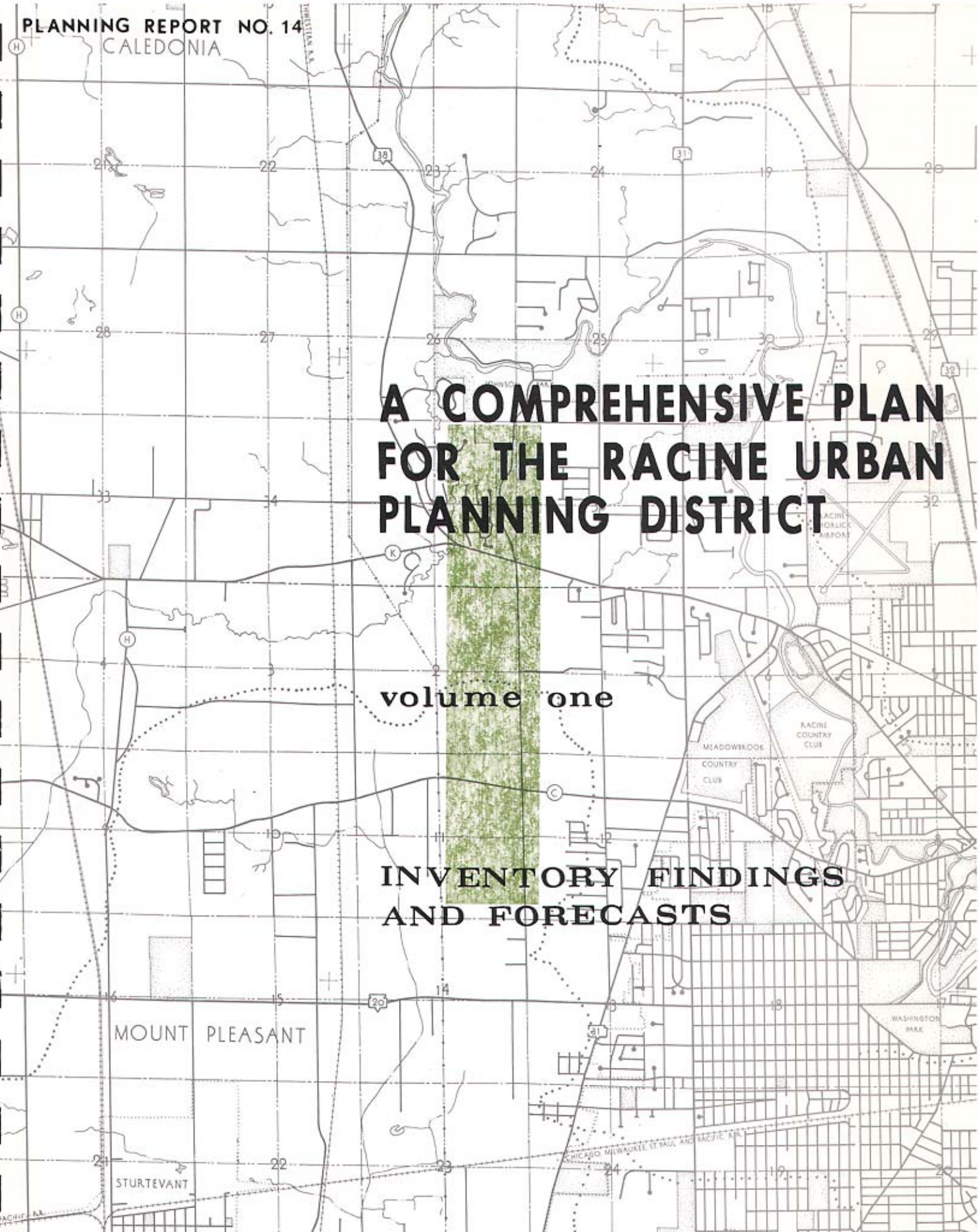
PLANNING REPORT NO. 14



A COMPREHENSIVE PLAN FOR THE RACINE URBAN PLANNING DISTRICT

volume one

INVENTORY FINDINGS AND FORECASTS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
HARLAND BARTHOLOMEW AND ASSOCIATES

MORATORIUM AND LONG-RANGE PLANNING
AGREEMENT SIGNATORIES

Racine County Board of Supervisors
City of Racine Common Council
Sturtevant Village Board
Mt. Pleasant Town Board

COOPERATING UNITS OF GOVERNMENT

Elmwood Park Village Board
North Bay Village Board
Wind Point Village Board
Caledonia Town Board
Racine Unified School District No. 1

RACINE URBAN PLANNING DISTRICT
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Virgil Schulz	Trustee, Village of Sturtevant
Mrs. Beryl Streiff	President, Village of Elmwood Park
Willard Walker	Executive Vice-President, Walker Forge, Inc.

The following individuals also participated actively in the work of the Committee as non-voting members: Gilbert Berthelsen, Racine County Administrator; Arnold L. Clement, Racine County Planning Director; Lester Hoganson, City Engineer, City of Racine; Karl B. Holzwarth, Racine County Park Director; Thomas N. Wright, Director of Planning, City of Racine; and Donald Zenz, Racine County Highway Engineer.

PLANNING REPORT

NUMBER 14

A COMPREHENSIVE PLAN FOR THE RACINE URBAN PLANNING DISTRICT

volume one

INVENTORY FINDINGS AND FORECASTS

Southeastern Wisconsin Regional Planning Commission

Old Courthouse
Waukesha, Wisconsin 53186

December 1970

Inside Region $10.00
Outside Region $15.00

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

916 NO. EAST AVENUE • WAUKESHA, WISCONSIN 53186 • TELEPHONE (414) 547-6721

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December 1, 1970

STATEMENT OF THE CHAIRMAN

In May 1968 the Southeastern Wisconsin Regional Planning Commission was requested by the Racine County Board of Supervisors to assist in establishing and conducting the first phase of a planned two-phase comprehensive planning program for all that area of Racine County located east of Interstate Highway 94, designated as the Racine Urban Planning District. The first phase has as its major objective the preparation of an urban and rural development plan, which plan would provide for a safe, healthier, and more attractive, as well as a more orderly and efficient, environment for life within the District. The second phase would have as its major objective the preparation of recommendations relative to the future governmental framework of the District as required to implement the development plan prepared in the first phase. In short, the first phase would, with respect to development of the District, pose and answer the questions, "Where are we now?" and "Where do we want to go?" while the second phase would pose and answer the question, "How do we get where we want to go?"

The entire two-phase planning program is being conducted by Racine County pursuant to the terms of a Moratorium and Long-Range Planning Agreement entered into by Racine County, the City of Racine, the Village of Sturtevant, and the Town of Mt. Pleasant. This Agreement followed several years of serious intergovernmental problems concerning municipal boundary lines and the provision of basic municipal services, such as sanitary sewer and water supply services, and was conceived as an alternative to long and bitter litigation that could adversely affect the economy of the District, as well as destroy the climate for necessary, constructive intergovernmental action. Four additional units of local government in the District—the Village of Elmwood Park, the Village of North Bay, the Village of Wind Point, and the Town of Caledonia—while not parties to the Moratorium Agreement, agreed to cooperate in the preparation of the long-range comprehensive plan.

The final planning report for the first phase of the program consists of two volumes. This, the first volume, presents the factual findings of the many inventories completed as a part of the program, as well as forecasts of future growth and development within the District. The second volume, currently under preparation, will contain the recommended development plan for the District, including a land use and housing plan element, a transportation facilities plan element, a public utilities plan element, and a community facilities plan element. In addition, the second volume will contain specific recommendations for plan implementation and a suggested outline of a work program for Phase Two.

The comprehensive planning program for the Racine Urban Planning District marks a significant advance in the efforts of local units of government to solve the growing problems of areawide development in southeastern Wisconsin on a voluntary, cooperative basis. The Commission is pleased to be able to be of assistance in the conduct of this important planning program and is deeply appreciative of the efforts of the Citizens Advisory Committee and local public officials in the preparation and publication of this volume. It is hoped that this report, together with its forthcoming companion volume, will help meet the desires of the people of Racine County and the District for a safer, more healthful, and pleasant environment and result in the development of a more efficient, orderly, and economical community.

Respectfully submitted,

George C. Berteau
Chairman

HARLAND BARTHOLOMEW AND ASSOCIATES
PLANNING - ENGINEERING - LANDSCAPE ARCHITECTURE - URBAN RENEWAL

Est. 1919

165 N. Meramec Avenue
Saint Louis, Missouri 63105
314 726-1300

December, 1970

Mr. Kurt W. Bauer, Director
Southeastern Wisconsin Regional
Planning Commission
916 No. East Avenue
Waukesha, Wisconsin 53186

Dear Mr. Bauer:

In accordance with our agreement of July 10, 1969, we are pleased to submit Volume One of the Plan for the Racine Urban Planning District. This volume includes the findings of an inventory of conditions in the District and forecasts of how these might be expected to change over the next two decades.

To the maximum extent possible, public policies should be based upon realistic estimates of the future. Our plans should have their foundations built upon facts, not fancies. Because the future community will continue to evolve from that of the past, it is essential that we take a careful look about us now, and a similar look backwards before we try to look ahead. This is the purpose of Volume One.

Volume Two, the Plan for the District, is currently under preparation and will be available for review by the Citizens' Advisory Committee early in 1971.

Volume One has benefited materially from extensive reviews by your staff and by the Citizens' Advisory Committee. Chapters I and II and the section of Chapter VII dealing with arterial streets and highways were prepared by your staff. In addition, numerous officials and citizens provided data and suggestions. We are particularly grateful for the assistance provided by Mr. Arnold Clement, Planning Director of Racine County, and Mr. Thomas Wright, Planning Director of the City of Racine, and for the hospitality of Racine County in providing office space.

It is an honor to be associated with the Commission and its staff on this undertaking.

Yours sincerely,

HARLAND BARTHOLOMEW AND ASSOCIATES

By

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Chapter I

INTRODUCTION

The planning program for the Racine Urban Planning District is the second comprehensive community planning program to be carried out at the request of the local governments involved by the Southeastern Wisconsin Regional Planning Commission for a sub-regional area delineated on the basis of existing and anticipated intensive urban growth and development. Since this area-wide community plan is intended not only to meet local community needs but also represents an extension of the overall regional planning program in southeastern Wisconsin, an understanding of the need for and objectives of area-wide or regional planning and the manner in which these needs and objectives are being met in southeastern Wisconsin is necessary for a proper appreciation of the Racine Urban Planning District program and its findings and recommendations.

Need for Regional Planning

Regional planning may be defined as planning in a comprehensive manner for a geographical area united by economic interests, geography, or common area-wide development problems. The need for such planning has been brought about by several important social and economic changes which, while national in origin and scope, have far-reaching impacts on the problems facing local units of government. These changes include: unprecedented population growth and urbanization; increasing agricultural and industrial productivity, income levels, and leisure time; generation of mass recreational needs and pursuits; increasingly intensive use and consumption, and often destruction of natural resources; development and proliferation of private water supply and sewage disposal systems; development of extensive and interrelated power and communications networks; and development of limited access highway systems and mass automotive transportation. Under the impact of these changes, entire regions such as southeastern Wisconsin are becoming mixed rural-urban areas. This, in turn, is creating new and intensive area-wide development problems of an unprecedented scale and complexity. Rural and suburban, as well as urban, people must increasingly concern themselves with these problems or face severe impairment of the ability of the urbanizing area to perform its social and economic functions and irreparable damage to the life-sustaining land and water resources of the area.

The area-wide problems which necessitate a regional planning effort in southeastern Wisconsin all have their source in the extensive population growth and urbanization occurring within the Region. These area-wide problems include among others: inadequate surface water drainage and encroachment of natural floodlands leading to mounting flood damages; impairment of water supply and increasing surface and ground water pollution; underdeveloped public sanitary sewerage systems and inadequate levels of waste treatment; rapidly increasing demand for outdoor recreation activities and, hence, for park and open space land reservation; rapidly changing and often unplanned land use; and inadequate transportation facilities. These problems all transcend the boundaries of any one local unit of government and can only be resolved through the cooperative action of all of the levels and agencies of government concerned within the framework of a comprehensive area-wide planning effort.

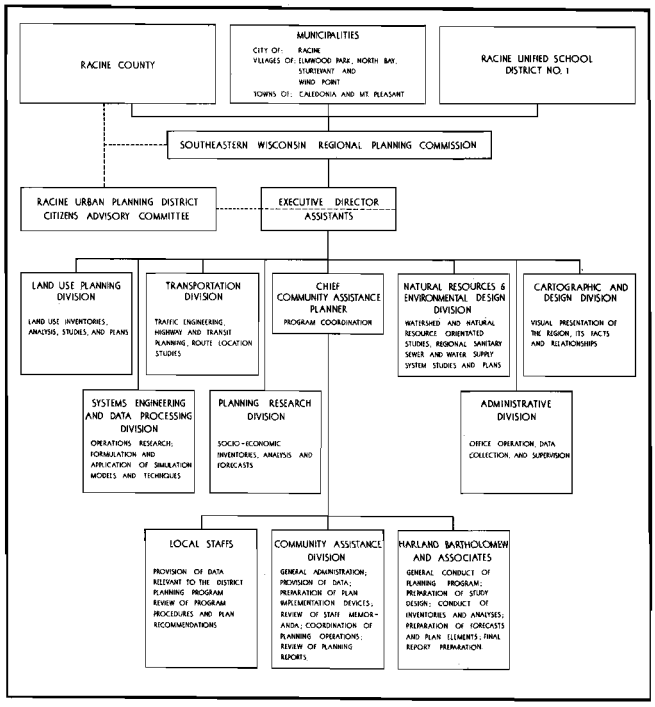
The Regional Planning Commission

The Southeastern Wisconsin Regional Planning Commission is the official area-wide planning agency for one of the large urbanizing regions of the nation. The Commission was created in August, 1960, under the provisions of Section 66.945 of the Wisconsin Statutes, to serve and assist the local, state, and federal units of government in planning for the orderly and economic development of southeastern Wisconsin. The role of the Commission is entirely advisory, and participation by local units of government in the work of the Commission is on a voluntary, cooperative basis. The Commission itself is composed of 21 citizen members who serve without pay, three from each county within the Region. The Commission, its committee structure, and its staff organization, together with its relationship to the Racine Urban Planning District, are shown in Figure 1-1.

Regional Planning Concept in Southeastern Wisconsin

Regional planning, as conceived by the Commission, is not a substitute for, but a supplement to, local planning. Its objective is to aid the local units of government in the solution of area-wide development problems which cannot be properly resolved within the framework of a single municipality or a single county. As such, regional planning has three principal functions: area-wide research; preparation of a framework of long-range plans for the physical development of the Region; and the provision of a center for the coordination of the many planning and plan implementation activities carried on by the various levels and agencies of government operating within the Region.

Figure 1-1
ORGANIZATIONAL CHART: PHASE ONE COMPREHENSIVE PLANNING PROGRAM FOR THE RACINE URBAN PLANNING DISTRICT



The work of the Commission is, therefore, visualized as a continuing planning process providing outputs of great value to the making of development decisions by public and private agencies and to the preparation of plans and plan implementation programs at the local, state, and federal levels of government. The work of the Commission emphasizes close cooperation between the governmental agencies and private enterprise responsible for the development and maintenance of land uses within the Region and for the design, construction, operation, and maintenance of their supporting public works facilities. All of the Commission work programs are intended to be carried out within the context of a continuing planning program which provides for the periodic re-evaluation of the plans produced, as well as for the extension of planning information and advice necessary to convert the plans into action programs at the local, regional, state, and federal level.

The Region

The Southeastern Wisconsin Planning Region (see Map 1-1) is comprised of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha Counties in southeastern Wisconsin. Exclusive of Lake Michigan, these seven counties have a total area of 2,689 square miles and together comprise about five percent of the total area of the State of Wisconsin. About 42 percent of the state's population, however, resides within these seven counties, which contain three of the five and one-half standard metropolitan statistical areas[1] in the state. The Region contains approximately one-half of all the tangible wealth in the State of Wisconsin as measured by equalized assessed valuation and represents the greatest wealth producing area of the state, about 42 percent of the state labor force being employed within the Region. It contributes about twice as much in state taxes as it receives in state aids. The seven-county Region contains 153 local units of government exclusive of school and other special purpose districts and encompasses all or parts of 11 major watersheds. The Region has been subject to rapid population growth and urbanization and from 1950 to 1960 accounted for 64 percent of the population increase of the entire state.

Geographically, the Region is located in a relatively good position with regard to continued growth and development. It is bounded on the east by Lake Michigan, which provides an ample supply of fresh water for both domestic and industrial use, as well as being an integral part of a major international transportation network. It is bounded on the south by the rapidly expanding northeastern Illinois metropolitan region and on the west and north by the fertile agricultural lands and desirable recreational areas of the remainder of the State of Wisconsin. Many of the most important industrial areas and heaviest population concentrations in the Midwest are within 250 miles of the Region; and over 31 million people reside within this radius.

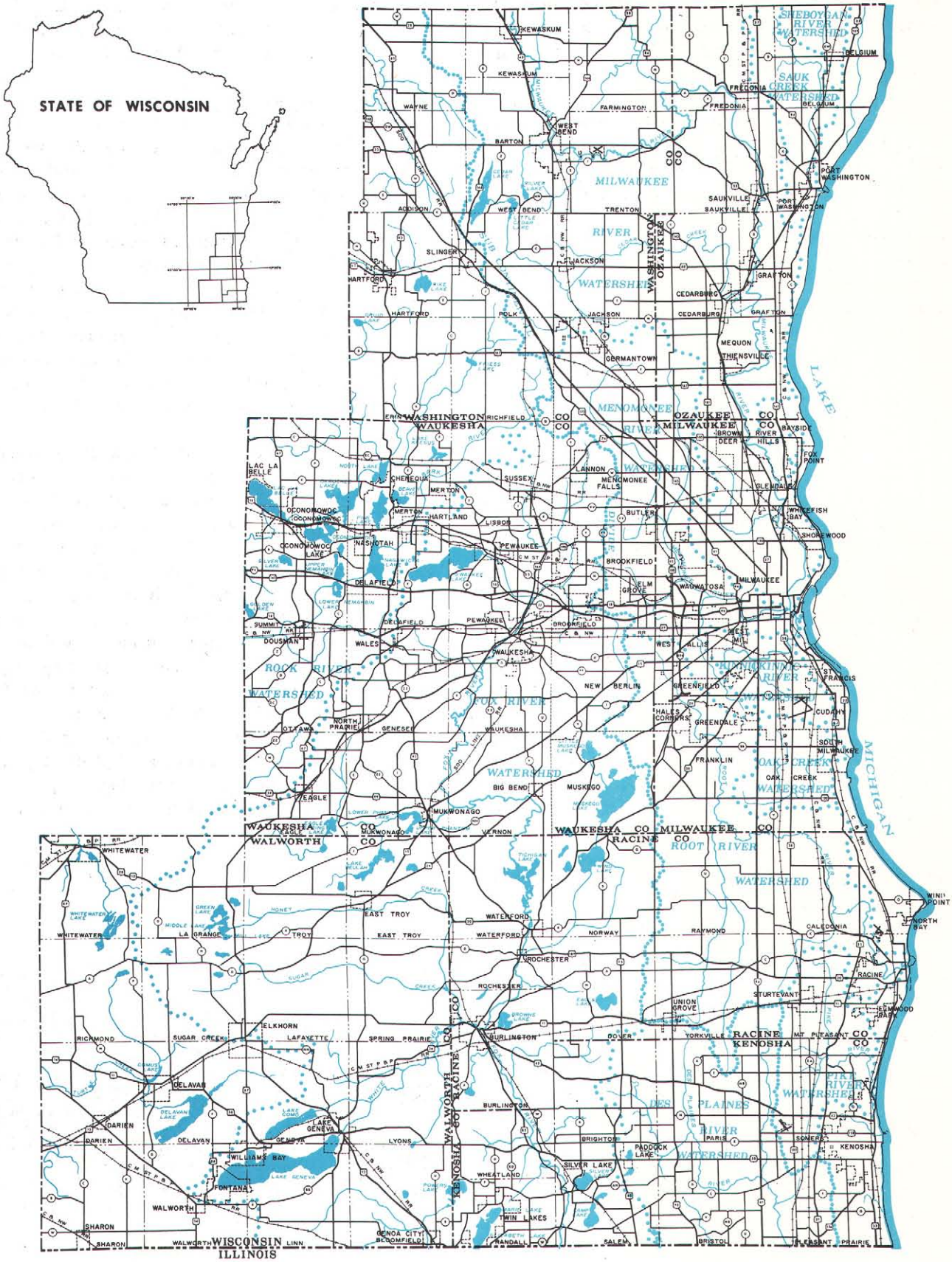
Commission Work Programs

Since its inception in 1960, the Commission has conducted a variety of work programs directed toward the collection of basic data, the preparation of regional and sub-regional plan elements, and the conduct of local planning and plan implementation activities. While nearly all of these work programs provide a basis for the conduct of the comprehensive planning program for the Racine Urban Planning District, two programs are particularly important to the District planning program. These are the regional land use-transportation study and the Root River watershed study.

Land Use-Transportation Study: The first major work program of the Commission which was actually directed toward the preparation of long-range development plans was a regional land use-transportation study, initiated in January of 1963 and completed in December of 1966. This program produced two of the key elements of a

[1] *A Standard Metropolitan Statistical Area (SMSA) is a U.S. Bureau of Census concept designed to provide a common and consistent data collection unit for the metropolitan areas in the country. The Racine SMSA is coterminous with Racine County.*

MAP 1-1



SOUTHEASTERN WISCONSIN REGION

comprehensive plan for the physical development of the Region: a land use plan and a transportation plan. The findings and recommendations of the regional land use-transportation study, which has provided many important inputs to the comprehensive watershed and district planning programs of the Commission, have been published in the three-volume SEWRPC Planning Report No. 7, Regional Land Use and Transportation Plans; in SEWRPC Planning Report No. 8, Soils of Southeastern Wisconsin; and in five supporting technical reports.

Of particular importance to the Racine Urban Planning District are several land use and transportation system recommendations set forth in the adopted regional plans. These include the following: the construction of the Lake Freeway through the District paralleling the existing Chicago and Northwestern Railroad freight line right-of-way; the construction of the Loop Freeway connecting existing IH-94, the proposed Lake Freeway, and the City of Racine proper, utilizing in part the abandoned Chicago, Milwaukee and North Shore Railway right-of-way; the continued development of a major industrial center in the Town of Mt. Pleasant; the development of a major retail and service center west of the City of Racine; the development of a major regional outdoor recreation site on Lake Michigan in the Town of Caledonia; and the preservation of all primary environmental corridor lands along the Root River and its major tributaries.

Root River Watershed Study: The Root River study was the first comprehensive watershed planning program and the second major work program actually directed toward the preparation of long-range development plans to be undertaken by the Commission. This program was initiated in July of 1964 and completed in July of 1966. The results of the Root River watershed study have been published in SEWRPC Planning Report No. 9, entitled, A Comprehensive Plan for the Root River Watershed and in supporting SEWRPC Technical Report No. 2, Water Law in Southeastern Wisconsin.

The comprehensive Root River watershed plan includes recommendations for land use development, including acquisition of the delineated floodlands along the main stem of the Root River and protective land use regulations for the remaining floodlands in the watershed; water control facilities including channel clearing and maintenance on the Root River canal, the restoration of the Horlick Dam, and removal of 35 existing residences in the floodplains in the City of Racine; and water pollution abatement facilities and action programs including abandonment of the Caddy Vista Sanitary District Treatment Plant and connection to the Milwaukee-Metropolitan sanitary sewerage system, and conveyance of food processing wastes from the Frank Pure Company plant at Franksville to the City of Racine sanitary sewerage system. These recommended plan elements provide essential inputs to the comprehensive planning program for the Racine Urban Planning District.

The Planning District Concept

The Commission's planning program envisions the establishment of planning districts for the purpose of carrying the regional plans into the greater depth and detail necessary to provide a sound framework for local planning and for plan implementation. These planning districts consist of two types. The boundaries of the first type are delineated on a basis of topography or topographically related development problems. Examples of such districts include the Root River and Fox River Watersheds. The boundaries of the second type of planning district are delineated in relation to areas of intensive existing or anticipated urban development which have certain common problems such as the Racine Urban Planning District.

These planning districts are intended to comprise rational urban planning units within the Southeastern Wisconsin Region and are not only intended to provide the basis for the preparation of area-wide development plans in greater depth and detail, but are also intended to provide an important basis for implementation of the regional plans. This latter function is extremely important since the Commission is an entirely advisory body. It is only through cooperative inter-agency action that the regional plans will be implemented. The establishment of planning programs for such subareas of the Region as the Racine Urban Planning District affords the Regional Planning Commission an excellent opportunity to coordinate overall regional planning programs with more detailed planning programs for subareas of the Region and thereby provide for substantial implementation of the regional plans through local action.

URBAN AREA EXPANSION

The Racine Urban Planning District

One of the most important districts in the Region delineated on the basis of extensive existing or anticipated future urban[2] development is the Racine Urban Planning District. This District includes all that area of Racine County lying east of IH-94 (see Map 1-2). There are several important reasons why this District constitutes a rational subregional planning area. The District encompasses all of the existing and anticipated urban development around one of the large central cities of the Region, namely, the City of Racine. The District is defined by stable and identifiable boundaries, including IH-94 on the west, the Milwaukee County line on the north, the Kenosha County line on the south, and Lake Michigan on the east. All but a very small portion of the District lies east of the sub-continental watershed divide traversing the Southeastern Wisconsin Region, and the District lies essentially in only two major local watersheds, the Root River and Pike River watersheds. Finally, the area west of IH-94 constitutes a prime agricultural area covered by soils that, while rich and highly suitable for agricultural use, are not well-suited for urban land uses. In addition, the area west of IH-94, which was historically a large marshy area, has been extensively improved for agricultural purposes through the investment of large amounts of capital in agricultural drainage facilities. This area also cannot be readily served by centralized public sanitary sewerage facilities.

Seven general-purpose local units of government share the responsibility for the proper physical, economic, and social development of this approximately 101 square mile District. These seven units are: the City of Racine; the villages of Elmwood Park, North Bay, Sturtevant, and Wind Point; and the towns of Caledonia and Mt. Pleasant. One school district, the Unified School District No. 1 of Racine County, serves the entire Planning District and is indicative of the single community of interest that exists within the Racine Urban Planning District. The governmental structure of the District is described in detail in Chapter II of this volume.

The Moratorium and Long-Range Planning Agreement

The complex inter-governmental nature of the Racine Urban Planning District has lead in recent years to serious inter-governmental problems relative to the provision of essential municipal services, such as sanitary sewer and water supply service, on a uniform, district-wide basis, and consequently, concern with respect to the future governmental structure of the entire area involved. These inter-governmental problems and conflicts were partially expressed in movements by several of the local units of government towards annexation, incorporation, and the execution of municipal utility service agreements. All of these problems were related to the rapid population increase and area-wide urban development trends, including land use changes and particularly industrial land use relocation, taking place within the District. Deep concern was expressed on the part of certain elected officials and citizen leaders within the District that the aforementioned inter-governmental problems resulting from this rapid urban growth would, if not properly solved, adversely affect the future physical, economic, and social well-being and development of the entire District.

In order to effect proper solutions to the serious inter-governmental problems that had arisen and to plan for the future development of the District, a "Moratorium and Long-Range Planning Agreement" was executed among and between Racine County, the City of Racine, the Village of Sturtevant, and the Town of Mt. Pleasant. In effect, this basic Agreement, together with supplemental agreements among and between the various parties as to area-wide planning and the provision of certain municipal services, serves to substantially preserve the existing governmental structure within the District for a period of up to four years. Included in the basic Moratorium and Long-Range Planning Agreement are provisions for an annexation-incorporation moratorium applicable to a portion of the District, for the conduct of a comprehensive district planning program, and for the interim provision of basic municipal services between municipalities. The villages of Elmwood Park, North Bay and Wind Point, and the Town of Caledonia, while lying wholly within the District, were not directly involved in the immediate inter-governmental problems precipitating the Agreement and, hence, were not parties to the Agreement. These local

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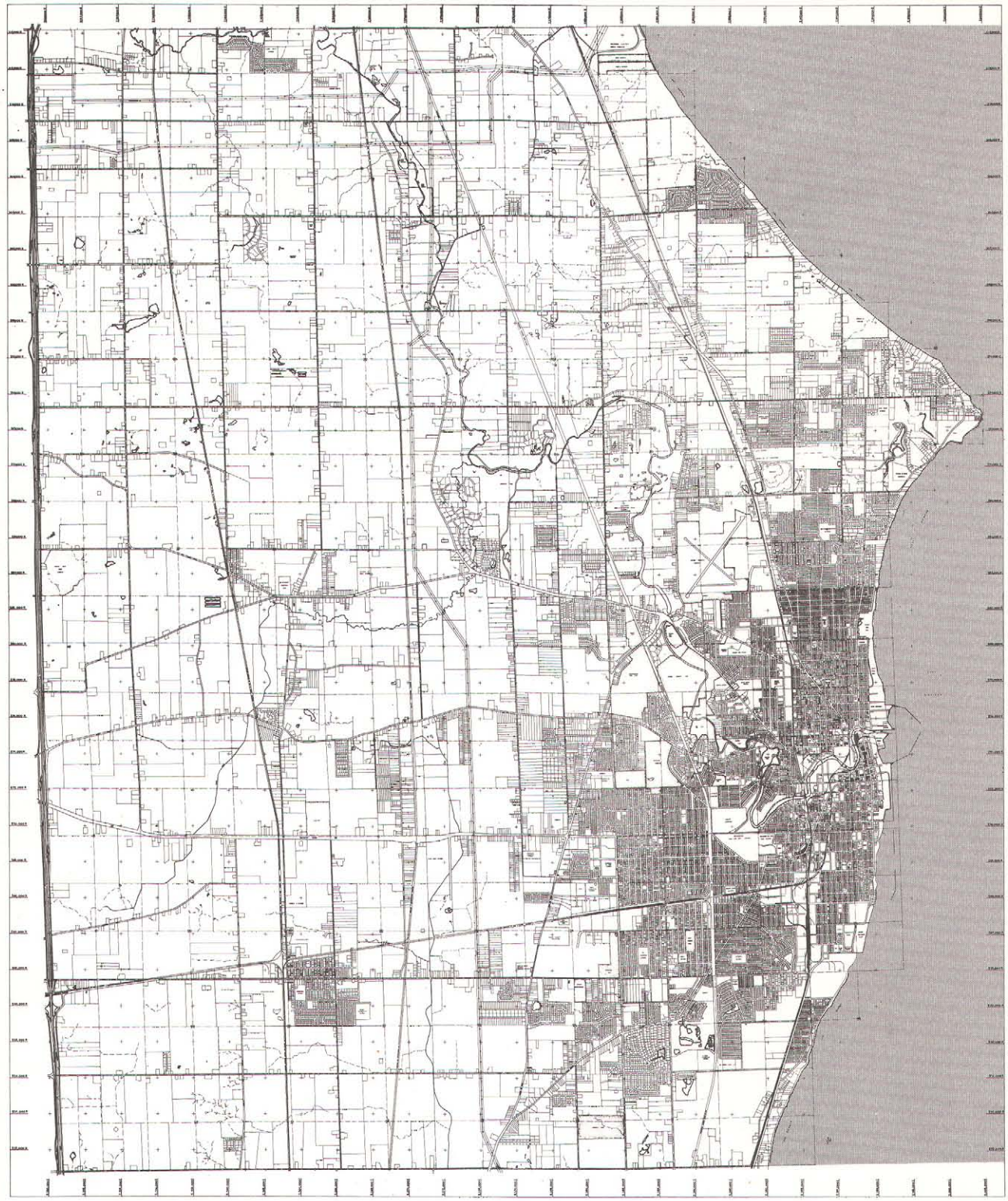
[2] *The Southeastern Wisconsin Regional Planning Commission has defined the term "urban" to include all areas having a gross population density of at least 350 persons per square mile. All areas with a gross population density of less than 350 persons per square mile is defined as "rural" in nature. With respect to urban residential development, the Commission has further utilized three residential density classifications, as follows:*

> *Low-Density Residential — Average gross population density of 3.2 persons per acre and a net lot area per dwelling unit ranging from 19,820 to 209,090 square feet.*
>
> *Medium-Density Residential — Average gross population density of 10.2 persons per acre and a net lot area per dwelling unit ranging from 6,333 to 19,819 square feet.*
>
> *High-Density Residential — Average gross population density of 26.1 persons per acre and a net lot area per dwelling unit ranging from 2,430 to 6,333 square feet.*

The low and medium-density residential categories would constitute "suburban" development as that term is popularly used.

MAP 1-2



LEGEND

- COUNTY LINE
- TOWN AND RANGE LINE
- SECTION LINE
- QUARTER SECTION LINE
- STATE PLANE COORDINATE GRID
- INCORPORATED CITY OR VILLAGE
- INTERSTATE HIGHWAY
- U.S. NUMBERED HIGHWAY
- STATE TRUNK HIGHWAY
- COUNTY TRUNK HIGHWAY
- LOCAL OR MINOR STREET
- RAILROAD
- RIVER AND LAKE SHORELINE
- INTERMITTENT STREAM OR WATERCOURSE
- MAJOR PUBLIC AND SEMI-PUBLIC LAND
- POWER LINES

GRID NORTH

GRAPHIC SCALE IN FEET

0 1000 2000 4000

RACINE COUNTY BOARD OF SUPERVISORS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS · CIVIL ENGINEERS · LANDSCAPE ARCHITECTS
CHICAGO ST. LOUIS

THIS IS NOT A CADASTRAL MAP. PROPERTY BOUNDARY LINES, WHEN SHOWN, ARE SHOWN IN APPROXIMATE LOCATION ONLY. COMPILED BY HARLAND BARTHOLOMEW AND ASSOCIATES FROM S.E.W.R.P.C. AERIAL PHOTOGRAPHS, BASE MAPS, AND TOPOGRAPHIC MAPS; RACINE COUNTY TOPOGRAPHIC MAPS; RACINE COUNTY HIGHWAY DEPT. AND PARK DEPT. INFORMATION; CITY OF RACINE CITY PLANNING DEPT. AND RACINE UNITED SCHOOL DISTRICT NO.1 INFORMATION ON WISCONSIN STATE PLANE COORDINATE GRID, SOUTH ZONE (LAMBERT CONFORMAL CONIC PROJECTIONS).

RACINE URBAN PLANNING DISTRICT

RACINE URBAN PLANNING DISTRICT

DRAWN BY:	DATE: JULY 1970
CHECKED BY:	DATE:
APPROVED BY:	DATE:
PROJECT DESIGN:	
SCALE: 1 INCH = 2000 FEET (COMPILATION SCALE: 1 INCH = 2000 FEET)	
REVISED BY:	DATE:

RACINE URBAN PLANNING DISTRICT
RACINE COUNTY, WISC.

units of government were, however, brought into the comprehensive district planning program since their direct involvement and participation was considered to be essential to the success of the entire planning effort.

The District Planning Program

The comprehensive area-wide planning program, as outlined in the Moratorium Agreement, calls for a two-phase study. The first, or functional, phase is designed to provide recommendations for the sound physical development of the District. These recommendations are to be based on a comprehensive development plan that will include the formulation of development objectives; the conduct of inventories and analyses; the preparation of forecasts; and the preparation of plan elements with respect to the land use, natural resource, transportation, school, park and recreation, and municipal utility development of the area. Certain physical plan implementation devices – including zoning, land division, and sanitary ordinances; an official map ordinance; and representative precise neighborhood development unit plans – will also be prepared as part of the first phase.

The second, or jurisdictional, phase of the program is to be designed to provide recommendations relative to the future governmental framework for the District as required to implement the agreed-upon comprehensive plan for the physical development of the area. Included in the second phase will be such considerations as whether existing governmental units should be expanded or consolidated and whether sewerage, water supply, police and fire protection, park and recreation, health, or other municipal services should be provided by Racine County, by metropolitan service districts, by cooperative municipal action, by individual municipalities, or by other means.

Pursuant to the terms of the Moratorium and Long-Range Planning Agreement, the Racine County Board of Supervisors, on May 14, 1968, requested the SEWRPC to undertake the first phase of the comprehensive area-wide planning program for the District. Acting on this request, the Commission, in a joint action with the Racine County Board of Supervisors, appointed a Citizens Advisory Committee pursuant to the terms of the Agreement and Section 66.945(7) of the Wisconsin Statutes. This Committee was formed to provide overall policy direction to the comprehensive planning program. In September, 1968, the Committee held its first meeting and directed the staff of the Regional Planning Commission to prepare a Prospectus for the first phase of the program. This Prospectus was completed and published in November, 1968. Its purpose was to prepare a preliminary design of the first phase study and to provide the basis for securing sufficient funding for the study. Several attempts to secure a federal urban planning grant in partial support of the study from the U.S. Department of Housing and Urban Development were not successful. Thereupon, the Committee recommended that the Racine County Board of Supervisors undertake to fund the first phase program entirely with local monies. The County Board accepted this recommendation and on July 10, 1969 provided the necessary funds to begin the first phase of the comprehensive planning program.

The Moratorium and Long-Range Planning Agreement, in specifying the manner in which the planning program was to be conducted, recognized the importance of utilizing the inventories and materials previously prepared by the Regional Planning Commission and by the Unified Racine Area Planning Committee, a local working committee that had previously conducted research on and documented significant area-wide problems; the necessity of achieving close coordination and integration between the District planning program and that of the Commission; and the necessity to prepare development plans which could be cooperatively adopted and jointly implemented by the local units of government comprising the District. The Commission, therefore, was to have primary responsibility for the conduct of the first phase program, with policy direction to be provided by the Citizens Advisory Committee, and with local planning and engineering staff participation as necessary.

Program Objectives

The purpose of the District planning program is threefold: first, to provide the local units of government within the District and Racine County with a comprehensive community development plan that would contain recommended proposals for land use, housing, transportation facility, utility facility, and community facility development deemed necessary to meet the needs of the District to the selected plan design year of 1990; second, to carry the regional plan elements such as the land use and transportation plans into the greater depth and detail necessary for sound local planning and plan implementation; and third, to provide an area-wide development plan which would serve as a foundation for the conduct of the second phase of the District planning program, namely, that of preparing jurisdictional recommendations regarding the future structure of local government in the District and the future provision of specific municipal services throughout the District.

Staff, Consultant and Committee Structure

The basic organizational structure for the District planning program is outlined in Figure 1-1. The structure consists of the consultant and Commission staffs reporting to the Citizens Advisory Committee which, in turn, reports to the Regional Planning Commission, the Racine County Board of Supervisors, and the various local units of government

concerned. The responsibilities of the consultant and Commission staffs for the conduct of major elements of the first phase planning program are also indicated in Figure 1-1.

By contract the SEWRPC was responsible for the substantive content and conduct of the District planning program. As a result, full use was made of the various data, materials, plan proposals, and model ordinances prepared by the Commission or available from the federal and state agencies. The various Commission work programs, including the continuing land use-transportation study, the Root River watershed study, and the Regional library planning program, provided substantial inputs to the District planning program. The net result is a more thorough and comprehensive program than would otherwise have been possible under the terms of the contract and the financing available.

The firm of Harland Bartholomew and Associates was specifically retained by the Commission to conduct the major portion of the District comprehensive planning program. By contract the consultants were responsible to the Commission for the preparation of the development plan for the District, including base map preparation; economic, population, natural resources, housing, and land use studies; forecasts of anticipated growth and change in the District; land use analyses and plan; transportation analyses and plan; community facilities analyses and plan; public utilities analyses and plan; and an area-wide capital improvement program.

It is important to note also the significant contribution made by the local planning and engineering staffs in the District. Indeed, without the active participation and cooperation of these staffs the program would not have been possible. It is extremely important that such staffs be involved in the plan preparation process, for it is these individuals who must work with the elected public officials in eventually implementing the plan recommendations. In addition, it is important to note that the Commission solicited and received careful review of and specific comments on draft planning reports for the District by the various affected state and federal agencies.

As noted above, the Moratorium and Long-Range Planning Agreement provided for the joint appointment by the Regional Planning Commission and the Racine County Board of Supervisors of a Citizens Advisory Committee to assist the Commission and the consultant in the conduct of the planning program. This Committee is composed of 21 members, including four ex-officio members, namely, the Chairman of the Racine County Board of Supervisors, the Mayor of the City of Racine, the President of the Village of Sturtevant, and the Chairman of the Town of Mt. Pleasant. In addition, all of the remaining heads of local government in the District were asked to serve on the Committee. The remaining Committee members consisted of individual citizen leaders selected from throughout the District. This Committee provided the policy direction necessary to the conduct of the planning program and served to keep the local government officials, legislative bodies, and citizenry informed on the content and progress of the program. In a very real sense, the comprehensive plan resulting from this program represents a joint effort on the part of the Committee members. It was their effort that makes this plan a community plan in the truest sense of the word. The full membership of the Committee is listed in Appendix 1-A.

Scheme of Report Presentation

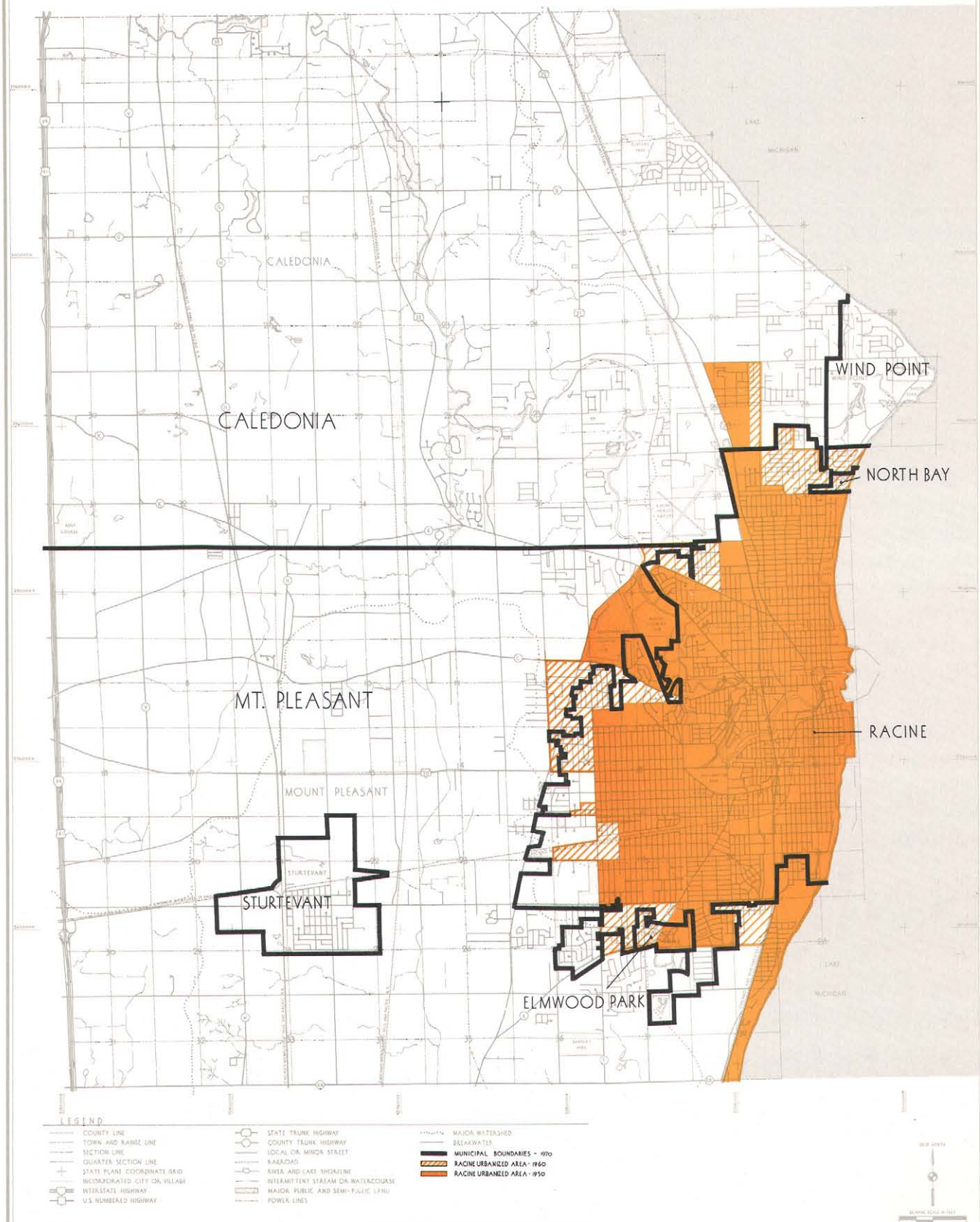
The major findings and recommendations of the first phase of the comprehensive planning program for the Racine Urban Planning District are documented and presented in this report, which consists of two volumes. The first volume of the report sets forth the basic concepts underlying the planning program and the factual findings of the extensive inventories conducted under the program. It identifies and, to the extent possible, it quantifies the developmental and environmental problems of the District and sets forth forecasts of future economic activity, population growth, and concommitant land use, natural resource, and transportation facility, utility facility, and community facility demands. The second volume sets forth a recommended comprehensive plan for the development of the District, prepared according to development objectives adopted by the Citizens Advisory Committee and within the framework of regional and sub-regional plan elements prepared and adopted by the Commission to date. In addition, the second volume sets forth plan implementation recommendations and contains an area-wide capital improvements program. Both the first and second volumes of this report were prepared in preliminary draft form for careful and detailed critical review by the Citizens Advisory Committee, local public officials, local technical staffs, and other interested citizens within the District. The final report includes, therefore, all corrections, additions, and significant comments made by the reviewing individuals. This report is intended to provide the basis for plan adoption and implementation by the local agencies of government concerned and to provide a foundation for the conduct of the second or jurisdictional phase of the program as outlined in the Moratorium and Long-Range Planning Agreement.

