be established, namely the floodway limits of a 50-year frequency flood. No other statute provides for such a standard and it can be well argued that there should be none: the unavailability of sufficient flood data may cause undue delay in establishing the lines, and local conditions may vary so that the

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51. See note 3 supra.

protection given by a Department Floodway should also vary. However I feel these objections should not stand. As to the first, not only will a certain amount of flood data be required in any case in order to give a rational basis to the lines, but also, as will be more thoroughly discussed in the zoning part of this paper, a substantial amount of flood data is available for the nation as a whole. While it is clear that only a relatively few watercourses have gaging stations or the like, reasonably accurate extrapolation for individual streams seems quite feasible, at least for 50-year frequencies. For if a higher, say 150-year, frequency were specified, more serious problems of accurate calculation might result. However if enough flood data is available for the state in general, a frequency standard of above 50 years would be well recommended. The floodway-encroachment provisions contained in the zoning ordinance of Lewisburg, Tennessee, for example, seem to imply that the floodway is that of the maximum flood of reasonable regional expectancy.[52]

This leads to the second objection: that varying local conditions demand varying standards. I do not think this will hold except perhaps in one qualified respect, that the 50-year frequency standard is not sufficiently high for adequate protection for certain urban areas, and that flood data is too inadequate in the rural parts of the state for the legislature to raise the statewide standard to, say, a 150-year frequency. If such is the case, the legislature might add a provision that the Department may provide for higher flood frequency standards where the conditions warrant. At least a minimum standard should remain however. And while it is true that in some localities there may be flooded areas of shallow water depths and low velocities so that one would not be truly justified in putting it within encroachment lines, the answer is not to permit varying frequencies but to realize that it would not be improper to exclude such an area from the definition of "floodway."

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52. Lewisburg, Tenn. Zoning Ordinance Art. III, sec. 9 (1956), Murphy 185.

The argument in favor of a definite flood frequency standard is that it avoids the chance of local pressure being able to weaken the force of the Act. This may be the case in Connecticut. The Commission there indicates that the standard most used by it is in the 150-year frequency. However Murphy has calculated that, according to Corps of Engineers frequency curves, some of the encroachment lines of this supposed standard actually fall into the 34-year frequency class.[53] Local pressure may be the cause. Also, even if a particular locality is such that a flood would not cause heavy damage, e.g. if it were mainly agricultural, this does not bear heavily against the use of a uniform standard. Not only would such a locality put little burden on the Department since presumably little obstructive activity would occur requiring a permit, but also the inability to obtain a building permit until a permit has been obtained from the Department would serve as a warning of the possible danger to unsuspecting contractors, even if a permit is granted. And the power of the Department to pass upon all obstructions would prevent the erection of a truly hazardous one even for such a locality. The standards under which permits may be granted, as prescribed in Section 6, should provide enough flexibility to insure that its grant in a rural area will be easier than in an urban area.

Section 4, providing that an artificial obstruction in the specified types of floodways without a permit is a public nuisance, has been discussed above.

Section 5 specifies what is unlawful under the Act, and provides for criminal prosecution or an injunction. A distinction is made between locating an obstruction (in that it extends to "any person") and allowing an obstruction to remain (which extends only to the "owner" of the obstruction). The reason for the difference is that it would seem "owner" (as defined) is probably the broadest term which could properly be used where a criminal penalty is imposed for allowing an

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53. Murphy 21.

obstruction to remain on the land, a rather passive type of crime. It basically imposes a duty upon the owner to inspect his land and obtain a permit for any artificial obstruction located thereon, as long as he has control over the obstruction. It relieves any person from liability if he owns the land but has no power of control over the obstruction itself since Section 1(o) defines "owner" as any person who has dominion over, control of, or title to an obstruction. A six-month period of grace is given after the effective date of the Act.

It might be objected that the Act is unduly harsh in at least one hypothetical case: if some other person abandoned an obstruction (e.g. a large oil storage tank) on the land, within the floodway, unknown to the owner of the land, Section 5 would impose criminal liability without even a prior order from the Department to remove it. It is not believed that special provision need be made for this rare case. For it is probably constitutionally required and implied that the owner be given a reasonable time to learn of the obstruction and remove it. And the Department would not be expected to prosecute except in the more extreme cases, for example, where there was a refusal to obey a Department order to remove the obstruction, or a wilful disregard of the requirement to obtain a permit. Obtaining a conviction by a jury would be a final hurdle: witness the record under the Volstead Act.

On the other hand it is unlawful for any person to locate an obstruction within the floodway. This clearly requires a positive act, and would not excuse anyone claiming, for example, to be an agent for the actual "owner" of the obstruction who may be outside the state. It also covers, in the above hypothetical situation, the person who abandons the obstruction on the land. And any defense of vagueness as to the geographical extent of the floodway is avoided since Section 5 only refers to obstructions within a Statutory or Department Floodway (with their readily ascertainable limits).

Section 6 sets forth provisions relating to the granting of permits. A major feature not present in the existing encroachment statutes is the prescribing of certain factors to be considered in

passing upon the permit. Assuming that they are followed and that they are held to be reasonable, the difficulty that presented itself in City of Welch v. Mitchell, supra, would be avoided. There the court held that the city could not permit an encroachment beyond the line on one side of the stream to the disadvantage of those on the opposite side without compensation. However the test the court used in arriving at its conclusion was if the restriction was reasonable. Thus if a reasonable basis can be shown for granting a permit to one person and denying it to another, no difficulty should be anticipated.

These factors must of course be correlated with the purpose of the Act as set forth in Section 2. Thus, for example, "the danger to life and property" would cover not only the nature of the surrounding area but also the nature of the obstruction itself; an embankment would be in a stronger position for the obtaining of a permit than a factory building of the same size and shape. The "availability of alternate locations" would bear not only on if a factory required large amounts of water for its productive activity, but also if the surrounding area of the proposed location is urban or agricultural. The "construction . . . in such a way as to lessen the danger" might not only refer to putting the structure on piles but also, if it were rectangular in shape, to locate the length parallel to the flow of the water, or to require that the design emphasize vertical rather than horizontal construction (i.e. several stories high and so use less ground floor space).

Provision is also made that if an artificial obstruction existed at the time of the passage of the Act, the investment in such structure shall be considered in determining whether and the extent to which a permit shall be granted. While this may not be fully in harmony with the main purpose of the Act in protecting lives and property, the provision appears advisable in order to blunt an attack on constitutional

grounds. For courts will be less willing to agree that a valuable structure which was lawfully erected prior to the passage of the Act is properly declared a nuisance, albeit legislatively, than one of small investment.[54]

The distinction made between watercourses and drainways has already been discussed. Provision is also made for the issuance of temporary permits where an application is made for an obstruction to be allowed to remain in the floodway. The purpose of this is that if the Department is overwhelmed with applications for permits, especially in the initial stages of the administration of the Act, temporary permits may be granted until the Department is able to process and investigate the obstruction properly. While the specified standards are still to be applied, it is anticipated that it will be in a preliminary way, for it will be without prejudice to any later determination. Its coverage does not extend to the situation where a permit is requested for the location of an obstruction that may be only temporary in nature, e.g. construction equipment. The standards in such a case must be fully applied, and appropriate conditions may be attached, e.g. limiting its effectiveness to those periods of the year when there is no substantial danger of a flood occurring.

Section 7 gives the Department the power to remove natural obstructions at its own cost. It could be argued that those particularly benefited by the removal of the obstruction should pay for it. However since the natural obstruction is there through no fault of any person, and since channel improvement projects are undertaken most often at public expense, it appears more satisfactory that the state bear the cost. This is especially so since if the persons benefited will have to bear

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54. In a closely related situation, the amount of investment seems to be a weighty, if not fully articulated, factor in most of the cases passing upon the constitutional validity of non-conforming uses. See note 104 infra. As will be seen, this has special importance in the proposals herein made since the Model Act is suggested as a partial substitute for the inclusion of a non-conforming use provision in the Model Flood Plain Zoning Ordinance, p. 76-77, infra.

part or all of the cost, the more natural tendency will be to bear the risk and not report the obstruction to the Department. This is what we want to avoid.

The power is also given to remove artificial obstructions at the cost of the owner in cases where an emergency does not permit time for notice and hearing (in which case it is a duty) or where, after notice and hearing, the owner refuses to comply with the order for removal or cannot be found or determined. This of course does not imply that the Department must issue an order to remove an obstruction before an unlawful act can occur under Section 5, nor, necessarily, that a formal hearing must be held and an order to remove issued before the Department can seek to enjoin an obstruction as a public nuisance. What is emphasized here is the flexibility of remedies. In some cases the Department may prefer to ask for a court injunction rather than issue an order in order to have the prestige of the court aiding its efforts; at other times the issuance of an order may be preferable since a court on appeal would defer more to the Department's expertise in the area than if the case originally began as an equity suit for an injunction.

Section 8 gives the Department a right of entry on private lands and waters within the state for purposes within the Act, and provides for mandatory investigation of any obstruction by the Department upon the request of three neighboring landowners or any political subdivision of the state. This does not mean that individual complaints about obstructions are to be ignored, of course, nor that the Department might not have some sort of arrangement with agencies like the Fish and Game Commission to report violations of the Act. This is fully recommended. Section 9 makes the exception from the Act of watercourses and drainways draining less than one square mile unless the Department issues a contrary order.

