

FLOOD INSURANCE TERMS ANNOUNCED

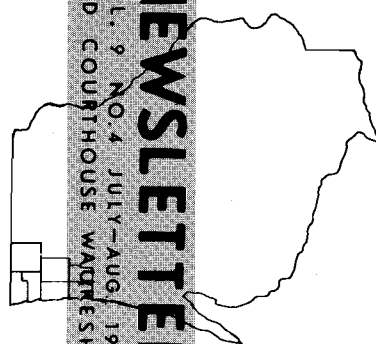
In the Housing and Urban Development Act of 1968, the Congress of the United States enacted a national flood insurance program, which became effective in January of this year. Up until that time insurance covering damages caused by floods had been virtually unavailable. The federally subsidized program is to be administered by the U. S. Department of Housing and Urban Development (HUD), and insurance will be issued in designated areas through participating insurance firms in the National Flood Insurers Association (NFIA). Prerequisites for the issuance of flood insurance under the provisions of the National Flood Insurance Act of 1968 were recently made public in the form of regulations published in the Federal Register of June 18, 1969.

The flood insurance eligibility regulations require the adoption of permanent state and local land use control measures governing land management and use in flood-prone areas. The following criteria must be met by the state and local land use control measures:

1. The measures must discourage the development of land which is exposed to flood hazard.
2. The measures must assist in reducing the potential damage caused by floods.
3. The measures must otherwise improve the long-range management and use of flood-prone areas.

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

NEWSLETTER
VOL. 9 NO. 4 JULY-AUG. 1969
OLD COURTHOUSE WAUNESHA



FLOOD INSURANCE—continued

State and local floodplain land use and control measures should also contribute to overall community and areawide social and economic development goals by:

1. Diverting unwarranted and inappropriate development away from flood-prone areas.
2. Encouraging flood control and flood damage abatement efforts through public and private means.
3. Deterring the inappropriate development of public utilities and public facilities in flood-prone areas.
4. Requiring such construction and land use practices as will reduce, to the maximum practicable extent, flooding from surface runoff, improper drainage, or inadequate storm sewerage.

Communities desiring participation in the flood insurance program must present to HUD assurances that the previously mentioned objectives and goals will be met as part of a comprehensive land management and use control program in flood-prone areas. If a state or local community is designated by HUD as meeting the requirements, insurance may be purchased by individual property owners and tenants of the designated area. Insurance will cover property losses caused by a flood, as defined in the regulations as "a general and temporary condition of partial or complete inundation of normally dry land areas from (1) the overflow of inland or tidal waters, or (2) the unusual and rapid accumulation of runoff of surface waters from any source."

Damages not covered by the insurance include: 1) water damage resulting from causes on the insured's property or within his control; 2) damage from mud slides or earthquakes; 3) damage from precipitation, such as rain, snow, and sleet; and 4) damages to a property which is declared to be in violation of local floodplain management or control ordinances. Flood insurance is presently limited to one-to-four-family structures in

FLOOD INSURANCE—continued

designated flood-prone areas and is not presently available for small businesses or other uses.

Data collected and plans formulated in the Regional Planning Commission work programs can be used by local communities desiring eligibility for the flood insurance program. The regional land use plan, for example, recommends the preservation of the riverine areas of major rivers and stream tributaries as part of a system of environmental corridors which, if adopted and implemented by a community through a sound land use control and, in some cases, land acquisition program, would partially satisfy the program criteria by reducing potential flood damages and restricting future floodplain development. The Commission's comprehensive watershed studies for the Root, Fox, and Milwaukee Rivers also provide the detailed engineering data required to delineate flood-prone areas and contain recommendations to reduce flood damage costs to existing floodland development. Floodland regulations have also been incorporated into the Commission's Model Zoning Ordinance and Land Division Ordinance, which can be used by local communities as guides to develop local regulations. Assistance required to incorporate these data, plan elements, and model ordinance regulations into a local action program can be provided by the Commission upon request of a local unit or agency of government.

