SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION NEWSLETTER
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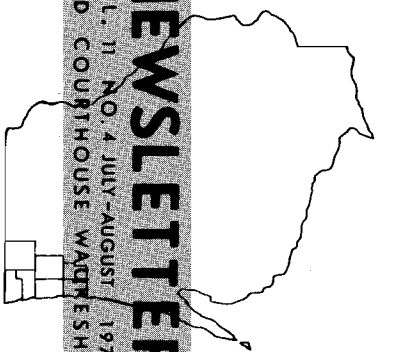
OLD COURTHOUSE WAUKESHA



USE OF SOILS DATA IN LOCAL LAND USE CONTROL ORDINANCES INCREASES

A great deal can be done to guide and shape areawide development in a more rational manner through collecting, analyzing, and disseminating accurate planning and engineering data on a continuing, uniform, areawide basis. Experience in the Region indicates that if the areawide inventory function is properly carried out, resulting information will generally be used and acted on by federal, state, and local government units and agencies and by private investors. If the data has been properly used in the preparation of regional plan elements, its use in arriving at public and private development decisions on a day-to-day basis will contribute in a major way toward implementation of regional plan elements and the shaping of development in accordance with those elements.

One of the most important, useful, and influential inventories completed by the Commission has been the regional soil survey. The intensive use to which the results of the soil survey have been put is indicated by the fact that during the last four years the Commission has responded to 7,519 requests for soil survey maps and interpretive data, which were used as important inputs to the preparation of the regional land use plan and which have a major influence on decisions concerning the type and location of land use development in the Region. The Commission has further encouraged use of the maps and data by preparing and disseminating a planning guide or manual (SEWRPC Planning Guide No. 6, Soils Development Guide), on the use of the soil survey in the making of

development decisions. This guide contains model soil-related regulations for incorporation into local comprehensive and special-purpose land use control ordinances. Since its publication in 1969, 786 copies of this guide have been distributed; and 23 county and local units of government have enacted land use control ordinances in the Region which directly incorporate the results of the regional soil survey.

Sanitary and Health Ordinances

The extent to which the detailed soil survey maps and accompanying interpretive analyses have been applied in local sanitary and health ordinances in the Region is shown on Map 1. These ordinances utilize the soils data to avoid placing septic tank sewage disposal systems in areas covered by soils with severe or very severe limitations for the safe and efficient operation of such systems. Certain soils are not well suited to absorb septic tank effluent. These include:

1. Floodland and wetland soils and soils having a high water table, which cause malfunctioning of the system for all or part of the year and rapid clogging of the absorptive soil pores.

2. "Tight" or slowly permeable soils, which do not permit the septic tank effluent to percolate properly and cause it to rise to the surface, where it may pond or drain into roadside ditches, streams, and lakes.