Section 10 has general provisions relating to notice, hearings, orders, rules and appeal. Orders and rules are required to be filed both with the Department and locally at the county level, thus tying in

with the recording of floodway-encroachment lines as provided in Section 3. This fills the publicity deficiency apparent in most of the present statutes. Penalties are provided for in Section 11.

Section 12 makes clear that the granting of a permit is a requirement independent of any other legislation. Thus it would not affect, for example, any requirement to conform with a local flood plain zoning regulation. Nor is it intended to supersede previously existing legal or equitable remedies.[55] However as an inducement to obtain the required permit, if there is a wrongful failure to comply with the Act and at some later time a riparian owner's land is flooded, there is a rebuttable presumption that the obstruction is the proximate cause of the flooding, thus shifting the burden of proof as to a point on which the plaintiff may have a difficult time. As already mentioned, no municipal building permit can be obtained for an obstruction until a permit is granted. This requirement could be extended to such other types of construction and excavation as the legislature deems appropriate (e.g. State Highway Department permits for the construction of roads).

Section 13 is intended to make clear that the use of one remedy under the Act does not act as a bar to any other remedy, that is, criminal prosecution, injunctive relief, or the power to order removal under Section 7. Section 14 is a standard severability clause.

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55. Even without such a specific provision, Pennsylvania has construed its encroachment law in the same way. Commonwealth v. Pennsylvania R.R., 78 Pa. Super. 353 (1922) (suit for common law nuisance could be maintained). See also Borough of Windber v. Spadafora, 356 Pa. 130, 51 A.2d 726 (1947) (right of city to complain of a common law public nuisance apparently recognized, but only to the extent that the rights of the public were affected by the obstruction of the flow of the stream so that the streets were flooded). The New Jersey provision (N.J. Stat. Ann. sec. 58:1-26 (1940) that "No such approval . . . shall affect any property rights otherwise existing" was applied in Kiddie Manufacturing Co. v. Town of Bloomfield, supra note 50. See also Henry Ford & Son v. Little Falls Fibre Co., 280 U. S. 369, 50 Sup. Ct. 140 (1930) (license to use flashboards on dam, etc., under Federal Water Power Act held not to exempt licensee from liability to riparian owners under local law in view of express saving clause).

THE FLOOD PLAIN ZONING AREA

As was noted in the beginning of this paper, distinction is made between encroachment statutes, which seek to prevent ponding and other hazardous conditions resulting from obstructions constricting a channel or floodway, and a zoning ordinance, which seeks to guide land use from an overall planning viewpoint. It is also clear that encroachment provisions, while a distinct concept in themselves, need not be treated as distinct from flood plain zoning but may be a part of it; in fact, a number of municipalities have so taken it.[56] The decision to treat them distinctly rests not only on the belief that an encroachment statute works best on the state level, as has been discussed above, but also because of what are believed to be certain inherent weaknesses in zoning as a method. They will be developed subsequently, but basically they are that local governments are more subject to pressure[57] and so may tend either to fail to administer the ordinance with diligence by treating the encroachment danger as 'just another factor' in considering a permit, or be prone to grant variances, or fail to be able to have an ordinance with "teeth" in it passed in the first place. Also the frequent inability of a municipality to deal effectively with non-conforming uses may tie the hands of local government. The scheme presented in this paper is that the core of flood plain regulation be centered about the state floodway-encroachment law; the zoning ordinance is, in a sense,

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56. See note 8 supra.

57. Much more so in flood plain zoning than in zoning as a whole. For unless a disastrous flood is in recent memory, the attitude of the citizenry will be "It will never happen in our lifetime" or "It happened last year and won't come again for another 50 years." The fallacy of this is amply demonstrated by the fact that in 1954-55 four hurricanes (Hazel, Connie, Diane and Ione) hit North Carolina, three of them within a five week period. The damage in the state was an unprecedented $520,000,000--more than the annual state tax levy. Council of Civil Defense, North Carolina Hurricane Project 21 (1955).

to be considered as supplementary to it. But if state encroachment legislation is not forthcoming, it should definitely become part of the municipal plan.[58]

Flood plain zoning, as a legal concept, is, in most of its aspects, not revolutionary. However due to the fact that most of the ordinances have been enacted within the last ten years,[59] judicial construction of them is extremely sparse. Wertheimer, in 1942, concluded that they had a sound legal basis.[60] However a thorough

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58. If the municipality decides to enact encroachment legislation because the state has not done so, there would seem to be no legal objection to the adoption of an ordinance on the type of the Model Act. However several points should be noted. On doubtful legal points, courts will generally pay greater deference to a state legislative body than to a local one. And while municipal authorities generally are given the power to declare what shall be a nuisance (Laurel Hill Cemetery v. San Francisco, supra note 35; 37 Am. Jur. Municipal Corporations sec. 293 (1941)), and while an encroachment ordinance declaring an obstruction in the floodway to be a nuisance would probably be upheld, it would seem preferable that the ordinance not be made a part of the zoning code. For while zoning has some of its background in the law of nuisance (Cf. Village of Euclid v. Ambler Realty Co., 272 U. S. 365, 387-88, 47 Sup. Ct. 114 (1926): "[T]he law of nuisances . . . may be consulted, not for the purpose of controlling, but for the helpful aid of its analogies in the process of ascertaining the power [to zone]"), there are those who feel that the word "nuisance" should never appear in a zoning ordinance (Bassett, Zoning 93 (1936)), and some judges are distinctly hostile to the mingling of the two concepts. Pierro v. Baxendale, 20 N. J. 17, 33 118 A.2d 401 (1955) (dissenting opinion); O'Reilly, The Non-Conforming Use and Due Process of Law, 23 Geo. L. J. 218 (1935). In addition, if it is part of the zoning ordinance, further judicial hostility will be evoked since the power to enjoin and/or remove an obstruction existing at the time of passage may be construed as a device to evade a constitutional or statutory requirement upholding the right of non-conforming uses to remain. See discussion p. 73-77 infra. But see Perkins v. City of Coral Gables, 57 So. 2d 663 (Fla. 1952) (ordinance requiring the discontinuance of such non-conforming uses as are nuisances upheld).

59. Of the 49 flood plain zoning ordinances listed in the tables of Murphy 56-59, only three were enacted prior to 1949.

60. Wertheimer, Flood Plain Zoning: Possibilities and Legality with Special Reference to Los Angeles County, California (1942).

constitutional analysis of the area was not made until Allison Dunham's Flood Control via the Police Power in 1959.[61] Since this author is in substantial agreement with most of the ideas there expressed, it is not here proposed to reiterate what would essentially be the same ground. But since at least one major point of disagreement is taken, and since it is believed that the points there raised are necessary in order to enable subsequent discussion to be in perspective, the relevant analysis is here summarized.

Dunham specifically rejects basing validity on "promoting the general welfare" or some other comprehensive phrase; truly this can include almost anything. Rather he discusses the four reasons commonly given for flood plain legislation: (1) It is unwise to develop on a flood plain and the person must be protected from himself. This alone however lacks legal basis. But the other three reasons are supportable; (2) Obstructions to the flood flow injure the users of other property (that is, the encroachment rationale, not relevant to this part of the paper); (3) People do not know a flood danger exists, and so are easily victimized[62]; (4) Injury to taxpayers by requiring unnecessary expenditures for public works and disaster relief. This last reason causes the most difficulty for Dunham because of a possible argument that federal flood control policy has occupied the field, and so local law would fail under the supremacy clause of the Constitution. For the federal government has the policy of preventing flood loss by protective works, disaster relief, and the purchase of unprotected land, and so enhances the value of the land whereas zoning would depress it. The federal policy for land value enhancement is thwarted since the standard for such federal expenditures is that the benefits must exceed the cost,[63]

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61. 107 U. Pa. L. Rev. 1098 (1959).

62. This is a situation analogous to that for which the Pure Food and Drug Act (public lacks the means to obtain the relevant facts) and the Securities Act of 1933 (public is easily able to be defrauded) were enacted.

63. See note 1 supra.

and flood plain regulation prevents the benefit from accruing. He does suggest that a distinction might be made between where a federal project has commenced and where there has not yet been a commitment. But apart from this, even though the history of the federal law shows a spirit of cooperation with the state rather than a superseding of state effort, other statutes (unnamed) with a similar spirit have been held to supersede state law.

Issue is taken with Dunham's supremacy clause argument. In his suggested distinction between where a federal project has been commenced and where it has not, it is not clear what he means by a 'federal project'. If he means a protective work like a dam, flood plain regulation would clearly be superseded since presumably the rational basis for its existence has disappeared once the dam is built; but the fact that it is federal does not seem crucial. And if a flood hazard remains after the construction of the dam, it is suggested that a modified type of flood plain regulation may also remain. It cannot refer to the purchase of unprotected land since the article admits that no flood plain zoning regulation can apply to a federal activity unless Congress so provides. If it refers to disaster relief, it would appear to assume that federal policy prefers the loss of lives and property to which "relief" can be applied, rather than permit local effort to prevent that loss in the first instance.