FOX AND ROOT RIVER FLOODS

Early in July certain local units of government within southeastern Wisconsin received many complaints of flood damage from irate citizens. Contrary to common opinion, this damage was the result of a relatively mild rainfall and could be attributed primarily to poor drainage rather than to the rise of the major streams within the Region to flood stage. This damage, however, should serve as a further warning to local officials of the severe and widespread flooding and flood damage which could result from truly severe storms and should serve to underscore the need for the enactment of sound floodland zoning ordinances within the Region.

FOX AND ROOT RIVER FLOODS—continued

On June 29, 1969, an intense storm swept across the Southeastern Wisconsin Region causing wind and water damage in many of the local communities of the Region. Aside from the extensive wind damage from felled trees and power lines and structural wind damage to siding, roof coverings, and accessory buildings caused by winds up to 42 miles per hour, the accompanying intense rainfall caused local flood damage in the Cities of Muskego and New Berlin in Waukesha County, the Cities of Franklin and Oak Creek in Milwaukee County, and throughout northern Racine County.

The official U. S. Weather Bureau Station at Mitchell Field in Milwaukee recorded a rainfall of 1.91 inches in 7 hours. This rainfall began at 4:45 p. m. and was preceded by rainfalls of 0.41 inch and 0.02 inch from 5:00 a. m. to 9:00 a. m. and from 2:00 p. m. to 2:30 p. m., respectively, for a total rainfall of 2.34 inches in 24 hours. Rainfall recorded at the U. S. Weather Bureau cooperative stations in Waukesha and Union Grove totaled 2.65 inches in 8.5 hours and 2.3 inches in 7.5 hours, respectively. Point rainfall intensity-duration-frequency curves prepared by the Southeastern Wisconsin Regional Planning Commission indicate a recurrence interval of less than two years (a 50 percent chance of occurrence in any given year) for the average rainfall which occurred over the Fox River and Root River watersheds as a result of the storm. The rainfall, however, fell on a saturated ground, and consequently runoff was relatively high.

The stages (levels) and discharges measured at U. S. Geological Survey stream gaging stations in the Fox River and Root River watersheds (see Table 1) indicated a recurrence interval of less than four years (a 25 percent chance of occurrence in any given year) at all of the stream gaging stations in operation within the watersheds. Table 1 lists the measured stages, discharges, and the estimated flood frequency at these selected gaging stations in the Fox River and Root River watersheds. The corresponding 100-year recurrence interval flood stages and discharges at these stations, as determined in the respective watershed studies conducted by the Commission, are also shown.