Urban growth and development will occur within the Racine Urban Planning District in the years ahead, whether or not a comprehensive physical development plan is adopted and implemented. Without the guidelines of such a development plan, however, this growth may not only be

disorderly, inefficient, and uneconomic, but may also be ugly and may lead to further environmental deterioration. It is hoped, therefore, that this report will assist in meeting the expressed desires of the people of the District, as set forth in the Moratorium and Long-Range Planning Agreement, for a safer, more healthful and pleasant environment, and result in the development of a more efficient, orderly, and economical community.

WEST CENTRAL AREA – CITY OF RACINE

MAP 2-1



SOURCE: HARLAND BARTHOLOMEW AND ASSOCIATES - FIELD SURVEY

RACINE COUNTY BOARD OF SUPERVISORS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

HARLAND BARTHOLOMEW AND ASSOCIATES

GENERAL PURPOSE LOCAL UNITS OF GOVERNMENT AND RACINE URBANIZED AREA: 1950-1960

RACINE URBAN PLANNING DISTRICT

Chapter II

GOVERNMENTAL STRUCTURE

INTRODUCTION

The governmental structure of the Racine Urban Planning District provides the basis for the provision of the public facilities and services that are the subject of the District comprehensive planning program. The first phase of the District planning program is intended to provide long-range functional plans for the essential area-wide public facilities and services. The second phase of the program, as noted in Chapter I of this report, will deal directly with the governmental structure of the District and in so doing will provide an in-depth analysis of the existing governmental structure and of any need for change in that structure. The purpose of this Chapter is to provide an introduction to the existing governmental structure, including the general purpose local units of government, special purpose local units of government, and intergovernmental agreements bearing upon the subject matter of the planning program. In addition, the various geographic units utilized for data collection and analysis are defined and the manner in which these units relate to the jurisdictional boundaries of the existing units of government within the District described.

LOCAL UNITS OF GOVERNMENT

A "local unit of government" is an organized public entity below the state and federal levels of government, headed by elective or appointive public officials. It typically is independent of other units and serves a defined territory and population. It is empowered under constitutional and statutory law to raise and spend money to provide the necessary framework of public facilities and services for the conduct of our daily lives. Local units of government may be categorized into general purpose and special purpose; the former existing to provide a relatively full range of "normal" governmental services, the latter existing to provide one or at most several special governmental services.

General Purpose

In the Racine Urban Planning District there are two overlapping general purpose local units of government providing facilities and services for each resident: Racine County and either a city, village, or town. There is one city – Racine; four villages – Elmwood Park, North Bay, Sturtevant, and Wind Point; and two towns – Caledonia and Mt. Pleasant. These seven civil divisions are shown on Map 2-1.

County, city, village, and town governments are created and organized under and derive their powers from statutes enacted by the Wisconsin Legislature. In addition, cities and villages, as incorporated municipalities, have "home rule" powers under the Wisconsin Constitution, whereby they may enact charter ordinances to perform governmental functions and provide governmental services of all kinds, subject only to the provisions of the Constitution and legislative enactments of state-wide concern. Thus, cities and villages are given broad grants of power to secure the public health, welfare and safety, subject only to expressly stated limitations, whereas the powers of towns and counties are specifically enumerated in the statutes. While there is this legal difference between cities and villages as corporate municipalities and counties and towns as administrative areas of the state government, there is a question as to the significance of this difference in fact, especially given the increasing interdependence of all units of government in public finance and the inclination of the Legislature to expand by enumeration the powers of counties and towns upon demonstrated need.

Racine County is governed by a 29-member Board of Supervisors, of which 23 represent supervisory districts making up the total area of the Racine Urban Planning District. While the county government is often thought of as providing services and facilities for only the unincorporated portions of the county, it in fact performs many functions on a county-wide basis. The major Racine County functions of significance to the District planning program include county park and outdoor recreation facilities; county trunk highways; social services (welfare); county institutions; law enforcement, including county court-related services, traffic patrol on highways, and supplementary general police functions in the unincorporated areas of the county; and planning services and the administration of land use control measures, with planning services available upon request to all cities, villages, and towns in the county, but with land use control measures (zoning and subdivision controls) being confined by statute to the unincorporated areas of the county.

The City of Racine is governed by an elected mayor and an 18-member Common Council elected from wards throughout the city. The city provides a broad range of services and facilities appropriate to its function as the urban core of the Planning District. The city provides

complete law enforcement and fire fighting services, a system of parks and recreation services, public sanitary sewer and water supply services, street sanitation and maintenance, solid waste disposal, and a full range of land use control services, including zoning and subdivision control.

The Village of Elmwood Park is governed by an elected president and a six-member Board of Trustees. As a small municipality, the Village of Elmwood Park directly provides a very limited range of services, including street sanitation and maintenance, and indirectly through contracts with other local units of government and private agencies provides certain additional services, including water supply, fire protection, and law enforcement.

The Village of North Bay is governed by an elected president and a two-member Board of Trustees. Like Elmwood Park, the Village of North Bay directly provides a very limited range of services, including street sanitation and maintenance, and indirectly through contracts with other local units of government and private agencies provides certain additional services, including water supply, sewage treatment, fire protection, and law enforcement.

The Village of Sturtevant is governed by an elected president and a six-member Board of Trustees. The village provides a relatively full range of services, including sewer and water supply, the normal public works functions, such as street sanitation and maintenance, and police and fire protection.

The Village of Wind Point is governed by an elected president and a six-member Board of Trustees. The Village of Wind Point directly provides a very limited range of services, including street sanitation and maintenance and law enforcement, and indirectly through contracts provides for certain additional services, including fire protection, sewage treatment, and water supply.

The Town of Caledonia is governed by an elected chairman and two supervisors who together form the Town Board.[1] The town provides law enforcement and fire protection services and the normal street maintenance and sanitation functions. The town contracts for sewage treatment and water supply services within special purpose sanitary and utility district service areas.

The Town of Mt. Pleasant is governed by an elected chairman and two supervisors who together form the Town Board.[1] The town provides law enforcement and fire protection services, as well as the normal street maintenance and sanitation services. The town contracts for sewage treatment and water supply services within special purpose sanitary and utility district service areas.

Special Purpose

In addition to the general purpose local units of government described above, there are a number of special purpose local units of government that actively provide urban-type services to portions of the Town of Mt. Pleasant, the Town of Caledonia, and the Village of Wind Point. These special districts are formed pursuant to the provisions set forth in the Wisconsin Statutes. In addition, there are a number of area-wide service districts which provide specialized services throughout the entire Racine Urban Planning District (see Table 2-1).

Urban and Rural Service Districts: There are nine special purpose urban or rural service districts currently active in the Planning District (see Map 2-2). These are as follows:

1. The Caddy Vista Sanitary District in the Town of Caledonia, which was formed in 1955 to provide sanitary sewer and water supply services to the Caddy Vista Subdivision, consisting of a 0.17 square mile area. This District operates a sewage treatment plant discharging its effluent to the Root River and a community well for water supply services. It is organized pursuant to Section 60.30 of the Wisconsin Statutes and is governed by a four-member Commission appointed by the Town Board of Caledonia.

2. The Caledonia Sewer Utility District No. 1. This District, which was formed in 1963, covers a 7.69 square mile area in the Town of Caledonia and provides sanitary sewer service, contracting with the City of Racine to provide for sewage treatment. It is organized pursuant to Section 66.072 of the Wisconsin Statutes and is governed by a five-member Commission appointed by the Town Board of Caledonia.

3. The Caledonia Water Utility District No. 1. This District, formed in 1963, provides water service to a two square mile area of the Town of Caledonia by purchasing water from the City of Racine. This District overlaps, in part, the Caledonia Sewer Utility District No. 1. It is organized pursuant to Section 66.072 of the Wisconsin Statutes and is governed by a five-member Commission appointed by the Town Board of Caledonia.

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[1] *At the Annual Meetings of the Towns of Caledonia and Mt. Pleasant held in April 1970, the electors of each town voted to increase the size of the Town Board to a total of five members, all to be elected at large. This change in town board size is authorized under recent legislation (Chapter 356, Wisconsin Laws of 1969).*

Table 2–1

STRUCTURE OF LOCAL GOVERNMENT IN THE RACINE URBAN PLANNING DISTRICT: 1969

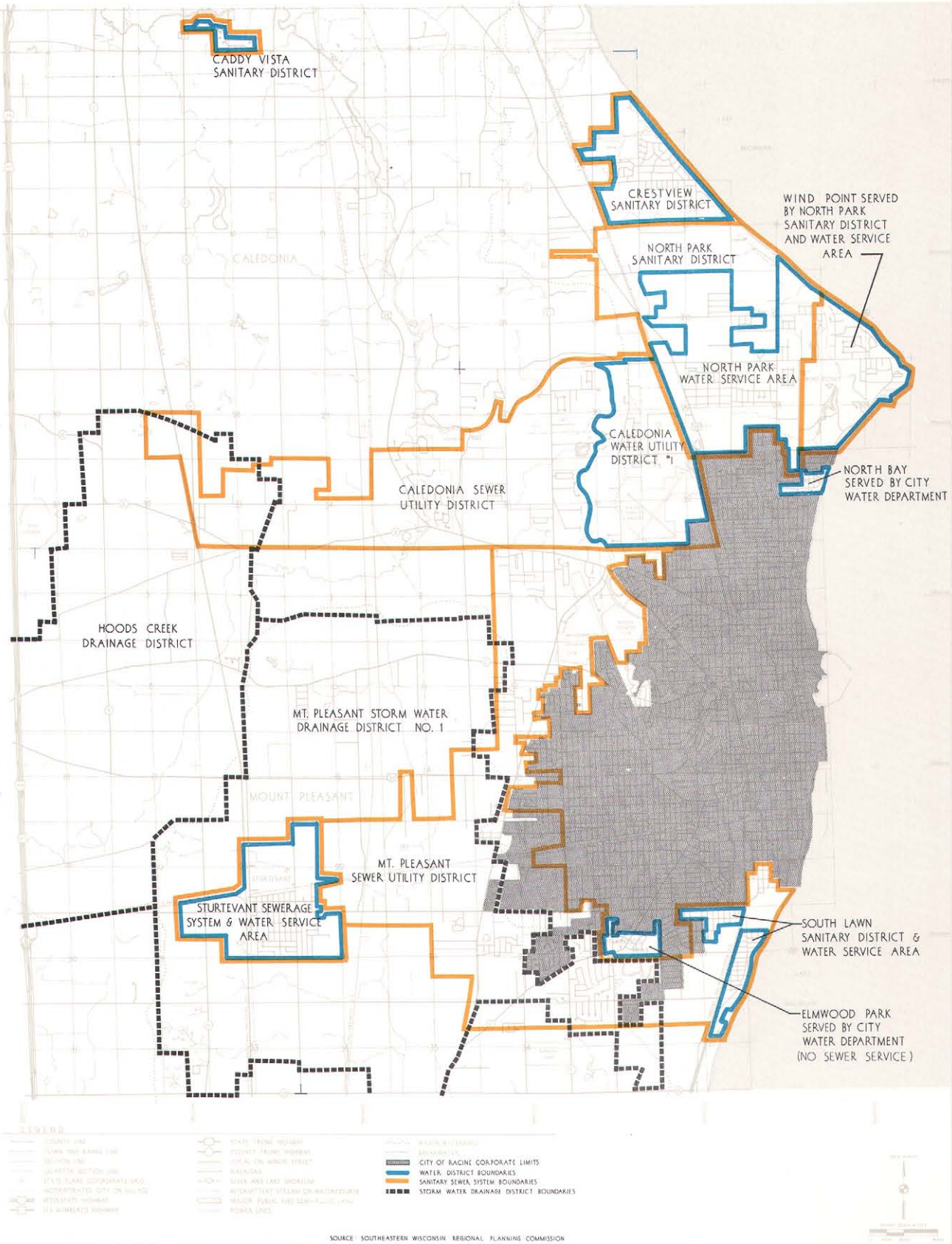
Government Units	Elected Officials	Public Services: Utilities: Water	Utilities: Sewer	Utilities: Drainage	Utilities: Solid Waste	Safety: Police	Safety: Fire	Streets and Roads: Sanitation	Streets and Roads: Maintenance	Streets and Roads: Highways and Arterial Streets	Other Services: Welfare Assistance	Other Services: Institutions	Other Services: Court Services	Other Services: Planning	Other Services: Parks & Recreation	Other Services: Library
General Purpose																
Racine County	29 Board of Supervisors	–	–	X	–	X[1]	–	X	X	X	X	X	X	X[1]	X[1]	–
City of Racine	Mayor & 18 Common Council	X	X	X	X	X	X	X	X	X	–	–	X	X	X	X
Villages: Elmwood Park	President & 6 Trustees	(cr)	(cr)	X	(cr)	(cr)	(cr)	X	X	–	–	–	–	–	–	(cr)
North Bay	President & 2 Trustees	(cr)	(cr)	X	(cr)	(cr)	(cr)	X	X	–	–	–	–	–	–	(cr)
Sturtevant	President & 6 Trustees	X	X	X	(cr)	X	X	X	X	X	–	–	–	–	X	(cr)
Wind Point	President & 6 Trustees	(cr)	(cr)	X	(cr)	X	(cr)	X	X	X	–	–	–	–	X	(cr)
Towns: Caledonia[2]	Chairman & 2 Supervisors	(cr)	(cr)	X	–	X	X	X	X	X	–	–	–	–	X	(cr)
Mt. Pleasant[2]	Chairman & 2 Supervisors	(cr)	(cr)	X	–	X	X	X	X	X	–	–	–	–	X	(cr)

Urban–Rural Districts	Area Served in Square Miles	Water	Sewer	Drainage	Source of Water	Effluent Discharge	Comments
Special Purpose							
1. Caddy Vista Sanitary District	0.17	X	X	–	Well	Root River	4-member commission elected by District.
2. Caledonia Sewer Utility District No. 1	7.69	–	X (cr)	–	–	Lake Michigan	Contract City of Racine for treatment. 5-member commission appointed by Caledonia Board.
3. Caledonia Water Utility District No. 1	2.00	X (cr)	–	–	Lake Michigan	–	Contract City of Racine for service. 5-member commission appointed by Caledonia Board.
4. Crestview Sanitary District	1.02	X	X (cn)	–	Well	Lake Michigan	Contract North Park Sanitary District for treatment. 4-member commission elected by District.
5. Hoods Creek Drainage District	10.00	–	–	X	–	–	3-member commission appointed by Racine County Court.
6. Mt. Pleasant Sewer Utility District	10.78	–	X (cr)	–	–	Lake Michigan	Contracts with City of Racine for treatment. 4-member commission appointed by Mt. Pleasant Board.
7. Mt. Pleasant Storm Water Drainage District No. 1	19.00	–	–	X	–	–	Urban type drainage improvements. 3-member commission appointed by Mt. Pleasant Board.
8. North Park Sanitary District	5.00	X (cr)	X	–	–	Lake Michigan	Elected 4-member commission.
9. South Lawn Sanitary District	0.50	X (cr)	–	–	Lake Michigan	–	Contracts with City of Racine for water. 3-member commission appointed by Mt. Pleasant Board.
Area Wide Service Districts							
1. Racine Unified School District No. 1	101.00	Formed in 1961, unifying 26 school districts, to provide public elementary and secondary school facilities. 9-member Board elected at large in the district, which is conterminous with the Racine Planning District.					
2. Vocational, Technical, and Adult Educational District No. 7	Racine County	Formed in 1967, to serve all but a small portion of the county, this district expanded the Racine Vocational and Technical District, strengthening the programs and curriculum. 7-member Board appointed by the Chairman of the County Board. The Superintendent of the unified school district is an ex-officio member.					
3. Racine County Soil and Water Conservation District	Racine County	Specialized water and soil conservation management services and assistance to local drainage districts and residents. 4-member Board appointed by County Supervisors.					

Note: [1] *Advisory services to local units of government.*
[2] *In 1971 the Towns of Caledonia and Mt. Pleasant will have four members and a chairman.*
(cr) Contracts with City of Racine.
(cn) Contracts with North Park Sanitary District.

Source: Southeastern Wisconsin Regional Planning Commission, Local Units of General Government, Special Purpose Districts, and Their Staff Members and Elected Officials: 1970.

MAP 2-2



SOURCE: SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

URBAN AND RURAL SERVICE DISTRICTS

RACINE URBAN PLANNING DISTRICT

4. The Crestview Sanitary District in the Town of Caledonia, which was formed in 1955 to provide sanitary sewer and water supply services to the Crestview Subdivision, consisting of a 1.02 square mile area. This District operates its own community well for water supply service and contracts with the North Park Sanitary District for sewage treatment. It is organized pursuant to Section 60.30 of the Wisconsin Statutes and is governed by a four-member Commission appointed by the Town Board of Caledonia.

5. The Hood's Creek Drainage District. This District, formed in 1919, is a farm drainage district providing agricultural drainage improvements to a 10.0 square mile area in the towns of Mt. Pleasant and Caledonia. It is organized pursuant to Chapter 88 of the Wisconsin Statutues and is governed by a three-member Commission appointed by the Racine County Court.

6. The Mt. Pleasant Sewer Utility District. This District, formed in 1960, provides sanitary sewer service to a 10.78 square mile area in the Town of Mt. Pleasant, contracting with the City of Racine for sewage treatment. It is organized pursuant to Section 66.072 of the Wisconsin Statutes and is governed by a four-member Commission appointed by the Town Board of Mt. Pleasant.

7. The Mt. Pleasant Storm Water Drainage District No. 1. This District, formed in 1967, provides for urban-type storm water drainage improvements throughout a 19.0 square mile area of the Town of Mt. Pleasant in the Pike River watershed, including the Sorenson Creek subwatershed. It is organized pursuant to Section 89.19 of the Wisconsin Statutes and is governed by a three-member Commission appointed by the Town Board of Mt. Pleasant.

8. The North Park Sanitary District, which serves portions of the Town of Caledonia and all of the Village of Wind Point. This District, formed in 1954, provides sanitary sewer and water supply services to a 5.0 square mile area. Water is supplied by the City of Racine under contract. The District operates a sewage treatment plant, discharging its effluent to a minor tributary to Lake Michigan. It is organized pursuant to Section 60.30 of the Wisconsin Statutes and is governed by an elected four-member Commission.

9. The South Lawn Sanitary District. This District, formed in 1928, provides water service to a 0.5 square mile area in the Town of Mt. Pleasant, contracting with the City of Racine for the purchase of water. It is organized pursuant to Section 60.30 of the Wisconsin Statutes and is governed by a three-member Commission appointed by the Town Board of Mt. Pleasant.

Area-Wide Service Districts: There are a total of three special purpose area-wide service districts operative within the Racine Urban Planning District. These include the following:

1. Racine Unified School District No. 1. This District was organized pursuant to Section 120.71 of the Wisconsin Statutes and provides elementary and secondary educational services throughout the entire 101 square mile Racine Urban Planning District. Formed in 1961, this District represents a significant intergovernmental achievement in the provision of a basic and necessary service on an area-wide basis throughout the entire Racine community. It is governed by a nine-member board elected at large from the District.

2. Vocational, Technical, and Adult Educational District No. 7. This District is essentially a county-wide district since it serves all of Racine County except a portion of the Town of Norway which is served through the Waukesha Vocational, Technical, and Adult Education District No. 8. This area-wide service district was formed in 1967 to provide for a strengthened vocational, technical, and adult school function within the District and the county. It was organized pursuant to Section 41.155 of the Wisconsin Statutes and is governed by a seven-member board appointed by the Chairman of the Racine County Board.

3. Racine County Soil and Water Conservation District. This special purpose district is conterminous with Racine County and indeed functions as an arm of the Racine County Board of Supervisors. It is, however, a special purpose district formed pursuant to Section 92.05 of the Wisconsin Statutes for the purpose of providing specialized soil and water conservation management assistance to drainage districts and individual landowners throughout the entire county. It is governed by a four-member board appointed by the County Board of Supervisors.

INTERGOVERNMENTAL AGREEMENTS

There are a number of intergovernmental agreements within the Racine Urban Planning District that are of significance to the comprehensive planning program. These include agreements for the treatment of sewage, the provision of water supply, the provision of fire protection, and the provision of library services.

The City of Racine operates a large sewage treatment plant and contracts with several municipalities and special purpose districts to convey and treat sewage. Those municipalities and districts having contracts with the City of Racine for sewage treatment are: the Town of Mt. Pleasant, the Mt. Pleasant Sewer Utility District, the Town of Caledonia, the Caledonia Sewer Utility District No. 1, and the Village of North Bay. The North Park Sanitary District in the Town of Caledonia also operates a sewage treatment plant to serve its area and contracts with the Crestview Sanitary District and the Village of Wind Point for the treatment of sewage.

The City of Racine also operates a major water utility and provides, through contracts, water to several municipalities and special purpose districts in the Racine Urban Planning District. Municipalities contracting with the City of Racine for water supply include the following: the Town of Mt. Pleasant, the Village of Sturtevant; the Village of Elmwood Park, the Village of North Bay, the South Lawn Sanitary District, the Caledonia Water Utility District No. 1, and the North Park Sanitary District, which in turn has a contract to furnish water to the Village of Wind Point. The Crestview and Caddy Vista Sanitary Districts operate their own water supply utilities.

There are three formal intergovernmental agreements relative to fire protection in the District. The City of Racine provides fire protection services to the Village of North Bay; the Town of Caledonia provides such services to the Village of Wind Point; and the Town of Mt. Pleasant provides such services to the Village of Elmwood Park. In addition, there are emergency mutual aid agreements between the various municipalities in the District that provide fire protection services.

The City of Racine operates a public library system including the provision of bookmobile service. All of the remaining six local units of government in the District have formal contracts with the city whereby residents of these local units of government can register and utilize the city library services on the same basis as city residents.

GEOGRAPHIC UNITS FOR DATA PRESENTATION

Throughout this planning report various geographic or area units are utilized for the presentation of data. Where possible, an effort has been made to present data on a uniform basis for the entire Racine Urban Planning District and its seven constituent local units of government. At times, however, it is necessary to utilize data collected for various geographic units that do not correspond to the configuration of the planning district.

The following is a list of the geographic units utilized for data presentation throughout this planning report:

1. General Purpose Local Units of Government. Many kinds of data are presented for the general purpose units of government discussed in this Chapter. These include Racine County; the City of Racine; the Villages of Elmwood Park, North Bay, Sturtevant, and Wind Point; and the Towns of Caledonia and Mt. Pleasant.

2. Special Purpose Local Units of Government. These include all of the sanitary, utility, drainage, and school districts described in this Chapter.

3. Racine Urbanized Area. Certain U.S. Census data is available for an area known as the Racine urbanized area. This area, as shown on Map 2-1, approximates the extent of the developed urban area comprising the City of Racine and its immediate environs.

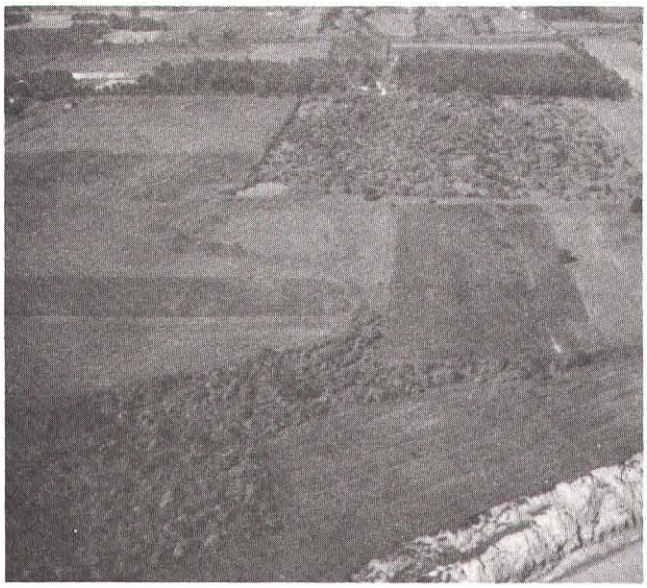
4. Racine Urban Planning District. Where possible, data will be presented for the entire District including all of the seven constituent municipalities.

5. Standard Metropolitan Statistical Area. Certain kinds of data, and in particular U.S. Census data, is available only on a Standard Metropolitan Statistical Area (SMSA) basis. This area is identical to Racine County.

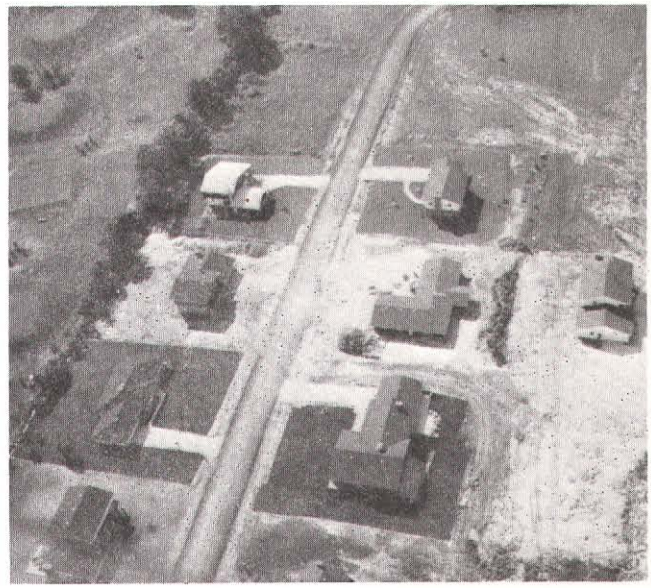
COMMERCIAL GROWTH ALONG ARTERIAL HIGHWAYS

SUMMARY

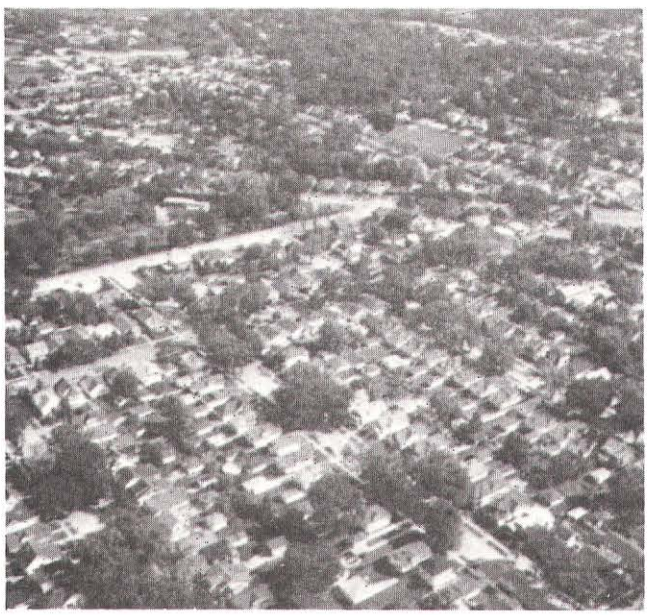
The governmental structure of the Racine Urban Planning District provides the basis for the provision of public facilities and services that are the subject of the District comprehensive planning program. There are two general purpose local units of government providing facilities and services for each resident of the District: Racine County and either a city, village, or town. In addition, there are a number of special purpose local units of government that provide services and facilities to special purpose districts created within the larger planning District. There are nine special purpose urban or rural service districts, including four sanitary districts, two sewer utility districts, one storm water drainage district, and one farm drainage district. In addition, there are three area-wide service districts operative within the Racine Urban Planning District that provide educational and soil and water conservation services. Finally, it is important to note that there are a number of intergovernmental agreements within the District that are of significance to the comprehensive planning program. These include agreements for the treatment of sewage, the provision of water supply, the provision of fire protection, and the provision of library services.



AGRICULTURAL LANDS



NEW SUBDIVISION



CITY OF RACINE URBAN AREA

NEW HOUSING DEVELOPMENT

Table 3-1

POPULATION CHANGE: 1850-1970

Population Comparison

Year	United States	Wisconsin	Southeast Wisconsin	Racine County	City of Racine	Town of Caledonia	Town of Mt. Pleasant	Village of Wind Point	Village of North Bay	Village of Sturtevant	Village of Elmwood Park	Racine Urban Planning District
1850	23,191,876	305,391	113,389	14,973	5,107	1,090	1,086		(Town of Racine:	780 in 1850)*		8,063
1860	31,443,321	775,881	190,409	21,360	7,822	2,438	1,818	–	–	–	–	12,078
1870	38,558,371	1,054,670	223,546	26,740	9,880	2,800	3,560	–	–	–	–	16,240
1880	50,155,783	1,315,497	277,119	30,922	16,031	2,654	2,166	–	–	–	–	20,851
1890	62,947,714	1,693,330	386,774	36,268	21,014	2,732	2,192	–	–	–	–	25,938
1900	75,994,575	2,069,042	501,808	45,644	29,102	2,805	2,911	–	–	–	–	34,818
1910	91,972,266	2,333,860	631,161	57,424	38,002	3,073	4,219	–	–	525	–	45,819
1920	105,710,620	2,632,067	783,681	78,961	58,593	3,479	4,070	–	–	564	–	66,706
1930	122,775,046	2,939,006	1,006,118	90,217	67,542	3,031	5,379	–	–	746	–	76,698
1940	131,669,275	3,137,587	1,067,699	94,047	67,195	4,019	6,760	–	–	803	–	78,777
1950	151,325,798	3,434,575	1,240,618	109,585	71,193	5,713	11,339	–	–	1,176	–	89,421
1960	179,323,175	3,952,771	1,573,620	141,781	89,144	9,696	12,358	463	264	1,488	–	113,413
1970	203,216,000	4,360,105	1,742,786	171,218	94,720	16,663	16,303	1,238	258	3,338	448	132,968
Percent of Change in Prior Decade												
1860	+35.6	+154.0	+67.9	+42.7	+53.2	+123.7	+67.4	–	–	–	–	+49.8
1870	+22.6	+35.9	+17.4	+25.2	+26.3	+14.8	+95.8	–	–	–	–	+34.5
1880	+30.1	+24.7	+24.0	+15.9	+62.3	-5.2	-39.2	–	–	–	–	+28.4
1890	+25.5	+28.7	+39.6	+17.0	+31.1	+2.9	+1.2	–	–	–	–	+24.4
1900	+20.7	+21.6	+29.7	+25.9	+38.5	+2.7	+32.8	–	–	–	–	+34.2
1910	+21.6	+13.3	+25.8	+28.8	+30.6	+9.6	+44.9	–	–	–	–	+31.6
1920	+14.9	+12.8	+24.2	+37.5	+54.2	+13.2	-3.5	–	–	+7.4	–	+45.6
1930	+16.1	+11.7	+28.4	+14.3	+15.3	-12.9	+32.1	–	–	+32.3	–	+15.0
1940	+7.2	+6.8	+6.1	+4.2	-0.5	+32.6	+25.7	–	–	+7.6	–	+2.7
1950	+14.9	+9.5	+16.2	+16.5	+5.9	+42.1	+67.7	–	–	+46.4	–	+13.5
1960	+18.5	+15.1	+26.8	+29.4	+25.2	+69.7	+9.0	–	–	+26.5	–	+26.8
1970		+10.3	+10.8	+20.8	+6.3	+71.9	+31.9	+167.4	-2.3	+124.3	–	+17.2

*Town of Racine was merged with the Towns of Caledonia and Mt. Pleasant in 1860.

1969 Population Estimates

Civil Division	SEWRPC	Wisconsin Department of Administration and Unified School District	Wisconsin Electric Power Company
City of Racine	101,100	93,414	102,545
Village of Elmwood Park	400	550	452
Village of North Bay	300	294	386
Village of Sturtevant	3,200	3,025	3,340
Village of Wind Point	1,100	1,385	1,023
Town of Caledonia	16,100	15,720	15,727
Town of Mt. Pleasant	19,300	14,890	17,887
District Total	141,500	129,278	141,360
Racine County	177,700	171,400	177,103
Southeastern Wisconsin Region	1,853,300	1,757,500	n/a

Note: 1969 population estimates were prepared by the SEWRPC, Wisconsin Department of Administration, Racine Unified School District and Wisconsin Electric Power Company. Annual SEWRPC estimates are prepared based upon the 1960 U.S. Census, using building permits (by unit type) from local civil divisions in each county. Assumed occupancy factors are then used to determine population levels by civil divisions in each county. Wisconsin Department of Administration estimates are similarly based on the 1960 U.S. Census. Natality, mortality, and migration data for each county are used to prepare estimates by counties. Racine Unified School District estimates are based upon the annual School Census. Wisconsin Electric Power Company estimates are based upon residential utility connections. Each estimate is based upon known information and assumptions. The School Census is an enumeration of the population at the time of the census — summer, 1969.

Sources: U.S. Census of Population: 1850-1960 and SEWRPC Planning Report No. 4, 1963. Racine Unified School District, 1969 (See Note). Wisconsin Department of Administration (Bureau of State Planning): 1969-1970. U.S. Bureau of the Census: Publication P-25 - 439, 1969.

Chapter III

DEMOGRAPHIC AND ECONOMIC BASE

INTRODUCTION

An understanding of the growth, distribution, and composition of population is basic to planning for the future development of any geographical area. Population analysis includes an evaluation of historic trends in population size and distribution, and an examination of detailed population characteristics, such as: age and sex composition, birth and death rates, residential mobility and migration, ethnic characteristics, family size, and educational attainment. In an economic analysis, primary emphasis is placed upon evaluating and understanding those facets of the local economy which have caused economic growth and expansion in the past, and will, in large part, determine the direction of future change. Important considerations include the economic history of the District; labor force characteristics; the structure of the economy, including industrial, retail, and wholesale activity; and income and consumption patterns.

Located on the shore of Lake Michigan 20 miles south of Milwaukee and 75 miles north of Chicago, the Racine Urban Planning District is an important link in the southern Lake Michigan Industrial Complex. This large industrial region, including parts of three states, is the second largest concentration of population in the nation. Of the various factors which led to this remarkable urban complex centering upon Chicago, the most important was the highly developed transportation system combining in historic sequence lake, canal, rail, highway and air transportation routes serving the Midwest and the nation. These factors have encouraged the development of a highly urbanized and prosperous region producing a diversified variety of manufactured goods.

The Racine Urban Planning District is close to other manufacturing centers in the Region and its industries serve both regional and national markets. Rail and highway transportation links enable rapid exchange of raw materials and manufactured goods. Racine has the important locational advantage of being within the manufacturing belt, with good access to consumer centers; and its economy is closely tied to that of the urbanized area around the southern edge of Lake Michigan.

NOTE: References and methodology are found in Appendices III-C and III-D.

POPULATION OF THE DISTRICT

The population of the District increased from 8,063 people in 1850 to about 133,000 people in 1970.[1] Rates of population increase fluctuated from decade to decade, with significant periods of growth reflecting times of economic prosperity. (See Table 3-1 and Figure 3-1.)

Current Population

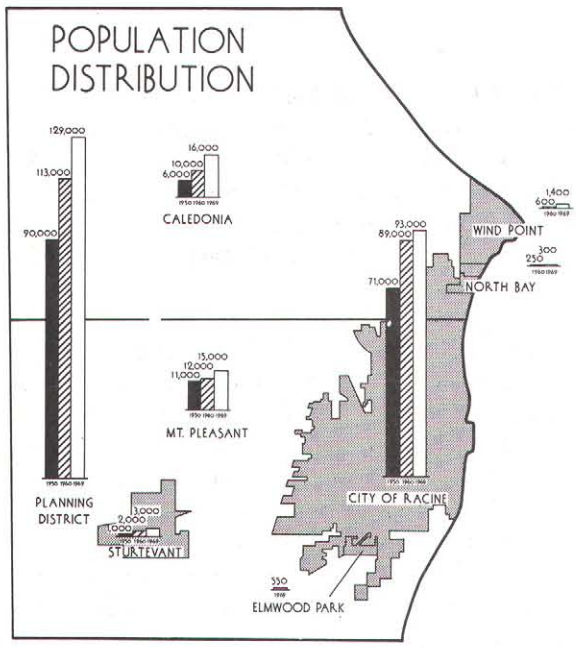
The current population in the Planning District, based upon preliminary U. S. Census of Population data, is 133,000. Yearly estimates in non-census years are provided by the Southeastern Wisconsin Regional Planning Commission, the Unified School District No. 1, and the Wisconsin Electric Power Company. The SEWRPC estimate is based upon a compilation of annual building and demolition permits, resulting in an estimate of the number of additional dwelling units added to the housing stock. A vacancy ratio and persons per household factor is then used to arrive at the annual population increment. A high level of reliability for this technique is suggested by the fact that the results obtained correspond closely to independent estimates made by the Wisconsin Electric Power Company which similarly bases its forecast on residential utility connections. Their forecast methods express the population as a gross total, without any age and sex characteristics. The current Southeastern Wisconsin Regional Planning Commission estimate is well suited to broad population, economic and land use planning studies.

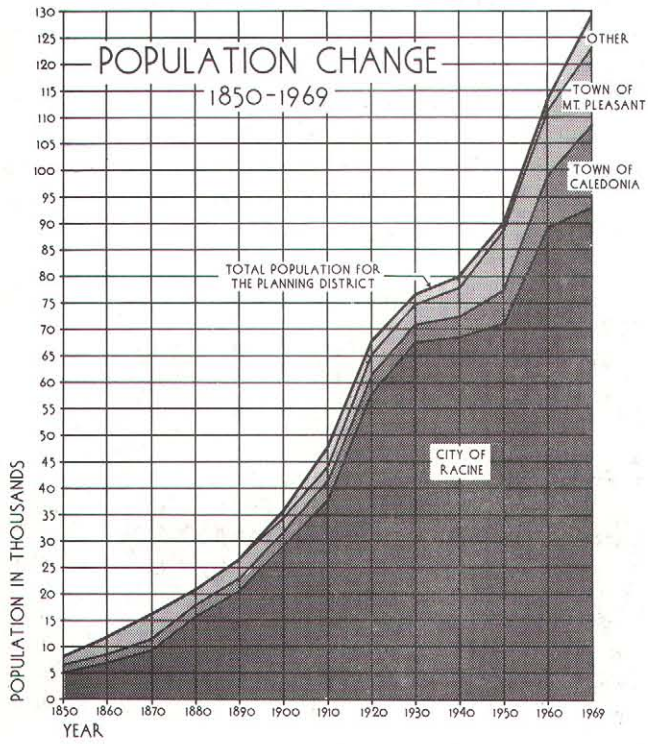
THE WORKING POPULATION

[1] *U. S. Census of Population, Preliminary Census, 1970.*

Figure 3-1

POPULATION CHANGE





SOURCE: U.S. CENSUS OF POPULATION 1850-1960
RACINE UNIFIED SCHOOL DISTRICT NO. 1
1969 SCHOOL CENSUS

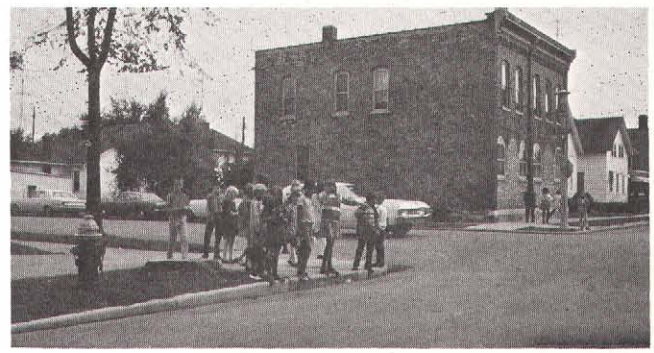
The Unified School District No. 1 of Racine County estimates are a valuable planning tool because the school district boundaries correspond with those of the Racine Urban Planning District. This census is designed to provide school administrators with information about the school-age population and has recently been broadened to include an enumeration of the entire population of the District. The principal advantages of utilizing the school census are that it provides detailed age and sex characteristics of the population and provides a distribution of the population on a geographic basis. These aspects of the census make it particularly useful in the analysis of neighborhoods and communities in the Planning District. These advantages, however, are tempered by the fact that school censuses in Wisconsin have tended to undercount both the pre-school and past 65 segments of the population. The school censuses do not utilize control measures which insure a uniform degree of accuracy in the U. S. Census.

For the purposes of population analysis, both the Southeastern Wisconsin Regional Planning Commission estimates and the school district census have been utilized on a selective basis. The Southeastern Wisconsin Regional Planning Commission estimate provides a district total, and the school district estimate is utilized in neighborhood and community analysis.

Historic Population

1850–1900

Prior to 1900 the population's growth reflected the rapidly expanding national economy. In Wisconsin, growth of the logging and dairying industries and the establishment of Milwaukee as an industrial center accounted for substantial migration. The state's population increased at a rate more than twice that of the nation, and the Southeastern Wisconsin Region accounted for somewhat more than one-fifth of the state population increase. Significant increases also occurred locally with the largest rate of increase occurring in the City of Racine which by 1850 was the established economic center of the county. (See Table 3-2.)



THE SCHOOL-AGE POPULATION

Table 3-2

PERCENT OF POPULATION CHANGE BY HISTORIC PERIODS: 1850-1970

	1850–1900 Percent	1900–1930 Percent	1930–1940 Percent	1940–1950 Percent	1950–1960 Percent	1960–1970 Percent
United States	227.5	61.7	7.2	14.9	18.5	13.2
Wisconsin	577.5	42.7	6.8	9.5	15.1	10.3
Southeast Wisconsin	342.6	100.5	6.1	16.2	26.8	10.8
Racine County	204.8	97.7	4.2	16.5	29.4	20.8
City of Racine	394.3	132.1	(-0.5)	5.9	25.2	6.3
Town of Caledonia	157.3	8.1	32.6	42.1	69.7	71.9
Town of Mt. Pleasant	167.1	84.8	25.7	67.7	8.9	31.9
Village of Wind Point	–	–	–	–	–	167.4
Village of North Bay	–	–	–	–	–	(-2.3)
Village of Sturtevant	–	42.1[a]	7.6	46.5	26.5	124.3
Village of Elmwood Park	–	–	–	–	–	–[b]
Racine Planning District	331.8	91.6	2.7	24.9	26.8	17.2

[a] *The Village of Corliss (established in 1907) changed its name to the Village of Sturtevant in 1923. This historic comparison is from 1910 to 1930.*

[b] *The Village of Elmwood Park was established in 1960.*

Source: U.S. Census of Population 1850-1960 and Southeastern Wisconsin Regional Planning Commission Planning Report No. 4, 1963. Racine Unified School District No. 1, 1969. Wisconsin Department of Administration (Bureau of State Planning), 1969.

1900–1930

Economic expansion continued during the first three decades of this century, with the city experiencing a rate of population increase of 132 percent, greater than the District, Region, county, state, or nation. By 1930 the city contained almost nine-tenths of the District's population. This population growth was caused by the continuation of industrial expansion which had begun by 1870. Local industries expanded and new industries were attracted. Employment opportunities caused substantial in-migration.[2]

1930–1940

Economic expansion came to a halt during the depression of the 1930's. The District showed only a small increase in population, less than one-half of that recorded in the Region, state, or nation. The impact of depressed economic conditions was felt and net out-migration occurred.

1940–1950

Employment opportunities slowly increased during the first half of the 1940's. Recovery from the depression of the 1930's occurred in the latter half of the decade with modest post World War II population growth as industrial expansion again occurred.

1950–1960

Fully recovered from the 1930's depression, the District's economy expanded at an accelerated rate over the previous decade. The Racine County population increased 29.4 percent, almost twice the increase recorded by the state. The population in the District increased by 26.8 percent, an amount equal to increases recorded in the Region. (See Table 3-2.)