Furthermore it would seem most extreme for a court to fail to recognize the admitted spirit of cooperation between federal and state levels in a police power area such as this. And while it is true that for a protective work, the benefits are required to exceed the costs, there seems no reason why the "benefits" could not include the development of the area after the protective work has removed, and superseded, the need for flood plain regulation, as presumably it would. Finally there seems to be a definite federal policy for encouraging flood plain regulation, as evidenced by the Federal Flood Insurance Act of 1956.[64]

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64. See note 2 supra.

To accept Dunham's view would seem almost to say that the federal government prefers the loss of life and property in order to have a sound reason for building a dam.

Dunham also examined the last three reasons[65] for flood plain regulation from a due process viewpoint and found little difficulty with them as long as the legislation in question indicates that these were the true reasons for passage.[66] He does raise the point that if the purpose is to save the government expense, this must be an abnormal and not a usual community expense; that since most flood plain zoning ordinances permit agriculture and similar uses because of the lesser amount of probable damage, the farmer would still be compensated for his loss, presuming the federal policy of relieving flood losses is continued. Therefore, he says, the difference in damages between the agricultural and developed area is not "abnormal" but just an incident of city growth. The difficulty with this position is that it confuses the normality of city growth with the abnormality of flood loss. It would seem to be a rare community that would consider the flooding of its urban area as "normal" rather than a near-disaster. But the flooding of agricultural land may be annual.

Objection to a statute on the basis of equal protection of the laws would be directed to specific provisions and not to the legislation in general. As an example, he cites encroachment laws which have no application to public utility or public agency structures[67] as possibly being unconstitutional; for flood plain owners must bear the losses due to floodway constriction while others share, without cost, in the utility's advantage.

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65. That is, to prevent harm to others, to prevent self-injury where there is a lack of means to obtain relevant information or a danger of victimization, and to save government expense.

66. For Dunham's analysis of the Connecticut encroachment statute in this respect, see note 28 supra.

67. For example, the West Lafayette, Ind., Zoning Ordinance Art. III-A, sec. 7 (1956): "This ordinance shall not apply to the construction of public works and utilities." Murphy 180.

As noted, legal precedent for flood plain zoning is sparse. The leading case is America Land Co. v. City of Keene, 41 F.2d 484 (1st Cir. 1930). In 1925 the city of Keene, New Hampshire, sold 32 acres of land to the plaintiff who proposed to develop and subdivide it for residences. The mayor had indicated that it was suitable for residential sites and could be sewered, despite the fact that about 28 acres of it was lowland near the Ashualot River. A branch of the river ran through a corner of the land and nearly every spring the ice in it broke up earlier than in the sluggish river into which the branch emptied, and so backed up and flooded the real estate in question, making it entirely unfit for residential purposes. After the plaintiff had subdivided the land and sold several of the lots, the city amended its zoning ordinance (1927), classifying this land in the "Unrestricted District" category in which no dwelling house could be erected without the consent of the Board of Adjustment. The criteria the Board was to use were the health and morals of the occupants and the health, morals, and general welfare of the public. Permits were refused for dwellings on about 87% of the land and suit was then filed by the plaintiff on the ground that the ordinance was unconstitutional and that it was an improper exercise of the police power since the city had sold the land as fit for residential use. At the trial in the federal district court the principal issue was if the land was fit for residential purposes and the court, after the city showed the land was not susceptible of good drainage and could not be sewered,[68] held the ordinance constitutional and a valid exercise of the police power. The trial court then denied a post-trial amendment to the complaint seeking relief on the ground of fraud. On appeal both majority and dissenting opinions agreed there had been a valid exercise of the police power but divided on the questions of if there had been an abuse of discretion in denying the amendment or, if not, whether

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68. The cost of which, significantly, would have been borne by the city. For interesting unreported facts related to the case, see Murphy 76-80.

equity should have retained the case and given compensation in damages. The majority held against the plaintiff. The case itself indicates the need for the protection of the public. As the dissent put it, this was "an eminently proper exercise of the city's police power in order to protect possible purchasers from being victimized as the plaintiff was victimized by the city itself."[69]

It is seen, therefore, that the ordinance itself was not one of flood plain zoning; such was just the particular application of it in the Keene case. However this does not substantially lessen its value as legal precedent, despite the element of fraud in it.[70] The denial of the permit was based on flood plain zoning reasoning, and this was upheld on the police power despite the general criteria specified for the granting of the permit.

The only other case dealing with flood plain zoning appears to be Sevier Terrace Realty Co. v. City of Kingsport, No. 7172, Ch. Sullivan County, Tenn., Oct. 29, 1959, an unreported case. In 1957 the legislature added to the general grant of zoning power[71] Tenn. Acts 1957, ch. 306:

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69. 41 F.2d at 490. Immediately after the decision the plaintiff brought an action at law against the city in the federal district court for $25,000 damages for fraud, but at a trial the jury held against it. Wertheimer, op. cit. supra note 59, at 29 n. 81.

70. Dunham 1109 dismisses the case lightly, seeming to take it as dealing primarily with fraud and not with any constitutional issue.

71. As contained in Tenn. Code Ann. sec. 13-401 (referring to quarterly courts) and 13-701 (referring to municipalities) (Supp. 1960). The latter (both are essentially the same) provided (before 1957): "For the purpose of promoting the public health, safety, morals, convenience, order, prosperity and general welfare . . . the chief legislative body of any municipality . . . is empowered . . . to regulate the location, height, bulk, number of stories, and size of buildings and other structures, the percentage of lot which may be occupied, the sizes of yards, courts and other open spaces, the density of population, and the uses of buildings, structures, and land for trade, industry, residence, recreation, public activities and other purposes."

> Special districts or zones may be established in those areas deemed subject to seasonal or periodic flooding, and such regulations may be applied therein as will minimize danger to life and property, and as will secure to the citizens of Tennessee the eligibility for flood insurance under Public Law 1016, 84th Congress or subsequent related laws or regulations promulgated thereunder.

Later the same year the defendant enacted an ordinance which set up a Floodway Channel District varying from 40 to 65 feet of the centerline of a creek, and prohibiting construction, alteration or extension of any structure, any dumping, or any permanent storage of materials within the District.[72] It is said[73] that the plaintiff owned unimproved real estate within the District and so was restricted in the use of his land according to the terms of the ordinance; he brought a suit for a declaratory judgment. Since the plaintiff asserted that Chapter 306 resulted in an unconstitutional taking of private property without just compensation or due process of law, the Attorney General became a party. This aspect of the case was heard separately. The Attorney General, besides relying on the Keene case and that the prevention of fraud and deceit is part of the police power, argued that the same reasons which permit zoning to be used to protect persons and property from the dangers of fire apply also to floods. The Chancellor held that the state law was a reasonable exercise of the police power and stated that he could see little difference between flood zoning and the usual type of zoning law. The validity of the city ordinance has not yet been passed upon, but since in its nature it seems to be more of an encroachment-type law

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72. Kingsport, Tenn., Zoning Ordinance sec. V and VI (1957), Murphy 185.

73. The information relating to this case is derived from: Brief for Defendant, the Attorney General of Tennessee; Decree of Chancellor Phillips, October 29, 1959; Letter of Jack Wilson, Asst. Attorney General of Tenn., dated September 26, 1960; Letter of Jackson C. Raulston, City Attorney for the City of Kingsport, Tenn., dated October 27, 1960.

rather than zoning in the sense here used, a decision on it may not have special legal significance. These two instances are the extent of case law dealing directly with flood plain zoning.[74]

Before entering into a consideration of the Model Flood Plain Zoning Ordinance, consideration must be given to the state enabling legislation which is necessary in order that the municipality have the

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74. Mention perhaps should be made of two other cases which touch the area more indirectly. In Hager v. Louisville & Jefferson County Planning & Zoning Comm'n, 261 S.W.2d 619 (Ky. 1953) the defendant amended its master plan so as to designate certain territory as "ponding areas" in connection with the flood protection project of the county. The plaintiff sued to restrain giving effect to the amendment and the court upheld him, holding that this was a right which could be acquired only by eminent domain and so was an unconstitutional taking of property without due process. The court rejected the argument that the amendment did not attempt to regulate the plaintiff's property but just intended to locate natural features for the convenience of the public, saying that the words indicated restriction since it reserved ponding areas as storage basins for a flood protection project. The case is clearly distinguishable from flood plain zoning in its normal sense; for here, although the form of the government action was under the zoning power, it actually incorporated the land as part of a flood control project, and this requires the use of eminent domain.

In Konitz v. Bd. of County Comm'rs of Johnson City, 180 Kan. 230, 303 P.2d 180 (1956) a zoning ordinance created a number of residential districts, each with a specified minimum ground floor area required for residences. A district permitting relatively small houses was mapped in an area allegedly subject to flooding and this was challenged by neighboring owners on the ground that the property values would be depreciated because the flood-prone areas would turn into a slum and that the classification was unreasonable because it did not consider that the land was subject to flooding. The court held for the defendants however on the ground that the evidence tended to show that the alleged overflow and surface water drainage could be overcome by filling and proper drain facilities; the reason that the smaller houses were permitted in this area was because it was low-lying and so the least attractive part of the subdivision. It is interesting to speculate however what the result would have been if the court found that the flood hazard could not be readily cured. It is quite possible that the result would have been different, thus giving the neighbors the power to do some flood plain zoning on their own initiative.

authority to zone (unless of course the authority is given in another way, such as by the state constitution). For any zoning ordinance to be valid it must fall within the powers and purposes contemplated by the enabling act. As has been indicated above and is clear from Section 1 of the Model Ordinance, the purposes here contemplated are "to protect the public health, to lessen the financial burdens imposed upon the community by rescue and relief efforts . . . and to minimize the danger to life and property which results from development undertaken without full realization of such danger." It excludes, of course, any purpose to prevent constriction of the floodway since that is separately provided for.