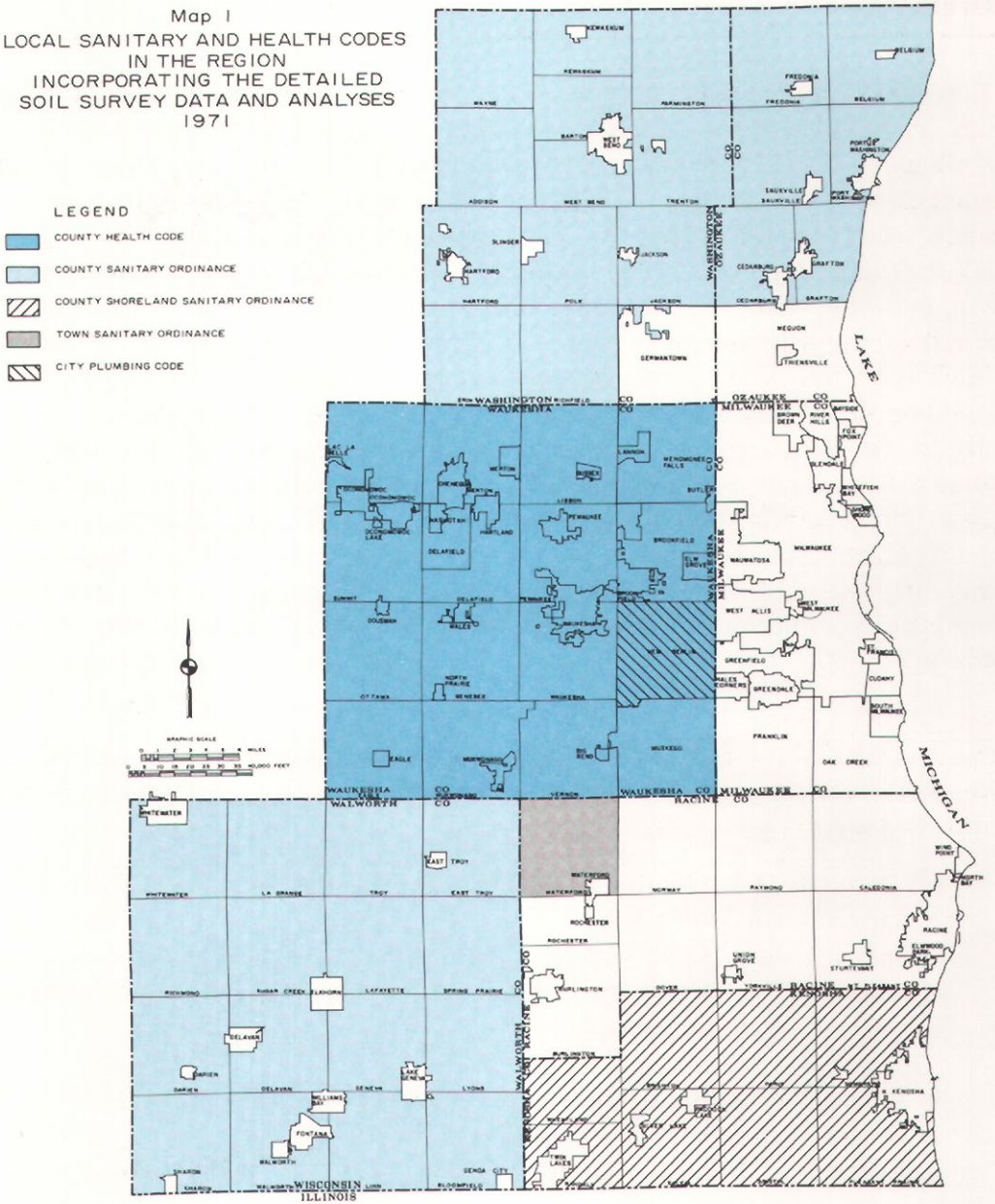
3. Excessively well-drained soils or soils over creviced or fractured bedrock, which may result in partially treated effluent rapidly reaching ground water supplies.

4. Soils on slopes of more than 12 percent, which may result in partially treated effluent seeping to the surface and draining into roadside ditches, streams, and lakes.

The first use of soils data in a sanitary ordinance designed to regulate the installation of septic tank systems was the Walworth County Sanitary

Map 1

LOCAL SANITARY AND HEALTH CODES IN THE REGION INCORPORATING THE DETAILED SOIL SURVEY DATA AND ANALYSES 1971



Code adopted in 1966. The soil regulatory concepts embodied in that code have since been carried over into the Washington County Sanitary Ordinance, the Waukesha County Community Health Code, the Kenosha County Shoreland Sanitary Ordinance, the Ozaukee County Sanitary Ordinance, the Town of Waterford Sanitary Ordinance, and the City of New Berlin Plumbing Code. The Waukesha County Community Health Code is unique because it is enacted under statutory powers of the County Board of Health and, as such, is effective in all incorporated and unincorporated areas of Waukesha County. The Ozaukee, Walworth, and Washington County sanitary ordinances are limited by statute to apply only to the unincorporated areas of each respective county. The Kenosha County Shoreland Sanitary Ordinance applies only to those shoreland areas surrounding lakes and along streams and rivers in the county. About 1,990 square miles, or nearly 75 percent of the Region, is presently subject to sanitary, health, or plumbing codes containing regulations restricting the development of soils suitable for septic tank systems.