FOX AND ROOT RIVER FLOODS—continued

Table 1
HYDROLOGIC STREAM DATA RESULTING FROM THE RAINFALL
OCCURRENCE OVER SOUTHEASTERN WISCONSIN ON JUNE 29, 1969

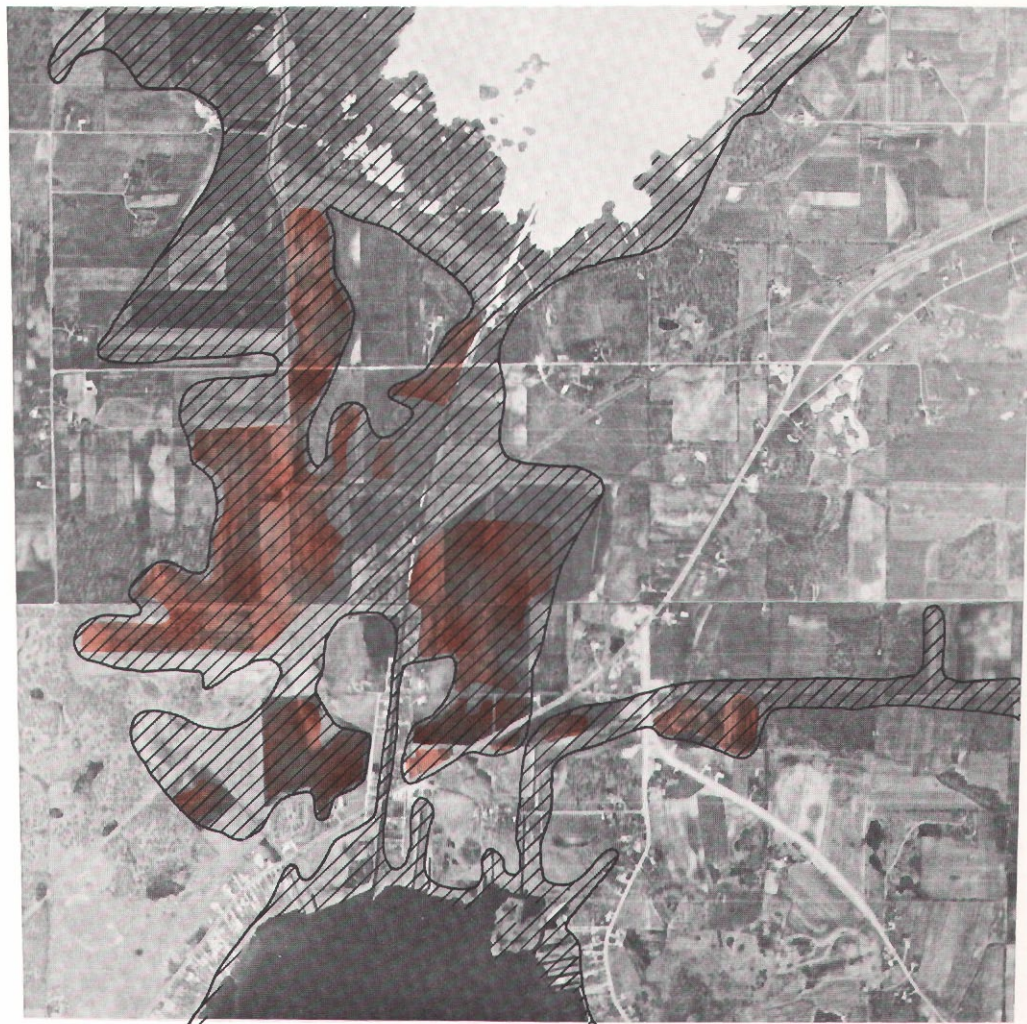
Gage Location	June 29, 1969 Storm			100-Year Flood	
	Peak Stage (Mean Sea Level)	Peak Discharge (Cubic Feet Per Second)	Estimated Recurrence Interval	Peak Stage (Mean Sea Level)	Peak Discharge (Cubic Feet Per Second)
Root River at STH 100 (Ryan Road)	682.9	2160	once in every 4 years	685.5	6500
Root River at CTH G (Six Mile Road)	685.5	800	once in every 1½ years	693.0	3670
Root River at STH 38 (Northwestern Ave.)	619.0	2000	once in every 2 years	632.0	9940
Fox River at Waukesha (N. Prairie Ave.)	798.8	1260	once in every 4 years	802.5	3220
Fox River at Wilmot CTH C (Wilmot Road)	742.0	2260	once in every 1½ years	745.6	9400

Source: U. S. Department of the Interior, Geological Survey; SEWRPC.

Field inspection of the flooded areas in the Fox and Root River watersheds was made in order to compare the areas of inundation resulting from the June 29 flood to those which would result from a 100-year recurrence interval flood event as mapped under the Commission's watershed studies.