1960–1970

Preliminary U. S. Census figures show a population increase of about 19,500 persons in the District from 1960 to 1970. Most of this growth occurred in the Villages of Elmwood Park, Sturtevant and Wind Point and the Towns of Caledonia and Mt. Pleasant. The City of Racine gained 5,576 persons, which was 28.5 percent of total District growth between 1960 and 1970. The total District increased by 17.2 percent, a rate lower than the County at 20.8 percent, but greater than rates of increase for the Region, state and nation. (See Table 3-2.)

Population Relationships

In 1850, 75 percent of the Region's population lived on farms. By 1960 only two percent of the Region's population lived on farms.[3] The regional pattern of urban units was fairly well set by 1900; the subsequent substantial growth occurred in established settlements. This pattern

[2] *The Population of Southeastern Wisconsin, Southeastern Wisconsin Regional Planning Commission Report No. 4, Appendix C, Table A-7 (Footnotes), 1963.*

[3] *Ibid.*

Table 3-3

CHANGING POPULATION RELATIONSHIPS BY HISTORIC PERIODS: 1850 to 1970

	1850 Percent	1900 Percent	1930 Percent	1940 Percent	1950 Percent	1960 Percent	1970 Percent
Region as Percent of State	37.1	(24.3)	34.2	(34.0)	36.1	39.8	40.0
County as Percent of Region	13.2	(9.1)	(9.0)	(8.8)	8.8	9.0	9.8
District as Percent of County	53.9	(56.8)	(85.0)	(83.8)	(81.6)	(80.0)	(77.8)
Civil Divisions As Percent of District:							
City of Racine	63.3	83.6	88.1	(85.3)	(79.6)	(78.6)	(71.2)
Town of Caledonia	13.5	(8.0)	(4.0)	5.1	6.4	8.6	12.5
Town of Mt. Pleasant	13.5	(8.4)	(7.0)	8.6	12.7	(10.9)	12.3
Town of Racine	9.7	(Consolidated with Caledonia and Mt. Pleasant)					
Village of Wind Point	–	–	–	–	–	0.4	1.0
Village of North Bay	–	–	–	–	–	0.2	0.2
Village of Sturtevant	–	–	0.9	1.0	1.3	1.3	2.5
Village of Elmwood Park	–	–	–	–	–	–	0.3

Note: ( ) indicates a decline and ___ indicates an increase.

Source: U.S. Census of Population 1850-1960, Southeastern Wisconsin Regional Planning Commission Planning Report No. 4, 1963, Racine Unified School District No. 1, School Census 1969, and Harland Bartholomew and Associates calculations, 1970.

reflected the industrialization which was primarily an urban phenomenon with industries locating primarily in the major cities in the Region.

By the turn of the century the industrial character of the Southeastern Region was well established, and almost one out of every four persons in Wisconsin lived in the Region. Industrial growth continued and by 1930 this ratio was one in three. Regional growth, which was insignificant during the economic depression of the 1930's again increased faster than that of the state after 1940 and now somewhat more than two out of every five persons in Wisconsin live in the Southeastern Region. (See Table 3-3.)

Racine County, the third most populous county in the Southeastern Region, has not grown at the same rate as the Region as a whole. From 1850 to 1940, the percentage of the regional population living in the County declined from 13.2 to 8.8 percent. There has been a reversal since 1960, and the County in 1969 was estimated to contain 9.8 percent of the Region's population.

The Planning District contains most of the County population, increasing from 54 percent in 1850 to 85 percent in 1930. The District contained 80.0 percent of the County population in 1960 and 1970 preliminary figures indicate this relationship to be 77.8 percent. The City of Racine contains most of the population of the Planning District: 63.3 percent in 1850, 88.1 percent in 1930, and 71.2 percent in 1969.

Population Increases

There are two ways for population increases to occur within the Planning District: (1) natural increase (more births than deaths), and (2) net in-migration (more people moving in than out). Population changes within civil divisions of the District also may result from boundary changes. Increases in the District's total population have been consistent with regional trends; however, trends in local civil divisions must be related to boundary changes if they are to be fully understood.[4] (See Figure 3-1.)

Natural Increase. An evaluation of census information indicates that 69 percent of the County population increase for the 1950 to 1960 decade was due to natural increase. (See Figure 3-2.)[5, 6] The Planning District accounted for about 74 percent of the total population increase and, on this basis, the natural increase for the District is estimated at 16,500 persons for this period. (See Table 3-4.)

[4] *Ibid.*

[5] *Birth and death statistics are recorded for the City of Racine and Racine County. Tabulations for the Racine Planning District are not available.*

[6] *Unified Racine Area Planning Committee, "Population", 1967.*

Table 3-4

NATURAL INCREASE: 1950-1970

	1950	1960	Change	Natural Increase	Net Migration
Southeastern Region	1,240,618	1,573,620	+333,002	223,796	+109,206
Racine County	109,585	141,781	+32,196	20,647	+10,734
Planning District	89,421	113,413	+23,992	16,519	+7,473
City of Racine	71,193	89,144	+17,951	12,973	+4,978
	1960	1970	Change	Natural Increase	Net Migration
Southeastern Region	1,573,620	1,742,786	+169,166	203,180	- 34,014
Racine County	141,781	171,218	+29,437	20,647	+8,790
Planning District	113,413	132,968	+19,555	16,063	+3,492
City of Racine	89,144	94,720	+5,576	14,701	-9,125

Source: U.S. Census of Population 1950-1960, Preliminary 1970 Wisconsin Bureau of Vital Statistics, State Board of Health 1951-1960.

Since 1960, a downward trend has occurred in the Planning District, with the natural increase estimated at 16,050 persons. This decline in the rate of natural increase from an annual average of about 1.8 percent in the 1950 to 1960 decade to an average of about 1.3 percent per year since 1960 is due to declining birth rates. The birth rate decreased from 27.2 births per thousand in 1960 to 18.7 in 1968 in Racine County, paralleling national and state trends, although the birth rate in Racine has historically been higher than for Wisconsin, which had a rate of 17.6 in 1968.[7] (See Figure 3-2.) During the same period, the death rate has remained stable at about 8.8 deaths per thousand persons and the number of deaths has increased in proportion to the population.

In the 1950 to 1960 decade, natural increase was responsible for less than three-fourths of the population increase in the Planning District,[8] but by 1970 was accounting for almost all of the population growth of the District. (See Figure 3-2.)

Migration. The movement of people to and from an area is the second component of population change. Between 1950 and 1960, in-migrants exceeded out-migrants by about 7,459 persons in the Planning District, but between 1960 and 1970, there was little more than half as much net in-migration as had occurred in the prior decade, 3,505 persons. Before 1920, most migration to Racine County was from Europe. Since 1920, foreign migration has slowed and most in-migrants have come from other parts of the nation. Between 1955 and 1960 Racine County gained new residents from all parts of Wisconsin except Madison and counties adjacent to it. The largest number of in-migrants in this period came from Milwaukee County and the north-central counties of the state.[9] While net in-migration to Racine County is continuing at only a slightly lower rate than prevailed between 1950-1960, a much greater portion is locating west of Interstate Highway 94. Much of this population movement represents dispersion from Milwaukee County in contrast to the influx of job seekers to the City of Racine from the rest of the state and nation between 1950-1960 which accounted for most net in-migration during that decade. The City of Racine experienced a net out-migration during the past ten years.

Population Per Square Mile

Population per square mile varies widely within the Planning District. (See Map 3-1.) In older, predominantly residential areas there are more than 14,000 persons per square mile. In sparsely populated rural areas, a square mile may contain less than 500 persons. Highest densities are found in the West Racine neighborhood and in the central city north of the Root River. These areas have more than 12,000 persons per square mile.

The areas with the higher densities, greater than 4,000 persons per square mile, are generally contained within the city boundaries. Outside the city, densities rarely reach 4,000 persons per square mile. In much of the area urbanized since 1950, population densities rarely exceed 2,000 persons per square mile.

Age Group Distribution

Between 1950 and 1960, the regional population growth was 26.8 percent with the largest increases in the youngest

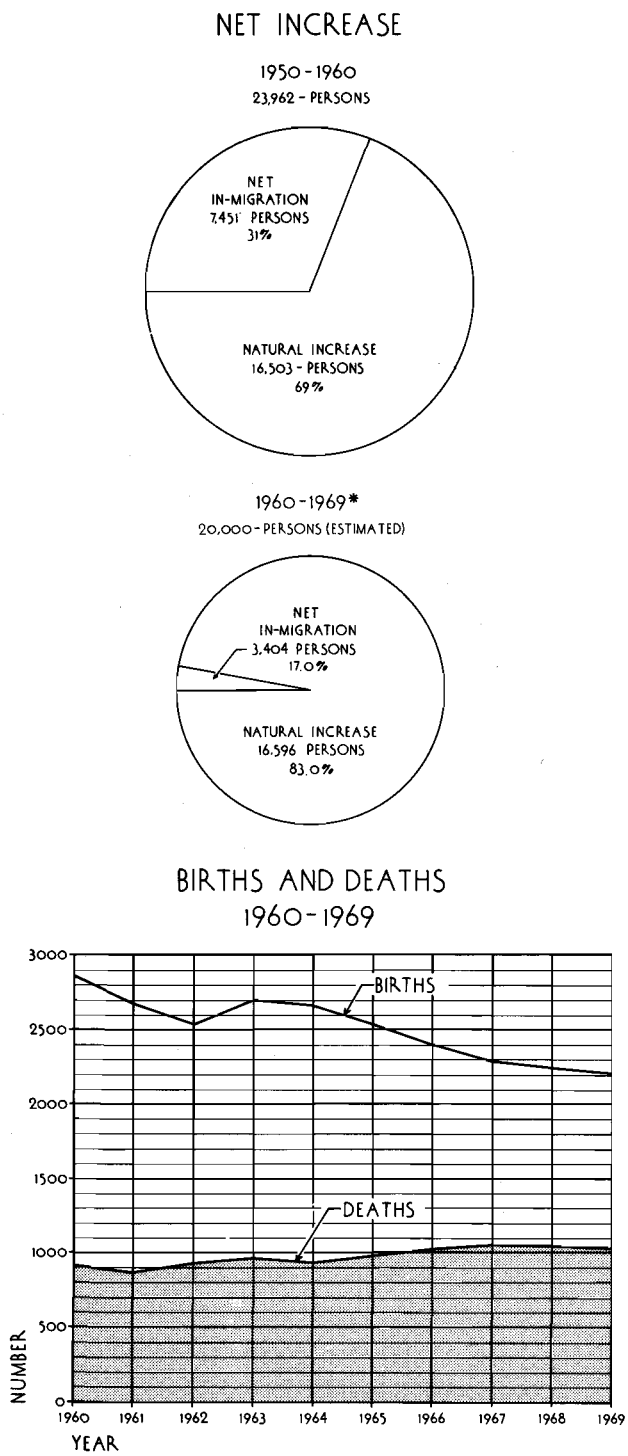
[7] *State of Wisconsin, Department of Health: 1960—1968.*

[8] *Migration Patterns Within Wisconsin, 1950—1960: Division of Economic Development: Madison, Wisconsin, 1968.*

[9] *Ibid.*

Figure 3-2

SOURCE OF POPULATION INCREASE
RACINE URBAN PLANNING DISTRICT



SOURCE: HARLAND BARTHOLOMEW AND ASSOCIATES
WISCONSIN DEPARTMENT OF HEALTH, 1950-1970
NOTE - 1969 BIRTH AND DEATH DATA ESTIMATED BY WISCONSIN BUREAU OF VITAL STATISTICS
* - 1960-1969 NET INCREASE IS BASED ON PRELIMINARY U.S CENSUS FIGURES: 1970

and oldest age groups. While population growth in Racine County increased at a lower rate during this period, (20.9 percent) changes in the age groups paralleled those of the Region. The net result of these changes was a lower percentage of the total population in the age groups that constitute the labor force, although the number of people in the labor force age groups did increase.

Since 1960, there appears to have been a significant change in age group characteristics, largely influenced by declining birth rates and less net in-migration. (See Figure 3-2.) School census data indicates a substantial decrease in the under five age group, which parallels the birth rate decline.[10] School census data tends to underreport the pre-school and over 65 age groups. A decline is also indicated in the over 65 age group. This is a minor problem which can be resolved with 1970 detailed census figures. All remaining age groups have experienced increases in number. (See Figure 3-3.) Largest increases occurred in the age groups from 5–24 years reflecting the "baby boom" which followed World War II. (See Figure 3-3.) The 1960 median age for Racine County was 28.4 years, slightly below the medians for the Region, Wisconsin, and the United States. Two other metropolitan areas in the state (Green Bay and Madison) had substantially lower medians. (See Figure 3-3.)

Sex Distribution

Females outnumbered males in the district but by only a small margin, and the same relationship was found in the 1969 school census. Females outnumber males in all but one age group, 5–14 years. In 1960, there were 96.2 males for each 100 females. This relationship changed fractionally to 96.6 males per 100 females in 1969. This is only slightly lower than the 1960 ratio for the Region, 97.3 males per 100 females. (See Figure 3-3.)

Ethnic Characteristics

Foreign-born persons were 10 percent of the total population in 1940 and the numerical total in the county has remained about the same since that date. In Racine County in 1960 foreign-born persons comprised seven percent, and those of foreign stock (one parent from a foreign country) amounted to 23 percent of the total population, primarily of German, Danish, Italian, Czechoslovakian and Polish extraction. (See Figure 3-4.) The high proportion of persons of foreign stock in the population reflects sizable earlier migrations, and at one time foreign-born persons comprised a much greater proportion of the total population. Since World War II, Latin Americans from Mexico and Mexican Americans from the southwest United States have moved to Racine and this ethnic group now numbers several thousand individuals.

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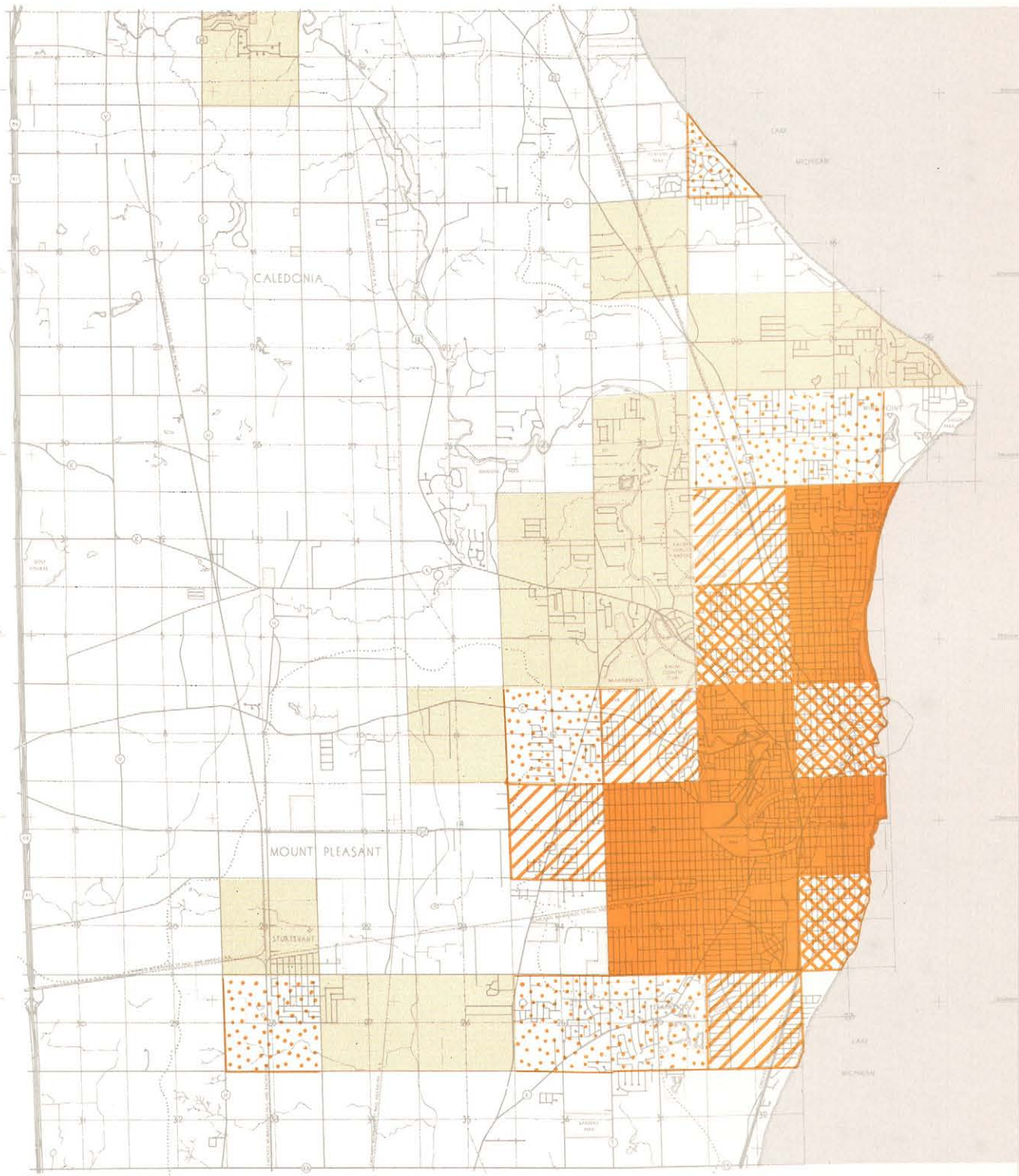
[10] *Racine Unified School District No. 1: 1969 School Census.*

MAP 3-1



SOURCE HARLAND BARTHOLOMEW AND ASSOCIATES - FIELD SURVEY

RACINE COUNTY BOARD OF SUPERVISORS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

HARLAND BARTHOLOMEW AND ASSOCIATES

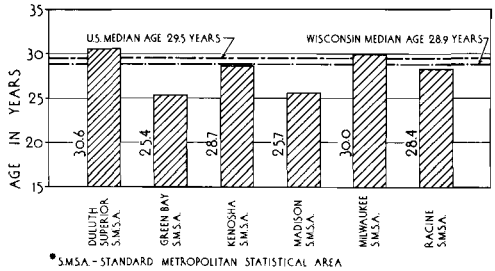
PERSONS PER SQUARE MILE

RACINE URBAN PLANNING DISTRICT

Figure 3-3

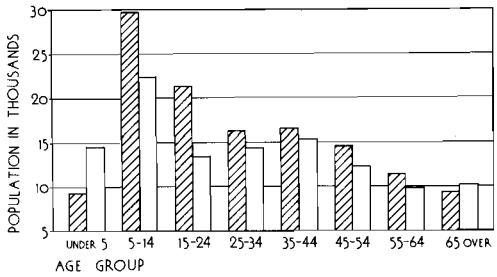
POPULATION
AGE AND SEX CHARACTERISTICS

MEDIAN AGE COMPARISON
WISCONSIN S.M.S.A.'S*- 1960

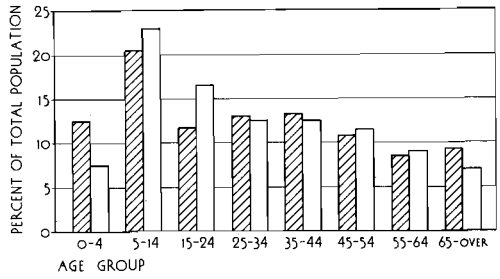


*S.M.S.A. - STANDARD METROPOLITAN STATISTICAL AREA

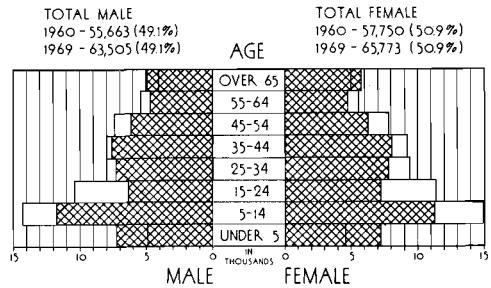
POPULATION GROWTH BY AGE GROUP
RACINE URBAN PLANNING DISTRICT
1960 - 1969



AGE GROUPS AS A PERCENT
OF TOTAL POPULATION
RACINE URBAN PLANNING DISTRICT
1960 - 1969



AGE AND SEX DISTRIBUTION
RACINE URBAN PLANNING DISTRICT
1960 - 1969

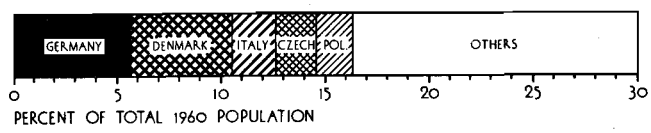


SOURCE: U.S. CENSUS OF POPULATION - 1960
RACINE UNIFIED SCHOOL DISTRICT
H.B.&A. ESTIMATES - 1969

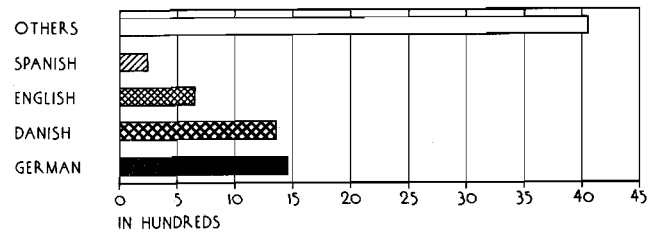
Figure 3-4

SOCIAL CHARACTERISTICS OF POPULATION

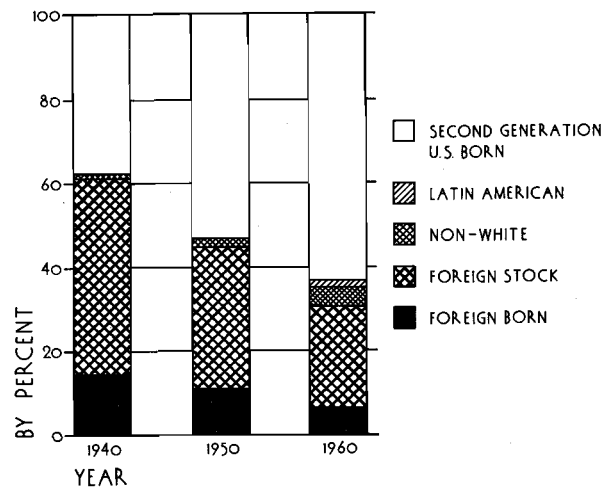
COUNTRY OF ORIGIN OF FOREIGN STOCK



MOTHER TONGUE OF THE FOREIGN
BORN POPULATION - 1960



RACIAL AND ETHNIC CHARACTERISTICS
RACINE URBAN PLANNING DISTRICT



SOURCE: U.S. CENSUS OF POPULATION

The District's non-white population (almost all Negro) numbered 242 persons in 1940, increased to 1,489 by 1950 and 5,216 persons in 1960. In-migration caused this rapid increase of some 500 percent from 1940 to 1950 and 250 percent from 1950 to 1960. During the 1960 to 1969 period, the number of non-white persons has continued to grow, now estimated at 9,300 people, some 4,000 more

than 1960, a 78 percent increase,[11] of which about one-half represented natural increase.[12]

Non-white residents are located predominantly within older central area neighborhoods and constitute a sizable part of the population of some of these areas.[13] (See Map 3-2.) Areas with one to five percent non-white population are found in locations away from this major area.

Education Levels

In the 20-year period 1940–1960, the level of educational attainment in the over 25 age group has risen.[14] In Racine County, 10.5 years of school were completed in 1960 which was almost identical to the United States and Wisconsin medians of 10.5 and 10.4 years completed, respectively. Among comparable metropolitan areas in the State, only Kenosha was below the Racine median. (See Figure 3-5.)

While the percentage of persons having some college education has increased in the urbanized area since 1940, the level is still below that for both Wisconsin and the nation. In 1940, two-fifths of the over 25 age group had completed the eighth grade and one-seventh had completed high school; by 1960, more than one-half had completed the eighth grade and one-fourth had completed high school. (See Figure 3-5.) However, from 1950 to 1960 the number of persons having no education at all increased, which may be accounted for by the characteristics of in-migration.

Family Size

With an average of 3.39 persons per household in 1960, Racine County exceeded the 3.30 average figure for the Southeastern Wisconsin Region. The average population per household was greater outside the City of Racine. Recent declines in the birth rate in the Planning District should result in the number of persons per household being smaller in the 1970 census. (See Table 3-5.)

POPULATION FORECASTS

Population growth of the Planning District is expected to continue during the next two decades, at a somewhat faster rate than in the recent past. Total population of the District is forecast to increase to 224,900 persons by 1990.

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[11] *State of Wisconsin, Bureau of State Planning, Wisconsin Population Projections, April, 1969.*

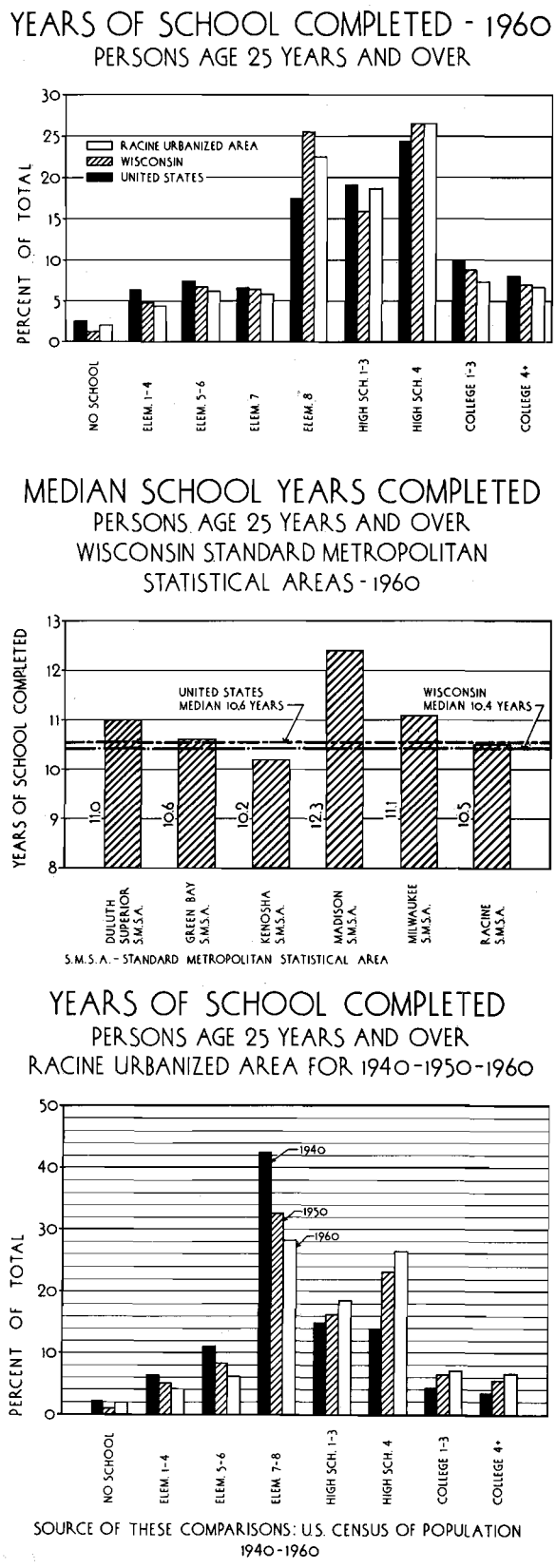
[12] *Public Health Department, City of Racine, Non-White Birth Statistics: 1960-1969.*

[13] *Ibid, footnote 10.*

[14] *U. S. Census information provides data for the county and urbanized area.*

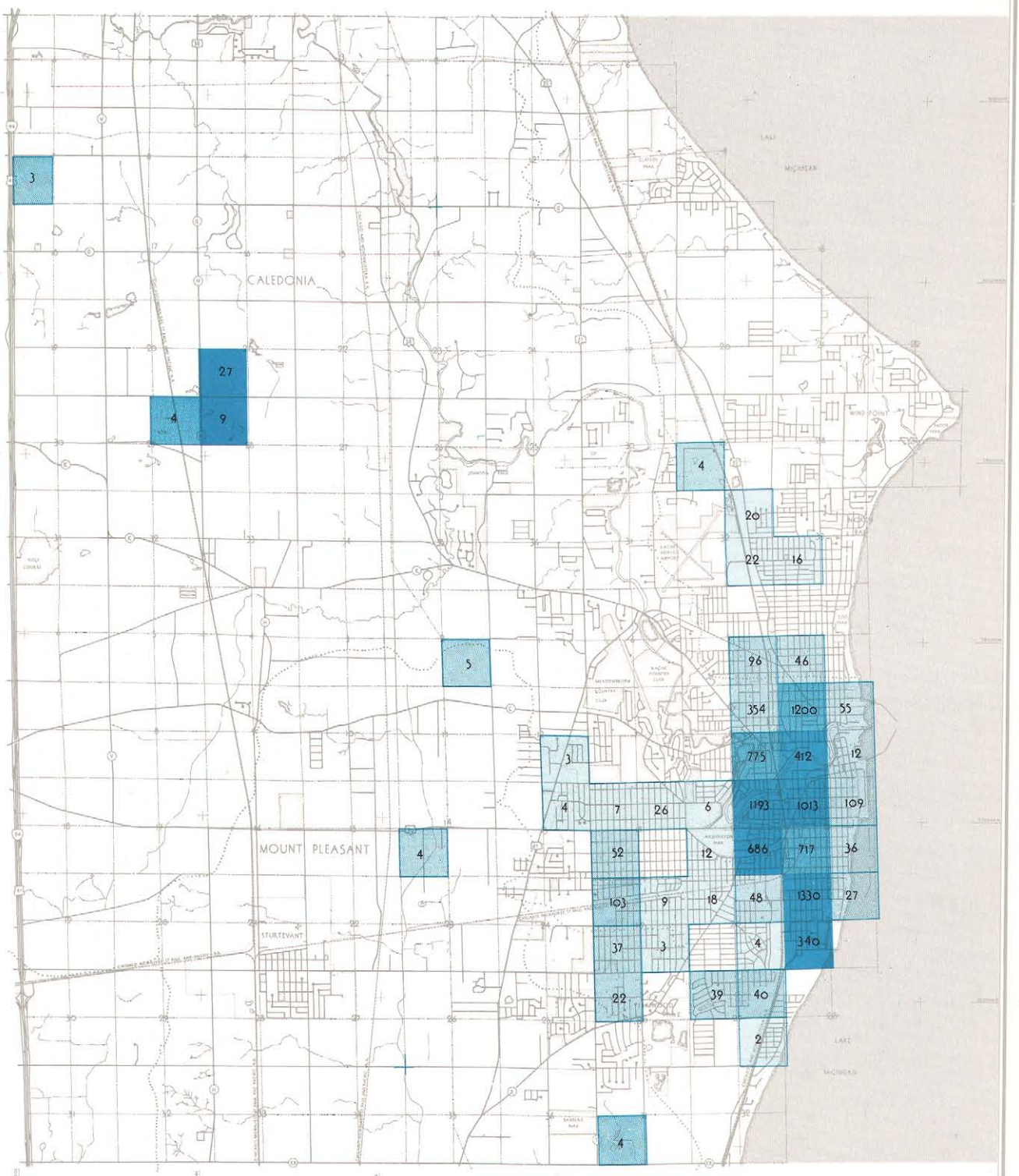
Figure 3-5

EDUCATIONAL CHARACTERISTICS



SOURCE OF THESE COMPARISONS: U.S. CENSUS OF POPULATION 1940-1960

MAP 3-2



LEGEND

- COUNTY LINE
- TOWN AND RANGE LINE
- SECTION LINE
- QUARTER SECTION LINE
- STATE PLANE COORDINATE GRID
- INCORPORATED CITY OR VILLAGE
- INTERSTATE HIGHWAY
- U.S. NUMBERED HIGHWAY
- STATE TRUNK HIGHWAY
- COUNTY TRUNK HIGHWAY
- LOCAL OR MINOR STREET
- RAILROAD
- RIVER AND LAKE SHORELINE
- INTERMITTENT STREAM OR WATERCOURSE
- MAJOR PUBLIC AND SEMI-PUBLIC LAND
- POWER LINES
- MAJOR WATERSHED
- BREAKWATER

PERCENT OF TOTAL POPULATION IN QUARTER SECTION THAT IS NON-WHITE

- 80-41
- 40-21
- 20- 6
- 5- 1
- LESS THAN ONE PERCENT

10 NON-WHITE POPULATION BY NUMBER

SOURCE: U.S. CENSUS OF POPULATION - 1960

RACINE COUNTY BOARD OF SUPERVISORS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

HARLAND BARTHOLOMEW AND ASSOCIATES

NON-WHITE POPULATION BY NUMBER AND PERCENT OF TOTAL

RACINE URBAN PLANNING DISTRICT

DRAWN BY — DATE JULY 1970

CHECKED BY — DATE

APPROVED BY — DATE

PROJECT DESIGN

SCALE 1 INCH EQUALS 1 MILE

REVISED BY — DATE

RACINE URBAN PLANNING DISTRICT RACINE COUNTY, WISC.

Table 3-5

NUMBER OF HOUSEHOLDS AND POPULATION PER HOUSEHOLD – RACINE SMSA: 1960

	Number of Households[a]	Percent of Total	Population Per Household
City of Racine	27,064	66.4	3.26
The County Outside of City	13,672	33.6	3.66
Total SMSA (Racine County)	40,736	100.0	3.39

[a] *With a head-of-household reported.*

Source: U.S. Census of Population, 1960.

Several types of techniques were used in the evaluation of the population forecast. Straight line and constant rate projections, based upon the extension of past trends into the future, were made. Ratio comparisons of the District population to current and projected county, regional, state, and national population figures provided additional material for analysis. The resulting projections tended to substantiate the population forecast made for the District by SEWRPC for an increase to 224,900 persons in 1990, adding 91,000 persons to the 1970 preliminary U. S. Census population total of about 133,000 persons.

Households

The population increase of about 91,000 persons should mean an additional 27,600 households within the Planning District.[15] Households added to the District population would average 3.30 persons each as contrasted to the average of 3.32 persons per dwelling unit that prevailed in 1969, a family size closely approximating the 1960 regional average. Current trends toward smaller families and apartment living are, however, expected to continue, and may lead to a reduction in average household size. The tendency for young families, single individuals, and the elderly to maintain separate households is not expected to change greatly during the next two decades.

ECONOMY OF THE DISTRICT

The District's economic structure can be conceived as consisting of two major areas; a basic or externally-oriented sector and a non-basic or internally-oriented sector. The externally-oriented sector, in terms of employment size, is by far the larger of the two and comprises those firms whose markets for products made or services rendered lie outside the District. These firms are considered basic in that by selling to more distant markets they attract a flow of income to the District in the form of receipts. These receipts are in turn disbursed mainly to local employees or firms. This income flow in turn is respent locally for goods and services required by local residents. In a real sense the externally-oriented sector supports most of the internally-oriented sector.

Few urban areas are more industrialized than Racine with a dozen or more major corporations having their headquarters in the Planning District. Important geographic and transportation advantages have induced industries to locate in the District and this accessibility to materials and markets, a skilled labor force, and the expanding national economy have contributed to local economic growth. Almost uninterrupted increases in employment have been occasioned by growth of industry in the regional economy, and in 1960, more than one-half of the resident-employed labor force worked in manufacturing industries.

INDUSTRIAL AREA ALONG ROOT RIVER

Economic History[16]

The original impetus to the settlement of Racine was the advantageous location at the mouth of the Root River where French traders exchanged goods with the Potawatomi Indians. The site and its hinterland were opened to settlement in 1833; by 1840 the population had reached 400, and by 1850 Racine City had a population of 5,887. The small lake port shipped lumber and grain from the Wisconsin agricultural frontier, and the town's position as a trading center was enhanced by the construction of the Racine and Mississippi Railroad linking Racine and Beloit in 1855.

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[15] *According to the 1960 Census, a household "includes all of the persons occupying a housing unit, i.e., a house, an apartment or other group of rooms, or a single room which is the only room in the structure", The Population of Southeastern Wisconsin, the Southeastern Wisconsin Regional Planning Commission, p. 75.*

[16] *Sankey, Alice, Racine The Belle City — A History of Racine (Circa 1920 — Undated). Writers Program: Works Progress Administration, Wisconsin — A Guide to the Badger State, 1941.*

Table 3-6

LABOR FORCE CHARACTERISTICS

	Racine City		Racine Urbanized Area	Southeastern Wisconsin Region	Wisconsin
	1950	1960	1960	1960	1960
Population	71,193	89,144	95,862	1,573,614	3,951,777
Male	34,890	43,353	46,758	775,985	1,964,512
Female	36,303	45,791	49,104	,797,629	1,987,265
Civilian Labor Force	31,875	36,293	38,777	636,901	1,527,722
Male	22,845	24,182	25,985	431,611	1,051,528
Female	9,030	12,111	12,792	206,300	476,194
Labor Force Participation Rate	44.8	40.7	40.5	40.5	38.7
Male	65.5	55.8	55.6	55.6	53.5
Female	24.9	26.4	26.1	25.9	24.0
Employed	30,644	34,810	37,121	612,723	1,468,631
Male	21,986	23,170	24,840	415,124	1,011,324
Female	8,658	11,640	12,281	197,599	457,307
Unemployed	1,231	1,483	1,656	24,174	59,091
Male	859	1,012	1,145	16,487	40,204
Female	372	471	511	7,687	18,887
Percent Unemployed In Labor Force	3.9	4.1	4.3	3.8	3.9
Male	3.8	4.2	4.4	3.8	3.8
Female	4.1	3.9	4.0	3.7	4.0
Percent of Females In Total Labor Force	28.3	33.4	33.0	32.3	31.2

Source: U.S. Census of Population, 1950 and 1960, Southeastern Wisconsin Regional Planning Commission, The Population of Southeastern Wisconsin, 1963.

By the end of the Civil War, factories producing agricultural implements, wagons, books and other articles had been established, and the post Civil War period marked the origin of many of Racine's present-day industries, including S. C. Johnson, Rainfair, Horlick, and J. I. Case and Company. With industrialization came immigrants from nothern and central Europe, particularly so between 1890 and 1900. Lake transportation increased in this period and a 20-year port improvement program was started just prior to 1900.

By 1900, the industrial orientation of Racine was well-established, with a relatively diversified manufacturing economy supplying goods to national markets. The census of that year listed 252 factories in the city. No longer was Racine just a trading center for a rural hinterland. As the railroads expanded, the Great Lakes traffic declined. The city's diversified economic base enabled it to adjust to business fluctuations and companies which disappeared were replaced by new ones. For many years, automobiles were manufactured in the city by Case, Nash Motors and other manufacturers. As the industries multiplied and grew, many additional service establishments supplying the needs of the larger concerns were established, particularly foundries and machine tool manufacturers. This industrial expansion came to a pause in the 1930's but recovered during World War II as local industries converted to wartime production of tanks, shells and a wide variety of military equipment. Since 1945, the District has experienced a consistent economic growth with only minor leveling off periods. The District has become an integral part of the midwestern industrial belt, extending from South Bend, Indiana to Milwaukee, one of the principal manufacturing areas in the nation.

Labor Force

District residents over 14 years of age who are either employed or actively seeking employment comprise the labor force and changes in the characteristics of this labor force reflect trends in the District's economy and population.

In the nation, about 40 percent of the population is in the civilian labor force, which includes both the employed and unemployed. The percentage of the total population that is

in the labor force is the lablor force participation rate. In the Racine urbanized area[17] the participation rate was 40.5 percent in 1960, the same as the rate for the Region, and slightly higher than the state labor force participation rate. In the city, the labor force participation rate decreased by 9.2 percent between 1950 and 1960, a result of the changing age make-up of the population. (See Table 3-6.) The labor force increased in Racine County by about 25 percent in the period 1961-1969.[18]

The rising proportion of females in the labor force follows the national trend and the high percentage of males is typical of heavily industrialized communities. (See Table 3-6 and Figure 3-6 for 1960 labor force data.)

Major Employment Categories

In 1960, 51.3 percent of the labor force of the Racine Urbanized Area was employed in manufacturing, with durable goods manufacturing the most important sector. This was above that for the Southeastern Wisconsin Region, where manufacturing industries account for 41.3 percent of the labor force. Other important employment categories are retail trade and services, which together accounted for 31.1 percent of the 1960 employment. The remaining categories of employment are relatively more important in the Region than in the District. (See Table 3-7.)

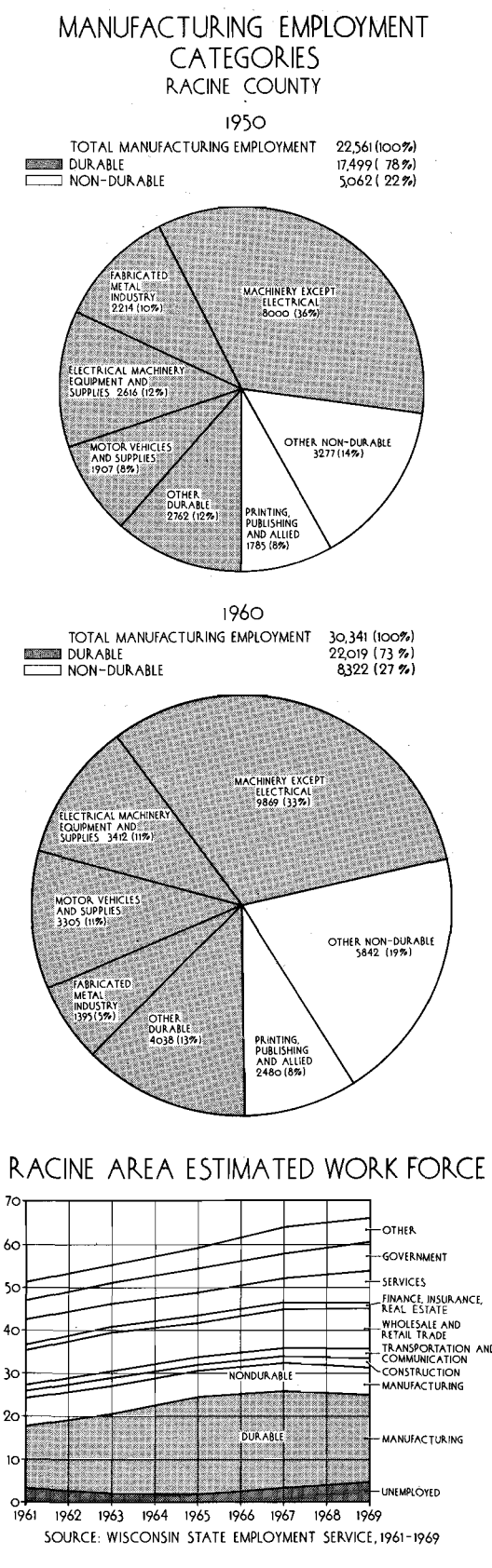
Since 1960, a consistent upward trend in the Racine County work force has occurred with an estimated 13,000 new jobs added. (See Appendix III-A.) Although there has been substantial industrial growth in the Burlington-Waterford area along the Fox River, most of the new jobs are located east of Interstate 94. The largest increase, nearly half of the new jobs, occurred in durable goods manufacture. Proportionately smaller increases were attained in non-durable goods and the other categories.