Zoning Ordinances

The regional soils survey and interpretive analyses can also be used in conjunction with, and incorporated into, local zoning ordinances in the following ways:

1. Through the creation of special zoning districts related to certain kinds of soils.

2. Through the incorporation of special use regulations relating to certain kinds of soils.

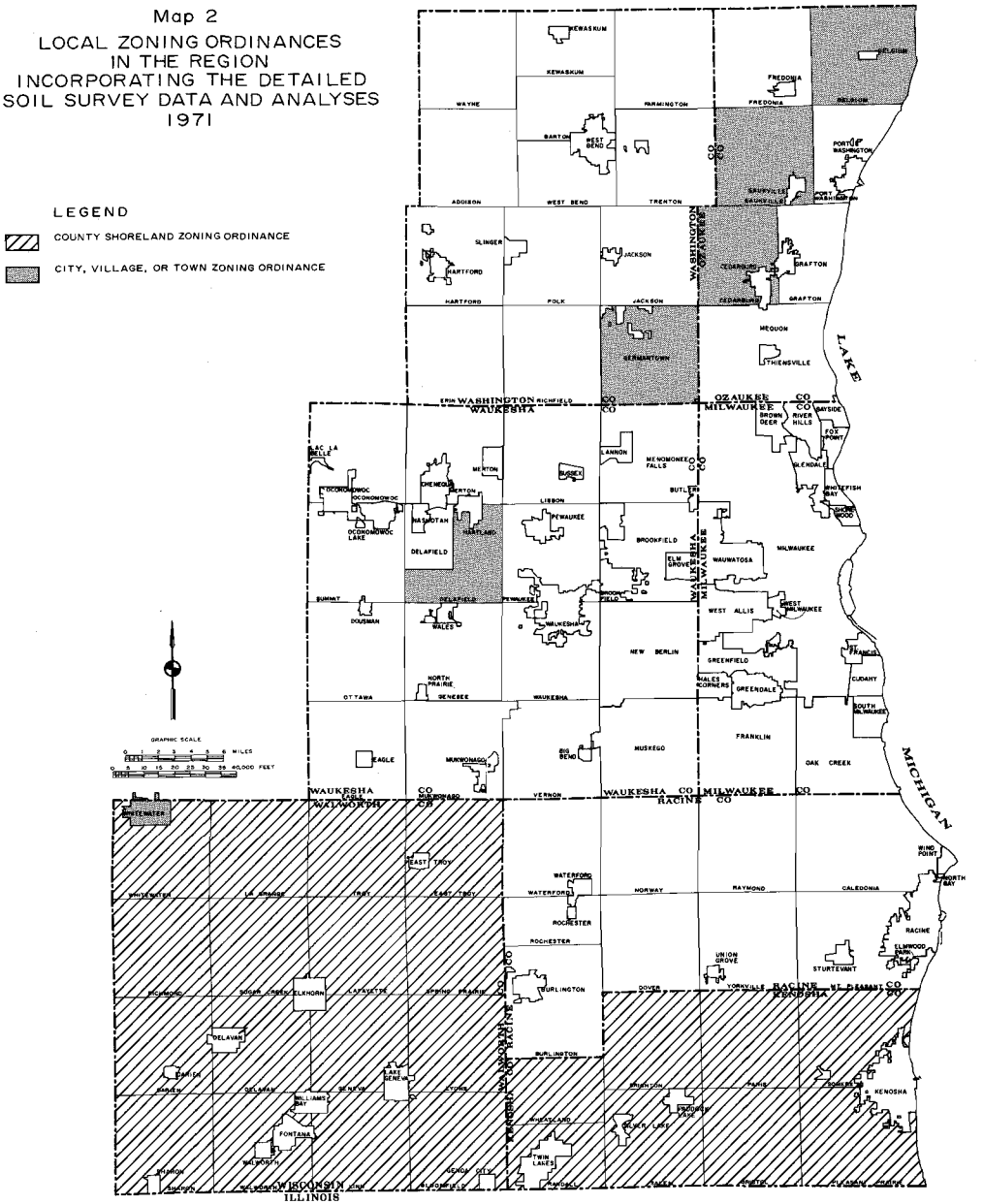
3. In the delineation of district boundaries.