Because of the occurrence of the storm in late June, agricultural flood damages were high. Those damages were due primarily, however, to poor drainage rather than overland flooding from nearby streams. One of the flooded areas observed was located in the agricultural area between, and adjacent to, Wind Lake and Muskego Lake in the Fox River watershed. The areas shown on Figure 1 are farmlands inundated by flooding resulting from the June 29 rainfall. Inundation due to overland flooding on 3 of the 4 farms surveyed resulted in an estimated loss of 35 acres of corn, 12 acres of hay, 16 acres of grain, and 13 acres of potatoes

Figure 1
INUNDATION IN THE WIND LAKE - MUSKEGO LAKE AREA:
JUNE 29, 1969



LEGEND

-  LANDS INUNDATED ON JUNE 29, 1969
-  APPROXIMATE 100 YEAR RECURRENCE INTERVAL FLOOD INUNDATION LINE

Source : SEWRPC

FOX AND ROOT RIVER FLOODS—continued

with an estimated value of \$13,500. The fourth farm surveyed contained 27 acres of onions and 46 acres of carrots, of which the owner estimated only 2 acres of each could be saved for an estimated loss of \$31,000.

Another area surveyed was located in the Root River near Nicholson Road and the main stem of the Root River. The damage to a single residence in this area was estimated at \$4,000. Local flooding and drainage problems at numerous other locations in the two watersheds occurred, but no attempt was made to make a detailed analysis of the damages incurred in these areas.

Certain conclusions can be readily drawn from this recent experience. One is the fact that significant flood damages were incurred in both the Fox and Root River watersheds from a rainfall and resulting stream flows which were relatively mild and of a far lesser magnitude than major historic flood events which have occurred within the Region. The June 29 storm should, therefore, serve as a warning of the very high damages which could be expected to accompany a 100-year recurrence interval flood, with discharges in the order of 4 times those accompanying the June 29 event, and should reemphasize the fact that only through implementation of the land use, flood control, and soil and water conservation recommendations of the Root and Fox River watershed plans can the flood damages that would accompany future severe flooding within the Region be minimized.

SEWRPC NOTES

MANDATORY SEWER AND WATER PLANNING REQUIREMENT DEADLINE, OCTOBER 1, 1969

The Commission recently received notice from the U. S. Department of Housing and Urban Development that local units and agencies of government will not be eligible to receive federal grants for the construction of sanitary and storm sewerage and water supply facilities under the HUD Water and Sewer Facilities Program after September 30, 1969¹, unless the planning requirements established in Section 702 of the Housing and

¹The Congress of the United States is presently considering extending this date to May 1, 1970.

Urban Development Act of 1965, as amended, are met. The planning requirements which must be met prior to grant approval by HUD, generally stated, include:

1. Areawide comprehensive planning must be conceived and carried out by an officially recognized areawide planning agency or instrumentality.
2. Areawide water and sewer planning must be accomplished as part of the comprehensive planning process.
3. Areawide water and sewer programming must be accomplished to implement the functional planning.
4. Assisted projects must be consistent with the functional planning and programming called for under 2 and 3 above.

The Commission is presently working towards meeting these stated requirements. The first requirement is met by the very existence of the Commission and the formal adoption of an areawide planning program by the Commission designed to prepare a framework of long-range plans, including sewer and water plans, for the physical development of the Region. This program is set forth in the 1968 SEWRPC Annual Report.

The regional land use plan completed and adopted by the Commission delineates generalized sanitary sewerage and water supply facility service areas within the Region. In addition, the Commission has begun work on a regional sanitary sewerage system planning program intended to produce another key element of a comprehensive plan for the physical development of the Region. Finally, the Commission has proposed a regional water supply system planning program as an integral part of its overall work program.

These actions on the part of the Commission should serve to continue to qualify the local units and agencies of government for federal assistance programs.