Unemployment

A moderate amount of unemployment seems to be a permanent characteristic of the local economy. Since 1950, the number of unemployed persons has not fallen below

Figure 3-6

EMPLOYMENT



[17] *The Racine Urbanized Area, as defined by the U. S. Bureau of the Census in 1960, includes the City of Racine and adjacent urbanized areas. While this statistical delineation is not precisely comparable to the Racine Urban Planning District, it does represent the closest comparable body of data. Tables 3-4, 3-5 and 3-7, therefore, include the statistics for the Racine Urbanized Area as part of the economic base analysis. Such slight differences as may exist between the Planning District and the Urbanized Area are not significant enough to alter the basic conclusions drawn from the data.*

[18] *Wisconsin State Employment Service, "Annual Manpower Planning Summary Data, Racine, Wisconsin", 1969.*

Table 3-7

INDUSTRY DISTRIBUTION OF THE RESIDENT EMPLOYED LABOR FORCE: 1960

	Racine City		Racine Urbanized Area		Southeastern Wisconsin Region	
	Number	Percent	Number	Percent	Number	Percent
Agriculture, Forestry and Fisheries	164	0.5	184	0.5	13,268	2.2
Construction and Mining	1,261	3.6	1,370	3.7	29,552	4.8
Manufacturing	17,788	51.1	19,046	51.3	253,292	41.3
Durable	13,353	38.3	14,373	38.7	188,569	30.7
Non-Durable	4,435	12.8	4,673	12.6	64,723	10.6
Transportation, Communication and Utilities	1,373	3.9	1,456	3.9	35,507	5.8
Wholesale Trade	603	1.7	671	1.8	18,747	3.1
Retail Trade	4,894	14.1	5,220	14.1	90,184	14.7
Finance, Insurance and Real Estate	908	2.6	942	2.5	23,001	3.8
Services	5,978	17.2	6,307	17.0	104,326	17.0
Public Administration	,1,066	3.0	1,101	3.0	22,686	3.7
Industry Not Reported	775	2.2	824	2.2	22,160	3.6
Total	34,810	100.00	37,121	100.0	612,723	100.0

Source: U.S. Census of Population, 1960.

three percent and the lowest recent figure for the county was 3.19 percent in 1965. As employment has grown, so has the total number of unemployed in the District, from about 1,300 in 1950 to about 2,400 in November, 1969.[19] The November, 1969 county unemployment rate was 3.9 percent of the civilian labor force, down from 5.9 percent in June. Female unemployment tends to average about four percent,[20] with a rising number of the unemployed being women seeking unskilled factory jobs.[21]

Occupations

Employment by occupational categories in the Racine Urbanized Area reflects the importance of the manufacturing sector of the economy. (See Table 3-8.) In 1960, almost 42 percent of the work force consisted of craftsmen, foremen, and operatives, compared to the Regional figure of 38.4 percent and less than 34 percent for the State of Wisconsin. Overall, more than 46 percent of the urbanized area work force is employed in "blue collar" occupations (defined as farmers and farm managers, craftsmen, operatives, laborers and farm laborers). The percentage for the Southeastern Wisconsin Region is smaller at 44.6 percent. The urbanized area also had proportionally more people occupied in the professional and service categories. Farming occupations, managers and officials, and clerical and sales personnel classifications are relatively under-represented in the urbanized area. Among female workers, the largest numbers are in the clerical, operative and service categories for both the urbanized area and the Southeastern Wisconsin Region.

Structure of the Economy

Racine County is the second largest industrial center in the State of Wisconsin in terms of value added, number of employees, production workers and payroll. During the period 1961-1969, manufacturing employment rose by 6,000 (over 45 percent of new jobs) to an estimated 25,000, most of which is located in the Planning District. Expansion of the labor force has not altered the ratio of industrial to non-industrial employment. (See Appendix III-B.)

Industrial products may be divided into two categories, durable and non-durable. Durable goods, such as machinery and fabricated metal products, are relatively permanent and of high value, and a considerable amount of processing is involved in their manufacture. Non-durable goods, such as textiles and food products, are fairly quickly consumed by the user and then replaced. In the Racine area, industrial employment is primarily in the durable goods category, comprising about 75 percent of the total. (See Figure 3-6.) An even more strongly durable goods-oriented economy is

[19] *Assuming that unemployment in the planning area is comparable to its portion of the total county population. The Wisconsin State Employment Service does not prepare employment statistics for minor civil divisions.*

[20] *Wisconsin State Employment Service, "Manpower Report for the Racine Area", December, 1969.*

[21] *Wisconsin State Employment Service, Area Manpower Review, Racine, Wisconsin, 1969.*

Table 3-8

OCCUPATIONAL DISTRIBUTION OF THE RESIDENT EMPLOYED LABOR FORCE: 1960

	Racine Urbanized Area				Southeastern Wisconsin Region				Wisconsin	United States
	Male	Female	Total	Percent	Male	Female	Total	Percent		
Professional and Kindred	2,555	1,585	4,140	11.2	44,237	22,846	67,085	10.9	10.0	11.2
Farmers and Farm Managers	41	8	49	0.1	7,177	389	7,566	1.2	7.4	3.9
Managers and Officials	2,291	335	2,626	7.1	38,797	5,895	44,692	7.3	7.2	8.4
Clerical	1,664	3,926	5,590	15.1	30,470	65,858	96,328	15.7)	19.9	21.6
Sales	1,607	1,166	2,773	7.5	28,114	18,580	46,694	7.6)		
Craftsmen	5,944	244	6,188	16.7	94,428	2,881	97,309	15.9	13.7	13.5
Operatives	7,000	2,314	9,314	25.1	105,156	32,387	137,543	22.4	20.4	18.4
Private household Workers	20	489	509	1.3	383	7,879	8,262	1.3)	10.0	11.1
Service	1,464	1,760	3,224	8.6	21,113	29,063	50,176	8.2)		
Farm Laborers	68	8	76	0.2	3,395	808	4,203	0.7	3.6	2.2
Laborers	1,424	43	1,467	4.0	24,031	1,190	25,221	4.1	4.1	4.8
Occupations Not Represented	762	403	1,165	3.1	17,821	9,823	27,644	4.5	3.7	4.9
Total	24,840	12,281	37,121	100.0	415,124	197,599	612,723	100.0	100.0	100.0

Source: U.S. Census of Population, 1960.

that of Kenosha, where a single automobile manufacturer accounts for the bulk of the manufacturing work force, 94 percent of which was in the durable sector in 1963.[22] Since 1967, however, there has been a slight contraction in durable goods employment, while non-durable employment increased.

Between 1958 and 1963 the moderate industrial growth in Racine was comparable to the other metropolitan areas in the state. (See Table 3-9.) The number of establishments remained stable at over 300, but value added by manufacture (a measure of the value of the net product of goods and services) increased by one-third. Inflation at the national level and increased worker efficiency led to a rise in the value added per worker. Employment and payrolls increased. (See Table 3-9.)

J. I. CASE COMPANY CLAUSEN WORKS

Major employment categories in the non-manufacturing sector are wholesale and retail trade, services and government. In the county, non-manufacturing employment has shown a 26.4 percent increase since 1961, with 7,270 persons added to employment in this category. This growth, however, has not altered the basic characteristics of the economy of the District.

Generally, employment within the various non-manufacturing categories has increased at a uniform rate. Wholesale and retail trade has increased by 1,600 persons in the Planning District, the largest numerical increase in the non-manufacturing sector. In line with the national trend toward an expanding service economy, service employment has grown by an estimated 1,800 jobs since 1960.[23]

Manufacturing

The major manufacturing industries, both durable and non-durable, comprise most of the basic sector of the economy.

Machinery. This is one of the most important industries in the District and Wisconsin.[24] Non-electrical machinery

[22] *Southeastern Wisconsin Regional Planning Commission, Planning Report No. 10, Harland Bartholomew and Associates, A Comprehensive Plan for the Kenosha Planning District, 1967.*

[23] *Wisconsin State Employment Service, 1961-1969.*

[24] *University of Wisconsin, Graduate School of Business, Wisconsin Economy in 1975, 1967.*

Table 3-9

MANUFACTURING IN SELECTED WISCONSIN STANDARD METROPOLITAN STATISTICAL AREAS: 1958 and 1963

Item	Duluth-Superior	Green Bay	Kenosha	Madison	Milwaukee	Racine
Number of Establishments						
1958	386	235	111	270	2,298	319
1963	364	275	119	305	2,405	323
Percent Change	-5.7	+17.0	+7.2	+13.0	+4.7	+1.3
Value Added (000) Adjusted						
1958	101,811	121,617	163,464	100,642	1,722,520	209,816
1963	132,287	186,196	363,729	138,791	2,237,200	281,551
Percent Change	+29.9	+53.1	+122.5	+37.9	+29.9	+34.2
Value Added Per Worker						
1958	9,018	9,982	10,590	8,574	9,529	10,308
1963	11,481	13,807	16,154	10,317	11,541	12,691
Percent Change	+27.3	+38.3	+52.5	+20.3	+21.1	+23.1
Number of Employees						
1958	11,290	12,183	15,436	11,737	180,758	20,354
1963	11,522	13,486	22,516	13,452	193,845	22,185
Percent Change	+2.1	+10.7	+45.9	+14.6	+7.2	+9.0
Production Workers						
1958	8,666	9,758	12,269	8,365	126,193	13,950
1963	8,847	10,549	18,825	8,915	133,262	14,680
Percent Change	+2.1	+8.1	+53.4	+6.6	+5.6	+5.2
Payroll (000)						
1958	55,901	59,670	84,128	57,983	992,131	107,685
1963	60,613	81,651	150,462	83,101	1,271,922	147,163
Percent Change	+8.4	+36.8	+78.8	+43.3	+28.2	+36.7

Note: The Milwaukee SMSA included Milwaukee and Waukesha Counties in 1958. Since 1958, two additional counties, Ozaukee and Washington, were added to the Milwaukee SMSA. 1958 and 1963 data for the Milwaukee SMSA is not comparable as shown.

Source: U.S. Census of Manufacturers, 1958 and 1963.

manufacturing is the largest industrial employment category in the District while in Wisconsin, non-electrical machinery accounts for 18.3 percent of "value added" and 18.2 percent of employment. In Racine County, employment in non-electrical machinery increased from 8,000 to 10,000 between 1950 and 1960 and since then has remained stable at just under 10,000 persons. For the 1947 to 1963 period, Wisconsin employment in this category rose by only two percent while "value added" increased by 110 percent, reflecting increasing use of automation.

Several firms make up the non-electrical machinery industry of the District, of which: J. I. Case,[25] Twin Disc,[26] Modine Manufacturing Company,[27] Racine Hydraulics and Walker Manufacturing Company[28] are among the largest. Among other things, these Racine based corporations produce farm equipment, hydraulic equipment, automotive accessories, construction equipment, and heating and air conditioning equipment.

The electrical machinery industry has been of major significance in Racine, and the city has been called the small motor capital of the world. Electric machinery producers include Howard Industries, In-Sink Erator, Mamco and Webster Electric. In the past eight years, employment has dropped somewhat due to the closing of Hamilton Beach, an appliance manufacturer.

Chemical and Allied Products. National headquarters for the S. C. Johnson Company, a major corporation producing a wide variety of floor waxes, polishes and other products is located in the City of Racine. It is the largest producer of

[25] *J. I. Case Company Annual Report, 1968.*

[26] *Twin Disc, Incorporated Annual Report, 1968.*

[27] *Modine Annual Report, 1968-1969.*

[28] *Walker Manufacturing Company, "Walker, Innovator in the World of Automation."*

non-durable goods in the city, with an employment in excess of 2,500. This company accounts for all chemical industry employment in the Planning District and for about one-third of the state total. A rapid increase in chemical products employment took place between 1950 and 1969, both locally and state-wide.[29]

Printing and Publishing. The second most important non-durable industrial activity in the Planning District is printing and publishing. Employment has risen from 1,785 in 1950 to an estimated 2,500 in 1969. The major growth period was between 1950 and 1960 when the rate of growth was proportional to total area-wide industrial expansion. State-wide employment in the printing and publishing industry, of which ten percent is located in Racine, grew by 34 percent between 1947 and 1963, with "value added" rising 171 percent. Western Publishing Company, Incorporated, headquartered in Racine, accounts for nearly all of the printing and publishing activity in the Planning District.

Fabricated Metal Industries. The fabricated metals industry produces a variety of metal products such as structural steel, pipe, wire, steel sheets and similar products needed for industry and construction. Traditionally, this industry has not been characterized by rapid growth, although county employment has risen from 1,400 in 1960 to the present figure of 2,000. There are a number of smaller firms in this category producing a variety of goods.

Agriculture

Agriculture remains an important sector of the county economy, with approximately 70 percent of the county land area in farms, and 228 farms located in the Planning District.[30] The value of agricultural production rose in Racine County by four million dollars between 1959 and 1964.

Farms, averaging 125 acres in size, are smaller than the state average, but the value of land and buildings per acre is substantially greater. Land in the District is highly productive and much of the farmland is utilized for vegetable production. Cabbages grown in the area are processed for sauerkraut by the Frank Pure Food Company in Franksville. Dairying is declining as more of the land goes into cash crops: corn, soybeans, winter wheat and barley in addition to vegetables. Cash crop acreage decreased from 24,466 acres in 1957 to 22,138 acres in 1968, down 10.5 percent.[31] (See Figure 3-7.)

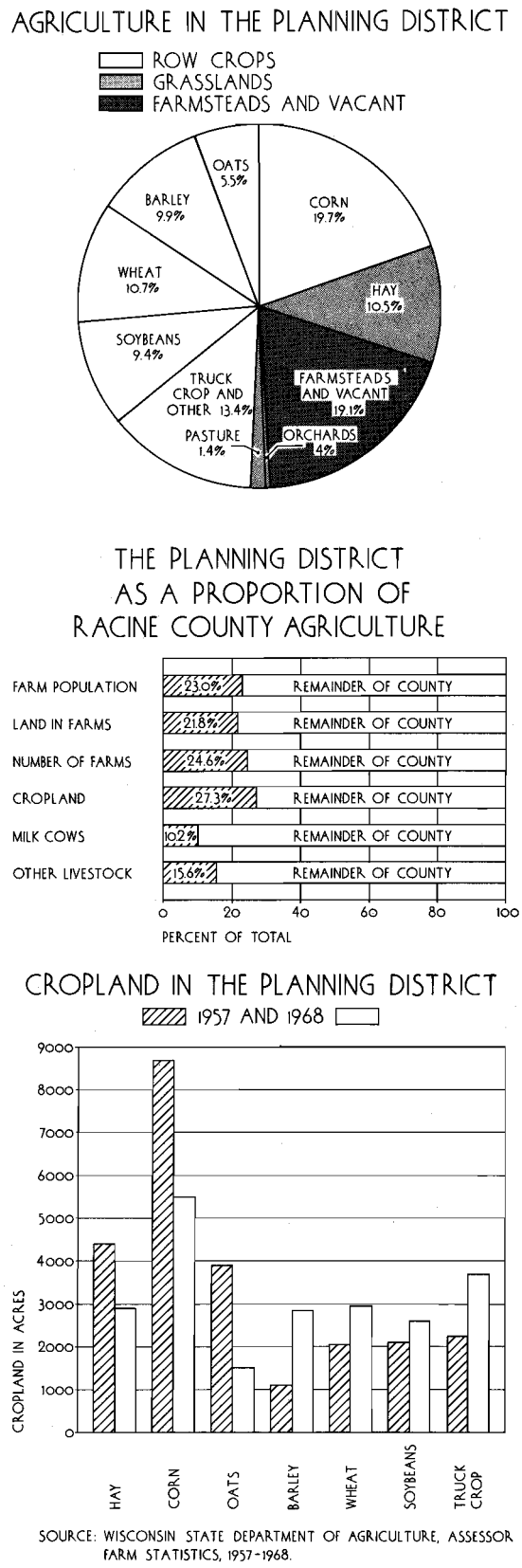
[29] *Southeastern Wisconsin Regional Planning Commission, The Economy of Southeastern Wisconsin, p. 101, June, 1963.*

[30] *U. S. Census of Agriculture, Volume I, Part 14, 1964.*

[31] *Wisconsin Department of Agriculture, "Assessor Farm Statistics", 1968.*

Figure 3-7

AGRICULTURE



SOURCE: WISCONSIN STATE DEPARTMENT OF AGRICULTURE, ASSESSOR FARM STATISTICS, 1957-1968.

Between 1959 and 1964, the number of commercial farms in the county decreased from 928 to 845, but the number of farms in the Class I and II categories, which have the highest value of products sold, increased from 123 to 213. The number of part-time retirement farms increased from 85 to 100, but other part- time farms decreased from 275 to 246. Apparently, only large scale farming operations mechanized to efficiently utilize the land resources can be successful in close proximity to metropolitan areas.

Trade and Services

The community's retail trade area will vary according to a wide variety of factors, among which are its geographical location, the configuration of primary transportation routes, and the location and character of competing centers. The primary retail trade area of the City of Racine corresponds with the area of greatest local newspaper coverage, and the area served by the Racine telephone exchange. In both instances, these service areas correspond fairly close to the boundaries of the Racine Urban Planning District, although extending somewhat west of Interstate 94 and being infringed upon at the very northern edge of the county by the Milwaukee trade area.[32]

Large neighboring metropolitan centers attract some trade that would otherwise stay within the District if the District's location were more isolated. This is particularly true of the more specialized and frequently more profitable areas of commerce. The larger metropolitan areas also have evolved into major wholesaling centers because of their highly developed transportation networks, and have overshadowed a smaller community like Racine in this function. However, with the interstate highway system large wholesale operations may find more efficient locations in smaller communities.

Retail Trade. A substantial expansion of retail trade in Racine County has occurred within the last eight years, with total yearly sales rising by 31.6 percent from $179 million to $236 million.[33] When compared to the rapid rise in population also occurring during this period, this growth is not as large as might have been expected. Since the 1950's and before, the growth of retail trade activity in Wisconsin has not kept pace with that of the nation.[34]

Between 1963 and 1967, total retail sales and average sales per establishment increased sharply, while the number of establishments and total retail employment increased only slightly.[35] (See Table 3-10.) In Wisconsin in 1968 retail sales were 56 percent of estimated effective buying income. This percentage was not too different in the Region – 57 percent. Yet in Racine County the retail sales amounted to only 46 percent of the effective buying inccome.[36] The families in Racine undoubtedly spent as much as those in the other areas; they just spent it someplace else, possibly in Milwaukee County where sales were 61 percent of effective buying income. Income per household in Racine County is slightly less than in Milwaukee County and somewhat more than in the Region. Yet the retail trade in Racine County was $4,738 per household in 1968, while comparable figures for Milwaukee County and the Region were $6,467 and $5,943, respectively.

Table 3-10

RETAIL TRADE ANALYSIS
RACINE STANDARD METROPOLITAN STATISTICAL AREA

	1963	1967
Number of Establishments	1,337	1,393
Sales	$187,201,000	$241,803,000
Average Sales Per Establishment	$140,016	$173,584
Employees	6,630	6,868
Payroll for Entire Year	$20,948,000	$27,985,000
Average Payroll Per Employee	$3,160	$4,075

Source: U.S. Census of Business, 1963-1967.

DOWNTOWN AREA – CITY OF RACINE

Dollar volume of retail trade increased in all major categories between 1963 and 1967. (See Figure 3-8.) However, general merchandise, food and building materials increased substantially, while increases in other categories have been proportionately smaller, with modest increases in

[32] *Sales Management Magazine, "Survey of Buying Power", 1961-1969. Note: Dollar volumes shown are not correct for inflation.*

[33] *Ibid.*

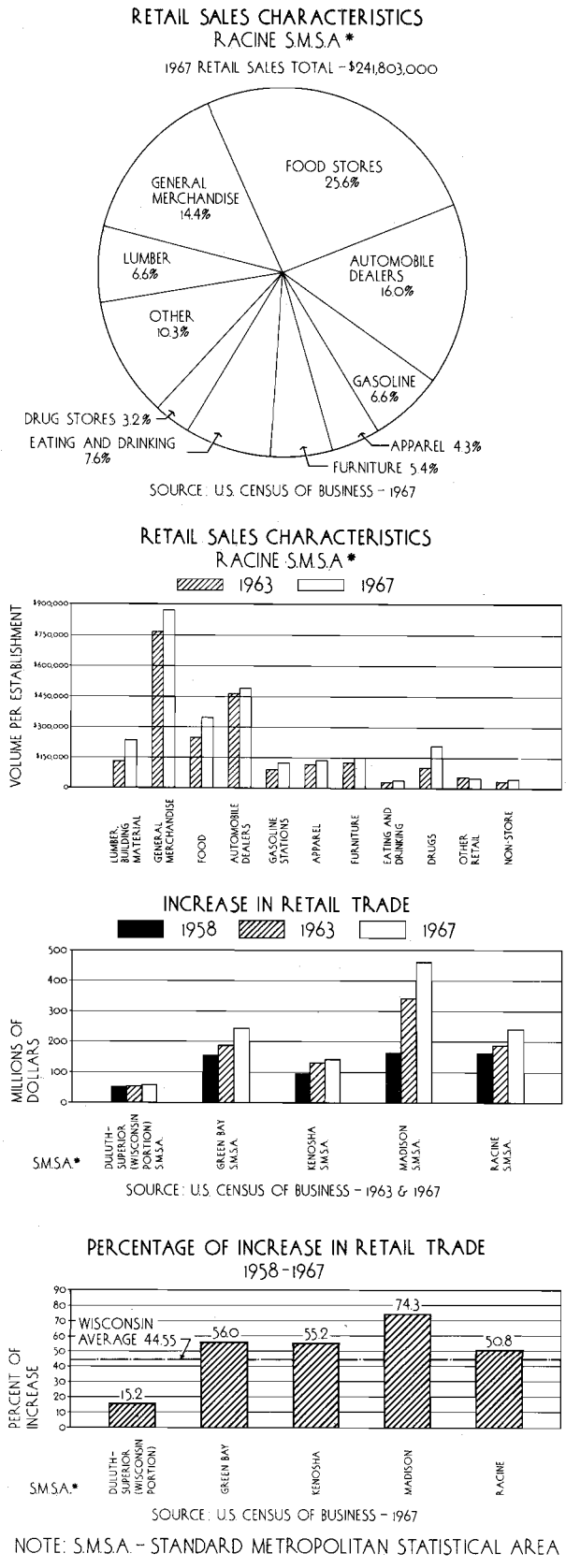
[34] *U. S. Census of Business, Retail Trade, 1958, 1963.*

[35] *U. S. Census of Business, 1963-1967.*

[36] *This percentage has been decreasing; it was 54 in 1961 and 1965.*

Figure 3-8

RETAIL SALES ANALYSIS



NOTE: S.M.S.A. - STANDARD METROPOLITAN STATISTICAL AREA

the apparel, furniture and eating and drinking categories. Racine County has a larger percentage of total retail sales in general merchandise than Wisconsin, although less than Milwaukee County. Recent increases which have occurred in the value of general merchandise sales may be explained by the construction of several suburban shopping centers in the past eight years. (See Table 3-11.)

Table 3-11

RETAIL SALES CATEGORIES
BY PERCENTAGE OF TOTAL RETAIL SALES: 1968

	Racine County	Milwaukee County	State of Wisconsin
Food	21.6	20.9	20.9
Eat and Drink	8.5	9.4	9.8
General Merchandise	20.4	24.0	16.5
Apparel	4.3	5.0	4.6
Furniture	5.4	4.9	4.3
Automotive	16.8	17.3	17.8
Gas	6.5	6.1	6.8
Lumber	5.3	2.3	7.4
Drugs	3.2	3.1	3.1
Other	8.0	7.0	8.8
Total	100.0	100.0	100.0

Source: Sales Management Magazine, Survey of Buying Power, 1961-1969.

Wholesale Trade. Wholesale trade in Racine County showed an increase of $42.5 million or 47.7 percent in total sales between 1963 and 1967. Even when inflation is taken into account, this is an impressive gain, as the increase between 1958 and 1963 was only $6.5 million. Racine has been able to exceed the state's growth rate in wholesale trade over the past four years. (See Table 3-12.)

The number of wholesale trade establishments has remained stable in the District, with some shifting among the dominant categories. The largest amount of wholesale trade activity, totaling over two-thirds of net sales, is concentrated in machinery equipment, supplies, petroleum bulk stations, and groceries and allied goods. The machinery category has shown a sharp upturn in sales. A long period of employment stability in wholesale trade ended in the 1963-67 period when almost 400 employees were added, an increase of 30 percent. Much of this increase resulted from new wholesale operations which were attracted into Racine County.

Racine has not been a wholesaling center, primarily due to geographical and competitive factors, and traditionally Milwaukee has dominated wholesale trade in Wisconsin.

Several factors could bring about expansion of the wholesale function, including: population growth rates,

Table 3-12

WHOLESALE TRADE: 1963-1967

	Establishments		Sales (000's)		Employment	
	1963	1967	1963	1967	1963	1967
Total	189	187	89,217	131,787	1,307	1,698
Machinery Equipment and Supplies	36	34	19,804	46,399	300	457
Petroleum Bulk Storage Terminal	31	28	13,435	16,647	117	149
Grocery and Allied	21	21	18,730	18,408	142	151
Electrical Goods	13	13	5,894	7,876	89	113
Other	88	91	31,354	42,457	659	828

Source: U.S. Census of Business, 1963-1967, Wholesale Trade, Wisconsin.

Table 3-13

SELECTED SERVICES

	Establishments		Percent	Receipts (000's)		Percent
	1963	1967	Change	1963	1967	Change
Total	674	751	+11.4	19,759	27,232	+37.8
Hotels and Motels	38	36	-5.5	2,123	1,959	-7.7
Personal Services	267	264	-1.1	5,911	6,184	+4.6
Miscellaneous Business Services	75	153	+104.0	5,097	9,529	+86.9
Auto Repair	81	91	+12.3	2,964	4,813	+62.4
Miscellaneous Repair	154	127	-17.5	1,778	2,236	+25.7
Motion Pictures	5	6	+20.0	401	461	+15.0
Other Amusements	54	74	+37.0	1,485	2,050	+38.0

Source: U.S. Census of Business, 1963-1967, Selected Services, Wisconsin

consumption levels, changing patterns of market penetration by individual wholesale dealers, and the comparative freedom from congestion found in smaller urban areas.

Selected Services. Personal services, repair services, entertainment, and lodging places are classified as "selected services". Employment opportunities of this nature tend to increase in an expanding, affluent society, and service employment in the Planning District has increased since 1960, being now larger than the non-durable goods work force.[37] Between 1963 and 1967, service establishments increased by 11.4 percent in the county. (See Table 3-13.) During the same period, receipts were growing three times faster, up 37.8 percent. For the State of Wisconsin, the increase in selected service receipts was 30 percent. While overall increases in receipts were occurring, the number of establishments decreased in several service categories, including hotel-motel, personal service, and miscellaneous repair. Major increases have occurred in the miscellaneous business and amusement categories.

Government and Education. The expansion of governmental employment results from a larger number of citizens requiring a greater amount of public service such as police and fire protection and garbage and solid waste disposal. Rising standards of education mean an increasing need for teachers and other school personnel. As the regional economy has grown in recent years, the District has experienced substantial increases in employment in this category. In 1960, there were more than 1,500 persons employed in educational services in the Racine urbanized area and 1,100 persons in public administration, plus many others who were employed by government in various other capacities. Governmental employment in the District increased from about 4,500 persons in 1961 to 6,500 in 1969, a rate of growth second only to the service category. Government employment increased from 9.0 percent of the total employment in 1961 to 10.5 percent in 1969. (See Figure 3-6.)

Transportation, Communication and Utilities. Transportation, communications and utilities are essential services required by all urban areas. The relative importance of each of the activities, however, will vary according to the

[37] *Sales Management, "Survey of Buying Power", 1961-1969.*

economic characteristics. Racine is served by important transportation links, but is not a transfer point such as Milwaukee. In 1960, total employment in these classifications was 1,456 for the urbanized areas, or 3.9 percent of the resident employment for both the city and urbanized areas. In the Southeastern Wisconsin Region, 5.8 percent of the employment is found in the areas of transportation, communications and utilities.

Local trucking operations account for much of the transportation employment. In 1960, there were 387 truckers, 124 railroad workers, and 166 other urbanized area residents in transportation, accounting for 46.5 percent of total employment for this category.

Utilities and communications facilities tend to be distributed geographically according to population density. Therefore, employment in these areas is to a lesser degree than transportation a function of the city's geographical location. Some 779 persons were employed in utilities and communications within the urbanized area in 1960; 251 in communications and 528 in utilities.

In the past decade, employment in this category has risen by 500 persons, almost a 30 percent increase. In 1969, there were an estimated 1,800 persons employed in this category in the District.

Income

Racine County is a fairly prosperous area with rising incomes and relatively few persons in the poverty categories. This is a result of the majority of the employment being in skilled industrial jobs. In 1968, the effective buying income per household in Racine County was $10,345 in comparison with $9,708 in the Region, $11,257 in Milwaukee County and $10,045 in the state.[38]

Households with net incomes above $10,000 per year accounted for 30.7 percent of the total. (See Figure 3-9.) The second largest income category includes households earning between $5,000 and $7,999, an income level which includes much of the industrial work force. In 1968, only 21.8 percent of Racine County households earned below $5,000 per year as compared to 32.1 percent of all United States families. The county likewise exceeds state and national averages for families in the higher income brackets.

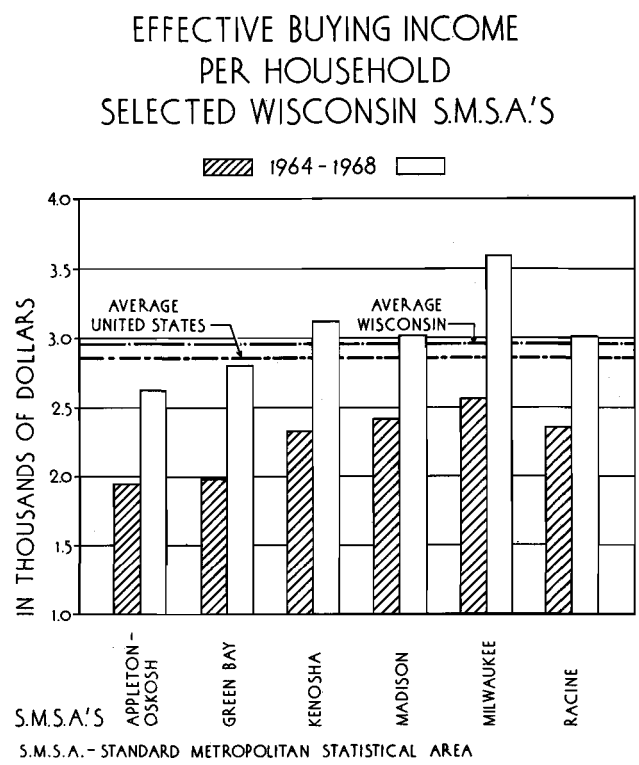
FUTURE EMPLOYMENT LEVELS

Employment in the Racine Urban Planning District is forecast to reach 78,700 employees by 1990. This represents an increase of 54 percent over the 1970 employment level of 51,200 employees.

[38] *Effective buying income is the income left after taxes.*

Figure 3-9

INCOME ANALYSIS



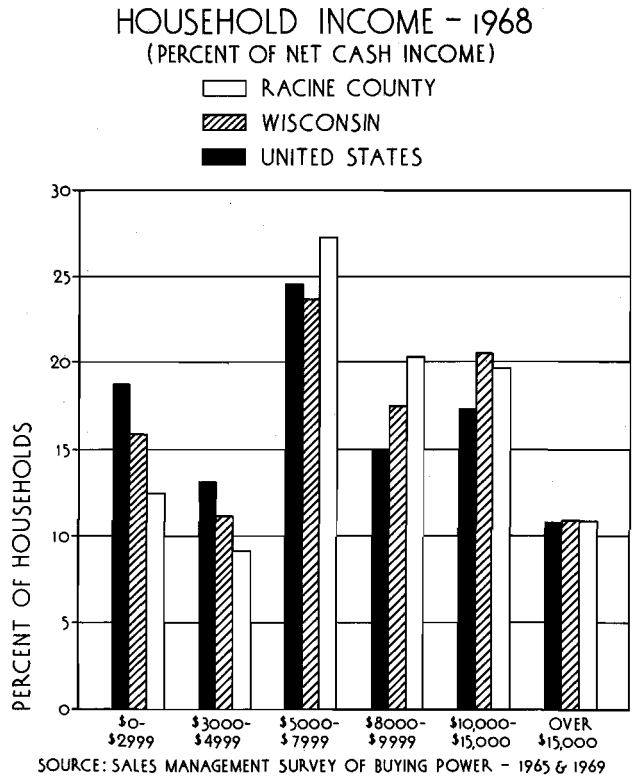


Table 3-14

ESTIMATED AND FORECAST EMPLOYMENT BY MAJOR INDUSTRY GROUP FOR THE RACINE URBAN PLANNING DISTRICT: 1970 and 1990

Industry Group	1970		1990		1970 - 1990 Percent Change in District Employment
	Estimate	Percent Distribution	Forecast	Percent Distribution	
Agriculture	500	1.0	200	0.3	-60.0
Construction	1,700	3.4	2,800	3.5	+64.7
Manufacturing	21,800	42.6	32,700	41.6	+50.0
Trade	7,900	15.4	12,600	16.0	+59.5
Transportation, Communications and Utilities	1,800	3.5	2,700	3.5	+50.0
Finance, Insurance and Real Estate	1,200	2.3	2,400	3.0	+50.0
Services: Private, Government and Education	12,400	24.2	19,800	25.1	+59.7
Other[a]	3,900	7.6	5,500	7.0	+41.0
Total	51,200	100.0	78,700	100.0	+53.7

[a] *Includes self-employed, unpaid family, and domestic workers.*

Source: SEWRPC

The forecast entails an assumption that the employment participation rate will decline slightly from the 1970 level of approximately 385 employees per 1,000 population to approximately 350 employees per 1,000 population by 1990. This reflects a further assumption that fewer employees will support the District population in the future than at present and that the size of the labor force relative to the total population will decrease. These assumptions appear reasonable, not only in consideration of recent trends, but in consideration of trends toward higher educational attainment and earlier retirement ages.

Table 3-14 shows the estimated and forecast employment distribution by industry group for the District for the years 1970 and 1990. Manufacturing is expected to remain the dominant industry group, decreasing only slightly during this period in relative importance to the other industry groups. With the exception of agriculture and the "other" industry categories, the non-manufacturing groups are expected to remain constant or increase as a percent of total employment over the period. It is expected that continuing urbanization within the District and the trend toward larger acreage farms and a correspondingly greater utilization of machinery will cause agricultural employment to continue to decrease within the District over this period. The services sector of the economy is also expected to provide additional employment at a slightly higher level in relationship to total employment over the planning period.

It should be noted that the forecast changes in employment between 1970 and 1990 are indicative of an expanding economic base of manufacturing firms whose employment should increase by approximately 50 percent. This growth is expected to be accompanied by a similar rate of increase of employment in the transportation, communication, and utilities industry group and in the finance, insurance, and real estate industry group. This expanding economic base, together with the forecast population growth should assist in generating increased employment in construction activities and in retail and wholesale trade activities over the planning period.

SUMMARY

Changes in the size and characteristics of the population reflect economic and social changes which have occurred in recent years. Demographic and economic trends reveal that the District's characteristics are changing toward a younger, better-educated population with improving employment opportunities in the basic industries and service categories. These trends will influence forecasts of the future size of the population and economic growth prospects.

The District's population has increased from 8,063 people in 1850 to about 133,000 people in 1970. Recent population growth has been at a reduced rate, due to decreases in both the birth rate and rate of net in-migration. Natural increase (births over deaths) is now the major growth factor. While in-migration has declined, industrial employment opportunities continue to attract minority groups (primarily Negro and Latin American) into the area.

Population densities range from 500 to 14,000 persons per square mile, with highest densities occurring in the older urban areas. Densities gradually decrease in peripheral portions of the Planning District.

Characteristics of the population are changing, with age group relationships altered by the lowering of the birth rate and reductions in migration patterns. The population is younger, with a median age of 28.4 years than the state or nation. Females outnumber males 50.9 percent to 49.1 percent. Ethnic characteristics are changing. In 1960, only seven percent of the population was foreign born and 25 percent of foreign stock. Since World War II, a small in-migration of Latin and Mexican Americans (about two percent) has occurred.

Education attainment levels in the over 25 age group have been increasing, due to the increasing number of people who have completed four years of high school or some college. In 1960, the District had a median of 10.5 years of school completed in the over 25 age group.

Family size in the county was 3.39 persons per thousand in 1960, exceeding the 3.30 figure for the Region, but average population per household is greater outside the City of Racine.

The population of the Racine Urban Planning District is forecast to increase by 91,000 persons during the next two decades, which will give the District a 1990 population of 224,000 persons.

The economy of the District is heavily oriented to manufacturing, producing machinery, chemicals, printing and fabricated metals. Past growth trends reflect periods of prosperity at the state and national levels. The structure of the economy has produced a strong employment base of skilled and semi-skilled workers.

Industrial expansion has been primarily responsible for past economic growth. The value of industrial products produced has been increasing faster than employment because of increasing efficiency, automation, and increased labor productivity. Jobs in service and governmental classifications have been increasing recently, largely due to general affluence and increased demands for services by both private and public sectors.

Agriculture is in some respects declining but remains an important sector of the District's economy. Reflecting national trends, farms in the District are becoming larger in area and fewer in number. Mechanization has increased productivity and reduced employment. Urbanization combined with other forces has reduced the amount of land in production.

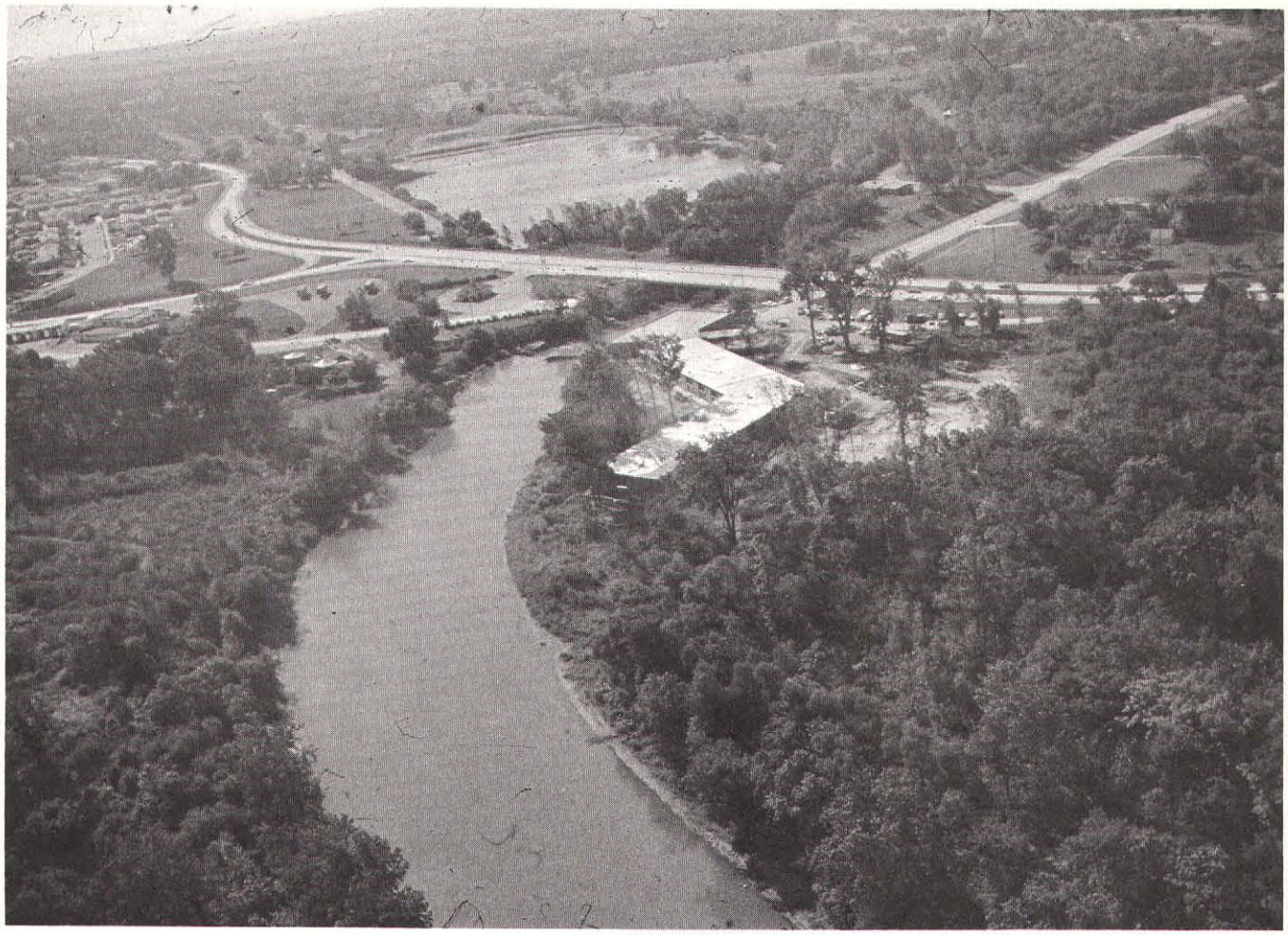
Unemployment has fluctuated between three and five percent of the labor force in recent years. This has come to be regarded as an expected level for unemployment.

Retail and wholesale trade are strongly influenced by the larger neighboring metropolitan centers. Even though shopping opportunities have increased at the local level, retail sales tend to become a smaller percentage of effective buying income within the District.

Household incomes in the District are relatively high, reflecting the skilled status of much of the labor force employed in local industries. In 1968 some 30 percent of the households in Racine County had incomes over $10,000 per year. This produced an average effective buying income of $10,345, which was higher than the average for the Region, State and Nation.

Employment in the Racine Urban Planning District is forecast to increase by 27,500 persons during the next two decades. Increases of 50 percent or more are anticipated for all industry groups except agriculture. Manufacturing, with an additional 10,900 employees, will remain the largest component of the local economy in 1990, employing 41.6 percent of the employed labor force.

CHANGING SHOPPING PATTERNS PRODUCE OUTLYING SHOPPING CENTERS



ROOT RIVER

Table 4-1

TEMPERATURE AND PRECIPITATION RECORD: 1930 TO 1959

	Temperature (°F)			Precipitation (inches)		
	Maximum Monthly	Mean Monthly	Minimum Monthly	Maximum Recorded	Recorded Mean	Minimum Recorded
January	33.8	24.22	16.0	4.12	2.00	0.44
February	35.2	26.21	12.2	3.36	1.51	0.30
March	45.4	34.45	28.6	5.71	2.66	0.62
April	52.0	45.93	40.5	5.42	2.82	0.62
May	62.1	56.14	50.4	10.98	3.58	0.97
June	74.4	67.05	62.0	5.83	3.48	1.19
July	77.1	73.05	69.1	7.67	3.06	0.42
August	77.8	72.31	66.6	8.30	3.19	0.63
September	70.9	64.62	59.0	8.46	3.04	0.30
October	57.4	53.46	48.6	6.18	2.06	0.07
November	47.6	38.91	30.1	6.65	2.36	0.52
December	36.3	27.81	20.2	4.20	1.97	0.34
Annual		48.7			31.73	

Source: U. S. Weather Bureau.

Chapter IV

NATURAL RESOURCES[1]

INTRODUCTION

One of the basic purposes of any urban planning effort is to develop land in a rational fashion in harmony with natural features, and the geography, climate, air, water, vegetation, minerals, soils, and wildlife should determine much of the nature and pattern of urban growth. Too often, as agricultural land has given way to homes, highways and factories, there has been insufficient regard for these natural characteristics and many unique natural features such as woodlands, wetlands, and wildlife areas have been unnecessarily destroyed. Poorly located development on floodlands has resulted in needless flood damage to property and structures. In this chapter, the basic characteristics of air, land, and water resources of the Racine Urban Planning District and the assets and liabilities attendant to these characteristics are identified and the potential of land for various uses determined.

AIR RESOURCES

Climate

The Racine Urban Planning District has a semi-humid climate which is characterized by sharp fluctuations in temperature between winter and summer, a condition due to the area's northerly and inland location.[2] In areas close to it, Lake Michigan acts as a moderating influence on temperatures, slowing down the approach of winter and retarding the coming of spring. The climate allows the typical midwestern "corn belt" agriculture. The most important influences on the climate are high and low pressure systems moving into the area from the northwest and southwest.

The winter season begins in November and lasts until March, with streams and lakes usually freezing in December and thawing in April. Occasional warming trends of short duration are experienced during this season. Spring is characterized by sharp temperature fluctuations and cool periods when prevailing winds blow from the northeast off the lake. Summer arrives in June with high humidity and temperatures, cooled by lakeshore breezes. Fall begins in September with warm days and cool nights and lasts into November when winter is apt to arrive suddenly.

Temperatures

There is a substantial temperature fluctuation between the warm and cold periods of the year. (See Table 4-1.) The maximum monthly mean, 77.8°F, is experienced in August. Following the summer highs, the temperatures decline steadily to October; a sharp drop in November marks the coming of winter. The minimum temperatures are usually experienced in February when the lowest monthly mean of 12.2°F is recorded. With the coming of spring in April, temperatures rise once again. A shifting in the wind can bring about rapid temperature changes. Winds off the lake in the spring and summer cause cooler temperatures for several miles inland.

The last frost is usually experienced no later than May 1, and the first frost in the fall usually occurs by October 1. Frost-free days per year average 170 in the easterly portion of Racine County. A growing season of this length compares to as few as 140 frost-free days in the northwestern portion of the Southeastern Wisconsin Region where the distance from Lake Michigan and the more northerly latitude become increasingly important. Corn maturity days in the county vary between 100 along the lake and 110 inland.

Precipitation

Monthly precipitation averages between 1.5 and 3.5 inches although maximum and minimum amounts recorded vary sharply above and below these figures. The annual average is 32 inches of precipitation. In general, the wettest period of the year occurs during the growing season between May and September, and this is of substantial benefit to agriculture. Precipitation is least during the winter months when it takes the form of snow. Annual mean snowfall averages 45.9 inches. Spring rains bring a rise in monthly precipitation to the summer maximums.