4. In the determination of special hazard areas, such as floodlands.

The general use of the detailed soils data in the Region's local zoning ordinances is shown on Map 2. Soil regulations have been incorporated

Map 2

LOCAL ZONING ORDINANCES IN THE REGION INCORPORATING THE DETAILED SOIL SURVEY DATA AND ANALYSES 1971



directly into city, village, and town zoning ordinances, as well as into county shoreland zoning ordinances. In some cases, the soil regulations are designed, like sanitary codes, to prohibit development on septic tank systems in areas with soils improperly suited for such use. In other cases, such soil regulations relate to the use of steep and erodable lands. Finally, soil maps have been used in some instances to delineate flood hazard areas where comprehensive watershed studies have not yet been conducted and precise flood hazard data based upon hydrologic and hydraulic analyses is, therefore, not yet available. About 1,050 square miles, or nearly 40 percent of the Region, is subject to zoning ordinances containing special soil regulations.

Land Subdivision and Building Ordinances

The detailed soil survey and interpretive analyses may be incorporated through special regulations into local land subdivision ordinances in order to better adapt the design of lot, block, and street layouts to the natural terrain and the capability of the soil resource. In addition, special soil regulations can be incorporated into building ordinances to prevent the building of structures on unsuitable soils and to provide for special design consideration on steep and erodible lands.

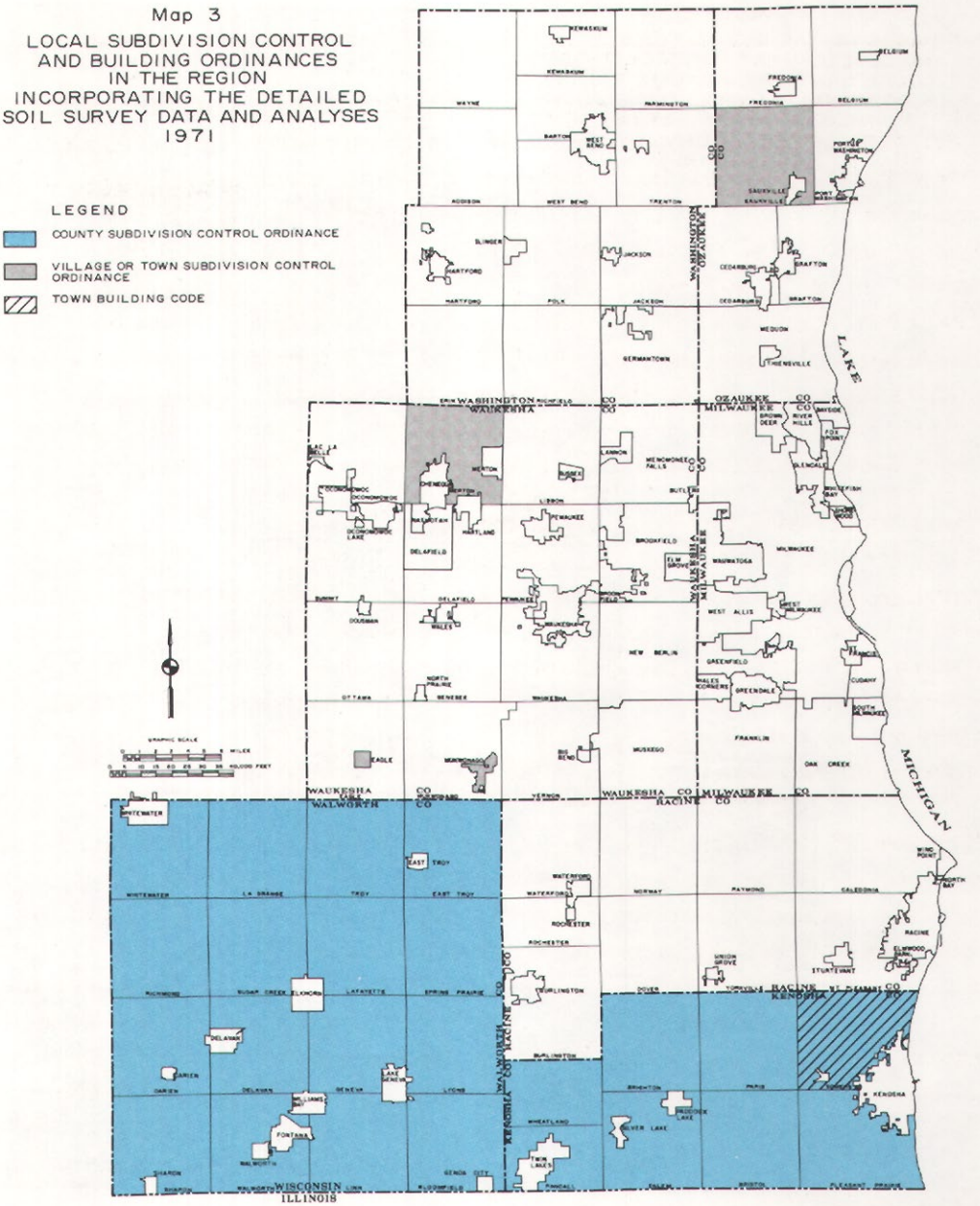
The use of the detailed soil survey in local land subdivision and building ordinances in the Region is shown on Map 3. Of particular significance are the recently enacted county subdivision control ordinances in Kenosha and Walworth Counties which regulate development for all of the unincorporated areas in these counties. To date, the Town of Somers is the only municipality in the Region to have incorporated soils data into a local building code. About 875 square miles, or nearly 33 percent of the Region, is subject to land subdivision or building codes containing special soil regulations.