RAINFALL INTENSITY-DURATION-FREQUENCY CURVES REVISED

In 1965 the Commission, under the Root River watershed study, prepared rainfall intensity-duration-frequency curves, for use in storm drainage and sewerage design throughout the seven-county Southeastern Wisconsin Region.¹ These curves have recently been updated as part of the hydrologic analyses for the Milwaukee River watershed study. The curves originally prepared by the Commission were based upon precipitation data collected over a 49-year period extending from 1903 through 1951. An additional 15 years of precipitation records, extending from 1952 through 1966, were utilized in the updated analyses. Although investigation indicated that the incorporation of the additional 15 years of rainfall records into the statistical analyses would not greatly change the resultant curves, new rainfall intensity-duration-frequency curves were prepared utilizing the entire 64-year period of rainfall record now available for southeastern Wisconsin, extending from 1903 through 1966, in order to make their use in storm drainage design by local engineers within the Region as convenient as possible. Large-scale copies of the revised curves, shown on Figures 2 and 3, may be obtained through the Commission offices.

FLOOD-PRONE AREA INFORMATION PAMPHLETS AVAILABLE

The U. S. Department of the Interior, Geological Survey, in cooperation with the Wisconsin Department of Natural Resources and the Regional Planning Commissions, has recently published informational pamphlets delineating "flood-prone" areas for specific municipalities in the state. Seven such pamphlets cover areas in the Southeastern Wisconsin Region. These include the Village of Silver Lake, Kenosha County; the City of Greenfield and the Villages of Greendale and Hales Corners, Milwaukee County (all on one pamphlet); the Cities of Burlington and Racine and the Village of Waterford, Racine County; and the City of Waukesha and the Village of Mukwonago, Waukesha County.

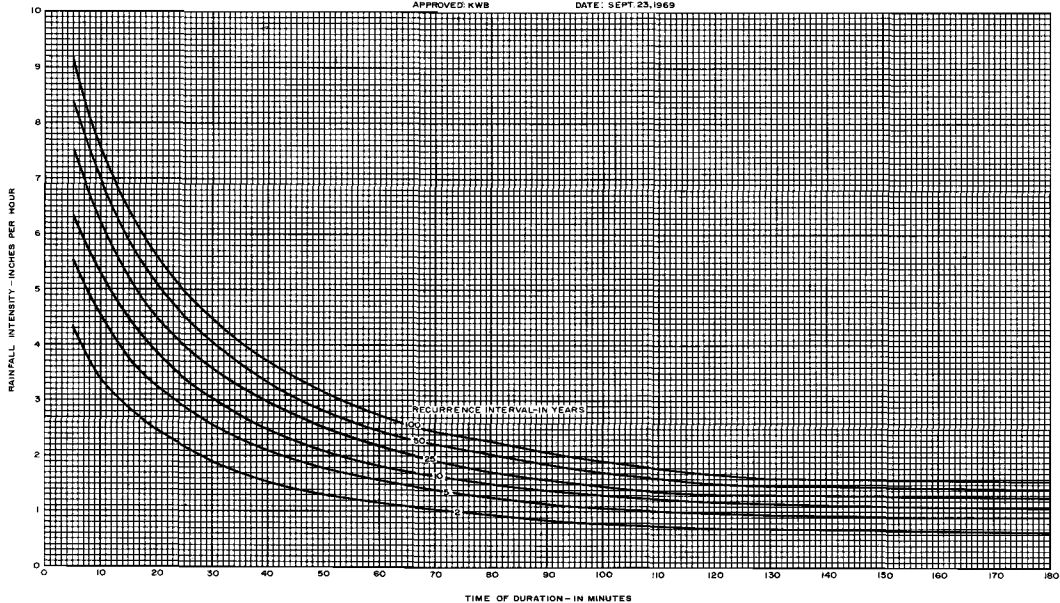
¹ *SEWRPC Technical Record, Volume 2, No. 4, "Determination of Runoff for Urban Storm Water Drainage System Design," April-May 1965.*

SEWRPC NOTES—continued

Figure 2
POINT RAINFALL
INTENSITY - DURATION - FREQUENCY
FOR DURATIONS OF 0 TO 180 MINUTES
MILWAUKEE, WISCONSIN

PREPARED BY
SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
WAUKESHA, WISCONSIN
FROM
U.S. WEATHER BUREAU RECORDS
FOR