Winds

Prevailing winds are northwesterly from November through March, northeasterly from April through June and southwesterly from July through October. March and April are normally the windiest months with average wind speeds

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[1] *The Southeastern Wisconsin Regional Planning Commission, State, County, City and other agencies have gathered much of the data necessary for this inventory of the Racine Urban Planning District.*

[2] *Southeastern Wisconsin Regional Planning Commission, Planning Report No. 5, The Natural Resources of Southeastern Wisconsin, 1963.*

of 14 miles per hour. Wind speeds, neglecting gusts, can be expected to reach 55 miles per hour at the 30-foot level and 45 miles per hour at the 10-foot level about once in two years.

Sunshine

Annually, 56 percent of the days are sunny, with highest amounts of sunshine from May through October. The winter months from November through February experience slightly over 40 percent sunshine.

Air Quality

Air quality is a matter of increasing concern in urban parts of the United States as pollution from industry and automobiles has become more serious. Racine, located in the Chicago-Milwaukee industrial corridor, is subject to pollution from these areas in addition to that generated locally. The U.S. Department of Health, Education and Welfare, as authorized by the Air Quality Act of 1967, has designated boundaries for the Metropolitan Milwaukee Intrastate Air Quality Control Region, which includes the Planning District along with the seven counties in the Southeastern Wisconsin Region. This is a first step in the establishment of regional air quality standards and the implementation of air quality control programs.

The highest levels of particulate and sulphur oxide pollution have been found in the northeastern part of the Planning District in the vicinity of the Oak Creek power plant, where air pollution equals or exceeds that of central Milwaukee.[3] The sulphur oxide level there is the highest in southeastern Wisconsin, with an emission density of five tons per square mile per day. Elsewhere in the Planning District, pollution is concentrated in urbanized areas at levels comparable to Milwaukee, and in lesser amounts along the northern edge of the Planning District and south of Racine. The remainder of the District is relatively free of these pollutants. Levels of pollution in the Planning District are comparable to the average of all monitoring stations in Wisconsin. Topographic conditions fortunately mitigate any severe intensification of air pollution, and climatic conditions are generally favorable to disposition of pollutants over Lake Michigan, under the influence of the prevailing westerly winds. (See Figure 4-1.)

[3] *An air pollution inventory in southeastern Wisconsin was carried out by the National Air Pollution Control Administration. The study measured levels of suspended particulate matter and sulphur oxides (largely industrial air pollutants), and carbon monoxide levels produced by motor vehicles. The City of Racine operates an air pollution monitoring unit which is part of the national collecting system sponsored by the U. S. Department of Health, Education and Welfare. In 1968, this unit was moved from the old police station to a new site at the University of Wisconsin at Racine.*

Stack fumes and motor vehicles are the primary causes of air pollution in Racine. Within the eastern part of the Planning District, particulate matter from stacks has reached levels of up to 600 micrograms per cubic meter in the immediate vicinity of the pollution source. These levels drop off rapidly with distance, and are influenced by wind direction. Major industries have recognized the need to control emissions, and several have undertaken pollution abatement programs. No local program relating to motor vehicles has been undertaken and as automobiles become more numerous, carbon monoxide emissions may be expected to become a more serious problem.

LAND RESOURCES

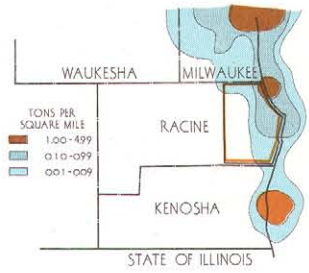
Geology

Many eons of geological forces produced the landscape of the Planning District. The Michigan lobe of the Wisconsin glacier, most recent of the glacial ages, deposited clay, sand, gravel and rock material over a mature drainage system of dolomitic bedrock. (See Figure 4-2.) This silurian dolomite, covered to a substantial depth by the glacial, alluvial lake, and loess deposits, is exposed at several points along the Root River. This stratum was an ancient sea bed hardened

Figure 4-1

AIR POLLUTION

MEAN DAILY DENSITY OF PARTICULATES IN SOUTHEASTERN WISCONSIN



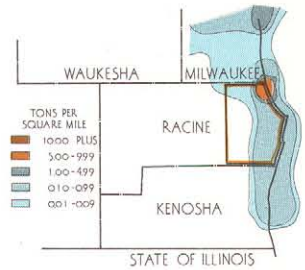
SOURCE:

UNITED STATES DEPARTMENT OF HEALTH EDUCATION AND WELFARE

NATIONAL AIR POLLUTION CONTROL ADMINISTRATION

REPORT FOR CONSULTATION ON THE METROPOLITAN MILWAUKEE INTRA-STATE AIR QUALITY CONTROL REGION - 1969

MEAN DAILY DENSITY OF SULPHUR OXIDES IN SOUTHEASTERN WISCONSIN



MEAN DAILY DENSITY OF CARBON MONOXIDE IN SOUTHEASTERN WISCONSIN

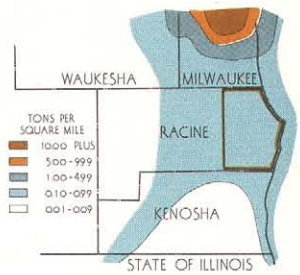
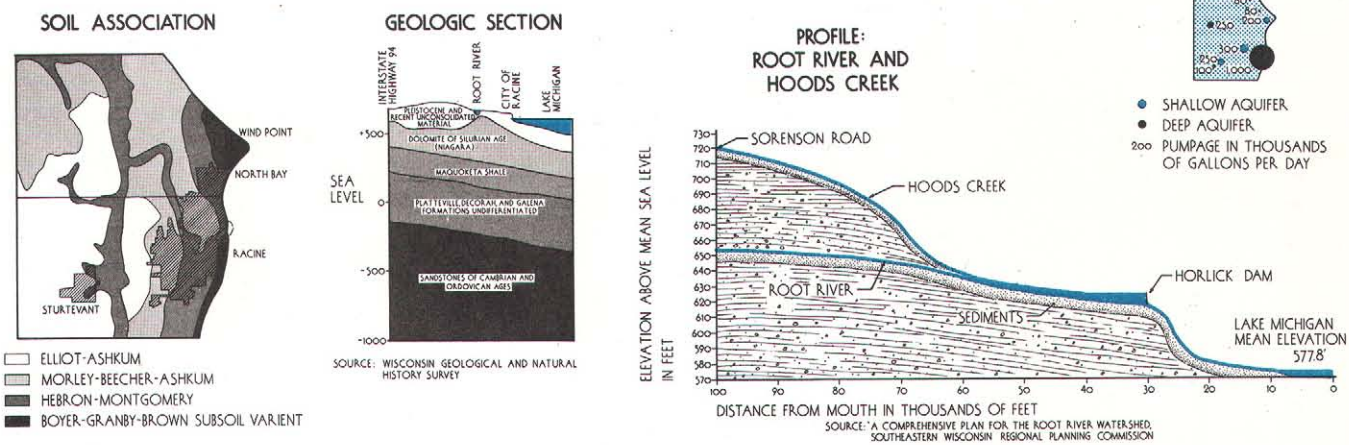
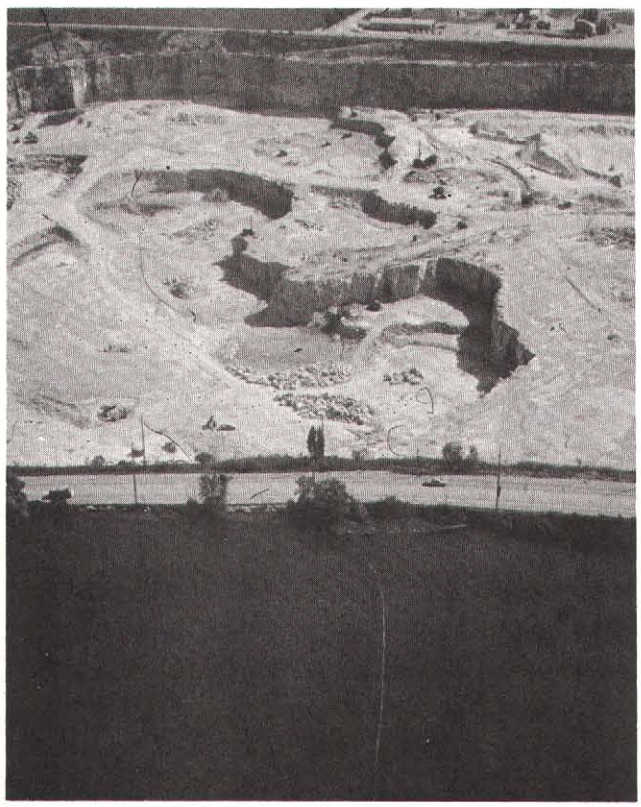


Figure 4-2

CHARACTERISTICS OF THE LAND





MINERAL RESOURCES

LAND RESOURCES

MAP 4-1

SOURCE: SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

RACINE COUNTY BOARD OF SUPERVISORS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

HARLAND BARTHOLOMEW AND ASSOCIATES

SOIL SUITABILITY FOR AGRICULTURE

RACINE URBAN PLANNING DISTRICT

Table 4-2

MINERAL PRODUCTION

	1963	1964	1965	1966	1967	1968
Racine County						
Sand and Gravel[a]	N/A[b]	N/A[b]	883	842	1,121	662
Wisconsin						
Sand and Gravel[a]	35,663	34,348	38,751	41,523	42,542	39,807
Value[c]	26,348	24,695	27,707	30,713	32,955	30,903
Stone (crushed limestone)[a]	12,007	13,901	13,030	16,150	17,122	17,000
Value[c]	13,631	20,232	15,391	23,735	24,863	25,223

[a] *In thousand short tons.*
[b] *N/A — Not Available.*
[c] *In thousands of dollars.*

Source: Minerals Yearbook: 1963, 1964, 1965, 1966, 1967, 1968.

over time by the weight of sediments. It, in turn, overlies layers of Maquoketa shale, Galena dolomite and sandstones of the Cambrian and Ordovician periods which are contiguous with the deep sandstone aquifer. These sedimentary rocks slope toward Lake Michigan at 10 to 30 feet per mile, a condition contributing to the formation of natural underground reservoirs of artesian waters.

As the glaciers receded, they deposited their debris and formed the outlines of the present topography. The easterly portion of the district to a point north of Wind Point was covered by glacial Lake Chicago. It was from material deposited by the glacier that the buff colored brick so characteristic of older buildings in Racine was made. Ancient beaches formed by the fluctuations of the lake lie parallel to the present shoreline. To the west of the old lake area is a long ground moraine, a formation of glacial till deposited by the melting glacier. Outwash terraces, where the till was washed down and sorted by the water outflow from the ice, mark the point where the Root River cuts through the ground moraine.

The westerly portion of the planning area consists of a series of three morainal ridges with steep westward facing slopes and gentle eastern slopes, which have produced the drainage pattern. The easternmost of them lies just to the west of the north-south leg of the Root River. Streams flow generally north-south in the inter-morainal valleys, cutting across the eastern slopes of the moraines in order to reach Lake Michigan. The second and third morainal ridges parallel the first and are located to the west between the first ridge and Interstate Highway 94.

The topography is flat to gently rolling with slopes below five percent. Elevations above sea level range from 580 feet on the Lake Michigan shoreline to scattered upland areas in excess of 750 feet. The shallow ponds and marshes found in the Planning District are typical of a glaciated area.[4]

Minerals

Mineral production in the Racine Urban Planning District is limited to excavation of sand, gravel, and crushed stone by open pit mining methods. These mineral resources are present in much greater quantities in western Racine County in the vicinity of the Fox River than east of Interstate Highway 94. There are no known deposits of coal, petroleum or metaliferous minerals in the Planning District. (See Table 4-2.)

Sand and gravel deposits are usually located in stream valleys, particularly along the Root River. (See Map 4-1.) Racine County ranks eighth among counties in the state in terms of sand and gravel production, but produced less than three percent of the state total in 1967.[5] Five sand and gravel operations, covering 276 acres, are active within the Planning District. Additional operations may be started in future years as demand for sand and gravel for construction makes exploitation of remaining deposits economically feasible.

Soils

Soil characteristics greatly influence the manner in which land is used. An evaluation of soil types indicates their potentials and limitations for human use. This requires an area-wide soil suitability study which maps the geographic locations of the various kinds of soils; identifies their

[4] *Wisconsin Conservation Department, Racine and Kenosha County Wetlands, 1961.*

[5] *U. S. Department of the Interior, Bureau of Mines, Minerals Yearbook, 1967.*

physical, chemical, and biological properties; and interprets these properties for land use and public facility planning. The resulting comprehensive knowledge of the character and suitability of the soils can be extremely valuable in every phase of the planning process. Soils information can comprise a prime input into the preparation of planning standards; the analysis of existing land uses; plan synthesis, test and evaluation; and perhaps most important of all, plan implementation.[6] Soils in the Racine Urban Planning District were produced by a complex interaction of parent materials, relief, climate, plants and animal life.

There are four soil associations or groupings of soils within the Planning District:[7]

1. Varna-Elliot-Ashkum. These soils developed under prairie and marsh grasses, and occupy the flat to slightly rolling western and southwestern portions of the Planning District. Underlying material consists of a sandy, glacial outwash. Elliot soils are found in the intermediate areas between the hills and valleys. These soils are highly fertile, but not well-drained, a condition which limits their usefulness for non-agricultural purposes.

2. Moreley-Beecher-Ashkum. These soils are covered with 10 to 20 inches of wind blown silt and underlain by clayey glacial till. Moreley soils formed under hardwood forest are well-drained and occupy the higher ridges. Poorly drained Beecher and Ashkum soils are found in the broad, low-lying wet depressions, and formed under prairie grass. They also are productive agricultural soils with limitations for building because of low permeability.

3. Hebron-Montgomery. Soils of this association are found in Caledonia and along a north-south band crossing part of the City of Racine and Mt. Pleasant. The Hebron soils formed under forests and occupy higher areas with steeper topography. They are relatively well-drained. The Montgomery soils, developed under wet grasses, occupy the flat plains areas and are poorly drained. These soils have a high potential for agriculture.

4. Boyer-Granby. This soil series, found adjacent to Lake Michigan, formed in sandy outwash material, and occupies glacial outwash plains and terraces. These are prairie grass soils not well suited to agriculture and have drainage characteristics varying from excellent to poor, depending upon the height of the water table.

Approximately 90 percent of District soils have either severe or very severe limitations for use of septic tanks as a means of disposing of sanitary sewage for lots under one acre in area. This is because this area is underlain by clayey deposits which impede drainage. (See Map 4-2.) Many of the best areas for septic tanks correspond with the sand and gravel deposits, which have excellent drainage qualities, but these occupy a very small area.

Surface Drainage

Surface drainage in the District is divided into four systems: the Root River; the Pike River; minor tributaries flowing into Lake Michigan; and an approximate three square mile area at the southwestern corner of the District which is part of the Des Plaines River watershed. The area drained by the Des Plaines River is separated from the remainder of the Planning District by a subcontinental divide, with water on one side draining through the Great Lakes into the Atlantic Ocean, and the other flowing to the Gulf of Mexico via the Mississippi River.

The quality of surface water within the Planning District is a function of precipitation, soil moisture conditions, the vegetation cycle, groundwater levels, and urban and agricultural runoff within the watershed areas. Water quality varies from season to season and year to year.

The Root River drains three-fifths of the Racine Urban Planning District. The river drops 80 feet in the 18.5 miles it travels across the planning area to Lake Michigan, a gradient of approximately 4.6 feet per mile. (See Figure 4-2.) The river varies in width between 20 and 100 feet. Several streams in the District have been significantly modified so as to better drain areas for agricultural purposes, particularly parts of Hood's Creek and the Pike River which have been straightened and deepened. (See Table 4-3.)

The Pike River rises in Racine County several miles northeast of Sturtevant. For most of its length in the county, the river is an open ditch. Sharp fluctuations characterize the stream flow. Measurements taken in the spring and fall of 1964 showed stream flow volumes varying between 2.3 and 27 cubic feet per second.[8]

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[6] *Southeastern Wisconsin Regional Planning Commission, Planning Report No. 7, Land Use-Transportation Study, Inventory Findings 1963, Volume One, Chapter IV, p. 52.*

[7] *Southeastern Wisconsin Regional Planning Commission, Planning Report No. 8, Soils of Southeastern Wisconsin, 1966.*

[8] *The Southeastern Wisconsin Regional Planning Commission, Technical Report No. 4, Water Quality and Flow of Streams in Southeastern Wisconsin, Table 209, p.237.*

MAP 4-2

LEGEND

MAJOR WATERSHED BOUNDARY

MODERATE TO NO LIMITATIONS FOR RESIDENTIAL DEVELOPMENT

SEVERE LIMITATIONS FOR RESIDENTIAL DEVELOPMENT

VERY SEVERE LIMITATIONS FOR RESIDENTIAL DEVELOPMENT

DEVELOPED AREA

*NOTE: SUITIBILITY FOR RESIDENTIAL DEVELOPMENT WITHOUT SEWERS

SOURCE: SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

RACINE COUNTY BOARD OF SUPERVISORS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

HARLAND BARTHOLOMEW AND ASSOCIATES

SOIL SUITABILITY FOR RESIDENTIAL DEVELOPMENT *

RACINE URBAN PLANNING DISTRICT

Table 4-3

ROOT RIVER STREAMFLOW

Station and Tributary Drainage Area	Mean Daily Flow (CFS)	Equivalent Runoff Depth (Inches)	Instantaneous Peak Flow (CFS)	Minimum Daily Flow (CFS)	Flow Equaled or Exceeded 90 Percent of Time (CFS)
Root River Near Racine (STH 38) 187 square miles					
October, 1963 to September, 1964[d]	34.4	2.51	997	1.3	2.0
October, 1964 to September, 1965[d]	121.0	8.76	1,610	3.5	3.6[a]
October, 1965 to September, 1966[e]	151.0	10.97	2,400	3.5	8.2
October, 1966 to September, 1967[e]	105.0	7.62	1,900	3.0	8.6
Long-term estimate (present conditions)[d]	86.7[b]	6.26[b]	8,200[c]	–	–

[a] *Based on both 1964 and 1965 water years.*

[b] *Estimated by multiplying 1963-1965 runoff, adjusted for sewage plant effluent by ratio of long-term (20-year) average flow of Des Plaines River at Des Plaines to 1963-1965 Des Plaines runoff.*

[c] *Corresponds to March, 1960 flood peak obtained from synthetic flood computations.*

[d] *Southeastern Wisconsin Regional Planning Commission, Harza Engineering Company, Planning Report No. 9, A Comprehensive Plan for the Root River Watershed, 1966, Table 8.*

[e] *Water Resources Data for Wisconsin, United States Geological Survey.*

Woodland Resources

The woodland resource is limited in Racine County, with forested areas quite scarce in the Planning District. Of the 219,500 acres in the County, only 15,800, or 7.3 percent, are classified as commercial forest. No commercial forests are located in the Fox or Root River watersheds. Of the counties within the Southeastern Wisconsin Region, only Milwaukee and Kenosha have a smaller forest cover than Racine.

Approximately 1,800 acres of woodland are found in the District. (See Map 4-3.) These areas are well distributed, but quite limited in total area, amounting to only 2.8 percent of the Planning District. The largest area of high aesthetic value forest land is in Caledonia Township.[9] Forest tracts are usually in the low-lying marshy areas and along watercourses, although numerous farm woodlots are an exception to this general rule.

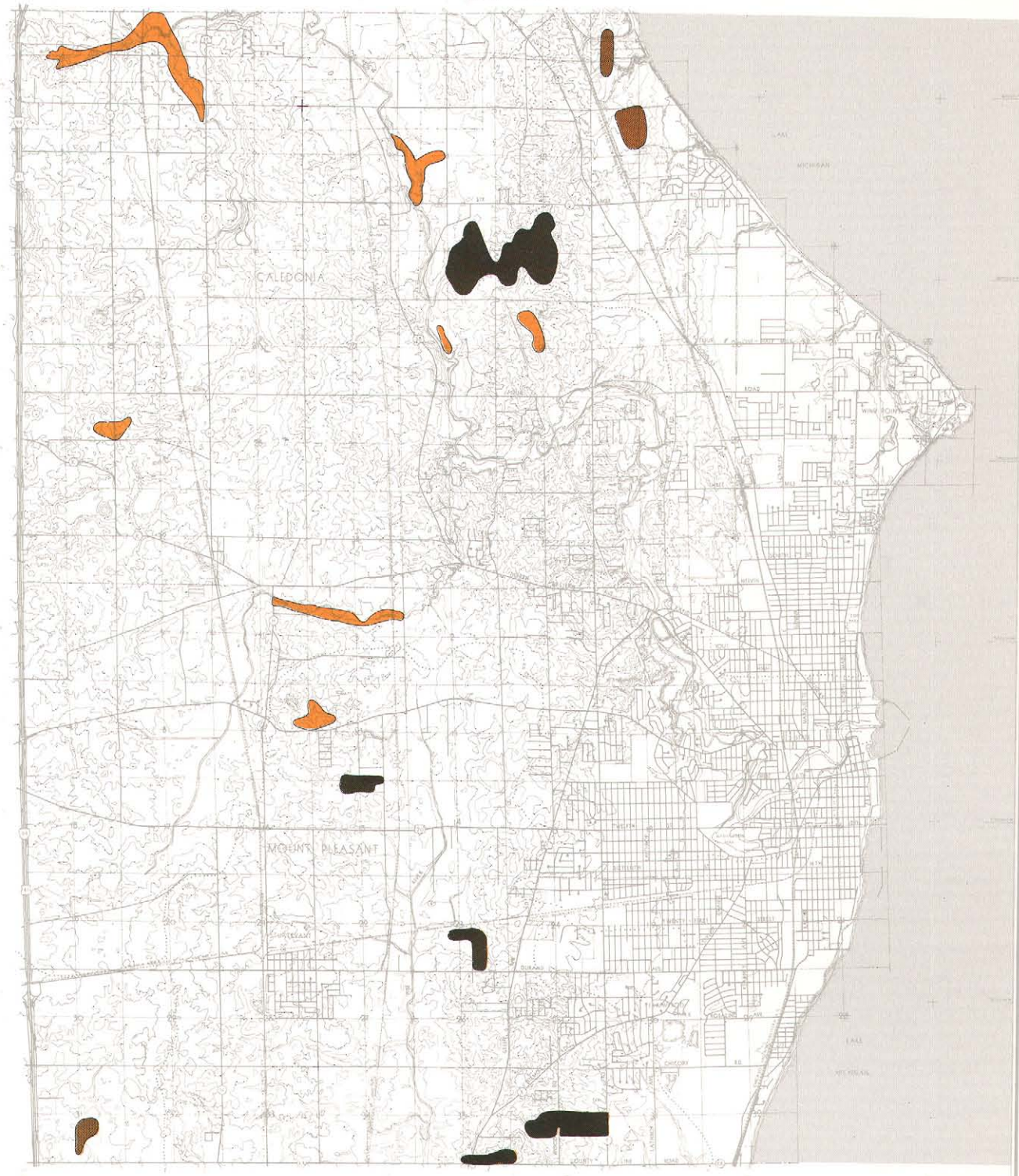
Two forest types were historically associated with the Planning District: a maple forest in the northeastern areas ajdacent to Lake Michigan, and an oak forest mixed with prairie openings in the western and southern portions. Other common hardwoods included elm, ash and basswood. Birch are found in Cliffside Park which has a cooler climate due to its location along the Lake Michigan shoreline. These species, together with other prairie associated forest types, comprise the bulk of the remaining forest cover.[10]

Most of the original forest, prairie, and wetland vegetation was removed by 1920 to make way for agriculture, and in recent decades, the urbanization of the Planning District

[9] *The Southeastern Wisconsin Regional Planning Commission has identified three woodland aesthetic values — high, medium and low.*

[10] *Wisconsin Conservation Department, Wisconsin Forest Inventory Publication No. 35, Forest Resources of Thirteen Counties in Southeastern Wisconsin, 1958.*

MAP 4-3



SOURCE: WISCONSIN DEPARTMENT OF NATURAL RESOURCES, SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

RACINE COUNTY BOARD OF SUPERVISORS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

HARLAND BARTHOLOMEW AND ASSOCIATES

WOODLANDS

RACINE URBAN PLANNING DISTRICT

has lead to the elimination of much of that which remained. Because of the limited nature of this resource, and the aesthetic value of it, what is left of it should be preserved.

Fish and Wildlife

Only those species of fish and wildlife able to live in close proximity to a large and growing urban population have survived in eastern Racine County. Most of the wildlife has disappeared and what remains has undergone substantial changes. Former inhabitants of the Region, such as the black bear, timber wolf, and bobcat have been gone for generations. In the Root River, pollution has eliminated the intolerant fish species and rough fish species have taken their place. Small animals such as the rabbit, squirrel, opossum, raccoon and skunk are relatively common and there are a small number of deer in scattered woodland areas.

There is a smaller number of birds than formerly, and some species are gone entirely. Wild duck are found in the scattered wetlands, and diving ducks frequent the Lake Michigan shoreline, but in nothing like the numbers that there were before the extensive marsh areas were drained. Pheasants and Hungarian Partridge, however, have been successfully introduced and provide the best hunting in the District. Quail and Canadian Geese are fairly common.

The Southeastern Wisconsin Regional Planning Commission has identified the areas of high, medium, and low potential for wildlife resources. These areas generally correspond with the drainageways and woodlands, and the most desirable locations are in Caledonia Township and south of Racine to the Kenosha County line. (See Map 4-4.)

Game populations in the water areas have been adversely affected by pollution, drainage of marsh areas, and straightening of streams to allow for the expansion of agriculture. As a result, fish are generally limited to "rough" species such as carp and suckers. Pan fish may be caught during periods of improved water conditions, but fishing is not currently important within the Planning District. In contrast to the remainder of the county, there are no lakes within the Planning District.

Streams harboring fish include the following:

Hood's Creek – This stream drains an extensive former wetland area. It is ditched, and highly polluted from agricultural runoff and septic tank drainage. Fish are limited to "rough" species.[11]

Husher Creek – This is an intermittent tributary of the Root River located in the northwestern part of the Planning District. Because of stream flow fluctuations, Husher Creek supports only forage fish.[12]

Pike River – This sometimes seasonal stream is highly polluted by sewage effluent from the Village of Sturtevant, conditions which limit its value as fish habitat to carp and suckers.[13]

Root River – The Root River drains over half of the planning area. Because of pollution, the river supports only forage fish, although there is some bullhead and pan fishing in the stretch impounded by Horlick's Dam. When cleaned up, this stream can again afford good fishing because of its year-round flow.

A potentially greater fishing resource is Coho Salmon fishing which has increased rapidly in Lake Michigan off Racine. This recently introduced river spawning fish, which spends most of its lifetime in the lake, follows the lake currents feeding on smelt and provides excellent recreation fishing. In addition, perch fishing is regaining some of its former popularity.

Commercial fishing activity at the Port of Racine is carried on at a relatively low level. Catches are primarily limited to rough fish. There appears to be little prospect of conditions returning to those prevailing before the depredations of the lamprey eel devastated the lake trout and whitefish populations of Lake Michigan. Commercial fishing has, however, shown an uptrend in volume in recent years with catches being processed for fish meal. (See Table 4-4.) Very little alewife fishing is still being done.

Table 4-4

PORT OF RACINE COMMERCIAL FISHING ACTIVITY

Year	Catch	Value
1967	1,326,000 lbs.	$197,000
1968	1,722,000 lbs.	298,000

Source: Bureau of Commercial Fisheries.

WATER RESOURCES

Water is perhaps the single most important natural resource required to sustain urban growth. Not only must the water supply be of sufficient size, it must also be of good quality. The District is fortunate to have a large supply of water

[11] *Wisconsin Conservation Department, Surface Water Resources of Racine County, 1961.*

[12] *Ibid.*

[13] *Ibid.*

MAP 4-4

RACINE COUNTY BOARD OF SUPERVISORS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

HARLAND BARTHOLOMEW AND ASSOCIATES

WILDLIFE HABITAT

RACINE URBAN PLANNING DISTRICT

available in Lake Michigan; however, pollution in Lake Michigan and the Root River is a matter of much concern for all residents of the Planning District.

Water Supply

The area's water supply comes from two sources, ground water and surface water. Two rock strata are associated with ground water. The shallow aquifer is associated with the Niagara dolomite and the sand and gravel glacial overburden above it. The deep sandstone aquifer lies below the impervious Maquoketa shale generally at a depth of 550 feet or more and is recharged by rainfall over the Kettle Moraine country to the west, which percolates to the deeper levels and seeps slowly eastward to Lake Michigan.

The City of Racine uses lake water and provides water to other municipalities. This now constitutes a metropolitan water supply system. Large portions of the Planning District are now served by this system which provides lake water to more than 80 percent of the District's population. Rural portions of the District, smaller municipal systems, and industries utilize the shallow and deep aquifers. In 1964 almost 2.4 million gallons of water were being withdrawn from ground water supplies daily. (See Figure 1-1.) This was about one-third of the ground water pumpage within the Root River watershed. Of the total, 1.6 million gallons are from the deep aquifer while 750 thousand gallons are from the shallow aquifer. Recent trends in industrial growth and development in the central portion of the Planning District have caused the use of ground water to increase. In the vicinity of Racine, water levels in the deep ground water aquifer are estimated to have dropped about 200 feet in the last 50 years, or about four feet per year, while levels in the shallow aquifer have remained high. Ground water makes no contribution to the surface flow of streams in the Planning District. In fact, evidence suggests that flows along the Root River are reduced by interior seepage into the ground water.

LAKE MICHIGAN – A PLENTIFUL WATER SUPPLY

With regard to the high rate of withdrawl, it has particularly serious implications for the rural domestic or industrial use of the deep aquifer. It is anticipated that continued pressure declines in the deep aquifer will encourage a trend toward centralization of water supply into fewer and larger utilities better capable of dealing with rapidly declining deep well water levels and importation of Lake Michigan water . . . the shallow aquifer is recharged primarily in the Fox River watershed to the west of Root River watershed. Especially heavy withdrawls and consumptive use of water from the shallow aquifer occur immediately to the west of the watershed in the Wind Lake irrigated farm area. This heavy demand will probably accelerate the rate of decline in shallow well water levels in localized areas of the watershed, affecting some private water supplies.[14]

Groundwater quality is a measure of the chemical and physical characteristics of the water and its suitability for industrial and residential uses. District ground water contains high concentrations of calcium, magnesium, and sulfate and is classified as hard.[15] To date, there is no evidence that the shallow or deep aquifers have been affected by bacterial pollution from wastes. There is a potential danger, however, particularly in the shallow aquifer.

Water Quality

Three of the most important indicators of water quality are coliform bacteria, dissolved oxygen and water temperature.[16] (See Figure 4-2.)

Coliform bacteria is, in part, a product of fecal waste, with the extent of pollution dependent upon the sufficiency of sewage treatment. There is a high correlation between high coliform bacteria counts and epidemic diseases such as typhoid. Adopted standards for maximum permissible upper limit of coliform bacteria in recreational use of waters involving whole body contact vary from 1,000 to 2,500 membrane filter coliform count.[17]

By this standard, the Root River is grossly polluted. On the river, coliform bacteria pollution tends to be lowest during

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[14] *A Comprehensive Plan for the Root River Watershed, Southeastern Wisconsin Regional Planning Commission, page 137.*

[15] *Southeastern Wisconsin Regional Planning Commission, Technical Report Number 4, Water Quality and Flow of Streams in Southeastern Wisconsin.*

[16] *Southeastern Wisconsin Regional Planning Commission carries out on a continuing basis surveys of water quality conditions on the Root and Pike Rivers.*

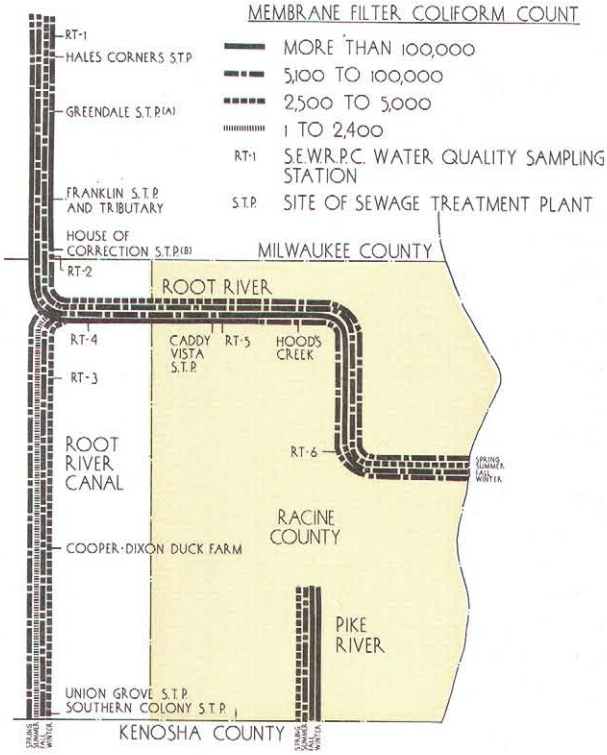
[17] *Southeastern Wisconsin Regional Planning Commission, A Comprehensive Plan for the Fox River, Volume I, p. 198.*

Figure 4-3

WATER POLLUTION PARAMETERS

RACINE URBAN PLANNING DISTRICT

1964 – 1965

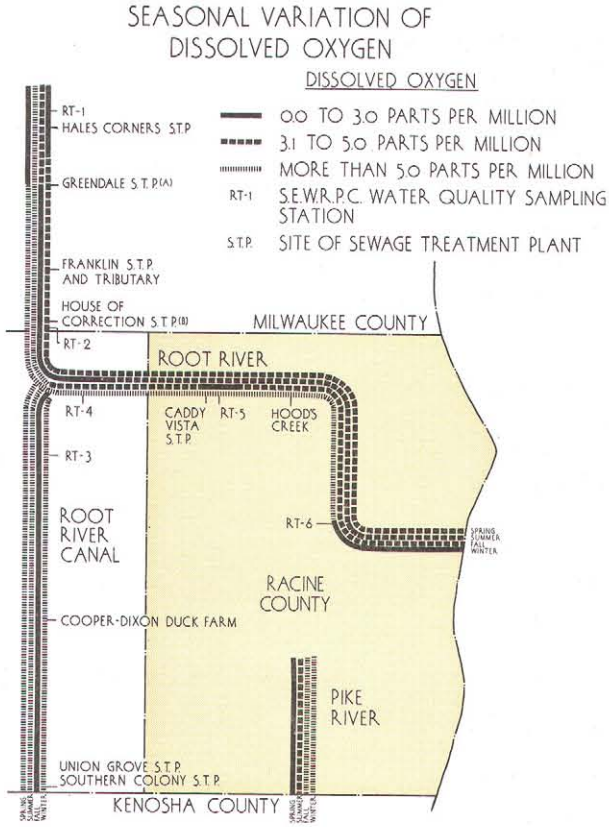


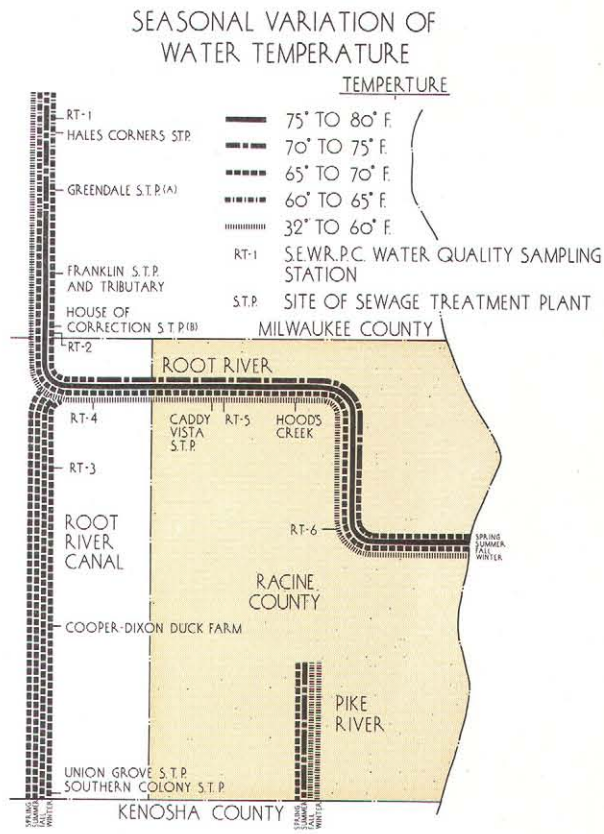
SOURCE: A COMPREHENSIVE PLAN FOR THE ROOT RIVER, SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

SURFACE WATER QUALITY IN SOUTHEASTERN WISCONSIN, SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

NOTE (A) ABANDONED AS OF 12-8-69 — CONNECTED TO MILWAUKEE METRO. SYSTEM

NOTE (B) ABANDONED IN 1969 CONNECTED TO MILWAUKEE METRO. SYSTEM



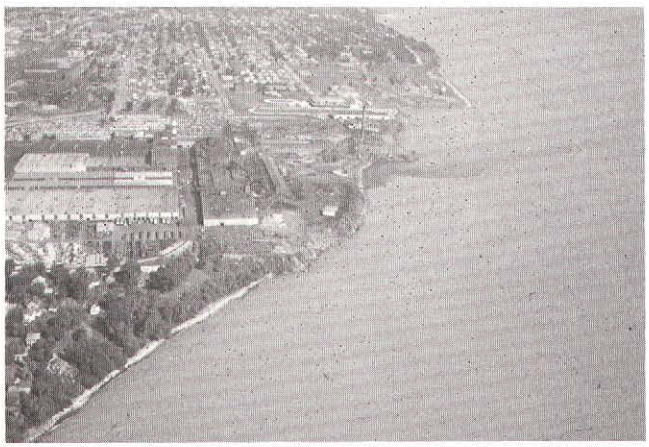


the spring high water period and highest in the autumn when the flow reaches its low point and consists largely of sewage effluent. (See Figure 4-3.) The Caddy Vista disposal plant is a principal contributor to high fecal bacteria counts within the Planning District. The effluent is diluted as it moves downstream and the coliform count drops toward the mouth. Only during the summer months, and along that portion of the Root River east of 6th Street, does the fecal coliform count drop below 5,000 MFCC, still too high for recreational use.

Information on the Pike River, taken at the point where it crosses into Kenosha County, shows a coliform count fluctuating between 1.8 million and 2,000 and an average level of pollution not exceeded anywhere else within the Southeastern Wisconsin Region. This is, in part, because the Village of Sturtevant discharges effluent into the river.

Dissolved oxygen level in water varies according to several factors, including volume of water, dissolved solids in the water, decomposition of organic and chemical wastes and oxygen consumed by aquatic life. It is of importance because the oxygen content determines the kind of life which can exist in the stream. When organic wastes from sewage treatment plants enter a river in sufficient volume, the ability of the bacteria to dispose of it is overwhelmed with the result that all the oxygen in the river is used up.

AIR QUALITY



WATER QUALITY

On the Root River, the level varies between zero in the winter and over 5.0 parts per million for much of the rest of the year. A level of between 3.1 and 5.0 is adequate for most desirable forms of aquatic life. On the Pike River, levels vary between zero and 12 parts per million. The streams are most undesirable habitats for aquatic life. When the streams are without oxygen, decay is of the anaerobic variety, and obnoxious odors result. The Root and Pike Rivers have among the highest maximum and average biological oxygen demands in the Region.

The temperature of water determines in part its suitability for industrial and recreational use, including cooling. Water temperatures within the district vary according to the season, but are so high in the summer as to exclude everything but the rough fish species which can tolerate higher stream temperatures. The Pike River varies between 32 and 75 degrees; the Root River between 32 and 78. The maximums are somewhat lower than for the majority of neighboring rivers.

Major pollution sources within the Planning District are the Caddy Vista sewage treatment plant, the Sturtevant sewage treatment plant, and the Frank Pure Food Company.

Both the Pike and Root rivers are calcium bicarbonate streams, subject to only small changes in mineralizations. This condition, a result of the geologic environment of Southeastern Wisconsin, means that the water is hard. A high calcium content in water does not generally restrict its utilization for a variety of industrial and human uses.

Groundwater is chemically hard, with high concentrations of calcium, magnesium, and sulfate. Waters of the deep aquifer have excellent quality in terms of bacterial and waste pollution. The shallow aquifer is generally of good quality in this respect, but is much more vulnerable to local contamination. Therefore, ground water pollution in the shallow aquifer cannot be evaluated on an overall basis but must be tested for each individual well.[18]

Pollution in Lake Michigan has shown an upward trend, but more significantly, has varied sharply, even on a short-term basis. The City of Racine makes weekly fecal coliform bacteria counts based upon a 100 milliliter sample along its

[18] *Southeastern Wisconsin Regional Planning Commission, Harza Engineering Company, A Comprehensive Plan for the Root River Watershed, page 63.*

lake beaches during the summer months. Four hundred MFCC is the maximum allowable for swimming. On that basis the pollution problem tends to be concentrated at the mouth of the Root River, and at the 14th Street beach where the pollution is attributed to discharge from the sewage treatment plant. (See Table 4-5.)

Table 4-5

BEACH FECAL COLIFORM COUNTS

	14th Street	Main	Zoo	River
May 20, 1969	486	507	412	6,740
May 27, 1969	400	10	10	420
June 3, 1969	12	270	200	3,300
June 10, 1969	10	20	–	–
June 17, 1969	10	15	20	3,200
June 24, 1969	100	210	50	200
June 30, 1969	3,100	5,600	1,140	65,000

Source: Public Health Director, Racine Health Department, 1969.

At present, there is a sharp rise in beach fecal coliform counts taken by the City of Racine off city beaches after periods of heavy rainfall. Not all combined sewer and storm sewer lines are large enough to accommodate the higher flows, and a portion discharges directly into the lake through outfalls. By 1972, when the two systems will be completely separated, this source of pollution will be eliminated.

Pollution is a very real and serious problem within the District, one that may worsen with more urbanization. There is much, however, that can be done to clean up the streams and the lake.

Flooding

In the Root River watershed, most flooding has been of a localized nature. The worst flood recorded, that of March-April, 1960, occurred as a result of unusual climatic conditions. Heavy March snows, falling on an existing snow base of 20 inches, followed by a rapid rise in temperature and a two and one-half inch rain in 24 hours, resulted in a disastrous flood. Flows exceeded 8,200 cubic feet per second on the Root River at the Highway 38 crossing, compared to an average flow of 87 cubic feet per second. A more recent flood in 1964 recorded flows of about 1,000 cubic feet per second on the main stream at Racine, a figure which probably corresponds to the more average flood volume.[19]

Flooding is a seasonal phenomenon within the District occurring, as did the worst flood on record, during the late winter and early spring when heavy precipitation and a rapid snow melt occur over frozen ground. Less severe summer floods also can be expected as a result of localized heavy rains. Simulated 10 and 100 year recurrence interval flood inundation lines for the Root River are shown on topographic maps of the Planning District. (See Map 4-5.) Based upon this flood hazard data, Racine County and the City of Racine have instituted controls over development in the floodlands, including the floodway and the floodplain lands. Such detailed information is not yet available for the Pike River.

Urbanization is proceeding rapidly throughout the Root River watershed, particularly in its northern reaches as a result of the expansion of the Milwaukee Metropolitan Area. The drainage area's capacity to absorb runoff is being reduced, and the threat of flooding is becoming more serious. As a result of flooding in the past, severe damage to residences has occurred between Horlick Dam and Johnson Park, and within the City of Racine. Damage to crops and farm buildings in the lower reaches of the river has not been great. About one-half of the damage recorded for the watershed in the 1960 flood, a total of $192,500, was concentrated in Caledonia, Mt. Pleasant, and the City of Racine. On June 29, 1969, a ten-year flood was experienced, causing damage to foundations and wet basements in parts of Racine. A major problem which must be solved is urban development in the floodplain, a practice which has led to most of the past flood damage. In addition, the floodplains are an important part of the high value natural resource corridors, termed "environmental corridors".