Composite Picture

Map 4 shows the area in the Region which is subject to special soil-related regulations either through application of a sanitary or health

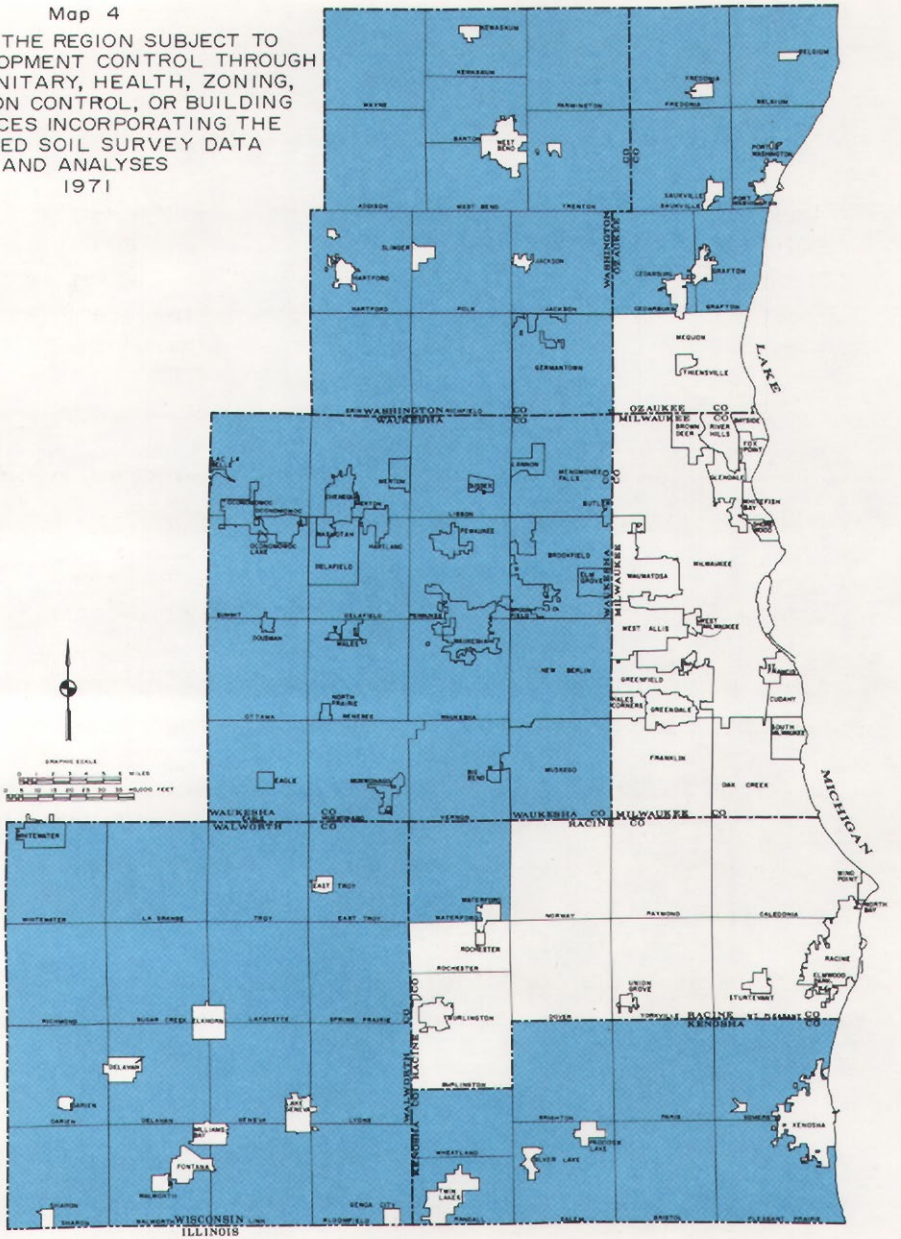
Map 3

LOCAL SUBDIVISION CONTROL AND BUILDING ORDINANCES IN THE REGION INCORPORATING THE DETAILED SOIL SURVEY DATA AND ANALYSES 1971



Map 4

AREA OF THE REGION SUBJECT TO LAND DEVELOPMENT CONTROL THROUGH LOCAL SANITARY, HEALTH, ZONING, SUBDIVISION CONTROL, OR BUILDING ORDINANCES INCORPORATING THE DETAILED SOIL SURVEY DATA AND ANALYSES 1971



ordinance, zoning ordinance, land subdivision control ordinance, building code, or plumbing code. More than 75 percent of the 2,689 square mile Region is covered by one or more codes or ordinances containing special soil regulations. It is evident from this composite analysis that the detailed operational soil survey has provided data and analyses of great usefulness to local units of government in the Region. If properly administered, codes and ordinances incorporating the soils survey and containing special soil regulations can assist in achieving sound land use development.

SEWRPC NOTES

ROADSIDE MANAGEMENT PROGRAM ENDORSED

In recent months both the Commission and the Natural Resources Council of State Agencies have endorsed an unusual roadside management program for selected roadsides in the Southeastern Wisconsin Region. This roadside management program, which has as its objective the protection and enhancement of desirable plant communities, would be undertaken along about 57 miles of roadway in the Region. The roadways would be inventoried for suitability for inclusion in a selective brush management program and would be located in environmental corridors where combinations of natural resource base elements already exist, and where the management program can strengthen and enhance existing plant communities and wildlife habitat. In adopting a resolution endorsing the basic concepts of the program, the Commission suggested that:

- A "conservation roads" plan be prepared for each county in the Region, identifying roadsides near designated environmental corridors in which selected plants and shrubs would enhance the environmental diversity and natural beauty of the roadside.
- Road improvement standards be modified to permit implementation of the management plans, including permitting steeper gradients, shorter site distances, narrower shoulders, and shorter radius curves as necessary.

- A fund be established to permit the state to reimburse county and local governments for costs incurred in implementing such roadside management plans.

The Natural Resources Council of State Agencies, comprised of the Governor and representatives of several state agencies and universities, endorsed the proposed program and recommended implementation be undertaken. The roadside management program would be most suited to lesser traveled roads bordered by low-growing shrubs and trees, where major changes in road alignment are not anticipated. The brush management program would consist of removing undesirable woody shrubs and noxious weeds from road rights-of-way, while allowing desirable shrubs and plants to flourish in the improved environment. The program is also aimed at reducing roadside maintenance costs, providing an effective crash barrier, providing cover and food for wildlife and pollinating insects, reducing soil erosion, enhancing the beauty of the roadside, and contributing to the maintenance of an ecological balance.

1972 ORAP LOCAL PARK AIDS AND LAWCON COUNTY ALLOCATIONS ANNOUNCED

The Wisconsin Department of Natural Resources, Bureau of Aid Programs, has recently announced the fiscal year 1972 allocation for counties under the Wisconsin ORAP local park aids program and the federal LAWCON land and water conservation grant program. These allocations in the Southeastern Wisconsin Region are as follows:

County	ORAP	LAWCON
Kenosha	$ 21,875	$ 42,712
Milwaukee	164,269	320,744
Ozaukee	12,266	23,949
Racine	29,939	58,456

County	ORAP	LAWCON
Walworth	13,677	26,704
Washington	13,677	26,704
Waukesha	39,213	76,563
Total	$294,916	$575,832