In 1926 the United States Department of Commerce suggested to the states for adoption a standard enabling act, and since the language has been followed in whole or for the most part by a great many states, we shall center our discussion around it. The relevant portions are as follows, with the proposed additions underlined:

> Section 1. Grant of Power. For the purpose of promoting health, safety, morals, or the general welfare of the community, the legislative body of cities and incorporated villages is hereby empowered to regulate and restrict the height, number of stories, and size of buildings and other structures, the percentage of lot that may be occupied, the size of yards, courts and other open spaces, the density of population, and the location and use of buildings, structures, and land for trade, industry, residence, or other purposes.
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> Section 3. Purposes in View. Such regulations shall be made in accordance with a comprehensive plan and designed to lessen congestion in the streets; to <u>lessen the financial burden on the public due to and</u> secure safety from fire, <u>flood</u>, panic <u>and other dangers; to</u> promote health and the <u>general</u> welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; to facilitate the adequate provision of transporation, water, sewerage, schools, parks and other public requirements. Such regulations shall be made with reasonable consideration, among other things, to the character of the district and its peculiar suitability

> for particular uses, and with a view to conserving the value of buildings and encouraging the most appropriate use of land throughout the municipality.[75]

As was evident from the above consideration of the Sevier Terrace Realty case, some states have felt that their enabling acts were inadequate to cover flood plain zoning. Tennessee amended its "powers" section, while others have added "flood" after "fire," as is done above.[76] It is not at all clear that this is necessary. A court might well sustain an ordinance under such general phraseology as "health, safety . . . and general welfare," "location and use of structures and land," and "most appropriate use of land." But the amendment here is proposed for two reasons. First, related legislation on the state level is also proposed, that is, the Model Floodway-Encroachment Act; the two might be considered simultaneously. Second, one of the purposes is to lessen the financial burden on the public. This is perhaps the most difficult to fit within traditional zoning concepts,[77] and so to avoid any doubt, it is specifically provided for. And it would not necessarily change the existing rule that a municipality

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75. U. S. Dept. of Commerce, A Standard State Zoning Enabling Act (1926).

76. Conn. Gen. Stat. Ann. sec. 8-2 (1960); Ga. Code Ann. sec. 69-802 (1957); N. Y. Village Law sec. 177.

77. But not necessarily invalid of course. A strong argument may be made from the following language of Village of Euclid v. Ambler Realty Co., 272 U. S. 365, 391, 394, 47 Sup. Ct. 114 (1926), which sustained zoning under the federal constitution: "Another ground is that the construction and repair of streets may be rendered easier and less expensive by confining the greater part of the heavy traffic to the streets where business is carried on" and "segregation of residential, business, and industrial buildings will make it easier to provide fire apparatus suitable for the character and intensity of the development in each section." The most reasonable interpretation of the latter quote is not that Justice Sutherland was referring to the ability of fire apparatus to move through traffic, but rather that the different uses mentioned require different types of apparatus, and that if the uses are not segregated, the municipality will be put to the extra expense of having the full variety of apparatus at each station in order to give full protection to the neighborhood served. This expense argument can be carried over into the flood plain zoning area.

can only attempt to save abnormal and not the usual community expenses[78] since the power to lessen the financial burden is given only for "fire, flood, panic, and other dangers." Flood and panic by their nature imply an abnormal occurrence. Since fire is in the same grouping, it is a fair construction that only abnormal fire danger be regulated, for example, requiring a minimum distance between wooden houses so as to avoid a major conflagration. (Such regulations can, of course, clearly exist to protect lives and property; the issue in question here is the lessening of the financial burden on the public.) But even if it should be construed as permitting the lessening of the normal financial burden, no constitutional question would appear to be involved since this is state legislation, and the police power rests inherently in the state, except to the extent that it is delegated to the political subdivision of the state.[79]

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78. Dunham 1126. DeMott Homes, Inc. v. Margate City, 136 N. J. L. 330, 56 A.2d 423 (1947), aff'd 136 N. J. L. 639, 57 A.2d 388 (1948) (zoning ordinance which restricted property to single family dwellings held invalid where motivated by fear of increased school and public service expenses without additional taxes to pay for them). Compare the Georgia enabling act: "Such regulations shall be made with reasonable consideration . . . to . . . securing economy in government expenditures." Ga. Code Ann. sec. 69-802 (1957).

79. To the effect that the police power embraces the promotion of the economic welfare of the community, see 6 McQuillin, Municipal Corporations sec. 24.13 (3d ed. 1951). If so, the lessening of the financial burden should be implied in this. See also 6 McQuillin, op. cit. supra sec. 24.35 (municipal police power exists only to the extent delegated by the state). It would not seem a valid argument that a municipal corporation by its nature is not able to attempt to lessen the normal financial burden, since any mandatory duty that does exist upon it must rest upon an interpretation that it was so intended by the state legislature. In the absence of such a mandate, the police power is a power, not a duty. See 2 McQuillin, op. cit. supra sec. 10.32.

A Flood Plain Zoning Ordinance Amendment

The text of a Flood Plain Zoning Ordinance Amendment is as follows:

Article I.

Section 1. Purpose. Since certain areas of the city are subject to flood hazard, flood plain zoning districts ("F" Districts) are hereby created in order to protect the public health, to lessen the financial burdens imposed upon the community by rescue and relief efforts occasioned by the occupancy of such flood areas, and to minimize the danger to life and property which results from development undertaken without full realization of such danger.

Section 2. Districts.

.1 Three Districts are created: Channel District ("F-1"), Valley District ("F-2"), and Upland District ("F-3").

.2 The location of the Districts is based upon a reasonable interpretation of the available flood data. They are as follows:

(a) Channel District: the geographical area within the flow line of a flood of 40-year frequency;

(b) Valley District: the geographical area between the boundary of the Channel District and the flow line of the maximum probable flood;

(c) Upland District: the geographical area not included within the Channel District and the Valley District; subject to variation to permit reasonable conformity to the layout of streets and to avoid the division of structures by District lines.

.3 The boundaries of the "F" Districts are embodied in an overlay to the zoning map of the city and are specifically incorporated as a part of it.

Section 3. District Boundary Alteration. The existing location of the "F" District boundaries shall be reconsidered by the City Council, and appropriate adjustments made, upon petition by any ten persons who are listed on the real property tax rolls of the city, upon a showing by such persons that:

(a) a flood control project of the federal, state, county or city government, or of a private person, has substantially altered the flood hazard, or

(b) flood data compiled subsequent to the enactment of this ordinance indicates that the boundaries of the Districts as shown on the zoning map of the city have been incorrectly located.

Upon such proof, the boundaries of the "F" Districts shall be relocated so as to maintain conformity with the purposes of this Article.

Section 4. Uses. Only the following types of uses shall be permitted in the specified "F" Districts, but just to the extent and under such conditions as they would also be permitted by the zoning ordinance of this city exclusive of this Article.

.1 Channel District

(a) Agricultural uses in the nature of farming, grazing, livestock raising, horticulture, nurseries and forestry;

(b) Recreational uses in the nature of parks, playgrounds, golf courses and driving ranges, boat landings, docks, picnic grounds, outdoor rifle and skeet shooting ranges, and such transient amusement enterprises as circuses, rides, and shows;

(c) Commercial uses in the nature of open pit mining, quarries, sand and gravel pits, stripping of top soil, airport landing strips, commercial swimming pools, land filling, billboards, parking areas, and railroad tracks;

(d) Storage yards for goods which will not be damaged by inundation (but not including inflammable liquids) in the nature of utility cables and scrap metal;

(e) Accessory uses which do not require the building of a structure with over 400 square feet in floor area in the nature of roadside and park stands for the sale of food, fruit and vegetables, fishing bait and boat rental;

(f) Structures

(1) for such industrial uses whose nature requires location in the Channel District because of

(i) use of large quantities of untreated water, or
(ii) industrial waste disposal, or
(iii) transportation services not available elsewhere;

(2) for the containment of animals, such as kennels and riding stables;

(3) for the containment of equipment and goods which can be readily moved in time of flood, such as farm equipment and garages for automobiles and trucks;

provided, however, that such structures meet the requirements of Section 11 of the Building Code;

(g) In no event shall any facility for human habitation, either temporary or permanent, including trailer camps, nor institutions or places of assembly for the mentally or physically ill, the young or the aged, such as a school, nor any place of incarceration, be permitted.

.2 Valley District

(a) All uses permitted in the Channel District;

(b) Structures for all residential and non-residential uses, provided that such structures meet the requirements of Section 12 of the Building Code unless said structure is not over 400 square feet in floor area, and subject also to the restrictions of subsection (c);

(c) In no event shall any institution or place of assembly for the mentally or physically ill, the young or the aged, such as a school, nor any place of incarceration, be permitted.

.3 Upland District

(a) No restriction on any use is imposed by virtue of this Article.