PERIOD FROM 1903 THROUGH 1966
DRAWN: J.R.W. DATE: JUNE 23, 1969
CHECKED: DRB DATE: SEPT 23, 1969
APPROVED: KWB DATE: SEPT 23, 1969



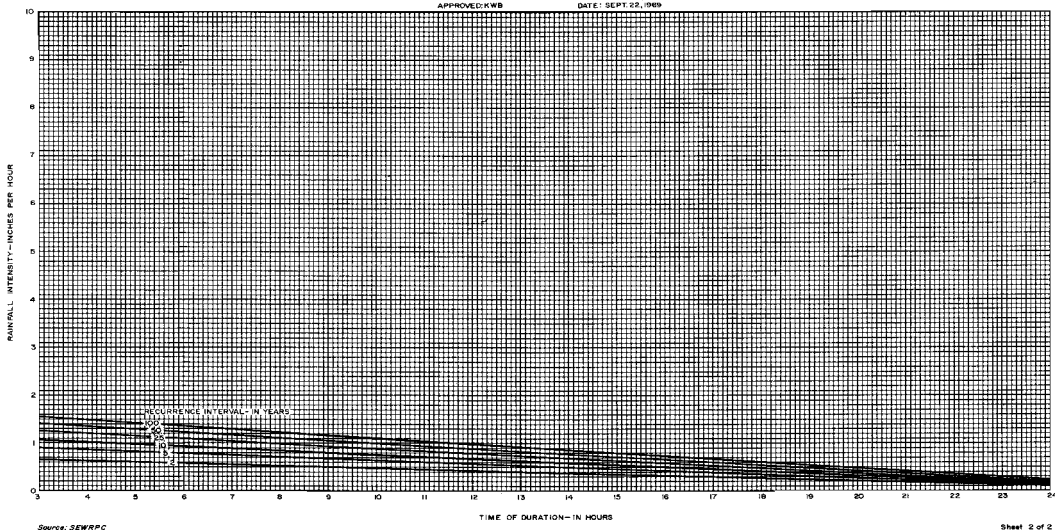
Source: SEWRPC

Sheet 1 of 2

The pamphlets briefly describe the nature of flooding in the specified local area and discuss flood damage costs, the problems resulting from misuse of floodplains, and beneficial floodplain uses. The pamphlets also include a map which depicts the flood-prone areas in and around the community involved (see Figure 4). These flood-prone areas indicated as "approximate area occasionally flooded" on the maps included in the pamphlet are based on historic records or, where available, on engineering studies. Larger floods may occur than those whose area of inundation is depicted on the maps, though infrequently; and these larger floods may inundate additional areas not delineated on the maps.

SEWRPC NOTES—continued

Figure 3
POINT RAINFALL
INTENSITY - DURATION - FREQUENCY
FOR DURATIONS OF 3 TO 24 HOURS
MILWAUKEE, WISCONSIN
PREPARED BY
SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
WAUWATSEGA, WISCONSIN
FROM
U.S. WEATHER BUREAU RECORDS
FOR
PERIOD FROM 1903 THROUGH 1966
DRAWN: J.H.W. DATE: JUNE 23, 1969
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A limited number of copies of the pamphlets for those areas in the Region covered are available through the Commission offices; from the U. S. Geological Survey, Madison; and from the Wisconsin Department of Natural Resources.