Counties and local units of government are able to utilize LAWCON and ORAP funds in many local park and open-space acquisition and development projects. Acquisition projects can be aided by up to 75 percent federal and state funds, while development projects are eligible for a maximum 50 percent state and federal funding. Unused LAWCON funds revert to a statewide fund on March 31 of each year, and are available for use by any local unit of government in the state. The Bureau also announced the following eligibility status of all local units of government in the Region:

Unit of Government	Termination Date of Eligibility
Kenosha County	July 1, 1973
City of Kenosha	Jan. 1, 1973
Milwaukee County	Jan. 1, 1973
City of Milwaukee	Jan. 1, 1972
Ozaukee County	July 1, 1976
City of Cedarburg	July 1, 1976
Village of Grafton	July 1, 1976
Racine County	Jan. 1, 1975
City of Racine	Jan. 1, 1972
Walworth County	Ineligible
Washington County	Ineligible
Village of Slinger	Jan. 1, 1976
Waukesha County	Ineligible

Any questions concerning LAWCON and ORAP funds, as well as the eligibility of local units of governments to receive such funds, should

be directed to the Bureau of Aid Programs, Wisconsin Department of Natural Resources, Box 450, Madison, Wisconsin 53701.

SMSA POPULATION CONCENTRATION CONTINUES

A preliminary analysis of the 1970 Census results indicates that the trend towards concentration of the population of the United States in large metropolitan regions is continuing. When the concept of standard metropolitan statistical areas (SMSA) was originated by the U. S. Bureau of the Census in 1950, 151 such areas were designated and the SMSA's constituted 55 percent of the nation's population. By 1960, 63 percent of the national population was concentrated in 212 such large urban regions. By 1970, approximately 69 percent of the United States population was concentrated in 243 SMSA's.

Within these urban regions, however, the population increase has been occurring largely on the fringes of the older, established urban areas. The State of Wisconsin reflects this national trend in population concentration. In 1950 the 5-1/2 SMSA's within the state (Green Bay, Kenosha, Madison, Milwaukee, Racine, and Superior) accounted for 42 percent of the state's population. By 1960, this figure has risen to 46 percent. By 1970, the number of SMSA's had increased to 7-1/2 with the addition of La Crosse and Appleton-Oshkosh, and these areas contained 58 percent of Wisconsin's population. Between 1950 and 1960, the population of the central cities of the SMSA's grew by 18 percent while the areas outside of the central cities increased by approximately 40 percent. The 1960 to 1970 decade saw growth rates dropping in both areas, but more dramatically in the central cities. The central cities grew by only 6.5 percent while the suburban and rural urban fringe areas of the SMSA's grew by 28 percent. Between 1950 and 1960 the SMSA's accounted for 72 percent of the state's growth, while between 1960 and 1970 the SMSA's accounted for 75 percent of the state's growth.

From 1960 to 1970, the seven-county Southeastern Wisconsin Region, which contains 3 of the state's 7-1/2 SMSA's, accounted for 39 per-

cent of the total population increase of the state; and about 40 percent of the state's population was concentrated in 1970 in the seven-county Region. Following national trends, the largest central city in the Region—the City of Milwaukee—actually lost population from 1960 to 1970, decreasing from about 741,000 to about 717,000, a 3 percent decrease. Several of the older "first ring suburbs" also lost population—the Villages of Shorewood, West Milwaukee, and Whitefish Bay, which decreased by 3, 13, and 5 percent, respectively. Other older "first ring" suburbs, such as Wauwatosa and West Allis, showed only small increases. The most rapid population increases occurred in the newer outlying suburban areas in southern Milwaukee, southern Ozaukee, southeastern Washington, and eastern Waukesha Counties. Large increases were recorded by such Cities as Glendale, Greenfield, and Oak Creek—40.9, 38.5, and 48.3 percent, respectively; and by such Villages as Bayside, Greendale, and Hales Corners—40.9, 120.5, and 40.0 percent, respectively. The central city of Racine recorded a 6.8 percent increase, and the central city of Kenosha, a 16.1 percent increase over the last decade.