Section 5. Submission of Information. Where, in the opinion of the Board of Adjustment, engineering or other studies are needed to determine the effects of flooding on a proposed structure or use, the Board may require the applicant to submit such information prepared by competent engineers or other technical persons.

It is clear from the text that the Ordinance is proposed as an amendment to the existing zoning plan. No special provision is made for a Board of Appeals, procedure, variances, non-conforming uses and the like. Not only is it not deemed necessary, but the fact that it would not conform to the existing zoning administration of the municipality would add to confusion and to its difficulty of passage, a most relevant factor to be remembered in this area.

The general scheme of the Ordinance is that two restricted districts are set up, superimposed on the regular zoning districts of the municipality, with the nature of the uses permitted in those districts varying, for the most part, according to risk.

Section 1 sets forth the purposes of the Ordinance. These have already been discussed above in connection with the enabling act. It might be argued that if the amendment to the enabling act were not passed, the city might just as well not include in Section 1 the purpose of lessening the financial burden on the community in order to avoid possible difficulty as to its validity. There is some force to this; but the broader the grounds upon which the zoning regulation can be administered are, the more comprehensive the planning can be. If the section just included the last purpose: the danger to life and property resulting from development without full realization of the danger, a court might find that if an owner took certain precautions he could not be regulated, e.g. if he put notice in the deed, signs on the premises or the like. Of course such need not be a necessary result since "full realization" does not only encompass where there is actual fraud or even where the information is made easily available to the public. A person can look at a sign warning of danger and think nothing of it, especially if he has become accustomed to it. But the point is that a multi-purpose regulation will be better able to be sustained than one whose justification must rest on a single phrase.

Section 2 suggests a method for the districting of the flood plain.[80] It is based upon an analysis of flood data available for the region. The most restricted, or Channel, district covers that geographical area which would be covered by a flood of 40-year frequency. The phrase "40-year frequency" does not mean that a flood of such magnitude will happen only once in 40 years. What it does mean is that an analysis of the available hydrologic data indicates the chances that a flood of such magnitude will occur in any particular year are 40 to 1. The chances in each year are the same no matter whether the previous flood of such a magnitude occurred last year or 100 years ago.[81]

The maximum probable flood (or maximum flood of reasonable regional expectancy as it is also called) is the basis for the Valley District, and is the greatest flood which can be reasonably expected, taking into account pertinent conditions of location, meterology, hydrology, and terrain. Larger floods than it are possible but the factors necessary to produce them would occur at very rare intervals; for this reason they usually need not be given significant consideration in areas such as flood plain zoning. It is the area covered by this maximum probable flood that can truly be called the flood plain; all of it therefore should be subject to at least some regulation.

It is of course necessary that any districting be done on a reasonable basis, and this clearly requires a certain amount of flood data. The precise amount cannot be specified for any particular case. The lower the frequency in question, the more precise the calculation

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80. No present ordinance appears to have explicitly based its district lines on scientific calculation, and it is probable that most have not been based on scientific analysis of flood data at all, but rather on a flood of record or an annual flood or similar rough standard. See tables in Murphy 56-59.

81. Due to this possible misinterpretation of what a "40-year frequency" flood means, care should be taken to explain its true meaning not only to the community at the time the adoption of the Ordinance is urged but also to those who may later rely on such flood data in considering the risk of developing on the flood plain, to the extent that the Ordinance permits any such use. An explanation of the term in the text of the Ordinance seems inappropriate however.

will generally be. The size of a 10-year flood from a fairly short record will usually not differ greatly from the size of a 10-year flood derived from a long record. And these are the estimates of greatest interest to the community. For a 100-year flood the percentage difference can be much larger. The less frequent (i.e., the larger) a flood, the less likely it is that the frequency assigned to it will constitute a close approximation to the frequency which a long subsequent record might reveal. It would not be surprising that the biggest flood that will occur at a particular point on a stream during a long period following the time at which the maximum probable flood is estimated be larger or smaller by 25% or more than the estimated magnitude. But it should be pointed out that ordinarily very large floods extend to the base of the hills bordering the valley, and that for this reason the location of the flow line (i.e., the outer limits of the areas inundated by the flood) for the maximum probable flood may shift relatively little for large changes in the size of the flood. For small floods, however, a small error in the estimate of flood discharge can make a large error in the area flooded.

It is of course clear that gaging stations have not been placed in every town which may desire flood plain zoning[82]; and even if it did have such a station, it is quite probable that the record compiled by it would not suffice as presenting enough flood data to meet the legal test of "reasonableness" upon which these district lines must stand. It is suggested however that a solution lies in extrapolating the flood data that is available for an entire region to a particular stream. This in fact is the recommended method for computing both flood frequencies and the maximum probable flood. The fact that they have a regional rather than a peculiarly local basis and that they are more or less theoretical floods should not matter as long as they have a sound

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82. There are a large number however; the Geological Survey alone maintains over 6,000 throughout the United States. For a more complete breakdown of the extent of the collection of flood data, see Hoyt & Langbein, Floods 331-32 (1954).

scientific basis and rest on enough flood data.[83] The alternative is having the flood plain zone cover only the very frequently flooded areas and so be largely ineffectual as a forward-looking plan, or attempt to rest it on a standard such as the highest flood of record. The latter, standing alone, is much more likely to be held unreasonable since it may be a flood of 10- or 200-year frequency.

Of course the compilation of such data is not left to the community itself. The TVA has a systematic program for the preparation of flood evaluation reports for the communities in its region. There are other areas which have smaller groups that will make available the necessary flood information on which local zoning ordinances can be

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83. The regional method is described by the following: "The greatest obstacle to the accurate definition of the flood frequency graph at a gaging station is the shortness of record--a deficiency that can be corrected only by the collection of additional records in future years. Thus some further analytical device is necessary if more dependable information is to be extracted from flood records available at the present time. One artifice commonly and profitably used in such circumstances is the combining of records [of a certain region] on the premise that the average answer . . . from all . . . is more reliable than any single one . . . By combining records on the basis of geometric similarity of the frequency graphs, regions may be defined in which the shape of the frequency graph common to all streams can be closely determined." Peirce, Floods in Alabama - Magnitude and Frequency 10 (U. S. Geological Survey Circular 342, 1954). Of course in applying the data to a particular stream, all hydrologic and topographical data join to reach the estimate arrived at. Other published works which have been relied on in this commentary are: Moore, Planning for Flood Damage Prevention (Engin. Expt. Sta. of the Ga. Inst. of Tech. Spec. Rept. No. 35, undated); Murphy; Staff of the TVA., Senate Comm. on Public Works, 86th Cong., 1st Sess., A Program for Reducing National Flood Damage Potential (Comm. Print 1959). Hoyt & Langbein, Floods 98 (1954) explicitly state that for most of the inhabited areas of the country it is possible to delineate flood hazard areas at least up to the 50-year level, providing the necessary surveys are made by persons experienced in river hydraulics. The most difficult areas to delineate are where streams flow across alluvial fans and debris cones of mountain streams in the West since they are apt to change course so frequently that accurate predictions are not possible.

based.[84] But even if a community is not located within the jurisdiction of one of these regional groups, it can probably obtain significant aid from the Geological Survey of the Department of the Interior. The Geological Survey is currently engaged in the preparation of flood frequency reports by drainage basins which will cover the entire United States; reports covering parts or all of 24 states are currently available.[85] Another national group is the Corps of Engineers which, although it has rendered aid to communities in the past, has now been specifically authorized by the Flood Control Act of 1960:

> to compile and disseminate information on floods and flood damages, including identification of areas subject to inundation by floods of various magnitudes and frequencies, and general criteria for guidance in the use of flood plain areas; and to provide engineering advice to local interests for their use in planning to ameliorate the flood hazard.[86]

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84. For example, Indiana's Flood Control and Water Resources Commission and Ohio's Miami Conservancy District. An excellent example of the manner in which information made available by the TVA has been concretely applied to flood plain zoning is in Tenn. State Planning Comm'n, Planning for Flood Damage Prevention, Lewisburg, Tennessee (1954).

85. "A community desiring to have a flood-frequency study made should make known to the District Office of the Geological Survey its need and interest in cooperatively sponsoring such a study. The Geological Survey would then prepare a work plan to determine the amount of work involved, the time required to make the study, and the cost. If this work plan should be accepted by the community, [an] agreement would then be drawn up . . . Project costs, which are normally assumed on a 50-50 cost-sharing basis, contingent on availability of federal funds for matching, depend upon the amount of work required for a specific project." Letter of E. L. Hendricks, Chief, Surface Water Branch, Geological Survey, dated October 7, 1960.