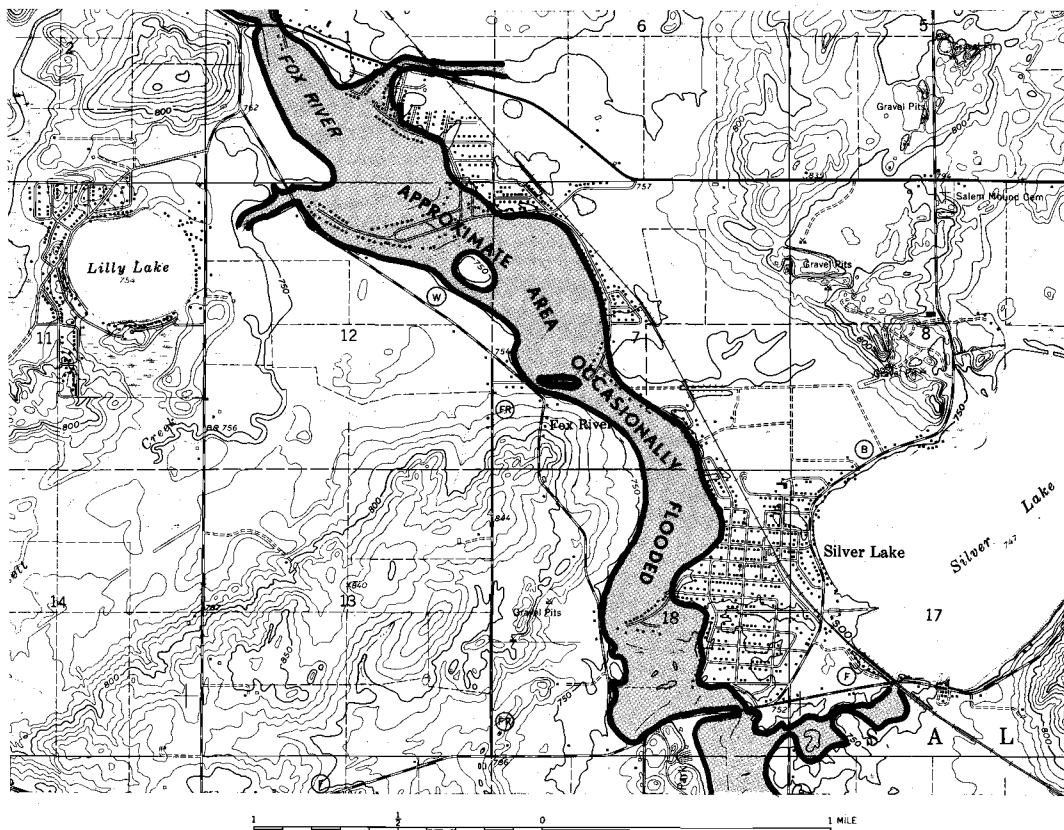
AIR QUALITY CONTROL REGION ESTABLISHED

On September 18, 1969, the U. S. Department of Health, Education, and Welfare (HEW) announced that an Intrastate Air Quality Control Region had been designated for the Milwaukee metropolitan area. The Metropolitan Milwaukee Air Quality Control Region coincides with the southeastern Wisconsin regional planning area and consists of the Counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha. The designation of air quality control regions throughout the United States is being made pursuant to a Congressional mandate contained in the federal Air Quality Act of 1967. To date, 19 such intrastate

air quality control regions have been established.

The Air Quality Act provides that states adopt, after public hearings, air quality standards for those types of air pollutants for which HEW has published air quality criteria and reports on control techniques. To date HEW has published such criteria and control technique reports for two types of air pollutants: sulfur oxides and particulate matter. The Gover-

Figure 4
FLOOD-PRONE AREAS OF
SILVER LAKE, WIS.



Source: U.S. Department of the Interior, Geological Survey.

nor of Wisconsin has 90 days from the date of the designation of the air quality control region for southeastern Wisconsin to notify HEW of the state's intent to adopt air quality standards applicable to the Region for the two types of pollutants noted above. The state must then adopt such air quality standards within an additional 180 days. Subsequent to this, another 180-day period is provided, within which the state must adopt a plan for implementation of the air quality standards. This procedure will have to be repeated as the HEW publishes additional criteria and control technique reports for other types of air pollutants.