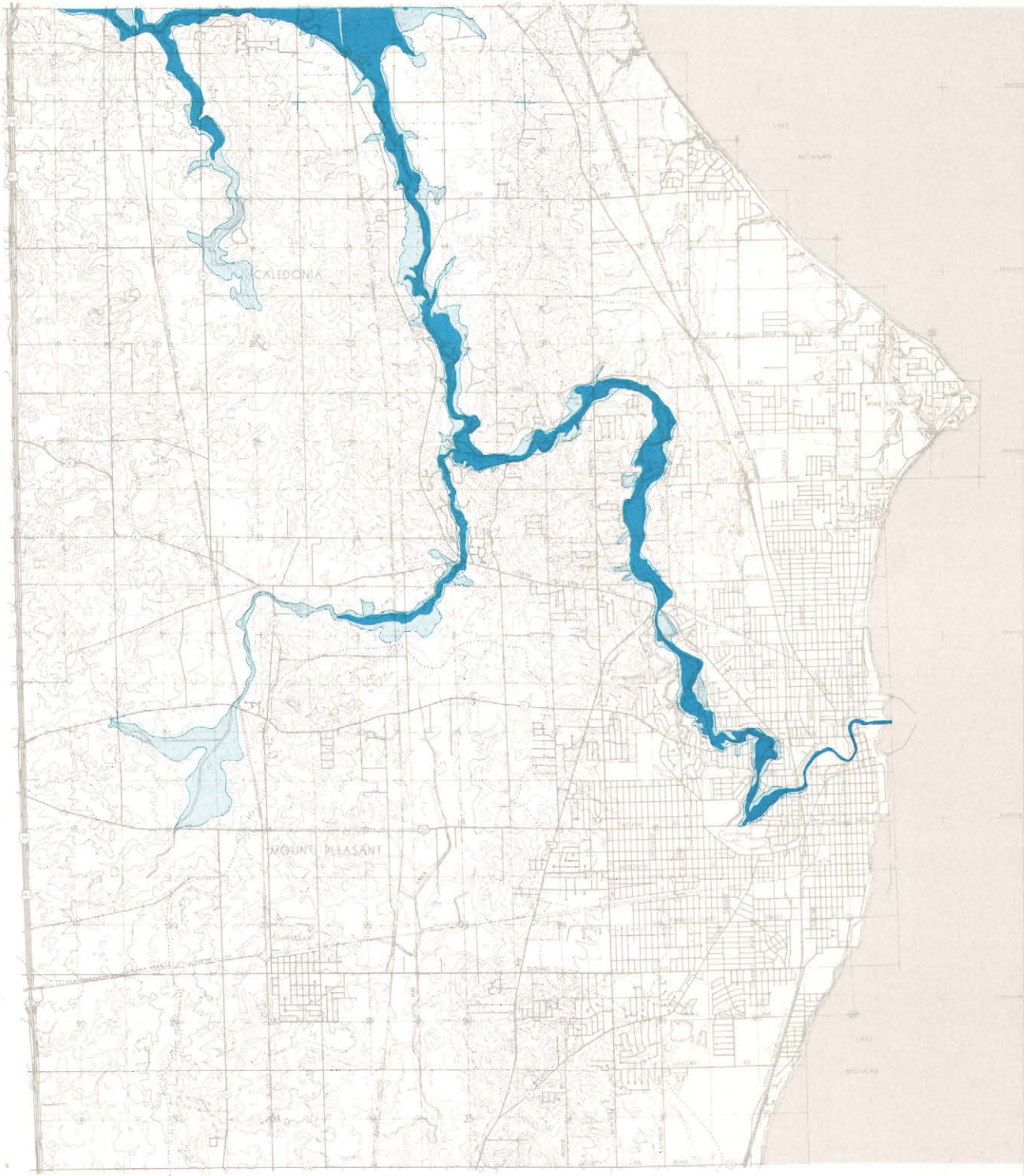
Shoreline Erosion

The Wisconsin shoreline of Lake Michigan is known to have been receding since 1836 when records were first kept. Losses range from 1.5 feet to 11.0 feet yearly. This shoreline erosion is largely the result of wave action which washes away the silt and clay material which comprises the lake shoreline. Water action varies according to the level of the lake and storm activity, although the steady battering of small waves probably has had the most important long-term effect during periods of high water. (See Table 4-6.)

Racine County has approximately 14 miles of shoreline on Lake Michigan. With the exception of Wind Point, the coastline is generally smooth, running north-south with no coves, inlets or headlands. This is a typical degrading shoreline, which may be defined as one which is receding as a result of wave action. Cliffs or banks varying in height from 100 feet at the Milwaukee County line to an average of about 20 to 30 feet elsewhere, drop off to a narrow beach composed of sand, gravel, and stones. In past years, numerous attempts have been made to halt the erosion of

[19] *Ibid.*

MAP 4-5



RACINE COUNTY BOARD OF SUPERVISORS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

HARLAND BARTHOLOMEW AND ASSOCIATES

FLOODLANDS

RACINE URBAN PLANNING DISTRICT

Table 4-6

BLUFF RECESSION IN RACINE COUNTY, WISCONSIN: 1836-1946

Section Corner to Bluff Crest	Locality	Annual Loss (In Feet)	
		1836-1874	1874-1946
Township of Caledonia:			
North line – Section 6	Racine-Milwaukee County Line	4.17	4.07
North line – Section 7	Cliffside Park Area	2.14	2.87
West line – Section 8	Cliffside Park Area	0.83	0.74
North line – Section 17	County Road G Extended	3.09	1.34
West line – Section 16	North of Wind Point	1.93	0.50
North line – Section 21	North of Wind Point	1.88	1.43
West line – Section 22	Wind Point	1.67	2.41
North line – Section 27	Wind Point	0.00	1.31
North line – Section 34	Three-Mile Road	0.99	1.68
West line – Section 34	East Side of Vincenne's Circle	2.61	2.78
South line – Section 33	Melvin Avenue	2.66	0.31
Township of Mt. Pleasant:			
North line – Section 4	Melvin Avenue	2.66	0.31
North line – Section 9	St. Patrick Street	1.42	–
North line – Section 16	Seventh Avenue	10.77	–
North line – Section 21	Between 16th and 17th Streets	5.64	0.62
North line – Section 28	Durand Road	1.84	1.98
West line – Section 28	South Racine	10.99[a]	–
North line – Section 32	Chickory Road	4.26	0.72
South line – Section 32	Racine-Kenosha County Line	3.25	2.92

[a] *Equivalent to about 2.5 feet normal to shoreline.*

Source: Striegl, A. R., Shoreland and Floodplain Zoning Along the Wisconsin Shore of Lake Michigan, 1967.

the coast, with the result that most of the shoreline is lined with groins, jetties, and similar structures in varying states of repair. In some instances, such as at the Clausen Works of the J.I. Case Company, where a steel pile bulkhead has been constructed, these measures have been successful.

Erosion has been cutting away the shoreline at varying although substantial rates. The most massive erosion is occurring north of Wind Point where the high cliffs have been retreating at an annual rate of 1.6 linear feet along the five-mile strip. South of Wind Point to the north breakwater, the rate has been 0.8 feet per year, and south of the harbor, this figure is 1.2 feet per year. Man-made structures have been successful in slowing down the process of erosion.

The water level of Lake Michigan is an important factor in the erosion problem as the coastline recedes most rapidly during periods of high water. The level has fluctuated historically between maximum and minimum levels of 581.94 feet in 1886 and 575.35 feet in 1964 according to seasonal and long-term climatic influences. The yearly maximum fluctuation has not exceeded 2.3 feet. Water levels are lowest during the winter months and rise during the summer as a result of increased precipitation.

Wave generated currents transport material along the shore and are an important factor in beach stability. The littoral drift along the Racine coast is from the northwest, where waves have the largest stretch of open water to build up. A record of wave heights shows that they exceed three feet for 38 percent of the time, five feet for 15 percent, and ten feet for one percent. The highest waves recorded occur within a range of 15 to 16 feet, usually during fall and winter storms.

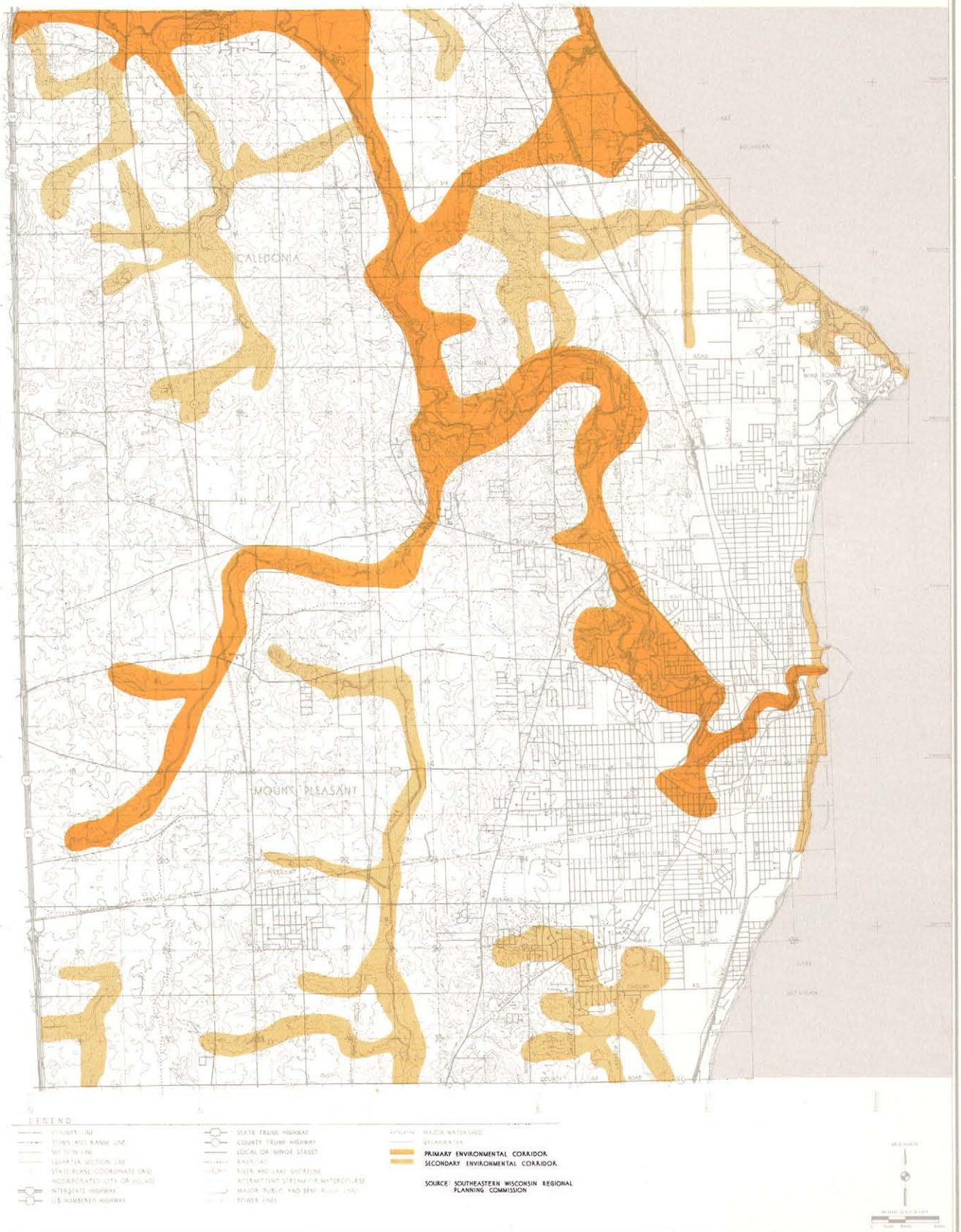
Erosion control measures, as recommended by the U. S. Corps of Engineers, emphasize structures designed to limit the effects of wave action. These include seawalls, groins, revetting bluffs with stone and artificial beaches. Such measures should be accompanied by adequate zoning of shoreline areas so as to limit damage to homes, businesses, and industries.

Land Subsidence occurs when excessive amounts of water, petroleum, or similar underground resources are removed from the ground, with the result that surface support is reduced and the land settles. Information on the subject of land subsidence within the Planning District is limited. In the past, however, as water has been withdrawn from the shallow and deep water aquifers, land subsidence has not occurred.

ENVIRONMENTAL CORRIDORS

A substantial amount of work has been done by the Southeastern Wisconsin Regional Planning Commission in

MAP 4-6



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ENVIRONMENTAL CORRIDORS

RACINE URBAN PLANNING DISTRICT

identifying the significant natural resource areas. Fundamental to their work is the concept of the environmental corridor, defined as areas

> in which concentrations of scenic, recreational, and cultural resources occur, and which, therefore, should be protected. Such areas . . . encompass those elements of the sustaining natural resource base which are essential to maintenance of both the ecological balance and natural beauty of the region. These elements within the region include: (1) lakes, rivers, and streams, together with their natural floodplains; (2) wetlands; (3) forests and woodlands; (4) wildlife habitat areas; (5) rough topography; (6) significant geological formations; and (7) wet or poorly drained soils.[20]

In the Planning District, the environmental corridors are most closely associated with watercourses and the lake. (See Map 4-6.) The primary environmental corridor in the Planning District follows the Root River throughout its length, with an arm branching off to Lake Michigan. Secondary corridors include Pike River, the tributaries of the Root River and several other scattered sites. In comparison with more rural parts of this state, the environmental resource is limited, which makes it most important that areas of value be acquired for public use.

Technical Report No. 1, published by the Southeastern Wisconsin Regional Planning Commission, identifies areas suitable for acquisition for park and open space uses, and rates them according to their suitability as either high, medium or low value.[21] Of the 19 areas covering 2,000 acres, all or part of the proposed parkland for five sites has been acquired in the four years since the survey was completed. The new park sites are located in areas rated high and medium in potential for outdoor recreation.

Existing outdoor recreation sites, both public and private, are located in Racine and adjacent urbanized areas where the demand for sporting activities – walking, picnicking and passive recreation in a natural setting – is greatest. In terms of number, size and location, these open space areas are designed to meet the needs of the urban population, and have been acquired to achieve that end. In addition, the Racine County Parks Department has a system of parks within the Planning District. These are oriented toward the larger objectives of meeting county-wide needs, and the sites have been acquired along the environmental corridors.

Much of the primary environmental corridor along the Root River is located in a rapidly urbanizing area. Park and open space land reservation is one of the important methods available to urban areas which can be used to shape growth patterns. In Wisconsin, there are both state and federal aid programs available to assist the county and local units of government in the purchase and development of open space lands. The Southeastern Wisconsin Regional Planning Commission has prepared a Regional Open Space Land Acquisition Agreement whereunder signatories are eligible for 50 percent federal aid toward the acquisition of park and open space lands.

FUTURE QUALITY OF NATURAL RESOURCES

With additional population growth forecast for the planning area, further changes in the natural environment can be expected. The nature of these changes will depend in part upon the measures instituted to protect the air, land, and water resources.

1. Air Quality. With increasing state and federal emphasis being placed upon air pollution abatement, progress in the area of air pollution control within the District may be anticipated during the planning period. The Wisconsin Electric Power Company is presently installing electrostatic precipitators at its Oak Creek Power Plant, the largest single source of air pollution for the eastern Racine County area. The precipitators will remove most particulate matter and other pollutant emissions from stock gas discharge at the plant. Similar pollution control programs are being carried out by District industries. A recent proposal to phase out the Racine incinerators, by the City Department of Public Works, indicates that this major pollution source in the central area of the City of Racine will be eliminated. As improved auto emission control systems are developed, carbon monoxide levels, largely a by-product of automobile use, can be expected to decline. Ultimately, the long-term improvement in air quality will be a factor of state and federal legislation and the thoroughness of its enforcement.

2. The Land Resource. The plan for the District assumes that future land development will be based, in part, upon soil suitability and other scientific evaluations of the land's suitability for

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[20] *Southeastern Wisconsin Regional Planning Commission, Land Use-Transportation Study, Volume 1, Inventory Findings, 1963, p. 74.*

[21] *Southeastern Wisconsin Regional Planning Commission, Technical Report Number 1, Potential Parks and Related Open Spaces.*

Table 4-7

FORECAST WATER QUALITY

Parameter	Pike River [a]		Root River [b]		Wisconsin Water Quality Standard For Recreational Use, Fish and Other Aquatic Life
	1969	Future	1969	Future	
Chloride (PPM)	51	15	74	30	–
Dissolved Solids (PPM)	380 (1964)	350	665 (1964)	600	–
Dissolved Oxygen (PPM)	5.9	6.+	13.4	8.+	Not Less Than 5 MG/1
Coliform Count (In MFCC/100 ML)	26,000	Not More Than 5,000	13,000	Not More Than 5,000	Not More Than 5,000

[a] *Taken at Station PK 4, 1969.*
[b] *Taken at Station RT 6, 1969.*

Source: Water Quality and Flow of Streams in Southeastern Wisconsin, Southeastern Wisconsin Regional Planning Commission, p. 238 and 296, 1966.
SEWRPC Stream — Quality Monitoring Program.

various urban purposes. Unique land resources, such as woodlands, wildlife habitat, sand and gravel deposits, and valuable agricultural areas have been inventoried and evaluated, and provision should be made in the District plan for the protection of these resources against unwise development.

3. The Water Resource. Wisconsin has established use objectives which would permit use of the Root River for body contact recreation in the Root River and allow fish and other aquatic life to exist. A minimum standard, principally relating to removal of objectionable substances relates to that portion of the Pike River in the District. Southeastern Wisconsin Regional Planning Commission forecasts of water quality in the Root and Pike rivers exceed the state standards as outlined in Section RD 1.01 of the Wisconsin Administrative Code. (See Table 4-7.) These forecasts are based upon the assumption that existing causes of pollution will be gradually eliminated.[22]

   Reduction of flood damage, enhancement of recreational facilities, growth in land values, improvement of stream water quality, enhancement of the aesthetic appearances of the waterway, and protection and preservation of the natural resource base are objectives sought in upgrading water quality in the District.

[22] *Southeastern Wisconsin Regional Planning Commission, Technical Report No. 4, Water Quality and Flow of Streams in Southeastern Wisconsin, pages 238 and 296.*

Principal sources of pollution in Lake Michigan in Racine County are from sanitary sewage treatment plant effluent and discharges from combined sewer and storm sewer outfalls. The two treatment plants which discharge into the lake, the North Park Treatment Plant and the City of Racine Wastewater Treatment Plant, provide only primary and secondary treatment. Improvement in the bacteria content of wastewater discharges can be anticipated as programmed improvements are completed.

The city's program to separate combined storm and sanitary sewers by 1972 will further reduce Lake Michigan pollution levels by eliminating outfall discharges of raw sewage during periods of particularly heavy rainfall. Should the state and federal governments establish discharge standards necessitating tertiary levels of treatment, additional improvements in Lake Michigan water quality will result.

SUMMARY

There is a close interrelationship between the development of the District and the natural resources of air, land and water. The Racine area has a semi-humid climate, seasonal temperature fluctuations, moderate rainfall and sunshine.

Land in the area has been shaped by glacial deposits, creating broad, gently rolling topography. Mineral deposits are few, consisting only of sand, gravel and stone. There are four soil types in the Planning District, generally underlain by clayey deposits which impede drainage. Because of soil conditions over much of the area, individual soil absorption

sewage disposal systems are not satisfactory unless lots are large. Surface drainage in the area is divided into four systems – the Root River, the Pike River, the Des Plaines River watershed, and tributaries leading to Lake Michigan.

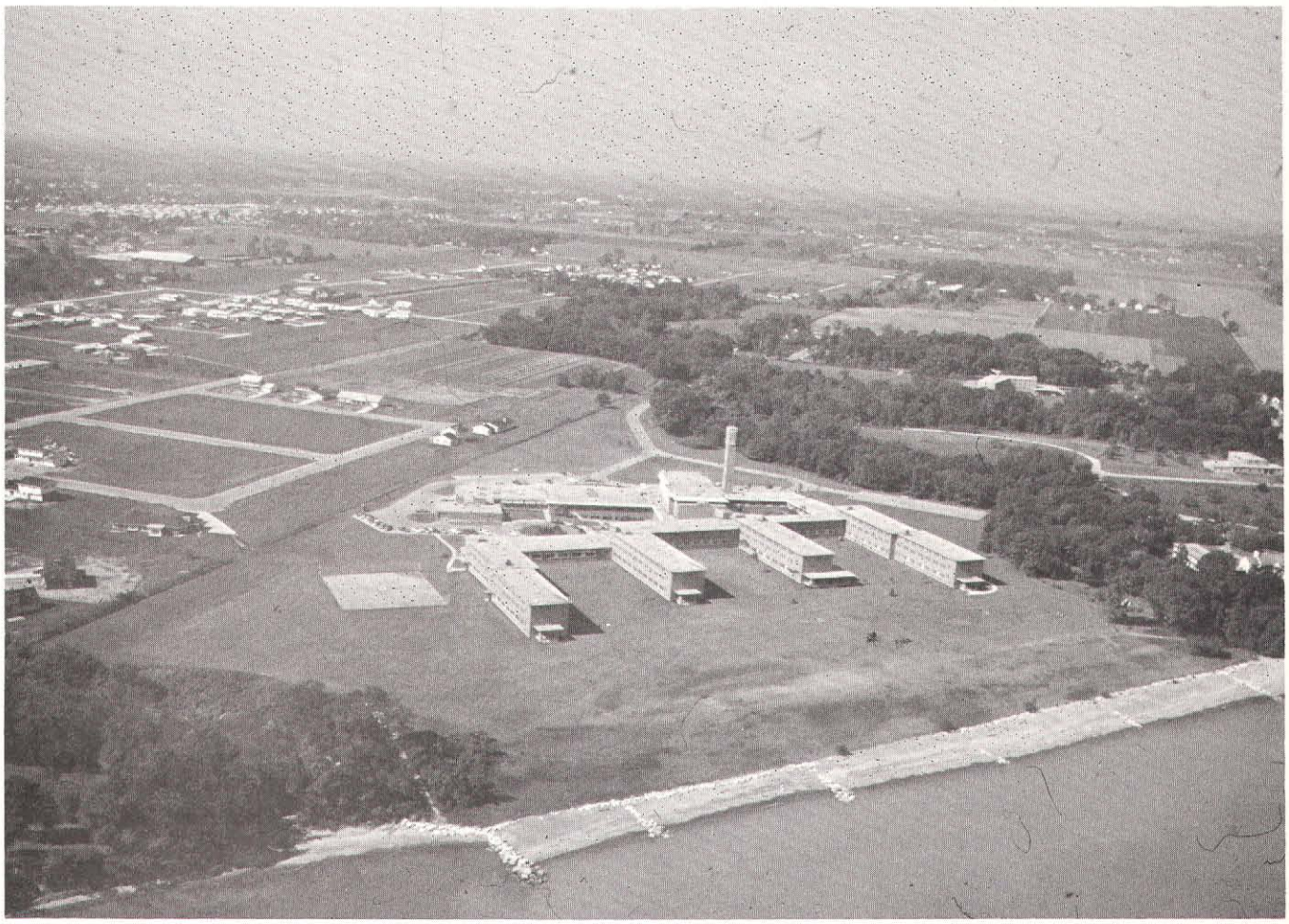
The Racine area has limited woodlands; most were removed to make way for agriculture and urbanization. Fish and wildlife in the area are limited to the few hardy species which can survive close contact with an urbanizing population.

Water resources in the Racine area are abundant. The City of Racine uses Lake Michigan water and provides it to other area municipalities. Much of the area's surface water is badly polluted, including the Root and Pike Rivers and even the beaches of Lake Michigan occasionally reach high pollution levels.

Shoreline erosion along Lake Michigan has become substantial, varying between 0.8 and 1.6 linear feet per year. Man-made structures have been successful in halting much of this erosion, but such measures need to be accompanied by shoreline zoning to protect homes, businesses and industries.

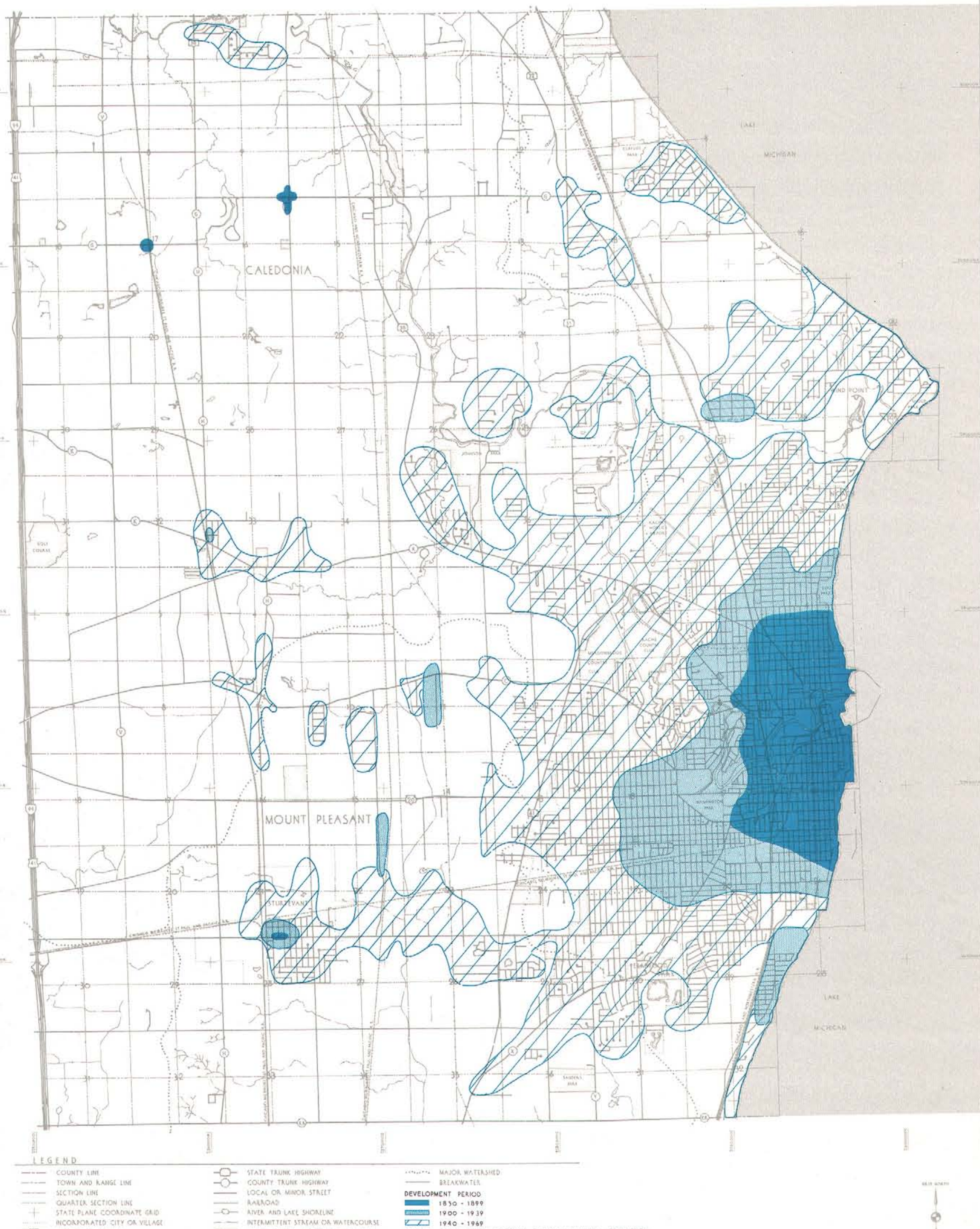
A system of environmental corridors has been established in the Racine area to help preserve the "ecological balance and natural beauty of the region". Park sites and open space have been acquired in the corridor, mainly along the Root and Pike Rivers. The Racine County Park System also has a system of parks in the planning area. More park and open space land should be acquired for public use, for as urbanization of the area continues, the natural resources will be increasingly threatened.

Forecasts of the future quality of natural resources indicate that improvements in the quality of air and water resources will depend upon the enactment and enforcement of state and federal legislation. Much remains to be accomplished in the conservation of these two vital natural resources. Land resources similarly need to be protected with appropriate areas set aside as permanent open space.



SHORELINE PROTECTION

MAP 5-1



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HISTORICAL URBAN GROWTH: 1850-1969

RACINE URBAN PLANNING DISTRICT

Chapter V

LAND USE

INTRODUCTION

The community of the future will evolve gradually out of the community of today in much the way that the existing metropolitan area developed through an evolutionary process beginning with the tiny village established during the early years of the last century. Detailed knowledge and understanding of the existing community and the process which brought it about is necessary. This includes information regarding existing land use, i.e., the arrangement of the various land uses such as residential, commercial, industrial, public and semi-public on the ground; the amount of area occupied by these various land uses; and an understanding of the historic trends that brought about this existing pattern.

Accordingly, one of the first major work elements in the planning program was a comprehensive survey of the existing land uses in the District. (See Appendix V-A.) for description of this survey.) This chapter summarizes the significant data and conclusions resulting from this survey.

FACTORS INFLUENCING GROWTH

The character of a community is determined in part by the characteristics of its site and, second, by the wisdom with which its development has been fitted to its site. Lake Michigan, the Root River, topography, soils and other natural features have had a substantial impact upon the evolving land use patterns in the District. The City of Racine was established at a strategic location on Lake Michigan at the mouth of the Root River, and the city has grown outward from the original site. The steepsided slopes of the river were relatively difficult to build upon, and they have largely remained in open uses. The business district was located on a somewhat confined site between a loop of the river and Lake Michigan. Originally streets were built along the ridge lines, which together with the river bends divided much of the city into neighborhoods. To the north and south, lack of natural barriers permitted rapid expansion. The lake was a major natural influence upon the direction and character of urban growth. The character of the urban area has also been affected by the unsuitability of many of the soils for development without public sanitary sewer and water service. Past community development has not always taken fullest advantage of the characteristics of the site. Elsewhere in the District, the flat to gently rolling topography and fertile soil conditions have produced an area of intensive agriculture with only a limited amount of urban development.

HISTORIC GROWTH PATTERNS

Growth of the Racine Urban Planning District may be divided into three periods: 1850-1900, 1900-1940, and 1940 to the present (see Map 5-1).

1850 – 1900

During the 19th Century, urban expansion took the form of concentric rings growing out from the original settlement at the mouth of the Root River. Population densities were necessarily greater in the heart of the city because people had to walk to work or rely upon horse-drawn transportation and the city could not cover a very large area. Most commercial activity was in the central core. As early as the 1850's, the eastern line of the Chicago and Northwestern Railroad and the line from Racine west through Sturtevant, the predecessor of the Chicago, Milwaukee, St. Paul and Pacific Railroad, had been built through the District. The industries responsible for the city's rapid economic growth located along these rail lines. The factories typically were multi-floor brick structures, surrounded by housing for the workers. The remainder of the Planning District was rural and agricultural, or consisted of woodlands or swamps. The rural areas included settlements such as Sturtevant, Caledonia and Franksville. The area occupied by urban uses within the District in 1900 approximated three square miles.

1900 – 1940

During the first four decades of this century the city doubled in area as new residential areas were built and industry expanded. Commercial activity expanded with the city and streetcar lines were extended along Douglas, State, Washington and other major thoroughfares. In a day when most people used public transportation, streets with trolley car lines were good locations for commercial activity, and shops and stores lined those major thoroughfares. The automobile permitted greater mobility, however, and was an important determinant of commercial and residential development by 1940. New residential sections continued to be located contiguous to existing development and were served by city utilities. Industry remained along the railroad lines and along several major highways. By 1940, the area occupied for urban purposes within the District approximated eight square miles.

1940 to the Present

Since 1940, development has spread widely – outward from Racine into surrounding land areas. With a growing

economy, a system of good roads, and expansion of utility systems, it has become possible for residential, commercial and industrial development to locate at considerable distances away from the older contiguous urban area. A more widely scattered pattern sometimes called "urban sprawl" has resulted. This pattern has created significant land use problems, such as conflicts between uses, pockets of vacant land, and the wasteful use of land. As the city expanded the former farm communities also experienced growth and some became focal points for new residential development. Several large subdivisions have been built as much as six miles away from the edge of the former contiguous urban area. Peripheral area urban development of this nature, with some subsequent filling-in of vacant areas, has been typical of the growth pattern for the past three decades. As a result of population increases and the less intensive land development patterns, the current developed area is more than four times the area used in 1940. By 1969, 32.1 square miles in the District were devoted to urban uses.

1969 LAND USE[1]

The overall pattern of development is typical of communities located along the western shore of Lake Michigan.[2] Commercial and cultural activities are located on the bluff south of the mouth of the Root River. Industrial uses are found near the mouth of the river and along the railroads, particularly in the southern portion of the Planning District. Most of the early residential development followed a uniform gridiron street pattern, with more recent subdivisions often having a curvilinear street pattern. The current trend is toward further expansion outward, into the surrounding farmlands, which is the only direction the community can grow. Although Interstate Highway 94 forms the western boundary of the Planning District, this major highway link between Chicago and Milwaukee has, as yet, had little impact on the present urban form, and is separated from the developed areas by a broad stretch of agricultural land approximately five miles wide.

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[1] *In the summer of 1969, a land use survey of the Planning District was prepared by Harland Bartholomew and Associates. Staff provided by local industries assisted with the inventory phase. (Methodology of the survey followed that outlined in "Land Use Instructions—Land Use Survey" by Harland Bartholomew and Associates.) This survey provided detailed information on the use of each property, and the structural condition of residential buildings. (See Map 5-2.) The land use analysis is based upon this data. Detailed methodology of the land use inventory is described in Appendix V-A; detailed data is shown in Appendix V-B.*

[2] *City Planning Department — Racine, Wisconsin, Existing Land Use, 1968.*

Current Uses and Ratios

Although much of the Planning District seems urban in character, less than one-third of the total land area of approximately 65,000 acres was used for urban purposes in 1969 (see Tables 5-1 and 5-2, and Appendix V-B).

Agriculture occupies the largest area of any of the land use categories, with nearly 32,000 acres in use, almost 50 percent of the Planning District. While much farmland has been converted to urban uses, a substantial amount still remains. Many farms or portions of farms are no longer cultivated and apparently are being held for urban development. Such unused agricultural lands, together with woodland areas, wetlands, water areas, and vacant platted lands, make up another 12,472 acres or 19 percent of the total area in the District. These two categories, classified as open lands, account for some 68 percent of the total planning area.

Single-family residences are the largest of the categories of developed land, occupying 8,556 acres or 13 percent of the Planning District. An additional one percent of the total area is in duplexes and multiple-family residences, all residential uses thus occupying 14 percent. Streets and alley rights-of-way account for 4,673 acres or seven percent of the total area. All remaining land use categories occupy about 10 percent of the total area in the Planning District (see Table 5-1).

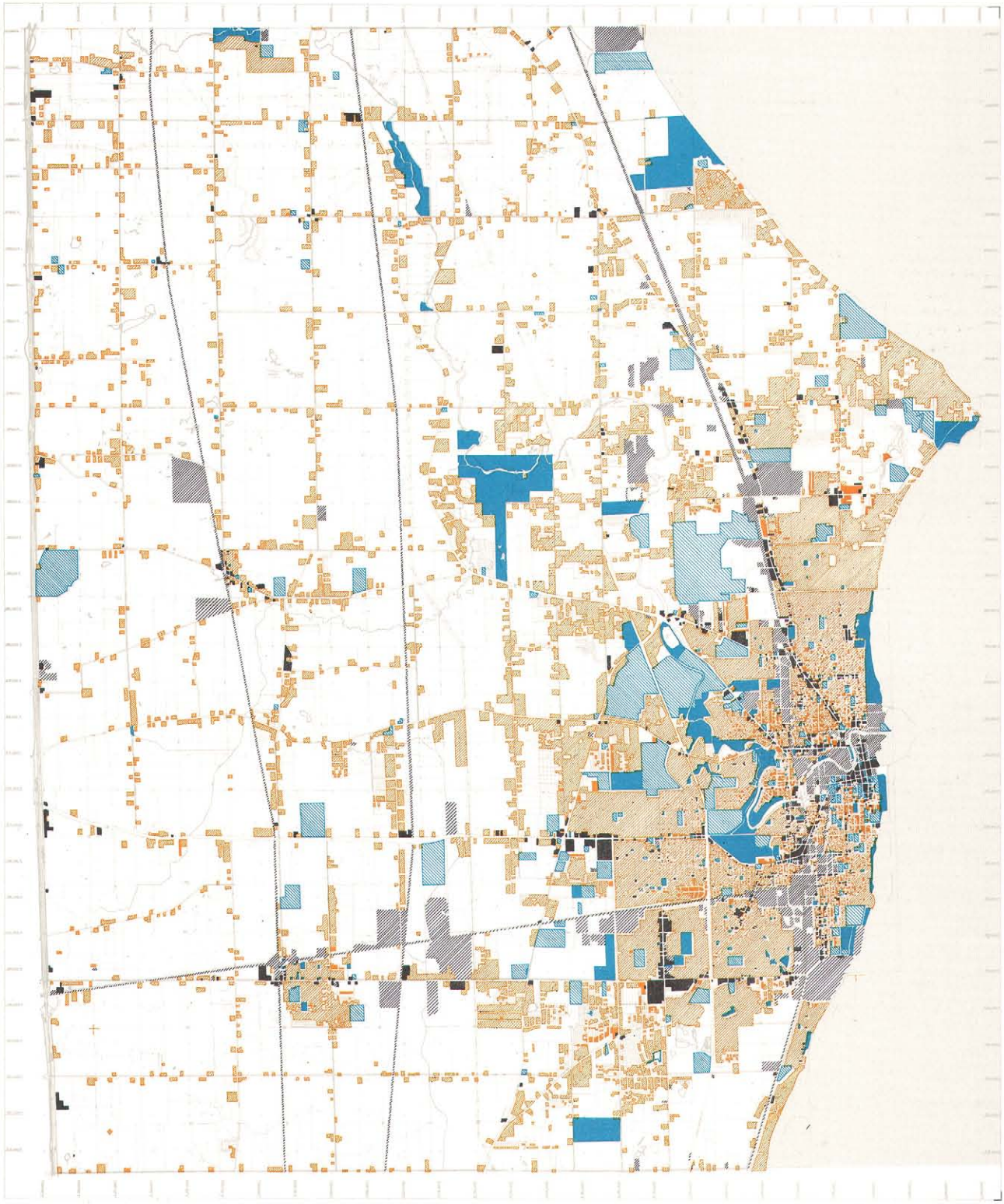
Percent of Developed Area

"Developed area", as defined herein, excludes agriculture and open lands and water. The developed area in the Racine Urban Planning District amounted to about 20,500 acres in 1969. Residential uses, streets and alleys, industry, parks, public and semi-public uses, commercial, and railroad lands, occupy progressively smaller portions of the total developed area.

In the Racine Planning District, almost 45 percent of the developed area is in residential uses, compared to 42 percent for the Kenosha Planning District and 33 percent for the average of 17 similar urban areas. Numerous farmsteads, roadfront rural subdivisions, and property splits, some with five or more acres for each residential lot, account for some of these differences. In the Racine area a much smaller part is used for public and semi-public purposes and for streets.

In the Racine Planning District, the proportion of developed land in multiple-family use approximates that of the average urban area, while exceeding the figure for the Kenosha District. The popularity of two-family homes in southeastern Wisconsin can be traced back for many decades, with the result being that two-family residential use accounts for more of the developed area than is typical of the average urban area.

MAP 5-2



LEGEND

- SINGLE FAMILY RESIDENCE
- MULTIPLE FAMILY RESIDENCE
- COMMERCE
- PUBLIC AND SEMI-PUBLIC
- PARK
- INDUSTRY/TRANSPORTATION/COMMUNICATION
- WATER AREA
- AGRICULTURE/VACANT

SOURCE: HARLAND BARTHOLOMEW AND ASSOCIATES - FIELD SURVEY

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HARLAND BARTHOLOMEW AND ASSOCIATES

EXISTING LAND USE — 1969

RACINE URBAN PLANNING DISTRICT

Table 5-1

AREA OCCUPIED BY EXISTING LAND USES

Type of Use	Racine Urban Planning District		Percent of Developed Area		
	Area in Acres	Percent of Total Area	Racine Urban Planning District	Kenosha Urban Planning District	Average of Compared Urban Areas*
Single-Family Residential	8,556.16	13.3	41.7	39.2	30.9
Two-Family Residential	470.63	0.7	2.3	2.3	1.2
Multi-Family Residential	168.78	0.3	0.8	0.5	0.8
Commercial	672.75	1.0	3.3	2.2	3.0
Light Industrial	882.93	1.4	4.3	4.7	4.3
Heavy Industrial	1,142.79	1.8	5.6	2.5	3.4
Railroads	652.02	1.0	3.2	5.8	4.4
Public and Semi-Public	1,357.27	2.1	6.6	6.5	19.2
Parks and Recreation	1,951.28	3.0	9.5	8.3	4.6
Streets and Alleys	4,673.54	7.2	22.7	28.0	28.2
Total Developed	20,528.15	31.7	100.0	100.0	100.0
Agriculture and Related	31,624.57	48.9			
Open Lands and Water	12,472.08	19.3			
Total Area	64,624.80	100.0			

**Source:* *Harland Bartholomew and Associates: Land Use Studies — 17 Urban Areas 50 to 250 Thousand Population.*

A substantially greater percentage of developed land is found in commercial use in the Racine District compared with the Kenosha District, but the Racine District percentage is only slightly greater than the average for the 17 urban areas. Industrial areas occupy 10 percent of the Racine District developed area, compared with about eight percent for the average of the 17 urban areas. Railroads are a significant but not a major part of industrial land use in the District.

A major difference may be noted between the public and semi-public percentages for the Racine and Kenosha Districts and the average of the 17 urban areas. At the time of the land use studies there were no major institutions in the planning districts, such as state universities, state hospitals, major federal installations, and similar facilities.[3]

Parkland in the Racine Planning District, as a percent of the developed area, exceeds that of the average urban area by over 100 percent. The 1,951-acre total includes the larger county parks such as Cliffside and the Root River Parkway.

Recommended regional standards prepared by the Southeastern Wisconsin Regional Planning Commission indicate that between 16.5 and 25.0 percent of newly developed areas are utilized for streets, depending upon residential density. The Racine Planning District's 22.7 percent is within these proposed limits and is lower than the 28 percent found in the Kenosha study and in the average of the 17 urban areas.

Land Use Ratios

The District has a more intensive land use pattern than urban areas of comparable size, utilizing 15.43 acres of developed land per 100 persons in comparison with the average figure of 17.57 acres for the 17 comparable urban areas (see Table 5-2). This difference results from the absence of major institutional land areas. Significantly, this difference is reversed in the category of residential land where the Racine District's 6.91 acres per 100 persons compares to a 5.78 figure for the average urban area. Racine is a relatively uncrowded community with respect to residential use.

In the commercial and industrial categories, the District is comparable to the urban area average. (See Table 5-2.) There is substantially less land used per capita in the public and semi-public category, but more in parks and recreation. Standards for the Southeastern Wisconsin Region advocate a minimum of 1.40 acres of local and regional parkland per 100 additional persons. On the surface it would appear that this standard is currently exceeded in the Racine Urban Planning District, which has 1.47 acres in parklands for each 100 persons. However, a closer examination of the data reveals that the ratio includes private recreational areas

[3] *The new University of Wisconsin campus in the Kenosha district has altered this percentage comparison since the Kenosha land use study pre-dated the establishment of the campus.*

Table 5-2

LAND USE RATIOS – ACRES PER 100 PERSONS: 1969

Type of Use	Racine Urban Planning District	Kenosha Urban Planning District	Average of Compared Urban Areas*
Single-Family	6.43	5.76	5.43
Two-Family	0.35	0.34	0.21
Multi-Family	0.13	0.07	0.14
Total Residential	6.91	6.17	5.78
Commercial	0.51	0.33	0.52
Light Industrial	0.66	0.69	0.75
Heavy Industrial	0.86	0.37	0.60
Railroads	0.49	0.85	0.78
Total Industrial	2.01	1.91	2.13
Public and Semi-Public	1.02	0.93	3.37
Parks and Recreation	1.47	1.22	0.81
Total Open Space	2.49	2.15	4.18
Streets and Alleys	3.51	4.13	4.96
Total Developed Area	15.43	14.69	17.57

Note: 1970 preliminary U.S. Census population figures have been used in this analysis: 132,968 persons.

**Source: Harland Bartholomew and Associates: Land Use Studies in 17 Urban Areas — 50 to 250 Thousand Population.*

not intended to be included in the Southeastern Wisconsin Regional Planning Commission standard. Street area per capita is modest, reflecting a generally efficient street system.

A detailed discussion of each of the major categories of land use follows.

Residential Uses

Almost 9,200 acres of land are used for residential purposes in the Planning District, 8,556 in single-family use, and the remainder divided among two-family, 471 acres; and multiple-family, mobile homes, and group quarters at 169 acres. The community is one of single-family homes reflecting the typical preference found in most cities of moderate size in the Middlewest.

About three-fifths of the area occupied for residential purposes is in the City of Racine, Villages of Elmwood Park and North Bay, and adjacent contiguous areas in the Towns of Caledonia and Mt. Pleasant. Highest density of residential development is found in the areas surrounding the central business district.