86. 74 Stat. 480 (1960), Pub. L. No. 86-645, tit. II, sec. 206. This new statute may be of aid to communities which have been deterred by the requirement of the Geological Survey that local interests pay part of the cost. "The administrative policies to govern the service to be rendered by the Corps under Section 206 are now being developed. We do not yet know whether the local interests will be required to bear a part of the cost of developing the frequency curve, mapping the flood plain, delineating the flow lines for floods of various frequencies, and various other operations required in the development of a full report. I can say, however, that we are much more interested in obtaining assurances from the community that it will regulate the use of the

A further point must be made: the mere fact that there is sufficient flood data to establish fairly precise frequency curves does not automatically mean that they will be upheld as reasonable. It is here suggested that it is the most reasonable method which can be found, but it has not yet had a court test. Difficulty may be anticipated if the recorded historical evidence of flooding shows little correlation to the frequency data, although logically it should not. And of course special provision might have to be made if protective works such as levees exist. These may give protection against only a 25- or 50-year flood, and yet if they are overtopped, the results can be as disastrous as if they did not exist. In fact it seems that from a legal viewpoint, they present a dilemma. If a levee exists which protects against a 25-year flood, it is unreasonable to restrict the land behind it by zoning it for a flood of that magnitude. But it will be disastrously overtopped by a 50-year flood; yet the zoning restrictions for a 50-year flood frequency area will probably be less restrictive than a 25-year flood zone. But once the levee is overtopped, the structures in that zone suffer the effects of being in a 25-year flood zone rather than in a 50-year flood zone. However it appears that no locality which has levees has adopted flood plain zoning, so the problem has not yet arisen.[87]

Nor is it suggested that the precise frequency scheme of the Model Ordinance is appropriate for every community. Depending on the extent and type of development and the distances between districts, it may be desired to have a different magnitude of flood, or to have

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flood plain than we are in obtaining agreement that the community will pay any part of the cost of the report itself." Letter of Leonard J. Goodsell, Lt. Col., Corps of Engineers, dated November 8, 1960.

87. Murphy surveyed the municipalities which have flood plain zoning ordinances, and of the 34 about which he was able to obtain information as to if local flood control works existed, 31 had none and 3 had reservoirs (which do not present the problem a levee does). At 56-59.

more districts (e.g. on a 20-year frequency curve and a 50-year frequency curve) with varying use restrictions in each. What is suggested, rather, is the method for flood plain districting.[88]

It should be noted that Section 2.2 provides, in the setting of the district lines, for variation from the flow lines in order to avoid the division of lots and structures. This not only would be fair in many instances, but may be required by local law.[89]

The designation of the three districts as "Channel," "Valley," and "Upland" rests upon the experience of Milwaukee County in passing its flood plain zoning ordinance. Originally the districts were called "Channel," "Flood," and "Non-Flood," but the landowners

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88. Part of this "method" of course is the use of precise frequency standards indicating the degree of risk. Murphy, in his work on the actual administration of flood plain zoning, states: "A phrase often encountered is . . . 'No construction will be approved on lands subject to periodic inundations.' This . . . leaves it up to the individual . . . engineer . . . to interpret the term 'periodic inundation.' Interpretations . . . seem to be almost as many as the number of persons making the determination. If available criteria are lacking, the tendency is to minimize or disregard a flood problem. Those who do attempt to assess this problem . . . usually use the flood of record as a basis for such determination." At 130.

89. See Cordts v. Hutton Co., 146 Misc. 10, 262 N. Y. Supp. 539 (Sup. Ct. 1932), aff'd 241 App. Div. 648, 269 N. Y. Supp. 936 (1934), aff'd 266 N. Y. 399, 195 N.E. 124 (1934) where a residential district was established without regard to whether the division line cut through dwellings, industrial establishments and other property. The court held it did not meet the test of the enabling act requiring that zoning regulations be designed with reasonable consideration to the character of the district, its peculiar suitability for particular uses, the conservation of property values, and the direction of building developments in accordance with a well-considered plan.

It is suggested however that a District line based on scientifically analyzed flood data might well be upheld even in New York since the line in the Cordts case appears to have been arbitrarily drawn. But making such minor adjustments will be fairer without defeating the purpose of the Ordinance, and will avoid unnecessary legal difficulty. Of course the adjustment can work both ways, that is, to include or exclude property within the more restricted zone. The circumstances should determine each particular case.

protested that to incorporate their property in the "Flood" district would make sale difficult if not impossible, and as a result the town involved (whose approval was needed) dropped the proposal. Then the County amended the ordinance so as to change the names, and public opposition disappeared and approval was given.[90] Other names could also be used, of course, such as "Lowland," "Restricted," or "Conservancy." This concession appears slight in order to gain public approval. It is not a valid argument to say that one of the purposes of the Ordinance is defeated in that it aids one who wishes to sell flood plain lands to unknowing buyers. Not only does the text of the Ordinance itself give sufficient indication of the flood danger, but its purpose is not so much to give warning to the public as to protect those who may buy without knowledge by restricting the use of the land. And if there is someone who purchases vacant land for a house without looking at the zoning ordinance first, having a different name for the district will not affect him anyway.

Section 3 provides for reconsideration of the location of district lines on a showing that a protective work has altered the flood hazard or that the course of time has indicated that the flood data upon which the district lines were based led to an incorrect conclusion. It is intended to add to the "reasonableness" of the Ordinance in a court test and, as to the construction of protective works, to make an attempt to meet Dunham's argument developed above that all flood plain zoning may fail as being in conflict with the federal policy of preventing flood loss by protective works. As discussed, it is conceded that a protective work will affect the legal basis of previously located district lines since the danger of flood will have been decreased or, for practical purposes, eliminated. This provision permits ready alteration in such an event. While it does not go to the heart of Dunham's argument (which would bar flood plain zoning in any form), it does

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90. Behrens, Zoning Against Floods in Milwaukee County, 67 Amer. City 112 (1952).

evidence a purpose of yielding to the benefits of federal policies and in that sense should have weight with a court. Further, if a private owner fills in his land sufficiently, and it is not in violation of the encroachment law, he may be able to "raise" himself out of the restrictive district in which his land is located; for land fill can probably be considered a "flood control project" within the meaning of the Ordinance.

Section 4 suggests a scheme of uses to be permitted on the flood plain. Of all the sections of the Ordinance, this most of all should be tailored to the community in question. Provisions for uses such as swimming pools and quarries would of course be out of place on a purely agricultural flood plain unless such type of development were expected. The uses basically suggested here are, for the Channel District, uses which will not sustain heavy damage in the event of flood. This is the scope of Sections 4.1(a) to (e). Section 4.1(g) reflects the policy that no residences at all should be in the high risk area of the flood plain. And such structures that will be permitted on the flood plain (except those of very low value, such as fruit stands) should be subject to special floodproofing provisions contained in the Building Code. Such a Code provision has not been drafted here not only because it is not within the scope of this paper, but because such factors as the slope of the land and the expected velocity of flood waters will quite properly cause substantial variation from one community to another. Of course all Codes should have certain basic requirements, such as that the structure be so built that the danger that it will float from its foundation will be minimized. Provision against floatation should also be made for large outdoor storage tanks and fuel tanks; for if the contents are inflammable, a fire hazard would be caused.[91] And they would

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91. As a result of such fires in the Ohio Valley flood of 1937, the National Board of Fire Underwriters prepared a set of regulations for the construction and operation of containers for inflammable liquids wherever their storage is not prohibited on the flood plain. White, Human Adjustment to Floods 178 (U. of Chi. Dept. of Geography Research Paper No. 29, 1945).

also become a floodway obstruction if they float to a bridge, for example, and block passage of the water; very often it will not have come within the coverage of the encroachment statute since its original location may not have been within the floodway. Less pressing flood-proofing provisions are flood doors and gates, water tight basement window fittings, sturdy and waterproof foundations and electrical connections, installation of valves or gates to prevent backing up in pipelines and sewers, and installation of pumps.

On the basis of the nature of the flood plain, decisions must also be made as to whether to prohibit basements altogether, or to require that the first main floor of the structure be of a height at least equal to the flow line of a flood of a specified magnitude, or both. As suggested by the Model Ordinance (by its reference in Section 4.1(g) to "Section 11" of the Building Code and in Section 4.2(b) to "Section 12"), such basement and height requirements may vary not only as between residential and nonresidential structures but also between the Channel and Valley Districts. Thus, perhaps, under the Model Ordinance, basements might be prohibited in the Channel District due to the greater risk[92] but yet, because of the extremely restricted uses, no height requirement

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92. It should be noted, however, that when a structure is built on a pile-like foundation (as may often be the result if basements are prohibited, either with or without a height requirement), it is more subject than other types of foundations to being undermined by swift currents and to settling into saturated ground. It will cause increased danger since the occupants will tend to remain, feeling safe therein. Hoyt & Langbein, Floods 102 (1954); White, op. cit. supra note 90, at 177. And while this hazard would occur primarily in the floodway, the encroachment statute will probably not bar the structure since, being on piles, it is not likely to be an "obstruction." A solution may be for the Building Code to provide that the piles be deep enough and sturdy enough to withstand the effects of the current. None of the four Model Building Codes, incidentally, have specific provisions for construction requirements in flood areas. (National Building Code (1905); Uniform Building Code (1926); Southern Standard Building Code (1945); Basic Building Code (1950)). But several municipalities do have flood provisions. See generally Murphy 98-99. Note that the set-back lines in issue in City of Welch v. Mitchell, 95 W. V. 377, 121 S.E. 165 (1924), discussed at p. 14-15 supra, appear to have been part of the Building Code.

imposed. In the Valley District basements might be permitted but the first floor might be required to be as high as the flow line of the maximum probable flood; this might be qualified as to residential structures to the effect that it be the lowest floor designed for human habitation including the basement if the structure is so designed. Also, should any structure be permitted by the Department to be erected in the floodway, particularly strict requirements may be imposed in the Building Code in order to give greater assurance that the structure will be able to withstand the lateral force of a high velocity current.