The trend to urban sprawl within the Region continued with an approximately 12 percent increase in population within the Region being accompanied by an approximately 20 percent increase in the land devoted to urban use. The density of the developed urban areas of the Region continued to decline over the decade from about 4,800 persons per square mile in 1960 to about 3,300 persons per square mile in 1970.

QUESTION BOX

WHAT ASSURANCE DOES AN INDIVIDUAL LANDOWNER HAVE THAT THE SOIL SURVEY IS ACCURATE?

The soil survey conducted in the Southeastern Wisconsin Region, like all such surveys, has certain limitations that must be recognized in order to avoid misuse of resulting data. These limitations are relatively

minor, however, and can often be overcome through inexpensive additional field investigation. If properly understood, these limitations do not detract from the overall validity of the survey and its usefulness in planning and plan implementation programs. To overcome limitations in using the soils data, the Commission has entered into an interagency soils agreement with the U. S. Soil Conservation Service, the University of Wisconsin Extension Service, and each of the seven county soil and water conservation districts to provide services to achieve the potential of the soil survey and interpretive analyses. Of particular importance under this agreement, the U. S. Soil Conservation Service provides, on request, technical services in the application of soil surveys, including onsite soil investigations for additional detailing and refining of the soils maps and technical advice on means for overcoming soil limitations for specific uses.

Interpretations based on the regional soil survey do not eliminate the need for additional soil sampling and testing when, for example, construction of major engineering works involving heavy loads is contemplated or when proposed excavations are deeper than layer depths reported in the survey. It should be noted, however, that soil borings also have inherent limitations. Subsoil information as shown by boring logs at selected bore hole locations may be inadequate to show actual conditions over a wider area. If borings are necessary, bore hole locations can be rationally selected based on soil survey maps. Thus, soil surveys and borings may be used to complement each other.

Another limitation of the soil survey relates to the range of characteristics that must be defined for each kind of soil. It is impossible to set up absolutely homogeneous soil mapping units. The soil map represents a geographic delineation of the ranges of certain soil characteristics. Even though a soil is mapped correctly according to the classification scheme, it may have weak manifestations of the characteristics for

which interpretations are made. Some map delineations may represent soils with slightly different interpretations than typical soils of this kind. If there is any question about proper interpretation of a mapped soil unit's characteristics, additional onsite investigations should be made.

The scale used in mapping soils also influences the amount of detail that can be shown. Soil maps are usually compiled at a scale of 1" = 1320'. At this scale it is not practical to delineate areas of less than two acres in size. This means that some delineations on a soil map may contain soils that differ in some way from the soil identified by the code number. These soils are termed "inclusions." When inclusions are suspected to affect the application of the soils data, additional onsite investigation should be made.

Two other limitations in the soil survey should be recognized. The first involves human error either by the soil scientist in the field or the cartographer in the drafting room. While these kinds of errors are possible, experience has shown that they occur infrequently. The second limitation involves possible variations in the actual soil boundary from the boundary location shown on the map. Such variations may range up to 50 feet. If errors in soil classification or boundary location are suspected, additional onsite investigation should be made.

These limitations of the regional soil survey do not mean that it is inaccurate. They simply represent cautions to be kept in mind when utilizing survey results. They do not detract from the validity of the survey or its reliability and value if properly applied. It is the recognition of these minor limitations by the Commission and the U. S. Soil Conservation Service that lead to the interagency agreement whereby landowners in the Region can obtain additional onsite investigations at no cost.

QUOTABLE QUOTE.....

"Planning, as policy-making, bridges and incorporates preservation, conservation, and designed development. Working with substantial and comprehensible geographic areal units, it incorporates sites for all three activities and establishes the possibility for resolving the contradictions between them. In doing this it can eliminate the degenerative element from conservation-preservation and the aggressive or exploitive element from designed development. It can establish the appropriate design input for conservation decisions and the appropriate conservation input for design decisions. It can make it possible finally to establish reciprocal harmonious relations between the conservation of the good things which exist and the designed development of good things we never knew we could have."

Garrett Eckbo
"Ecology and Design"
Journal of Soil and Water Conservation
July-August 1971

SOUTHEASTERN WISCONSIN REGIONAL
PLANNING COMMISSION

Old Courthouse
P. O. Box 769
Waukesha, Wisconsin
53186

Phone: (414) 547-6721

Kurt W. Bauer
Executive Director

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