In general, the older neighborhoods are characterized by a mixture of single-family and duplex homes, with a gridiron street pattern. Many of these older residential sections contain scattered apartment buildings and neighborhood commercial buildings, frequently occupying corner locations.

The more homogeneous single-family districts, largely built within the last 30 years, are found in peripheral locations where development standards have been progressively raised to accommodate changing preferences in home styles. In these areas, curvilinear street patterns are often utilized.

RECENT RESIDENTIAL DEVELOPMENT

A substantial amount of apartment construction has taken place in the outlying urban sections. Almost all of the 31 acres of multiple-family apartments in the Towns of Caledonia and Mount Pleasant, largely constructed in the past decade along major thoroughfares, lie within the developed area. (See Map 5-2.) These apartments occur in complexes of 20 to 200 units. Within the city limits of Racine, new residential construction has consisted primarily of single-family subdivisions located adjacent to areas served by utilities and some single-family homes constructed on vacant lots within already developed areas.

In the more outlying parts of the Planning District new development consists of scattered subdivisions and houses along minor streets and roads. Such subdivisions vary in size from a few homes on a single dead-end street to large projects of several hundred houses. Some of the large subdivisions have 60-foot lot frontages and were laid out in response to the housing shortage of the 1950's.[4] Other subdivisions, particularly along the Root River and Hood's Creek, have lots of two or more acres in area. The unincorporated community of Franksville and the Village of Sturtevant have also attracted new homes.

The scattered outlying residential development occurs at widely varying densities and occupies approximately 3,500 acres. Local land use controls have prevented a proliferation of trailers on individual lots, a problem common in many areas. There are two mobile home parks located in the Planning District, both in the Town of Mt. Pleasant.

Wind Meadows, a development project currently under construction in the District, is a "planned unit" development in the Village of Wind Point. This project will ultimately contain 251 acres of a planned arrangement of single-family homes, town houses and common open spaces with private recreation facilities. Both owner and renter-occupied dwellings are proposed.

Commercial Land Use

Commercial activity is concentrated in the central business district, street and highway-oriented businesses located along major thoroughfares, and four major shopping centers situated in the fringe areas. Smaller commercial uses are scattered among residential and industrial uses in older neighborhoods and at certain principal intersections in the rural areas. Commercial uses, which occupy a total of 673 acres, are divided into two categories: retail uses which occupy 405 acres and service uses which occupy 268 acres.

In 1963 Southeastern Wisconsin Regional Planning Commission rated the Racine Central Business District as the only existing regional type shopping area in the Planning District. One additional regional type shopping center was estimated to be needed by 1990.

CITY OF RACINE CENTRAL BUSINESS DISTRICT

New shopping centers have drawn a substantial amount of retail trade from the central business district. A conclusion of the 1963 regional transportation study was that both Elmwood Plaza and Turnstyle shopping centers were generating more trips than the downtown area.[5] Elmwood Plaza and the extensive commercial center consisting of Washington Square, Sears, Turnstyle and the Welles Department Store, which have developed in the vicinity of Highway 20 and Green Bay Road, function as community shopping centers today. Smaller "neighborhood" centers include Rapids Plaza and Shorecrest.

The dispersal of commercial uses that has occurred in recent years is typical of similar urban areas. Although the central business district is still an important economic center for the county, its role has been substantially diminished. An even more serious decline in commercial activity characterizes several of the older business "strips". These areas, built at a time when conditions made major street locations advantageous for commercial development, have declined as use of the automobile has increased. These areas now serve the surrounding neighborhood.

Industrial Land Use

Industrial uses occupy a total of 1,300 acres, 83 percent of which is in the heavy industry and extractive categories, and the remainder in non-durable goods manufacturing.

Within the older parts of the urban area, the bulk of the industrial land use is found in corridors along the tracks of the Chicago and Northwestern and Chicago, Milwaukee, St. Paul and Pacific railroads. These multi-story factories were

[4] *Caddy Vista and Crestview, for example.*

[5] *The Southeastern Wisconsin Regional Planning Commission, Planning Report No. 7, Volume One, Land Use-Transportation Study, Inventory Findings 1963, p. 92.*

INDUSTRIAL LAND USE

established at a time when railroads met most industrial transportation needs. The largest industrial land use in the City of Racine is fabricated metal products manufacture, which occupies nearly 260 acres and includes the J. I. Case plants. There are 331 acres of industrial land in the City of Racine.

The current demand for extensive sites upon which to construct new industrial facilities has lead to a migration of industries to Mt. Pleasant. Half a dozen new factories occupy the broad valley east of Sturtevant on either side of State Trunk Highway 11. Over one-half of the total industrial land use in the town is occupied by fabricated metals manufacturers, which is also the largest industrial land use in the Planning District. Within the next 10 years, all production facilities of S. C. Johnson and Son are to be relocated to Mt. Pleasant. There are 385 acres of industrial land in the Town of Mt. Pleasant.

Much of Caledonia's industrial land use is made up of sand and gravel excavations along the Root River and the Vulcan Materials Quarry on Three Mile Road. In addition, Mining Equipment Manufacturing Company has a plant on Four Mile Road, and McGraw Edison maintains its line materials test facility near Franksville. There are 350 acres of industrial land in the Town of Caledonia. In addition to these areas in the city and towns, there are seven acres of industrial land in the Village of Sturtevant.

Because large industrial operations (except extraction of raw materials) usually require public sewer and water supply facilities, they have tended to locate in or near existing urban areas where these facilities are available. Limited public utility services in outlying portions of the Planning District have discouraged industrial development in these areas.

Previously, industry has been tied to the railroads; this created the industrial corridors. While such a limitation no longer applies to the degree it once did, and a new industrial area with only limited reliance upon railroad transportation is now developing east of the Village of Sturtevant, most new industrial development in the District is still taking place contiguous to the rail lines.

In some places, most notably the Mining Equipment Manufacturing Company on Four Mile Road, industries have been located in areas originally unsuited for them. This need not always be the case, as shown by industrial development in south Racine where residential land uses and factories are separated by Memorial Drive.

Industries should be located on major arterials which provide good access for employees, raw materials and finished goods. In relocating to outlying sites, major industries create new work-travel patterns. Industrial development on large sites in outlying areas is necessary and can be expected to continue as local industry has no alternative to expansion in suburban locations as the old plants in the central areas become obsolete. Adequate sites which can accommodate modern large one-floor industrial operations are not available in the central areas of the District.

Transportation, Communication and Utility Land Use

Railroads, airports, streets and highways, communications facilities, public and private utilities, and other associated uses[6] occupy in excess of 6,000 acres. Streets and highways occupy 4,673 acres in the Planning District, or about half as much as is devoted to single-family housing. There are almost 650 acres of railroad land in the three north-south lines and one east-west line. The airport occupies 335 acres.

Governmental and Institutional Land Use

Governmental and institutional land uses are not large in terms of the total land area and are found in scattered locations within the developed area. They occupy about 1,250 acres. Half of the governmental and institutional land is occupied by schools and cemeteries, and churches use another 39 percent. Most cemetery land area is in the Graceland and Mound cemeteries. Two adjacent tracts of land totaling 56 acres, owned by the state and federal governments and located south of the Oak Creek Power Plant in the northeastern part of the Planning District, are being used as a test area for heavy vehicles. Other uses in the governmental services category, including fire stations and governmental buildings, are distributed throughout the Planning District.

Agricultural Land Use

Although agriculture is carried on in almost all non-urbanized portions of the Planning District, this

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[6] *Classified as "Transportation, Communication and Utility".*

function is particularly important in the western portions of the Planning District. At one time, almost all the land except that portion lying within the city limits was farmed, but in the last 25 years urbanization has eliminated about 15 square miles of crop and pasture land. Additional population growth will further reduce the amount of agricultural land in the Planning District.

Row crops are the largest occupier of agricultural lands in eastern Racine County, with a total of 19,231 acres of cropland. A comparison of the utilization of farmland illustrates the relative importance of corn and truck crops which account for almost one-half of the total area in crops. Truck crop farming is of major importance adjacent to metropolitan areas because of high product value and close proximity to urban markets. (See Table 5-3.) Other important crops in terms of acreage are wheat, soybeans and barley.

Table 5-3

UTILIZATION OF FARMLAND IN ACRES: 1968

	Caledonia	Mt. Pleasant
Corn	2,554	2,952
Oats	1,102	412
Barley	525	2,352
Wheat	1,387	1,595
Soybeans	1,194	1,412
Truck crops and other	1,319	2,427
Total Cropland	8,081	11,150
Hay	1,882	1,021
Pasture	53	350
Orchards	17	92
Total	10,033	12,613

Source: Wisconsin Department of Agriculture, Assessor Farm Statistics — 1968, Unpublished Racine County Data.

Hay, pasture and orchard lands occupy a much smller total area but are of much greater relative significance in Caledonia, which lacks much of the flat, open terrain suitable for intensive cultivation which is characteristic of Mt. Pleasant. Corn, soybeans, and wheat are distributed similarly in both towns. Oats are more important in Caledonia and barley and truck crops occupy more land in Mt. Pleasant.

Since 1957 total cropland in the District has dropped, but some crops like barley, vegetables, wheat, and soybeans occupied more land in 1968 than they did a decade earlier.[7]

[7] *Wisconsin Department of Agriculture, "Assessor Farm Statistics", 1957, 1968, Unpublished Racine County Data.*

Recreational Land Use

Recreational land uses include 1,372 acres of parkland and 578 acres devoted to golf courses and similar public and private recreational activities. Terrain, which makes intensive farming more limited in Caledonia, has been more widely utilized for open space activities there than in Mt. Pleasant. A prime determinant of park site selection is the protection of areas of scenic and aesthetic value; and because of the availability of such areas in Caledonia, it has the largest area in parks, 725 acres. This total includes the 213-acre Cliffside Park and the Root River Parkway. Mt. Pleasant has two principal park sites which account for much of its 124-acre total including: Quarry Lake Park on State Trunk Highway 38 and Sanders Park located just north of the Kenosha County line between Meachem and Wood Roads. Parks in the City of Racine, the largest of which lie adjacent to the Root River and Lake Michigan, contain 471 acres.

Four private golf courses, containing 440 acres, are found in the District: South Hills and Bunker Hills (a par-3 course) are open to the public while the Meadowbrook and Racine Country Clubs are private clubs. Washington Park in the City of Racine, Johnson Park in Caledonia, and Shoop Park in Wind Point each contain a public golf course. With much the same appearance and purpose as publicly owned parkland, these more specialized recreational areas are a major open space asset.

Woodlands, Wetlands, Open Lands and Water Areas

Over 12,000 acres, or about 20 percent of the Planning District, is presently classified as woodland, wetland or vacant land. In some instances, former farmlands are being held in anticipation of development, or have been platted as subdivisions with construction yet to begin. Other vacant areas include miscellaneous open lots, amounting to about 700 acres in the City of Racine and smaller areas in the other communities. Over 60 percent of all vacant land is concentrated in Caledonia, the town with the largest number of undeveloped homesites, and where substantial portions of the open lands are not readily suited to agricultural activity. Caledonia also has about three times as much woodland and water areas as Mt. Pleasant. Woodlands and water areas are limited in the Planning District, comprising little more than 2,000 acres. The original forest cover was cut down, and most of the marshlands drained for use in agriculture. Only scattered fragments of woods and a few small ponds and marshes remain.

LAND USE PROBLEMS

There are a number of land use problems in the Racine Planning District, the most serious of which is the generally haphazard location of much recent development, including: residential, commercial and industrial uses. Various

conditions which have contributed to this situation are discussed below.

Residential "Sprawl"

"Sprawl" is a very real problem in the Planning District. There is a rapid spread of residential development into the countryside, often at some distance from the developed urban area. Scattered uses, separated by empty fields and farmlands, leave pockets of unusable land behind and often impair the eventual creation of a sound neighborhood pattern. As single residential lots fronting on secondary rural roads are sold off, their capacity to carry traffic is reduced and large and relatively inaccessible blocks of land are created within the sections.

Problems which are created as a result of "road front" platting practices result in long-term detriments and a public liability. This type of development has proven unsatisfactory to all persons concerned, from the original land owner and new resident to the community at large which eventually will bear the extra cost of street and utility improvements. (See Map 5-3.)

Among the principal factors thought to contribute to urban sprawl are:

1. The desire of many city residents for an open space living environment, particularly for raising children.

2. Greater mobility made possible by the automobile. (All parts of the Planning District are within 20 minutes commuting time of downtown Racine.)

3. Lower initial cost of acreage not adjacent to currently developed areas.

4. Lower taxes in the suburban portion of the Planning District. (Special costs not included in the tax rate off set.)

5. Lower standards for improvements, i.e., streets, water, sewer, drainage, among others.

Among the problems inherent to scattered development are the high cost of providing essential public services like water, sewers, police and fire protection, and schools. The haphazard character of development makes the spacious rural enviornment only a transitory phase as population growth fills up the remaining open space.

Location of Multiple-Family Housing

Much new multiple-family housing has been poorly located with respect to other land uses. Apartments are best sited adjacent to commercial, industrial and open space areas along major thoroughfares in relatively large groupings. In several instances, this has been done, most notably in the case of the Highlands north of Three Mile Road. In general, however, the great majority of the District's apartment units have been constructed in buildings of four to six units. Many of these buildings are intermingled with single-family homes creating mixed areas of housing unit types.

Deteriorated Housing

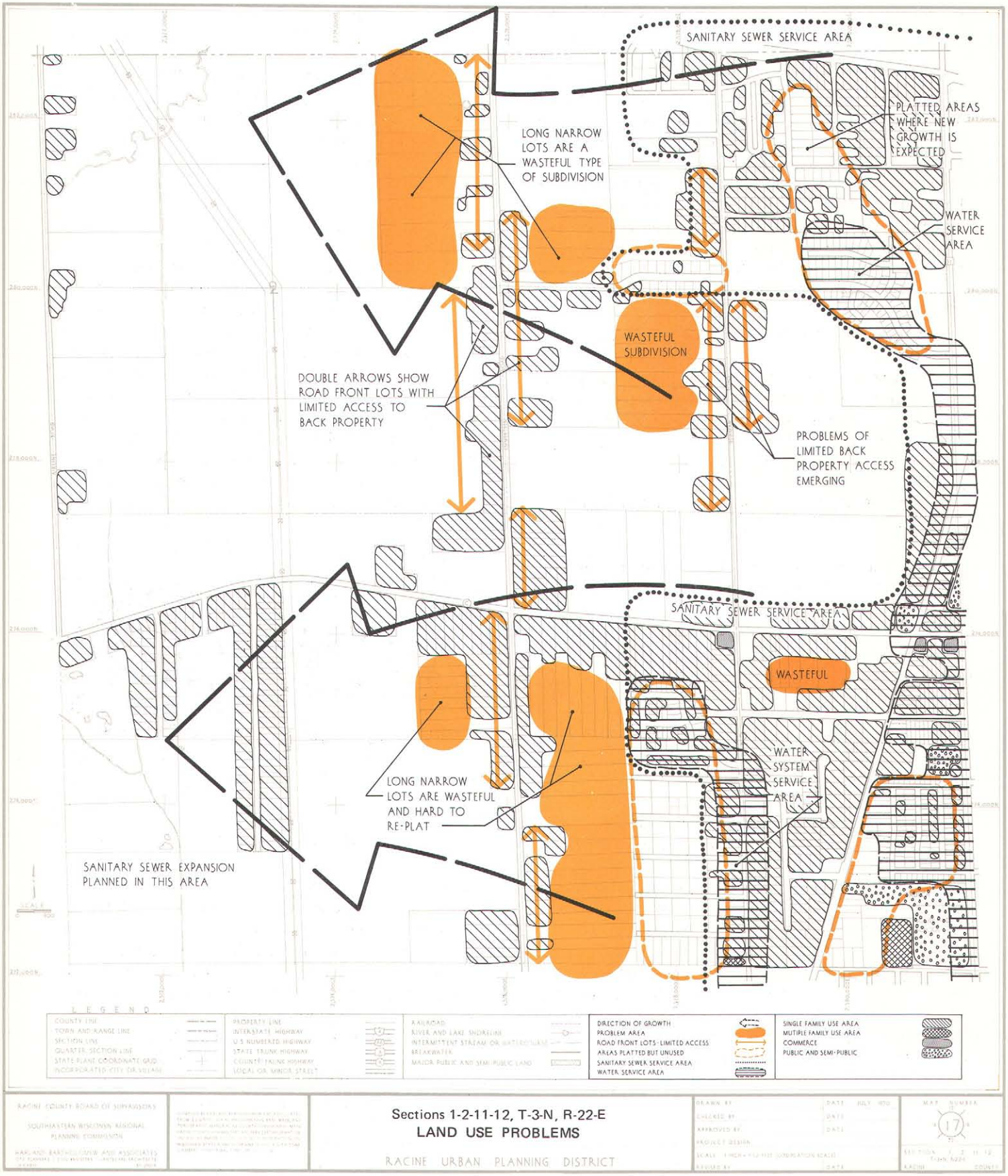
Deteriorated housing, particularly within the central part of the city, is a continuing problem for Racine. Often times, older housing has been allowed to become overcrowded with resulting deleterious effects. There is also a strong correlation between the proximity of older housing areas to heavy industrial operations and a relatively high incidence of substandard housing. Some neighborhoods were constructed within the industrial corridor in locations which almost insured that they would become substandard. Several outlying subdivisions, built to a low standard of initial construction, without adequate subdivision or building code controls of any kind, have also contributed to the problem of deteriorated housing.

MIXED LAND USES

Failure to Develop on a Neighborhood Scale

Residential construction has all too often taken place in areas where the amenities of homogeneous neighborhoods of homes are lost. In particular, houses are often located along major thoroughfares and in close proximity to businesses and industries. This problem is associated with uncontrolled urban sprawl and has the effect of reducing the livability and value of often expensive houses. All new subdivisions, large and small, should be coordinated within the framework of a plan which provides a basis for public services based upon predetermined densities within each neighborhood. This will gradually eliminate most of the basic problems associated with public services and result in neighborhood characteristics of good quality.

MAP 5-3



RACINE COUNTY BOARD OF SUPERVISORS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

HARLAND BARTHOLOMEW AND ASSOCIATES

Sections 1-2-11-12, T-3-N, R-22-E

LAND USE PROBLEMS

RACINE URBAN PLANNING DISTRICT

DRAWN BY — DATE JULY 1970

CHECKED BY — DATE

APPROVED BY — DATE

PROJECT DESIGN

SCALE 1 INCH = 1/2 MILE COORDINATION SCALE

REVISED BY — DATE

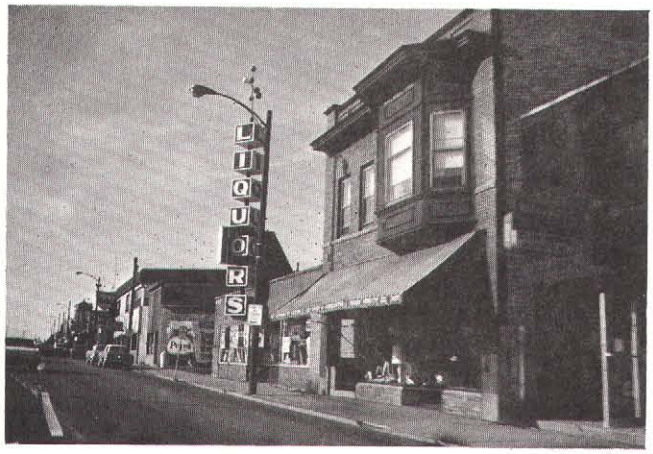
MAP NUMBER 17

SECTION 1 2 11 12 T-3-N, R-22-E

RACINE COUNTY

Commercial Deficiencies

Commercial activity is not highly developed for the community's size. The traditional business district has deteriorated. Many stores on principal shopping streets such as State Street are vacant or used for storage and, with a few important exceptions, no significant construction has taken place in the downtown for many years. Older strip commercial areas in the city are facing serious competition from suburban shopping centers. In at least two instances, however, the West Racine and Uptown commercial areas, tight cluster-type development – a variety of shops within walking distance of each other and adequate parking – has resulted in continued economic viability.



OLDER STRIP COMMERCIAL AREA

The five shopping centers in the Planning District each serve from several neighborhoods to the entire area east of Interstate Highway 94. Some of these commercial centers are limited in size and opportunity for expansion and contain only a modest number of business operations. Others, Elmwood Plaza and Turnstyle in particular, draw from the entire Planning District although much of their merchandise is of the low and medium price levels. Poorly organized and unattractive commercial complexes are found adjacent to these centers, notably at the periphery of the city along State Trunk Highway 20, along State Trunk Highway 32 north to the Milwaukee County line, and along portions of Durand, Lathrop and State Trunk Highway 11. This commercial development has reduced the capacity of the highways to carry traffic.

Public and Semi-Public Development

School and park sites have not been coordinated with new subdivisions and, as a result, are often poorly located to serve the surrounding population. Better cooperative action in planning these facilities is needed. Grouping public buildings into a unified governmental center often creates a real asset for the community. Recent construction of the city's Public Safety Building, containing police headquarters and a fire station, and located adjacent to City Hall west of the Courthouse, provides the nucleus for a governmental center which could become a dominant feature of the urban environment.

Much of the Lake Michigan shoreline has been acquired for parklands. Major sections of the Root River Valley also have been acquired and some areas developed; however, a substantial amount of additional land will need to be acquired to complete the Root River Parkway project. Newly developed neighborhoods often have inadequate park facilities, a condition which could be corrected by requiring dedication of parkland by subdividers and acquisition of additional park areas by the towns and villages.

LAND USE ASSETS

Many of the land use problems are those resulting from urban sprawl, a condition which can be corrected through the application of better development policies. An important step will be implementation of state laws which severely restrict high density development in areas having unsuitable soil conditions unless sanitary sewer service is provided.

Extensive areas highly desirable for residential development, with rolling hills and woods, are available for new development which should adhere to higher standards. New neighborhoods created during the planning period can become a real asset to the community. Racine area residents have a variety of types of living areas available. This residential variety may be further expanded. It is important that public facilities, which are highly developed in the city, should be used as a means to guide growth. Recreation is available along the Lake Michigan beaches and at many inland locations. The city's advantageous geographical location means that residents have easy access to diversified shopping and the educational, recreational, and cultural opportunities of both Chicago and Milwaukee.

FUTURE LAND USE AREAS

In 1969, the total acreage used for urban purposes in the Planning District was somewhat more than 20,000 acres. Within the next two decades this may be expected to increase to 34,800 acres, and more than one-half of the Planning District may be expected to be devoted to urban uses by 1990. The total forecast increase in developed area, based upon continuing population and economic growth, is almost 14,300 acres, representing a 22.3 square mile addition to the present 32.1 square miles of developed land in the Racine Urban Planning District. (See Appendix V-C for land use forecast methodology.)

The largest increase, over 7,400 acres, would be required to accommodate the expansion of residential areas. Most of the additional residential land required would be devoted to

single-family use. However, two-family and multi-family residential uses would undergo substantial expansion as well. The expected 1990 residential acreage would be an 81 percent increase over the 9,196 acres of residential land in the Planning District in 1969.

Other increases would be an additional 556 commercial acres, 1,111 more acres of industrial land, 3,294 more acres for open space uses, and an additional 1,605 acres in streets and alleys.

The ratio of developed urban land per 100 persons is expected to increase from 14.51 to 15.51 during the planning period, with additions in all land use categories except railroads. (See Table 5-4.) Moderate increases in ratios are anticipated for the residential and commercial land uses. That there is expected to be relatively more land devoted to these uses than is now the case is primarily a result of the anticipated continuation of much low and medium density residential development, and further construction of spacious suburban shopping centers. For the open land categories, the local parkland acquisition programs should more than double the 1,951 acres presently devoted to parkland use. Of the 2,500 acres of park which should be acquired, 1,000 already are within the "take lines" established for the Root River Parkway and is in the process of acquisition. Declines are forecast for the industrial and streets and alleys ratios which offset to some extent the more spacious development pattern evolving elsewhere in the District. With additional railroad construction highly improbable, that ratio should decrease from 0.46 to 0.29, thereby accounting for most of the decline in the industrial category. The change in the streets and alleys ratio represents a more efficient utilization of land for that purpose. While the present amount of land in streets and alleys is not excessive, the Southeastern Wisconsin Regional Planning Commission development standards call for no more than 16.5 to 25 percent of future residential development in streets and alleys, depending upon the proposed density.

Typically, a more spacious land use pattern is anticipated for most cities. The current ratio of developed area per 100 persons in the 17 compared urban areas is 17.57, higher than both the present and projected figures for the Racine Urban Planning District. This trend, however, is being mitigated to some degree in the Planning District by the recent popularity of suburban apartment living. Since the principal determinant of land utilization ratios is residential density, the extent to which multi-family housing maintains or expands its share of residential development in great part determines how much rural land will be converted to urban use during the planning period.

Table 5-4

ESTIMATED FUTURE LAND USE AREAS

	Acres of Land Used			Acres of Land Per 100 Persons	
Land Use Categories	1969	Estimated 1990	Estimated Additional Land Required	1969	1990
Single-Family Residential	8,556	14,816	6,260	6.05	6.61
Two-Family Residential	471	872	401	0.33	0.39
Multi-Family Residential	169	945	776	0.12	0.42
Total Residential	9,196	16,633	7,437	6.50	7.42
Commercial	673	1,229	556	0.48	0.55
Light Industrial	883	1,367	484	0.62	0.61
Heavy Industrial	1,143	1,770	627	0.81	0.79
Railroads	652	652	–	0.46	0.29
Total Industrial	2,678	3,789	1,111	1.89	1.69
Public and Semi-Public	1,357	2,151	794	0.96	0.96
Parks and Recreation	1,951	4,451	2,500	1.38	1.98
Total Open Space	3,308	6,602	3,294	2.34	2.94
Streets and Alleys	4,674	6,531	1,257	3.30	2.91
Total Developed Area	20,529	34,784	14,255	14.51	15.51

SUMMARY

The Racine area has developed as an urban center since 1850, but the years since 1940 have seen the greatest urbanization and accompanying "urban sprawl".

In 1969, the pattern of development was typical of communities on the western shore of Lake Michigan, with expansion outward from the lake. Less than one-third of the area is used for urban purposes. Open lands, which include woodlands, wetlands and agricultural lands, account for 68 percent of the Planning District. Agricultural uses still occupy almost 50 percent of the Planning District. Substantially less land is used per capita for public and semi-public uses, but much more (100 percent more than average for 17 similar urban areas) is used for parks and recreation. Racine is basically a relatively uncrowded community of single-family residences.

Industry in Racine originally clustered along the railroad lines but much of this industry has migrated to outlying areas. Fabricated metal manufacture, the most important industry in the Planning District, occupies over one-half of the industrial land area. Limited sewer and water facilities have kept large industry from some outlying portions of the Planning District.

Commercial land use in the Racine area is small (one percent) and not highly developed. Some is badly deteriorated, particularly portions of the Racine Central Business District and "commercial strips" which have outlived the uses they were intended for. The five outlying shopping centers have drawn business from the downtown area but these commercial areas do not reflect the most up-to-date thinking on shopping center design and are not arranged in an attractive and efficient manner.

The agricultural land uses which occupy 50 percent of the Planning District are located primarily in the western section of the District. Corn and truck crops are the two most important crops grown in this area.

Recreational land use includes both public parkland and private and public golf courses and recreational activities. Much of the park area occupies scenic locations along the Root River and Lake Michigan in the Town of Caledonia.

The major land use problem today is the generally haphazard location of so much of the recent development.

Almost 14,300 acres of land will be required to accommodate growth during the planning period. By 1990 approximately half of the District will be utilized for urban purposes.

CITY OF RACINE CENTRAL AREA

Table G-1

NEIGHBORHOOD AND COMMUNITY ANALYSIS

Community/Neighborhood			Total Area	Total Number of Dwelling Units	Dwelling Units: Single-Family (Percent)	Dwelling Units: Two-Family (Percent)	Dwelling Units: Multiple and Other (Percent)	Dwelling Units: Sound	Dwelling Units: Deteriorating	Dwelling Units: Dilapidated	Dwelling Units: Percent Sub-Standard	Net Density: Net Residential Acreage	Net Density: Estimated Population	Net Density: Net Residential Density Persons/Acre	Primary Non-Residential Land Use[a]/Acre	Public Schools	Circulation or Traffic Problems	Condition of Development[b]	Private Schools
Central	A	1 C.B.D. North	69.44	56	21	11	68	20	24	12	–	0	85	25.0	UTL 28.7	–	Yes	R	
		2 C.B.D. South	124.04	297	8	14	78	224	72	1	34.0	22.35	515	23.0	STR 28.7	–	Yes	R	First Evangelical Lutheran
		3 State Street–Case	175.11	243	46	46	8	47	189	7	65.4	21.46	850	39.6	IND 26.7	Garfield	Yes	R	
		10 Janes	371.87	1,881	40	46	14	848	869	164	49.2	152.01	5,815	38.2	STR 24.4	Janes–Washington, Jr.	Yes	R	St. Patrick's–St. Joseph's–St. John's
		Sub-Total	740.46	2,477	–	–	–	1,139	1,154	184	54.0	195.82	6,265	32.0	– –	–	Yes	R	
South Central	B	4 Franklin	221.19	1,191	23	26	51	691	455	45	30.7	68.30	3,250	46.9	STR 23.7	Rt. 2/Franklin	Yes	R	St. Rose's–St. Mary's
		5 Winslow–Johnson Wax	186.91	877	42	34	24	615	229	33	29.0	69.51	3,305	47.5	STR 27.9	Winslow	Yes	R	St. Catherine's H.S.–Holy Name
		21 Dekoven	254.28	1,407	39	52	9	1,075	279	53	23.7	104.58	3,950	37.8	STR 26.5	Bull	Yes	R	St. Stanislaus–Holy Trinity–Cove
		22 Holy Trinity	172.95	211	46	39	15	134	76	1	42.7	17.57	690	39.7	IND 37.5	Lakeside	Yes	R	
		Sub-Total	835.27	3,686	–	–	–	2,515	1,039	132	31.7	260.97	11,195	42.9	– –	–	Yes	R	
South	C	20 Tayler Ave.–Jerome Park	568.27	2,431	80	14	6	2,393	38	0	3.6	256.22	7,400	28.8	STR 24.6	Mitchell	No	D	Epiphany Lutheran
		23 Lakeside–Greencrest	718.85	1,286	95	1	4	1,231	44	11	5.5	208.30	4,120	19.8	AGR 18.8	–	Yes	R	St. Lucy's
		24 South East	535.26	79	95	0	5	79	0	0	0.0	101.69	270	2.7	AGR 52.7	Hansche	Yes	UND	
		Sub-Total	1,822.38	3,796	–	–	–	3,703	82	11	2.4	566.21	11,790	20.8	– –	–	Yes	P/D	
South Park	D	18 S. C. Johnson School	237.15	704	93	4	3	679	24	1	3.4	106.46	2,545	23.9	STR 25.9	S. C. Johnson	No	D	
		19 Pierce–Humbald	256.15	791	92	4	4	774	17	0	2.5	106.29	2,660	25.6	STR 28.3	–	No	D	
		25 Forest Park	536.09	158	98	2	0	158	0	0	0.0	68.94	595	8.5	AGR 55.7	–	No	P/D	
		26 Elmwood Park	635.90	738	69	4	27	737	1	1	0.3	158.65	2,250	14.2	OPN 32.0	Janes–Beebe	No	P/D	Holy Cross Lutheran
		27 Pritchard Park	362.40	0	0	0	0	0	0	0	0.0	0	155	–	AGR 48.0	–	No	P/D	
		28 Emmstan Hills–Georgetown	645.10	593	59	15	26	593	0	0	0.0	183.61	1,930	10.5	OPN 31.5	Richards	No	P/D	
		29 Sanders Park	783.60	122	100	0	0	119	3	0	2.3	128.50	445	3.5	OPN 25.7	–	No	P/D	
		30 Pike River	778.38	31	100	0	0	31	0	0	0.0	33.38	80	2.4	AGR 90.5	–	No	UND	
		31 Mt. Pleasant	1,277.31	253	95	5	0	248	3	2	2.0	175.91	930	5.3	AGR 59.2	–	No	UND	
		Sub-Total	5,514.08	3,391	–	–	–	3,339	48	4	1.5	960.74	11,560	12.1	– –	–	No	P/D	
West Side	E	14 Graceland	1,172.67	3,044	82	12	6	3,010	34	0	1.1	512.16	9,790	19.1	STR 18.8	Fratt–Goodland	No	P/D	
		15 Giese	345.12	359	74	1	25	358	1	0	0.3	62.79	1,165	18.7	OPN 25.5	Giese–Starbuck	No	P/D	
		16 Radio Park	241.63	1,000	92	7	1	970	30	0	3.0	139.22	3,190	22.9	STR 31.0	–	No	D	
		17 West Racine	224.04	1,274	61	36	3	1,270	4	0	0.3	124.07	4,010	32.3	STR 33.5	–	No	D	St. Edward's
		Sub-Total	1,983.46	5,677	–	–	–	5,608	69	0	1.2	838.24	18,175	21.7	– –	–	No	P/D	
West Central	F	6 Washington Park–Uptown	400.12	1,753	42	45	13	1,516	212	25	13.7	131.18	6,215	38.5	STR 25.3	Howell–Knapp–Park High	Yes	R	
		7 Jefferson–Herrick	267.92	1,297	39	46	15	827	447	23	36.0	102.81	4,260	41.4	STR 23.1	Jefferson	Yes	R	
		8 McKinley	333.21	916	74	24	2	881	33	2	4.2	97.55	2,350	24.9	CEM 24.0	McKinley	No	D	Lutheran High School
		Sub-Total	1,001.25	3,966	–	–	–	3,224	692	50	18.7	331.54	12,825	38.7	– –	–	Yes	R	
River Side	G	9 Lincoln–Horlick	573.26	1,291	50	39	11	1,082	185	24	18.5	179.27	4,110	22.9	REC 16.6	Lincoln	Yes	R	Sacred Heart
		13 Rapids Drive	761.20	1,806	78	7	15	1,768	38	0	2.4	219.95	5,225	23.8	STR 17.7	Horlick, Jr.–Wadewitz	No	P/D	
		38 Airport	1,224.41	281	82	1	17	279	1	1	0.7	126.35	1,120	8.9	OPN 35.6	Rapids	No	P/D	
		42 Root River	1,065.61	344	95	2	3	340	4	0	1.2	222.15	1,245	5.6	OPN 29.5	–	No	UND	
		Sub-Total	3,624.48	3,722	–	–	–	3,468	228	25	6.8	747.72	11,700	15.6	– –	–	Yes	P/D	
North Central	H	11 Lakeview	216.05	1,176	51	41	8	922	249	5	30.4	110.54	3,200	28.9	STR 26.7	–	No	D	St. John Nepomuk–Trinity Lutheran
		12 Roosevelt	343.45	1,788	80	18	2	1,740	47	1	2.5	187.90	4,975	26.5	STR 25.9	Roosevelt	No	D	
		39 Jerstad–Agerholm	811.20	2,757	81	7	12	2,741	16	0	0.5	456.56	9,465	20.7	STR 23.8	Jerstad–Agerholm	No	D	
		Sub-Total	1,364.70	5,721	–	–	–	5,403	312	6	5.6	755.00	17,640	23.4	– –	–	No	D	
Wind Cliffs	I	40 Wind Point	566.43	171	100	0	0	171	0	0	0.0	89.99	605	6.7	OPN 53.2	Wind Point	No	D	Prairie
		41 North Park	879.85	1,011	70	5	25	1,003	5	3	0.8	223.59	3,330	14.9	OPN 35.1	North Park	No	D	St. Rita's
		45 4½ Mile Road	653.62	139	100	0	0	138	1	0	0.7	110.23	730	6.6	AGR 59.8	–	No	UND	
		46 Dominican	839.10	440	100	0	0	439	0	1	0.2	278.53	1,585	5.7	OPN 23.0	–	No	P/D	Dominican College
		47 Crestview	1,347.18	473	100	0	0	473	0	0	0.0	210.89	1,835	8.7	AGR 41.9	Crestview	No	P/D	
		48 Cliffside Park	748.20	8	100	0	0	8	0	0	0.0	13.86	35	2.5	OPN 19.1	–	No	UND	
		Sub-Total	5,034.38	2,242	–	–	–	2,232	6	4	0.4	927.09	8,130	8.8	– –	–	No	P/D	
North	J	43 Linwood	1,470.55	110	100	0	0	106	4	0	3.6	140.91	420	3.0	OPN 43.2	–	No	UND	
		44 Holy Cross	639.08	47	100	0	0	45	2	0	4.2	43.78	190	4.3	AGR 49.1	Burbank	No	UND	
		49 Tabor	3,905.01	334	100	0	0	323	8	3	3.4	357.36	1,320	3.7	AGR 49.1	–	No	UND	
		50 North Seven Mile Road	1,562.29	78	100	0	0	78	0	0	0.0	102.68	305	3.0	AGR 62.7	–	No	UND	
		Sub-Total	7,576.93	569	–	–	–	552	14	3	3.0	644.73	2,235	3.5	– –	–	No	UND	
Parkside	K	34 Airline Road	1,254.66	71	100	0	0	71	0	0	0.0	107.07	230	2.1	AGR 74.7	–	No	P/D	
		35 Indian Hills	798.69	298	100	0	0	297	1	0	0.3	207.07	1,205	5.8	AGR 32.8	Trautwein	No	P/D	
		36 Hood's Creek	1,113.51	87	100	0	0	87	0	0	0.0	145.46	350	2.4	AGR 38.9	Hood's Creek	No	P/D	
		37 Johnson Park	836.83	232	100	0	0	229	3	0	1.3	186.86	750	4.0	OPN 31.3	–	No	P/D	
		Sub-Total	4,003.69	688	–	–	–	684	4	0	0.6	646.46	2,535	3.8	– –	–	No	P/D	
West Oaks	L	32 Case High–Oakes	967.18	184	100	0	0	184	0	0	0.0	81.83	810	9.9	AGR 46.2	Case High–Westridge	No	P/D	
		33 Peterson	1,502.66	478	83	1	16	470	8	0	1.4	359.20	1,900	5.3	AGR 50.7	–	No	P/D	
		Sub-Total	2,469.84	662	–	–	–	654	8	0	1.2	441.03	2,710	6.1	– –	–	No	P/D	
Sturtevant	M	58 St. Bonaventure	926.14	52	100	0	0	52	0	0	0.0	33.93	180	5.3	AGR 61.9	–	No	P/D	St. Bonaventure High School
		59 Waxdale	614.71	88	97	3	0	68	0	0	0.0	52.49	235	4.5	AGR 52.7	–	No	P/D	
		60 Sturtevant	1,358.86	783	89	4	7	760	20	3	3.0	183.86	2,935	16.0	AGR 52.1	Sturtevant–Schulte	No	P/D	St. Sebastian's
		61 Braun Road	1,012.02	22	100	0	0	21	1	0	4.5	33.63	85	2.5	AGR 85.8	–	No	UND	
		62 Grevziger	2,474.84	64	100	0	0	62	2	0	4.0	80.62	210	2.6	AGR 84.2	–	No	UND	
		63 Sorenson Road	2,067.69	97	77	0	23	92	5	0	4.5	91.22	345	3.8	AGR 83.5	–	No	UND	
		Sub-Total	8,354.26	1,086	–	–	–	1,055	28	3	2.8	475.75	3,990	8.4	– –	–	No	P/D	
West	N	53 North Franksville	2,226.23	102	95	5	0	99	3	0	3.0	172.84	630	3.6	AGR 78.6	–	No	UND	
		54 Franksville	1,196.30	267	99	1	0	265	2	0	1.0	128.84	870	6.7	AGR 62.9	Franksville	No	P/D	
		55 Gifford	992.94	66	100	0	0	66	0	0	0.0	71.59	240	3.4	AGR 62.8	Gifford	No	P/D	
		56 Francher	767.79	68	100	0	0	66	2	0	2.9	67.66	225	3.3	AGR 59.0	–	No	P/D	
		57 Globe	628.68	161	100	0	0	160	1	0	0.6	89.52	645	7.2	AGR 50.9	Bartlett	No	P/D	
		64 Tucker	1,341.65	46	100	0	0	46	0	0	0.0	58.38	200	3.4	AGR 87.9	Tucker	No	UND	
		65 Thompsonville	4,636.98	189	97	3	0	188	1	0	0.5	238.80	790	3.3	AGR 74.1	–	No	UND	
		Sub-Total	11,790.57	899	–	–	–	890	9	0	1.0	828.43	3,600	4.3	– –	–	No	P/D	
Northwest	O	51 Caddy Vista	926.38	306	100	0	0	302	3	1	1.3	113.27	1,190	10.5	AGR 44.3	Caddy Vista	No	P/D	
		52 Husher	2,928.86	123	100	0	0	120	3	0	2.4	156.90	490	3.1	AGR 73.8	–	No	UND	Trinity Lutheran
		66 Caledonia	4,653.81	315	100	0	0	312	2	1	1.0	303.27	1,430	4.7	AGR 68.0	–	No	UND	St. Louis–St. John's Lutheran
		Sub-Total	8,509.05	744	–	–	–	734	8	2	1.3	575.44	3,110	5.4	– –	–	No	UND	
		Total	64,624.80	39,326	69	19	12	35,201	3,701	424	10.5	9,195.57	129,280	14.5	– –	–	Yes	P/D	

[a] *Land Use Code: AGR – Agriculture, CEM – Cemetery, IND – Industry, REC – Recreation, STR – Streets and Highways, UTL – Utilities, OPN – Open*

[b] *Condition of Development Code: R – Renewal (conservation, rehabilitation or redevelopment), D – Developed, P/D – Partially Developed, UND – Undeveloped*

Source: Land Use and Housing Survey - 1969; Harland Bartholomew and Associates; Population Estimates - 1969; Racine Unified School District No. 1

Chapter VI

HOUSING

INTRODUCTION

The major objectives of the housing inventory are to determine the location, extent, type, and condition of the housing in the Planning District and to examine special housing problems such as the availability of housing for large families, for the elderly, and for the poor. This data, coupled with related economic, demographic and land use studies, will be used to establish long-range goals and programs for the improvement of housing conditions within the Planning District.

As the first step in such a study, the Planning District was divided into communities and neighborhoods.

THE NEIGHBORHOOD CONCEPT

Delineation of communities and neighborhoods enables the Planning District to be organized into workable and understandable units. A neighborhood is that area most closely associated with the daily activities of family life such as elementary education school or convenience shopping. Local neighborhoods depend on the larger community for basic employment, major shopping areas, transportation, and cultural facilities. A group of neighborhoods which function as a unit, providing a high level of services and facilities, may be described as a community. By utilizing neighborhood units and combining them into communities, residential areas may be planned with a physical environment that is healthy, safe, convenient, and attractive.

The major objective of the neighborhood is to accommodate safe and healthy family home life and the activities associated with it. The neighborhood should be of sufficient size to maintain and protect its own environment with a population large enough to support an elementary school of reasonable size within walking distance. The school should be located adjacent to a neighborhood park and the school and park together should function as the neighborhood center. The neighborhood should be provided with utilities and essential facilities for a safe and healthy environment. Shopping facilities should be conveniently located. Adequate parks and recreation facilities should be provided, occupying a minimum of about 10 percent of the neighborhood's area. The boundaries of the neighborhood should be definite and recognizable features such as railroads, major streets, natural barriers or marked changes in land use. Streets carrying heavy and through traffic should be routed around and not go through a neighborhood.

Neighborhoods may be grouped together to form communities. At the community level, several neighborhoods support a shopping center, junior and senior high schools and a community center with such facilities as a branch library and sub-post office. The boundaries of the community also should be definite and recognizable. These physical relationships should achieve an identity and facilitate increased social activities. Areas where the primary use is not residential are referred to as districts, such as the central business district, industrial district or agricultural district.

Division of the Planning District into neighborhoods and communities in accordance with these principles enables a logical approach to be made to the development of a physical plan that will be convenient, pleasant, and economical as well as socially desirable.

Neighborhoods and Communities

As could be expected, most of the Planning District's neighborhoods are not clearly defined and do not contain all of the desirable neighborhood elements above described. Some have a poor environment because of substandard housing, overcrowding, and blighted surroundings. Occasionally, there are small groups of dwelling units isolated by transportation arteries or industrial and commercial areas. In other cases, there are inadequate utility or other public facilities and services.