Some municipalities have put these basement and height requirements directly in the flood plain zoning ordinance,[93] but the reason may well have been that it had no Building Code in force since that would have been the proper place. The important thing is that they be provided for somewhere.

The combination of Sections 4.1(g) and 4.2(c) results in barring from any part of the flood plain institutional structures designed for those who, by age, health, or imprisonment, may lack the ability to escape from flood waters. While this problem may not exist very often with schools, undesirable structures such as prisons seem habitually to be relegated to the least desirable location in the community--generally the riverfront.[94]

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93. DuPage County, Ill., Zoning Ordinance (1957), Murphy 179; Calvert City, Ky., Zoning Ordinance (1953), Murphy 184; Albuquerque, N. M., Zoning Ordinance (1955), Murphy 184; Lewisburg, Tenn., Zoning Ordinance (1956), Murphy 185; Pulaski, Tenn., Zoning Ordinance (1954), Siler, Flood Problems and Their Solution Through Urban Planning Programs 18 (1955); Milwaukee County, Wis., Zoning Ordinance (1953), Murphy 187.

94. Another factor in the location of prisons near the river is, of course, that the community first settled there, and the present city jail is still the original building or was rebuilt on the same location. The Los Angeles County, Cal., Zoning Ordinance Art. 4, sec. 444 (1957), Murphy 178, has a similar provision but, significantly, it does not extend to places of incarceration. A similar lack of consideration for "less desirables" may be present in the Freemont, Cal., Zoning Ordinance Art. 17, sec. 8-21703 (1958), Murphy 176, which permits as a conditional use quarters for transient (i.e. Mexican or other migratory farm) labor to be located on the flood plain.

Sections 4.1(f) and 4.2(b) provide that, if appropriately constructed to avoid flood loss, all nonresidential uses will be permitted in the Valley District, and structures will be approved for the Channel District if the nature of the industry requires a waterfront location, or the use to be carried on in them is such that the contents of the structure can be quickly evacuated in time of flood.[95] It is to be remembered of course that all these suggested uses are subject to the other provisions of the city zoning ordinance, to any building regulations, and to the state encroachment law.

It might be argued that such provisions for different uses violate the equal protection of the laws guaranteed by the 14th Amendment. This is not thought to be a sound view since each distinction made is believed to have a rational basis. The greater restriction imposed on residential uses rests on the belief that generally a homeowner is less experienced and less careful when he buys a home than a businessman, and that he is not able to financially absorb a flood loss as well as a businessman can. The distinction between permitting residences in the Valley District if they meet Building Code requirements (including that of a specified height, for example) but prohibiting them from the Channel District may rest both on the greater risk and the fact that the height from the ground which the residence would have to be built would be substantially more in the Channel than in the Valley District. If this is so, even if the expense or appearance of such a "high" house would not deter its construction, the "basement" will be of substantial size and the occupant will be greatly tempted, in due course, to use it as part of his regular living quarters,[96] which is what the Ordinance desires to avoid. As to permitting only certain nonresidential structures in the Channel area, but permitting all nonresidential use in the Valley

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95. This assumes that the flood data indicates that the rate of rise of flood waters will not be so rapid in that locality as to bar the effective evacuation of the goods.

96. And as to the construction on piles, see note 91 supra.

District, we must examine the nature of the uses permitted in the Channel District. The roadside fruit stand type should not present difficulty since its destruction will not cause substantial property loss. Permitting structures which are to contain animals or readily movable equipment such as trucks is based on the assumption that these contents will be removed in case of flood, leaving little more than the "shell" of the building. Since it is presumed that a structure which can withstand the force of the flood has been required, little loss should occur. And a use which requires a river location should be upheld since it is precisely this type of use which will probably be granted a variance if the Ordinance does not specifically permit it. Since a variance does not violate equal protection of the laws, providing for the same situation explicitly should not.[97]

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97. For an analogous situation, see Thomas v. Zoning Bd. of the Town of Bristol, 84 R. I. 330, 124 A.2d 859 (1956). The plaintiff owned land in an area zoned for residential use but subject to flooding and so not suitable for a residence. He sought a variance in order to construct a gas station but it was denied. (The state enabling act, a typical one, provided: "The Board of Review shall have the . . . power . . . to authorize such variance as will not be contrary to the public interest where owing to special conditions a literal enforcement . . . will result in unnecessary hardship, and so that the spirit of the ordinance will be served and substantial justice done." R. I. Gen. Laws sec. 45-24-19(c) (1956).) The court reversed, holding that the Board abused its discretion in finding that there was no undue hardship. It could not be put to any beneficial use unless a variance were allowed. The court noted that the design of the proposed station was such that it would be able to withstand wind and water better than the ordinary structure.

The court may be suggesting that, outside of the floodway at least, certain structures must be allowed to be constructed if built in a manner to withstand flood damage (apart from danger to human life). While the decision rested on statutory interpretation, it may be that a variance is a constitutional right in some cases. There is no case in point. Although several jurisdictions have upheld ordinances which did not provide for a Board of Appeals which could grant variances, the constitutional issue was not brought up; instead the decisions rested on the fact that the enabling act was permissive as to the setting up of a Board. State ex rel. Henry v. City of Miami, 117 Fla. 594, 158 So. 82 (1934); Bolduc v. Pinkham, 148 Me. 17, 88 A.2d 817 (1952); Boyd v. Walsh, 217 App. Div. 461, 216 N. Y. Supp. 242 (1926), aff'd 244 N. Y. 512, 155 N.E. 877 (1926). The closest a court has come is Florentine v. Town of Darien, 142 Conn. 415, 423, 115, A.2d 328 (1955): "A Board of Appeals

The same type of argument would apply to an objection on equal protection grounds if the Department administering the encroachment statute permitted the erection of the structure.[98]

Some may argue that the restrictions and standards suggested are not as high as they ought to be, both for the Model Ordinance and Building Code. There is some weight to this. But again we must remember that this type of regulation will evoke strenuous local opposition (unless the flood plain area in question has not been and is not expected to be developed)[99] since it attempts to plan for floods which many will feel "can't happen here," unless the Ordinance is being proposed immediately after a disastrous flood. The Model Ordinance is one which, as to severity of restriction, should have a realistic chance of being adopted in a nondisaster atmosphere.

Section 5 merely explicitly imposes on an applicant the duty to prove, on request of the Board, required structural and other facts as to such matters as the danger that the structure will float from its foundation during a flood. Of course references to the "Board of Adjustment" or other agencies simply mean, as they do throughout this paper, the appropriate agency or person for the task at hand. This will vary with the municipal structure.

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is indispensable to the zoning process both from the constitutional and practical standpoint." However the statement is dicta and was contained in a general discussion as to the need for a certain elasticity in zoning.

98. This is not to say that a structure such as a lumber mill would get a variance under the encroachment statute, since "variance" is generally applied only to zoning laws. But the fact that it is an industry which must, somewhere, be located near a watercourse will quite properly bear more heavily in the Department's determination of whether to grant a permit than if it did not have such a necessity.

99. Indicative of this is Murphy's report that 98% of the land covered by flood plain zoning is undeveloped and used mainly for pasture and agriculture. In the vast majority of ordinances, an area that has been flooded but had appreciable development on it was excluded from the flood-zoned district. At 81-82.

It is to be noted that the Model Ordinance makes no mention of non-conforming uses. Generally zoning ordinances provide that a non-conforming use will be prohibited if it has been abandoned for a certain period or if it has been substantially (e.g. 60%) destroyed. If reconstruction is permitted, it may be required to be begun within a specified time. Generally extension of a non-conforming use or its replacement by another non-conforming use can be forbidden. For the most part such regulation has been upheld,[100] and it can be assumed that the adopting municipality has so provided in order to eventually bring all uses in the designated districts into conformity with the comprehensive zoning plan.

A more serious difficulty exists if the municipality should desire to require the removal of non-conforming uses. To require immediate cessation of a non-conforming use otherwise lawful would probably be unconstitutional.[101] But there have been proposals that the use be amortized, that is, that a reasonable period of time be given for its removal. Several obstacles exist in such a case. First the zoning enabling act may expressly exempt from its operation structures or uses in existence at the time of the enactment of the ordinance or of its effective date.[102] However the Standard State Zoning Enabling Act contains no such provision[103] and therefore more often the ordinances

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100. See generally 58 Am. Jur. Zoning secs. 153 (abandonment), 157 (repair), 161 (extension), 164 (replacement) (1948); 1 Yokely, Zoning Law and Practice sec. 149-58 (2d ed. 1953). However the enabling act may limit this: N. J. Stat. Ann. sec. 40:55-48 (1940): "Any non-conforming use or structure existing at the time of the passage of an ordinance may be continued . . . and any such structure may be restored or repaired in the event of partial destruction thereof."

101. 1 Yokely, op. cit. supra note 99, sec. 150.

102. Ill. Ann. Stat. ch. 24, sec. 73-1 (1942); Me. Rev. Stat. ch. 91, sec. 93 (1954); N. H. Rev. Stat. Ann. sec. 31:62 (1955); N. J. Stat. Ann. sec. 40:55-48 (1940); R. I. Gen. Laws sec. 45-24-10 (1956); Wis. Stat. Ann. sec. 62.23(7)(h) (1957). Some may take a more limited approach, as Tex. Civ. Stat. Art. 1011C (1953): "This act shall not enable cities . . . to require the removal . . . of property existing at the time such city . . . shall take advantage of this act, actually and necessarily used in a public service business."