ADDITIONAL COMMUNITIES ADOPT REGIONAL PLAN ELEMENTS

Several additional communities in the Region have acted in recent months to formally adopt the recommended regional land use and transportation plans. The communities recently adopting the plan include the Cities of Hartford and West Bend in Washington County; and the Town of Darien and Village of Sharon in Walworth County. To date then, of the 153 units of government in the Region, 32 (21 percent) have presently adopted the regional land use and transportation plans as a guide in making day-to-day development decisions, including all seven county boards;¹ 8 of 28 cities; 8 of 53 villages; and 10 of 65 towns. In addition, 13 public agencies and private organizations, including the State Highway Commission, the Wisconsin Department of Natural Resources, the Milwaukee County Park Commission, the Milwaukee County Expressway and Transportation Commission, and the Metropolitan Sewerage Commission of the County of Milwaukee, have to date endorsed the recommended regional plans.

¹ Ozaukee County has to date adopted the regional transportation plan only.

NEW COMMISSIONER APPOINTED



Mr. Marlin M. Schnurr, Kenosha businessman, has been appointed to the Regional Planning Commission by Governor Warren P. Knowles. The Governor appointed Mr. Schnurr, on his own motion, to replace Mr. Dario F. Madrigano, who recently resigned. Mr. Schnurr will serve an unexpired term on the Commission ending September 15, 1970. Mr. Schnurr has previously served with the Wilmot Union High School as District Administrator and with the Kenosha County Fair in the capacity of President of the Board of Directors and Fair Manager. He is presently affiliated with the Fox Valley Florists, Inc., as President of the organization and also serves as Chairman of the Advisory Board of the Bank of Burlington, Paddock Lake Branch.

QUESTION BOX

WHAT ARE THE CARDINAL PRINCIPLES UPON WHICH FLOODLAND MANAGEMENT REGULATIONS SHOULD BE ESTABLISHED?

State legislation in Wisconsin requires the enactment of effective floodplain zoning ordinances by county and local units of government in order to regulate effectively in the public interest land uses in areas subject to flood hazards. A sound floodland management program, however, should be based on certain recognized principles underlying sound floodland management. These principles, when recognized by the county and local units of government concerned, should lead to more meaningful legislative control measures. The cardinal principles involved are:

1. Sound floodland regulation must recognize that the flood hazard is not uniform over the entire floodland area. Restrictions and prohibitions in floodlands should, in general, be more rigorous in the channel itself and in the floodway than in the floodplain area.

QUESTION BOX—continued

2. While it is most desirable that floodland regulations seek to retain floodlands in open-space uses, sound floodland regulation may contemplate permitting certain buildings and structures at appropriate locations in the floodplain. Any such structure, however, should comply with special design, anchorage, and building material requirements.
3. Sound floodland regulation must recognize, and be adjusted to, existing land uses in the floodlands. Structures may already exist in the wrong places. Fills may be in place constricting flood flows or limiting the flood storage capacities of the river. The physical effects of such misplaced structures and materials on flood flows, stages, and velocities can be determined; and floodland regulation based on such determinations must include legal measures to bring about the removal of at least the most troublesome offenders.
4. In addition to the physical effects of structures or materials, sound floodland regulation must also be concerned with the social and economic effects, particularly the promotion of public health and safety. Beyond this, sound floodland regulation must take into account such diverse and general welfare items as impact upon property values, the property tax base, human anguish, aesthetics, and the need for open space.
5. Sound floodland regulation must coordinate all forms of land use controls, including zoning, subdivision control, and official mapping ordinances and housing, building, and sanitary codes.

QUOTABLE QUOTE.....

*"We do not live to extenuate
the miseries of the past nor to
accept as incurable those of the
present."*

Fairfield Osborn
The Limits of the Earth

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RETURN REQUESTED

The preparation of this publication was financed in part through a Federal urban planning grant from the U. S. Department of Housing and Urban Development under the provisions of Section 701(b) of the Housing Act of 1954, as amended, and through a State planning assistance grant from the Wisconsin Department of Local Affairs and Development, under the provisions of Section 22.14 of the Wisconsin Statutes.

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