103. See note 74 supra.

themselves have made an exemption for such uses.[104] Where the municipality has felt an amortization provision desirable and it is not in conflict with the enabling act, state courts have split sharply over the issue of its constitutionality[105] and cases upholding such a provision have met criticism.[106]

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104. See cases cited in 58 Am. Jur. Zoning sec. 146, p. 1021 n.4.

105. Upholding such an ordinance terminating a non-conforming use are: City of Los Angeles v. Gage, 127 Cal. App. 2d 442, 274, P.2d 34 (1954) (plumbing business within five years); Standard Oil Co. v. Tallahassee, 183 F.2d 410 (5th Cir. 1950), cert. den. 340 U. S. 892, 71 Sup. Ct. 208 (1950) (gas station within ten years); Spurgeon v. Bd. of Comm'rs of Shawnee County, 181 Kan. 1008, 317 P.2d 798 (1957) (auto wrecking business within two years, pursuant to Kan. Gen. Stat. sec. 19-2930 (Supp. 1959) permitting "reasonable regulations . . . for the gradual elimination of non-conforming uses."); State ex rel. Dema Realty v. McDonald, 168 La. 172, 121 So. 613 (1929), cert. den. 280 U. S. 556, 50 Sup. Ct. 16 (1929) (drug store within one year); State ex rel. Dema Realty v. Jacoby, 168 La. 752, 123 So. 314 (1929) (grocery store within one year); Grant v. Baltimore, 212 Md. 301, 129 A.2d 363 (1957) (billboards within five years); Seattle v. Martin, 54 Wash. 2d 541, 342 P.2d 602 (1959) (automotive repairs within one year). Holding such an ordinance unconstitutional are: Akron v. Chapman, 160 Ohio 382, 116 N.E. 2d 697 (1953) (junk business within one year); James v. Greenville, 227 S. C. 565, 88 S.E.2d 661 (1955) (trailer camp within one year). Some of the cases upholding such provisions may not be fully in point since the uses involved may have been nuisances (and so within the power of the municipality to terminate; see note 57 supra and Noel, Retroactive Zoning and Nuisances, 41 Col. L. Rev. 457 (1941)); others may be distinguishable in that the injury was not substantial or that the entire structure was not required to be destroyed, but just that the type of business conducted therein be removed. It does seem however that for the most part the language of the opinions affirming the ordinance supports the theory that requiring the termination of such uses within a reasonable time is within the zoning power.

106. Noel, supra note 104; O'Reilly, supra note 57; Comment, Retroactive Zoning Ordinances, 39 Yale L.J. 735 (1930). Bassett however urges that the removal of non-conforming uses as to land (e.g. a skating rink) and "unimportant buildings" (e.g. ticket booths) be permitted; he draws the line however at regular buildings, apparently because of their value. Bassett, Zoning 115 (1936).

It would seem preferable for a flood plain zoning ordinance not to include a provision requiring the removal of non-conforming uses, even apart from its doubtful legality (or clear illegality if the enabling act expressly prohibits it) since it is bound to generate even more strenuous local opposition, especially if it is in contrast to a provision applying to the rest of the ordinance that non-conforming uses may remain. Secondly, removal of such uses can be justified for the most part only on two of the purposes of the ordinance: saving public expense and saving lives. The removal of the use will probably mean the destruction of the structure, and so does not advance the purpose of protecting property, except perhaps as to its contents and salvage value. Thirdly, there is the basic question of fairness; it forces removal of a use when, in actuality, the risk to life may not be very great; the result in such a case would be to rest it solely on the purpose of saving public expense.[107]

It is realized however that special danger to life and property exists in the floodway. But such uses, if they are obstructions, are public nuisances under the Model Floodway-Encroachment Act, and so are enjoinable and removable by the Department. To aid in such enforcement Section 8 of the Act provides for a mandatory investigation of any alleged obstruction to be undertaken by the Department upon request of any political subdivision of the state. In this sense, the encroachment law can be called the "core" of flood plain regulation. In appropriate situations the municipality can take the initiative, but yet the real local hostility and pressure, if any, will fall upon the Department, which is deemed better able to withstand it. And while the municipality would probably have the same power if the encroachment legislation were on a local level,

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107. In contrast, Wertheimer felt that if the principle of amortization of non-conforming uses is sound, no application could be more appropriate for it than in flood plain zoning. Wertheimer, op. cit. supra note 59, at 41. Perhaps this might be agreed with if it were limited to uses in the floodway; but then, most often, it might be justified under the doctrine of nuisance, as the discussion of the encroachment statutes above indicates.

since the Model Act rests on the theory of nuisance, it avoids any chance that a court will confuse such a power to remove an obstruction with the theory of removal of non-conforming uses, and declare it invalid on that basis. It is felt that this power in the Department and "political subdivisions" is sufficient. Admittedly some non-conforming uses in the floodway will not be an obstruction, but it is felt that these will be few since the term can probably include most structures which are not specially built.

However should it be felt that a provision for the amortization of non-conforming uses is desirable and possible,[108] one method may be suggested: that one year's time be given for each $2,000 or major fraction thereof of value of the non-conforming use, the valuation being determined by the property tax rolls, with the owner being given a limited time to petition the tax assessor for a new valuation (as of a date prior to the ordinance so that its effect will not be to lessen the valuation).[109] The advantage of the right to ask for revaluation is that it will avoid an equal protection argument: that older structures are assessed for less proportionately due to the failure to revalue in inflationary times. And basing the time within which the use must be removed on its value not only seems reasonable but also will cause fairly prompt removal of the structures least able to withstand flood waters.

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108. For example, in a state whose enabling act does not bar it and whose courts appear to have upheld it: California, Florida, Kansas, Louisiana, Maryland, or Washington. The United States Supreme Court has not granted certiorari in any zoning case since Nectow v. City of Cambridge, 277 U. S. 183, 48 Sup. Ct. 447 (1928), thus leaving the development of the area largely to the state courts.

109. The Fernandina, Fla., Zoning Ordinance (No. 119, 1937) provided for the amortization of non-conforming uses based on one year for each $1000 valuation or major fraction. Elimination of Non-Conforming Uses 7 (A.S.P.O. Planning Advisory Service Info. Rept. No. 2, 1949).

CONSIDERATIONS FOR COASTAL REGIONS

It has already been noted that the scheme here presented for flood plain zoning was not intended to apply to coastal areas subject to inundation because of hurricanes. However a few words may be mentioned about the special problems there encountered.[110] The flood zones again would seem to be able to be based on a frequency standard, considering both hurricanes, tidal waves and extremely high tides. The zones would, of course, be along the shore area; inland problems fall within the scope of ordinary flood plain zoning. Again only light structures would be permitted in the zone of greatest hazard so as not to make for serious property loss if destroyed. Special Building Code requirements should be specified for permitted structures in zones of less danger, but here considering the effect of both wind and water. Pile foundations may be appropriate, especially since there is no current to scour out the foundation (as long as it is not within the direct force of the hurricane tides so as to cause an analogous form of erosion).

A statute similar to an encroachment law might be suggested to prevent the destruction of sand dunes. For "where dunes . . . had been levelled by bulldozers to provide building sites and direct views of the ocean, the high tides pushed in by the hurricanes were able to wash across the barrier beaches, destroy structures, and further erode the dunes and beaches."[111] And possibly agriculture should not be a permitted use in the flood areas due to the injurious effect of salt water.

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110. See generally R. I. Dev. Council, Hurricane Rehabilitation Study, Interim Report Summary 4 (1954); Council of Civil Defense, North Carolina Hurricane Project 30-61 (1955).

111. Council of Civil Defense, op. cit. supra note 108, at 10.

CONCLUDING STATEMENTS

As has been repeatedly emphasized, the model legislation here proposed is intended to be part of a general scheme of flood plain regulation. For example, added requirements may be imposed upon a subdivider; that the subdivision map delineate any area of flood danger, minor protective works be built, drainage facilities be of sufficient capacity (or in lieu thereof, pumping facilities), minimum street elevations be prescribed.[112]

Vital roads of course must be located at elevations to preclude their being inundated or washed out during floods; otherwise they may give people a false sense of security, and actually be a trap for them when they decide to evacuate. Public works, especially levees and land and highway fill, must be so planned that they do not unduly constrict floodway capacity. In short, a general administrative program for proper integration of all aspects of flood plain regulation should be set up. It is suggested that, aside from protective works, the items here discussed: encroachment and zoning legislation, should form the core of such a program.

This concept of flood damage prevention through use of protective works and flood plain regulations has been upheld by the courts. Reasonable application by state and local legislative bodies should be permissible wherever it is utilized.

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112. Wertheimer, op. cit. supra note 59, at 35. For examples of ordinances containing such requirements, see Murphy 60, 87-95. Since 1922 Milwaukee County, Wis., has had a definite plan for the acquisition of flood plain lands near streams for incorporation into its parks and parkway system. Murphy 119. But others have rejected such a scheme: "[H]ighways should be located out of flood plain areas. It will be expensive enough to provide adequate drainage in other areas without the additional cost which would be involved in crossing the flood plain." Santa Clara Planning Comm'n, Flood Problems in Santa Clara County 45 (1952).