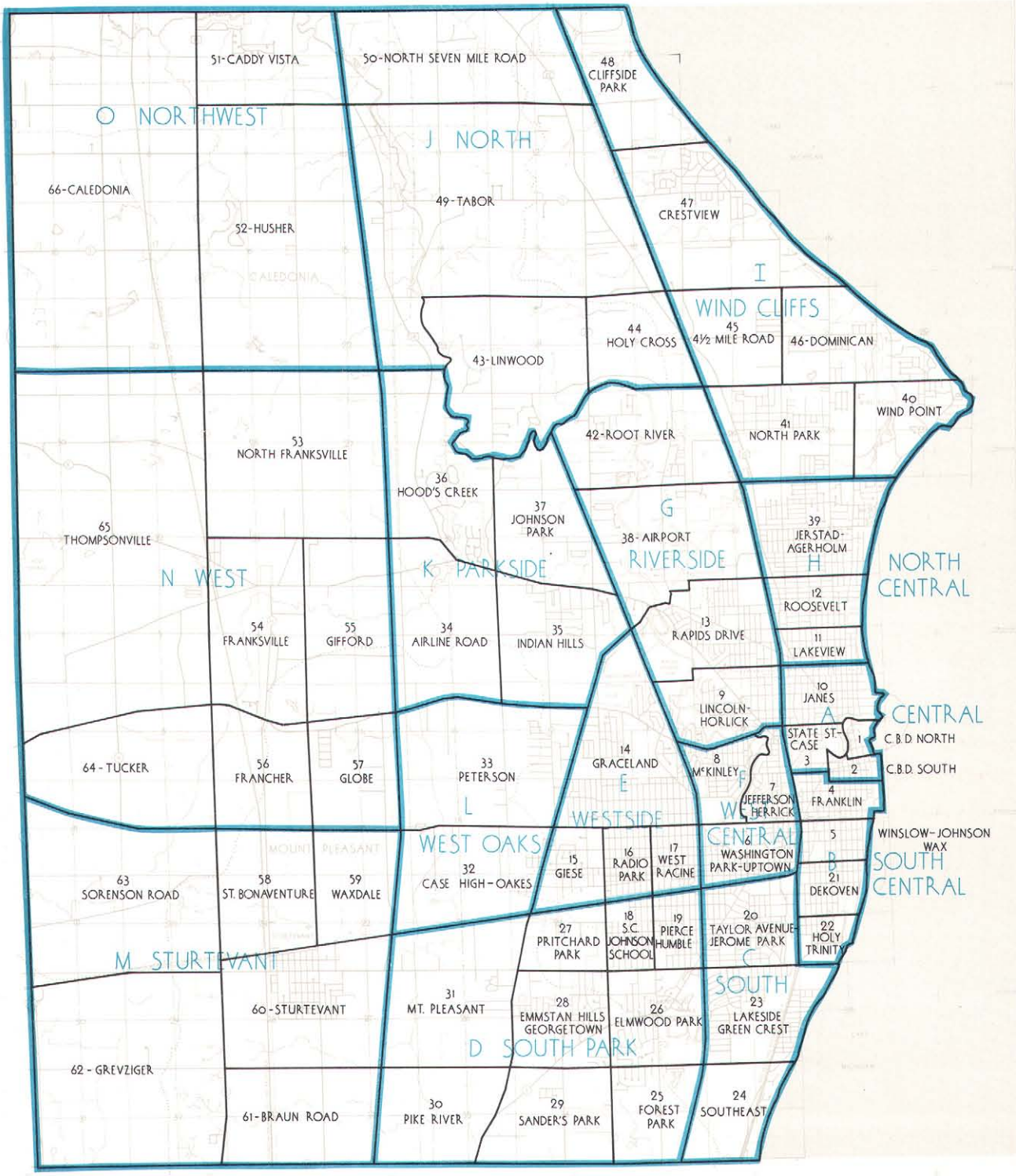
Based upon the principles described above, the Planning District has been divided into 66 neighborhoods and 15 communities. These have been used to analyze existing land uses, publication densities, and housing conditions. (See Table 6-1 and Map 6-1.)

POPULATION DENSITY – 1969

Residential densities[1] range from a high of 57 persons per net residential acre in the Franklin neighborhood (No. 4), to a low of less than two persons per net residential acre in the Grevizger neighborhood (No. 62). (See Map 6-2.) Two

[1] *Population densities are calculated in terms of persons per net residential acre. Density categories, established by the SEWRPC for the Region have been used to show population densities by neighborhoods. Density calculations are based upon residential land use areas and the estimated 1969 population.*

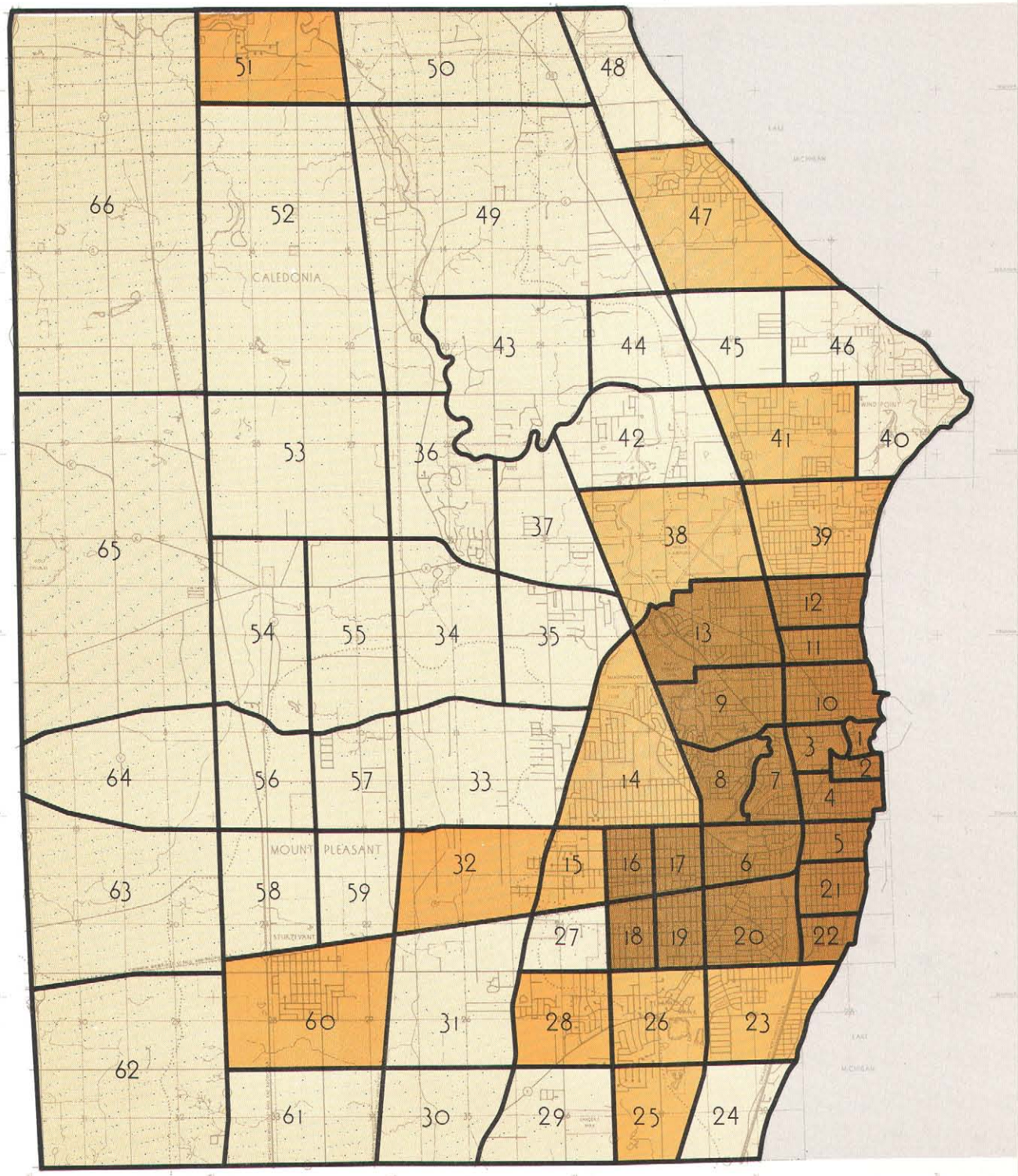
MAP 6-1



NEIGHBORHOODS AND COMMUNITIES

RACINE URBAN PLANNING DISTRICT

MAP 6-2



LEGEND

- COUNTY LINE
- TOWN AND RANGE LINE
- SECTION LINE
- QUARTER SECTION LINE
- STATE PLANE COORDINATE GRID
- INCORPORATED CITY OR VILLAGE
- INTERSTATE HIGHWAY
- U.S. NUMBERED HIGHWAY
- STATE TRUNK HIGHWAY
- COUNTY TRUNK HIGHWAY
- LOCAL OR MINOR STREET
- RAILROAD
- RIVER AND LAKE SHORELINE
- INTERMITTENT STREAM OR WATERCOURSE
- MAJOR PUBLIC AND SEMI-PUBLIC LAND
- POWER LINES
- MAJOR WATERSHED
- BREAKWATER
- HIGH DENSITY RESIDENTIAL - OVER 22.8 PERSONS PER NET RESIDENTIAL ACRE
- MEDIUM DENSITY RESIDENTIAL - 7.3-22.8 PERSONS PER NET RESIDENTIAL ACRE
- LOW DENSITY RESIDENTIAL - LESS THAN 7.3 PERSONS PER NET RESIDENTIAL ACRE
- 8 NEIGHBORHOOD CODE NUMBER (SEE MAP 6-1)

SOURCE: HARLAND BARTHOLOMEW AND ASSOCIATES - FIELD SURVEY

RACINE COUNTY BOARD OF SUPERVISORS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

HARLAND BARTHOLOMEW AND ASSOCIATES

POPULATION DENSITY — 1969

RACINE URBAN PLANNING DISTRICT

Table 6-2

CHARACTERISTICS OF HOUSING
RACINE URBANIZED AREA – 1950, 1960[a]
AND THE RACINE URBAN PLANNING DISTRICT: AUGUST, 1969

Type of Housing	Urbanized Area – 1950 [a]		Urbanized Area – 1960 [a]		Urban Planning District – 1969 [b]	
	Number	Percent	Number	Percent	Number	Percent
Single-Family	11,873	51.78	19,325	64.99	27,210	69.19
Two-Family [c]	7,449	32.48	6,508[b]	21.88[b]	7,288	18.53
Multiple-Family	3,473	15.14	3,866	13.00	4,690	11.93
Dilapidated	631	2.75	551	1.85	424	1.07
Total	22,929	100.00	29,734	100.00	39,326	100.00
Occupancy of Housing						
Owner-occupied	13,759	60.01	19,018	63.96	N/A	N/A
Renter-occupied	8,841	38.56	9,860	33.16	N/A[d]	N/A[d]
Vacant	329	1.43	856	2.87	1,093	2.82
Total	22,929	100.00	29,734	100.00	N/A	N/A
Condition of Housing						
Sound	22,022	96.05	26,895	90.46	35,201	89.51
Deteriorating	(Not Used)		2,288	7.69	3,701	9.41
Dilapidated	631	2.75	551	1.85	424	1.07
Not Reported	276	1.20	–	–	–	–
Total	22,929	100.00	29,734	100.00	39,326	100.00
Population	74,715		95,345		130,000	
Average People/ Dwelling Unit	3.3		3.3		3.32	

[a] *Racine urbanized areas used in the 1950 and 1960 Census included the City of Racine and contiguous urbanizing areas. The 1960 urbanized area was larger than the area used in 1950. Source: U.S. Census of Housing, 1950-1960.*

[b] *Harland Bartholomew and Associates, Housing Study — Summer, 1969.*

[c] *Two-family dwelling unit classifications used in the 1950 and 1960 Census of Housing vary slightly: "Semi-detached" structures in 1950 are defined as "attached" in 1960 and the change in concept from dwelling unit to housing unit may also affect comparisons between single and two-family housing units.*

[d] *Vacancy statistics are from the 1969 Postal Vacancy Study conducted by the Post Office Department and Federal Housing Administration.*

of the neighborhood analyses zones do not register densities even though there is a resident population. This occurs in the Central Business District North (No. 1), where the primary land uses tabulated were commercial, and in Pritchard Park (No. 27) where the Racine County Institution has a small resident population but the land is classified in the public and semi-public category.

Population densities are highest in the centrally located neighborhoods surrounding the downtown area. Medium densities are found in the adjacent neighborhoods to the south, west and north, and in the neighborhoods containing the Village of North Bay and Sturtevant, and Crestview and Caddy Vista subdivisions. All remaining neighborhoods have low population densities. (See Map 6-2 and Table 6-1.)

EXISTING HOUSING CONDITIONS

In the summer of 1969, there were 39,326 dwelling units in the Racine Urban Planning District. Single-family homes accounted for 69 percent of the total (see Table 6-2), two-family homes for about 18 percent, and multiple-family housing units for the remaining 12 percent. Single-family homes are increasing in number and as a percentage of all housing, with newer residential areas being developed at lower densities.

Table 6-3

AGE OF DWELLING UNITS
RACINE URBANIZED AREA TO 1960
AND PLANNING DISTRICT 1960-1969

Constructed During Period		1960 Urbanized Area Dwelling Units	1960 Outside Urbanized Area Dwelling Units	1960–1969 Planning District Dwelling Units
1. 1929 earlier		18,158		
2. 1930 to 1939		2,696		
3. 1940 to 1949		2,556		
4. 1950 to 1954	3,117)			
5. 1955 to 1958	2,323)	6,324		
6. 1959 to 1960 March[b]	884)			
7. 1960 Total		29,734[c]		
8. 1960 Total Adjusted for Demolition		(29,138)[b]		
9. Authorized Units Constructed 1960-1969 through October				8,912[a]
10. Sub-total				38,050[a]
11. 1969 Total Units				39,326[a]
12. 1960 Estimated Dwelling Units in District Outside Urbanized Area			1,276[a]	
13. Estimated 1960 Total Dwelling Units in the District (Lines 7 and 12)				31,010

[a] *Total from 1960 U.S. Census of Housing adjusted for dwelling units demolished since 1960 (an estimated 596 dwelling units were demolished in the District from 1960-1969) provides an estimate of the 1960 Racine Urban Area housing stock which has survived to 1969: 29,138 dwelling units. Authorized building permits, 1960-1969, for municipalities in the District indicate that 8,912 dwelling units have been added for a 1969 total of 38,050 dwelling units. This leaves 1,276 dwelling units unaccounted for in this comparison, which were tabulated in the 1969 housing inventory (Line 12 above), providing an estimate of the number of dwelling units located in the district outside the urbanized area in 1960.*

[b] *Note: Minor inconsistencies exist in this body of data. A duplication occurs in the number of units from the U.S. Census—1960 (March) and 1960 Building Permits. Some municipalities have only estimates of construction permits and demolition in the early 1960's. Total 1969 construction permits are through October. These inconsistencies are found in the slow construction period of the years in question and are estimated to cancel out the differences.*

[c] *Source: U.S. Bureau of the Census, 1960 Census of Housing.*

Multiple-family housing has consistently shown a numerical increase and a decline as a percentage of all housing.[2] Two-family and multiple-family dwelling units combined with the "other units" category (including mobile homes and rooming houses), account for about 31 percent of all housing in the Planning District.

In recent years, town houses, condominiums, and large apartment projects have been introduced into the Planning District with relatively good success. Since 1960 there has been a significant amount of two-family and apartment unit construction in the District. However, multiple-family dwellings usually comprise less than 20 percent of all units constructed. A saturation of the apartment market occurred in the mid-sixties when more than 46 percent of residential construction consisted of this type of dwelling unit. (See Table 6-2.)

Age of Dwelling Units

In 1960 over 60 percent of the dwelling units in the "urbanized area"[3] were over 30 years old and only 20 percent were built after 1950. (See Table 6-3.) Based on

[2] *Data from the 1950 and 1960 Census of Housing and the recently completed housing studies in the Urban Planning District provide statistics on the number and type of housing units available, the age of these units, and the level of occupancy. Due to changes in the area designations used in the 1950 and 1960 Census of Housing and in recently completed housing studies, this information is not comparable due to differences in the size of study areas. The Racine Urbanized Area identified in the 1950 Census of Housing is somewhat smaller than that studied in 1960. The Racine Urban Planning District contains large rural areas with predominantly single-family housing units.*

[3] *"Urbanized Area" definitions for the areas referred to in the U. S. Census of 1950 and 1960 are found in Table 6-2.*

DETERIORATING HOUSING

WELL-MAINTAINED SOUND HOUSING

normal maintenance and a 50-year useful life of a dwelling unit, it is apparent that the "urbanized area" will be faced with a very high percentage of "old" dwelling units in the near future. Maintaining the quality of the community will require conservation activities and continued repairs to avoid large-scale obsolescence. During the planning period (1970 to 1990) 51.5 percent of the now existing dwelling units will exceed their normal expected useful life. Many of these buildings are sound, however, and with minor changes and regular maintenance will not become obsolete. They constitute a major source of low and medium cost housing that is vital to preserve.

Occupancy

In 1960 the Census of Housing reported that almost 64 percent of the housing units in the urbanized area were owner-occupied, 33 percent were renter-occupied, and that about 3 percent were vacant. Since that time, the percentage of owner-occupied units has increased. (See Table 6-2.) Residents of the Planning District prefer to live in single-family homes and preferably one which they own.

The total vacancy rate is one indicator of the relation between housing supply and demand. The total vacancy rate is comprised of available, non-available and dilapidated housing units. National estimates of the requirements for a "fully viable" housing market indicate a need for an "available" vacancy rate of 3.5 percent, the percent of all housing vacant and available for sale or rent within the market area. Vacant units which are "non-available" are estimated to amount to 2.5 percent and include: units held off the market being sold; rented awaiting occupancy; held for occasional use; and units held off the market for other reasons. In addition to this, an estimated dilapidated vacancy rate of 0.5 percent is added. These national estimates show a total vacancy rate of 6.5 percent of the total housing stock as an "accepted normal" vacancy rate in most urban areas.[4] These estimates are based on national figures and can vary considerably within smaller market areas for a variety of reasons. Information on vacancy rates, which would identify trends is not available.

In the summer of 1969, a survey[5] found 38,783 residential units and apartments. Of this total number, 1,093 units were vacant (both new and previously occupied housing units), a 2.8 percent total vacancy rate. Compared to the 6.5 percent vacancy rate used to estimate national housing needs, the existing 2.8 percent vacancy rate may indicate a significant housing shortage or this may represent available units, only 0.7 percent below the estimated national rate. The postal survey reported 246 units in various stages of construction. If these units were assumed to be completed and added to the vacant units, a 3.45 percent total vacancy rate existed in the summer of 1969.

U. S. Census data shows that total vacancy rates since 1950 have been under three percent of the total housing. Such decennial totals present an incomplete picture since annual flucutations in housing construction starts, employment opportunities, net in-migration and other factors influence the housing market and vacancy rate. The fact that vacancy rates have not exceeded 3.0 percent in 20 years may also suggest that this figure approximates a consistent vacancy ceiling in the local market.

Dwelling Unit Structural Condition

The existing supply of dwelling units in the Racine Urban Planning District results from many years of construction and maintenance, both at varying standards. All units, however, must be judged by contemporary standards. Previous to the establishment of municipal housing

[4] *The Technical Studies, Volume I, 1968, Report of the President's Committee on Urban Housing.*

[5] *In May, 1969, the Federal Housing Administration and U.S. Post Office (see Appendix VI-A) conducted a housing unit vacancy study in the Planning District. The Racine and Sturtevant Post Offices participated in this study which included an area slightly smaller than the Planning District. There are 39,326 dwelling units in the District. This survey included 38,783 dwelling units, or 543 less for a statistical deviation of 1.4 percent less than the total for the District.*

standards, people built shelter according to their means and needs. Some housing was substandard when it was built. However, substandard structures in the District result from inadequate maintenance or misuse.

Classifications used in judging the condition of housing by external survey were sound, deteriorating, and dilapidated, defined as follows:

Sound Housing Unit: A standard unit that has no defects or only slight defects which normally are corrected during the course of regular maintenance. Examples of slight defects are: lack of paint; broken screens, windows or doorsills; and broken gutters or downspouts.

Deteriorating Housing Unit: A unit that is substandard that needs more repair than would be provided in the course of regular maintenance. Such housing has one or more defects of an intermediate nature that must be corrected if the unit is to continue to provide safe and adequate shelter. Some examples of intermediate defects are: broken or loose materials (shingles, siding, outside stairs, railings); missing bricks or mortar; and several broken or missing windowpanes, screens, or window frames.

Dilapidated Housing Unit: A unit that is substandard, that does not provide safe and adequate shelter and in its present condition endangers the health, safety or well-being of the occupants. Such housing has one or more critical defects; or has a combination of intermediate defects in sufficient number or extent to require considerable repair or rebuilding; or is of inadequate original construction. The defects are either so critical or widespread that the structure should be extensively repaired, rebuilt or demolished. Examples of critical defects are: holes, open cracks, or rotted, loose or missing materials (clapboard siding, shingles, bricks, concrete, tile or stucco) over a large area of the foundation, walls, or roof; substantial sagging of walls, roof or porches; and extensive damage by storm, fire or flood.

The 1969 Housing Study indicated that 4,125 dwelling units (10.5 percent of the total housing stock in the Planning District) are rated as substandard, consisting of 3,701 units rated as deteriorating and 424 units rated as dilapidated. Analysis of housing conditions by neighborhoods indicates major problem housing areas. (See Tables 6-1 and 6-2.) Blighted conditions are principally located in the older areas adjacent to the central business district and to industrial uses along the railroads. Small concentrations of substandard conditions are also found in peripheral portions of Caledonia and Mt. Pleasant where original construction was of a modest nature and control measures were not yet in force. (See Map 6-3.)

In addition to identified problem housing conditions, significant numbers of substandard non-residential buildings add to the blighted conditions which exist in the central neighborhoods. These non-residential buildings add to the visual blight of these neighborhoods and may serve to hasten the process of neglect and deterioration. Substandard conditions for blocks containing from 20 to 50 percent substandard structures and from 50 to 100 percent substandard structures were calculated to show the extent of blight and deterioration in the central city. (See Map 6-4.) These classifications generally show those blocks which would qualify for clearance and rehabilitation provisions of Title I of the Housing Act of 1949 as amended.

In the central areas, many buildings have been neglected to the point where major renovations or replacements will be required to correct existing problems. Many of these buildings are found along the Chicago and Northwestern Railroad and Milwaukee Railroad rights-of-way. In these areas, there are clusters of non-residential buildings which, along with the problem housing conditions, give these areas a deteriorating or blighted appearance. The following communities and neighborhoods are most seriously affected:

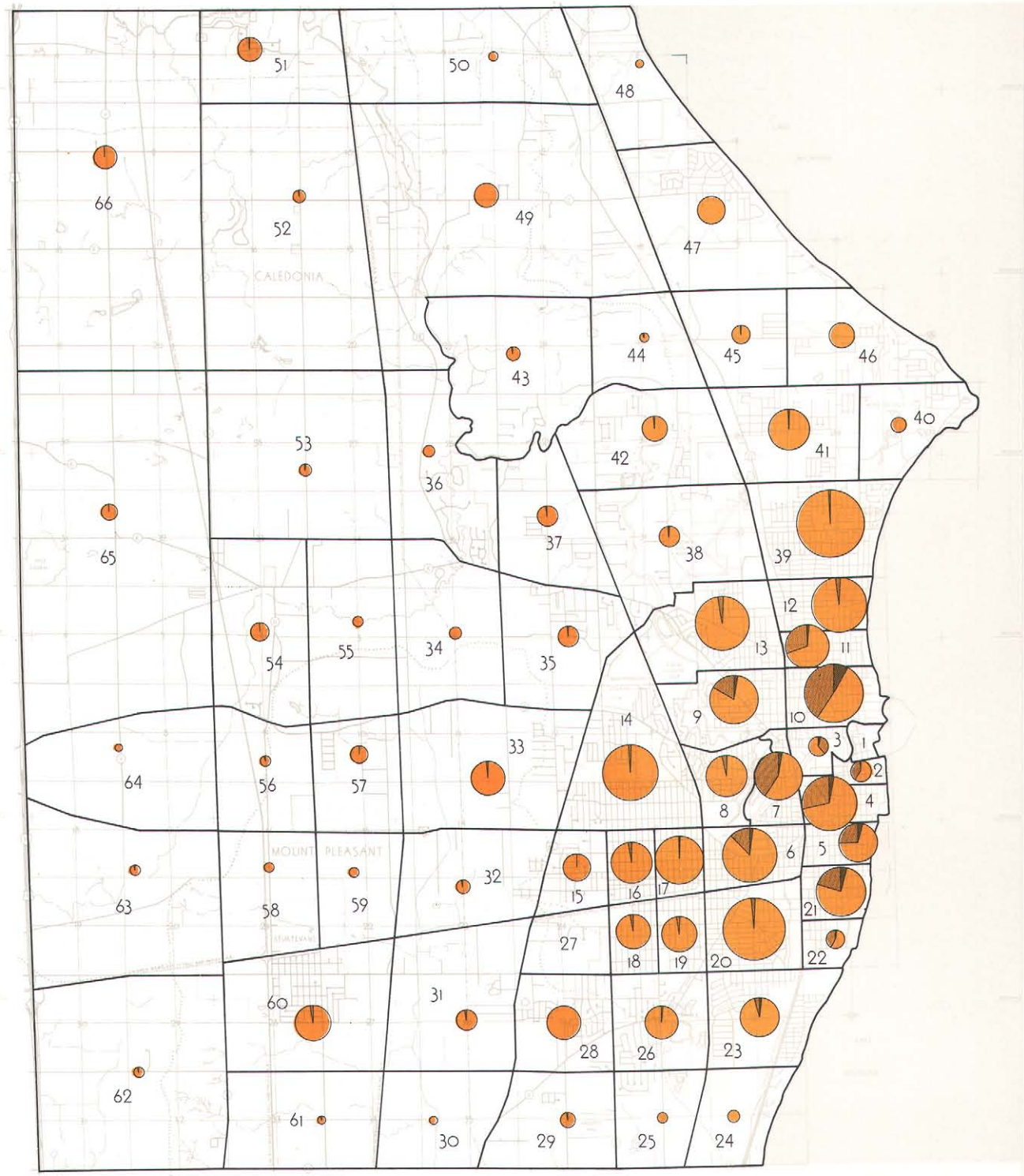
"A" Central Community

This community includes two distinct areas: the Central Business District (CBD) neighborhoods, No. 1, CBD North and No. 2, CBD South, which contain a substantial number of non-residential structures which are classified as deteriorating; and the residential neighborhoods north of the Root River, No. 3, State Street-Case, and No. 10, James, which contain a variety of housing conditions and concentrations of deteriorating non-residential structures. (See Map 6-4.)

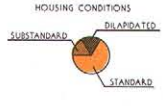
In the Central Business District, some causes and results of a decentralizing business function in the Planning District are immediately apparent from the condition of many of the remaining commercial buildings. Vacant stores, obsolete buildings, and limited maintenance are the most typical deficiencies found in the business district. Residential uses in this area are of a secondary nature, primarily located above retail floor space in the older buildings. A major improvement program is needed for the central business district.

Conditions in the two residential neighborhoods north of the Root River are the worst in the Planning District. Of the 2,477 dwelling units in these neighborhoods, 1,154 are deteriorating and 184 are dilapidated; 54.0 percent of all

MAP 6-3



HOUSING CONDITIONS



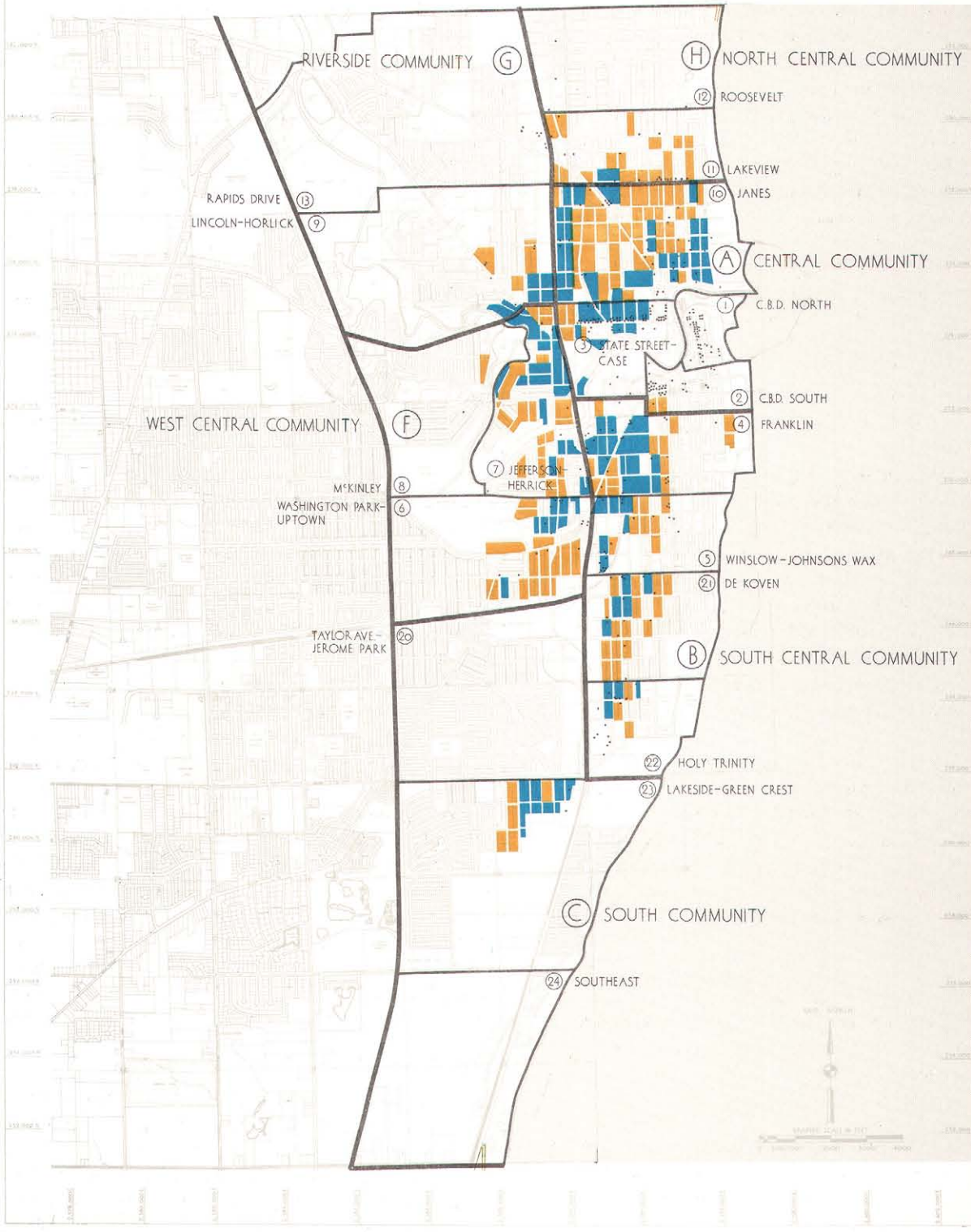
NUMBER OF DWELLING UNITS

SOURCE: HARLAND BARTHOLOMEW AND ASSOCIATES HOUSING AND STRUCTURAL CONDITION SURVEY - SUMMER, 1969

HOUSING CONDITIONS BY NEIGHBORHOODS

RACINE URBAN PLANNING DISTRICT

MAP 6-4



RACINE COUNTY BOARD OF SUPERVISORS
SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
HARLAND BARTHOLOMEW AND ASSOCIATES

BUILDING CONDITIONS BY BLOCKS

RACINE URBAN PLANNING DISTRICT

housing is substandard. Two features of this area are the Breakthrough and Spanish Neighborhood Centers. The main works of J. I. Case and Western Printing dominate the southern boundary along the Root River. Both of these industries have made major efforts to improve the appearance of their facilities. Many of the substandard housing units are found adjacent to State Street and the Northwestern Railroad, where a decline in the commercial function, local industries (such as the scrap metal yards, heavy industries and outside storage), and mixed land uses have all fostered the decline of this area. Douglas Avenue and State Street illustrate the mixture of land uses (often conflicting) which detract from these neighborhoods.

"B" South Central Community

This large community extends from the central business district south to the J. I. Case – Clausen Plant, and from the Northwestern Railroad east to Lake Michigan. The South Central Community has been divided into four neighborhoods: two north of Sixteenth Street, No. 4, Franklin, and No. 5, Winslow-Johnson Wax, and two south of Sixteenth Street, No. 21, Dekoven, and No. 22, Holy Trinity. Population densities in these neighborhoods are high and average 42.9 persons per net residential acre. Conditions in these neighborhoods are uniformly similar with fine older, well-maintained homes, generally to the east of Villa Street and almost all of the problem housing conditions located to the west. (See Map 6-4.)

The two northern neighborhoods have the highest population densities averaging about 47 persons to the net residential acre. Major institutional uses are found in these neighborhoods, including: the Racine Technical Institute and St. Luke's and St. Mary's Hospitals and the Franklin Neighborhood Center. Another important feature of this area is the Johnson Wax Administration Buildings. These are all major traffic generators.

Both of the southern neighborhoods have a similar composition with the southside neighborhood center, Dekoven Foundation, and Roosevelt Park serving as central features. Again, the population density is high at about 39 persons per net residential acre.

Problem housing conditions in the western portion of this community are among the most serious found in the Planning District. There are 3,686 dwelling units of which 1,171 are classified as substandard, amounting to 31.8 percent of all housing in the community. In the western portion of the community, where substandard conditions are prevalent, over 60 percent of all housing units are substandard. (See Map 6-4 and Table 6-1.)

Some of these residential blocks near the railroads and adjacent industries are severely dilapidated. A scattering of deteriorating structures are found in adjacent areas. The Southside Revitalization Citizens Advisory Committee has recently completed the preparation of a revitalization plan for this neighborhood, under the sponsorship of the Johnson Wax Company, cooperation of the City, County and Town of Mt. Pleasant, and assistance of Llewelyn-Davies Associates, Consultant. The plan proposes a multi-directional effort to rehabilitate, reconstruct and revitalize the neighborhood. Major features of the plan are to develop more open space, repair sound housing units, reconstruct dilapidated units, help low-income families to own their homes and to provide additional low-cost rental units.

"C" South Community

Problem conditions in this portion of the District are concentrated in neighborhood No. 23, Lakeside-Greencrest, west of the Chicago and Northwestern Railroad right-of-way and south of Durand Road. Portions of 14 blocks in this neighborhood contain all of the identified substandard conditions. This area is known as Sheridan Woods and the initial quality of construction and improvements was poor. A community action program is now being developed in this area. There are 55 substandard dwellings in this area which could qualify for various forms of assistance.

"F" West Central Community

Three neighborhoods comprise this community: No. 6, Washington Park-Uptown, No. 7, Jefferson-Herrick, and No. 8, McKinley. Washington and Horlick Parks along the Root River are the outstanding central features of this community. The highest concentrations of substandard conditions are found in the areas adjacent to the Chicago and Northwestern Railroad along the eastern edge of the community. Again, the combination of industrial, mixed commercial, and aging housing units have formed a substantial blighted area to the west of the central business district. Central features of this community are Washington Park, Washington High School and Lafayette Neighborhood Center.

Population densities are high at 38.7 persons per net residential acre, with the greatest concentrations of two-family and multiple-family housing units located in the area where substandard conditions are most severe. There are 3,966 dwelling units in this community of which 742 are rated as substandard, or 18.7 percent. The blighted portion of this community is about two-fifths substandard.

In the West Central Community there is a scattering of non-residential structures which have a blighting influence on surrounding areas. Some dilapidated buildings should be removed. The prevailing condition of deterioration requires code enforcement and improved property maintenance.

"G" Riverside Community

This community extends from the central portion of the City of Racine to the northwest along the Root River. Only a small portion of one neighborhood, No. 9, Lincoln-Horlick, contains problem housing conditions, and these conditions are found only in the southeast portion of the neighborhood, largely between Northwestern Avenue and the Chicago and Northwestern Railroad.

While these problem conditions represent a relatively small portion of the total housing (6.8 percent substandard), three of the six blocks affected are more than 50 percent substandard. Spot clearance and redevelopment, rehabilitation and conservation are needed. Uniformly enforced building and housing codes will help to contain these conditions and prevent their spreading outward.

"H" North Central Community

This community extends north from High Street to the northern limits of the City of Racine. Only one neighborhood is affected by substandard conditions, No. 11, Lakeview. This neighborhood extends south from Goold to High Streets and from the Chicago and Northwestern Railroad east to Lake Michigan. North Beach Park extends along the lake frontage and the neighborhood. Problem housing conditions are not severe but there is a considerable scattering of deteriorating housing units, sufficient to classify this neighborhood as 30.4 percent substandard. Rehabilitation and conservation activities should be enacted to reverse blighting influences and protect this neighborhood.

Obsolete Housing

Large portions of the central urban area have become deteriorated because of obsolescence, lack of maintenance, or poor initial development. This results in an urban environment that is unsatisfactory, unattractive, and unable to stimulate normal investor interest. Dilapidation follows. As this occurs, tax revenues decline and service costs rise. Effective community action is needed to eliminate these public liabilities. Some areas require clearance, others require spot clearance and rehabilitation, while still others require rehabilitation and conservation. Areas of widespread blight warrant more detailed analysis.

Problem housing areas correspond to those identified in the report, Community Analysis, by the Racine City Planning Department. These areas have a predominance of old buildings, congested conditions, mixed land uses, and social problems. Both physical and social disorders accompany the blighting condition. Programs have been formulated to correct these conditions, including code enforcement, demolition of derelict buildings, community action programs and studies by the City of Racine Environment Committee.

SPECIAL HOUSING PROBLEMS

Three special housing problems exist in the District, in addition to those of substandard conditions and housing supply previously identified. These are:

1. Low-income families have a limited opportunity for standard housing units and large families with low incomes are most seriously affected.

2. Housing for the elderly, particularly those who receive fixed pensions or public assistance, is severely restricted, and

3. Removal of substandard housing and renovation of deteriorating units has been left to individual actions because of the absence of public programs.

Low-Income Families

People with adequate incomes can generally find standard housing at a cost less than 25 percent of their income, or else they can generate a demand on the market to supply standard housing within their financial means. Normal market activity can provide for the needs of these people. However, people who have inadequate financial resources are forced out of the market for standard housing unless they are willing to pay an excessive proportion of their income for housing and, consequently, do without other necessities. These people often have to accept substandard housing. The fact that they have no other choice makes substandard housing profitable. Some families have incomes below local Federal Housing Administration (FHA) qualification levels for housing subsidy. (See Table 6-4.)

Table 6-4

RACINE COUNTY FAMILY INCOME LIMITS FOR FHA SECTION 235 AND 236 HOUSING: APRIL, 1970

Family Size	Adjusted Family Income [a]
1 person	$4,320
2 persons	5,940
3 persons	6,480
4 persons	7,020
5 persons	7,560
6 persons	8,100
7 persons	8,300
8 persons	8,370
9 persons	8,190
10 persons	9,180

[a] *Adjusted Income: Reduced five percent for Social Security and $300 for each dependent.*

Source: Federal Housing Administration Office, Milwaukee Area: 1970.

In 1968, 22 percent of the households in Racine County had net cash incomes (after all income taxes) below $5,000. An additional 27 percent of the households had net cash incomes between $4,000 and $8,000.[6] Households with incomes below $5,000 could qualify for FHA assistance and many of the families with incomes between $5,000 and $8,000 would qualify for this assistance, depending on the size and income of the individual family. Current FHA estimates are not comparable and do not agree with the Sales Management net income figures and show only 10 percent of families and renter households below the $5,000 figure. The FHA estimates do show that at least 19 percent of the county's families would qualify for some form of Federal Housing assistance. (Average size four persons, adjusted family incomes under $7,020).[7]

Recent economic conditions have led to a limited cash availability at high interest rates, which has made financing of new housing very expensive. This situation is reflected in the decline in new housing construction in the District. This, in turn, tends to slow down the "filtering down" of older housing to lower income groups, making it more difficult for low-income families to find standard housing within their income limitations. Large families with low incomes face the additional problem of finding standard housing spacious enough to accommodate the family.

Public assistance is paid to 3,830 families and individuals living in the District,[8] approximately 3.0 percent of the total population. Assistance in the county as a whole is provided in the following categories:

	Number of Persons
Aid to Dependent Children	3,638
Disabled Aid	159
Old Age Assistance	232
Blind Assistance	18
Yearly Variation Factor (10%)	404
Total	4,450

Data on families receiving aid to dependent children (ADC) provides insight into family composition. These are estimates based upon the current known family composition:

ADC FAMILY SIZE

Number of Dependent Children	Number of Families (Estimate)
1 child	100
2-3 children	350
4 or more children	450
Total	900

In addition to these persons who receive various forms of public assistance, there is a group of families and individuals who have limited incomes, but who do not receive assistance. Based upon 1968 net cash income distribution, 12.5 percent of the county's families have net incomes under $3,000. About 19 percent of the families in Racine County have incomes below the FHA level for qualification for low-income housing programs.[9] This income group faces a serious problem with regard to obtaining standard housing. Those in this group who own their own homes find it difficult to maintain and repair their property.

Average rent being paid by public assistance recipients illustrate the limited cash resources available to persons with low income levels. These rent levels also illustrate the limits placed upon these persons in trying to find housing in other than substandard units:

Number of Persons	Average Rent
2	$74.00
4	78.00
6	84.00
8	86.00
10	87.00

A recent study of the Racine County housing market clearly defines the gap which exists between low income families and standard rental housing units currently being provided in the local housing market. Average market rent is at least 50 percent greater than current rent being paid by these families.[10]

Large Families

Local realtors were interviewed to determine the availability of housing for large families with limited or low incomes. Estimates were unsupported with statistics, but realtors were in agreement that there was a need for

[6] *Sales Management, Survey of Buying Power, 1969, June, 1969.*

[7] *Analysis of the Racine, Wisconsin Housing Market, June, 1969, Table IV.*

[8] *Data from interviews with Racine County Welfare officials, May, 1970.*

[9] *Estimated percentage distribution of all families and renter households by annual income after deducting federal income tax Racine, Wisconsin, housing market area 1969. Estimated by FHA Housing Market Analyst.*

[10] *"Analysis of the Racine, Wisconsin, Housing Market", Federal Housing Administration, November, 1969.*

Table 6-5

ESTIMATED ANNUAL OCCUPANCY POTENTIAL FOR SUBSIDIZED HOUSING
Racine, Wisconsin Housing Market Area
June 1, 1969 to June 1, 1971

A. Subsidized Sales Housing, Section 235	
Eligible Family Size	Number of Units [a]
Four persons or less	59
Five persons or more	21
Total	80

B. Privately Financed Subsidized Rental Housing

	Rent Supplement		Section 236	
Size of Unit	Families	Elderly	Families	Elderly [b]
Efficiency	–	115	–	37
One bedroom	4	27	8	21
Two bedrooms	10	–	37	–
Three bedrooms	6	–	20	–
Four bedrooms or more	5	–	15	–
Total	25	142	80	58

[a] *All of the families eligible for Section 235 housing also are eligible for the Section 236 program, and about 70 percent are eligible for low-rent public housing. The estimates are based upon exception income limits.*

[b] *Applications, commitments, and housing under construction under Section 202 are being converted to Section 236 in accordance with instructions issued March 7, 1969.*

Note: Section 221(d)(3) is still carried as an FHA Program but this may also be converted to Section 236.

Source: Analysis of the Racine, Wisconsin Housing Market, June, 1969 - Table IV.

housing with three or more bedrooms for low-income families. Estimates prepared by the Federal Housing Administration as a basis for approving applications show the annual potential for subsidized housing in the Racine housing market area to be 385 units. (See Table 6-5.)

Involvement of the Federal Housing Administration in the Planning District for the current year includes 304 dwelling units for low and moderate income families and for the elderly. An additional 120 nursing home beds will be constructed for the elderly. (See Table 6-6.) Excluding the nursing home beds, this current level of involvement is approximately 80 housing units below the estimated annual occupancy potential. (See Table 6-5.)

Estimates of the amount of housing required to provide for the needs of large families with low incomes may be determined from the occupancy pattern of these new units; however, only 46 of the 385 housing units recommended are to have three or more bedrooms. With 450 households receiving ADC assistance having four or more children, there is apparently a substantial additional need for more units to serve the requirements of large families.

Housing for the Elderly

The need for more housing for the elderly is recognized in the Planning District and several projects are currently underway to provide additional nursing home beds, residence homes, and apartment units. There are four nursing homes in the District and three more are being planned. These facilities vary significantly in cost, admission requirements, and extent of services. (See Table 6-7.)

A survey of elderly people in the Racine area[11] indicated a definite need for a retirement center and for a subsidized program. There is only one program to provide housing in private units for elderly persons who do not require the services of a nursing home.

[11] *By Lincoln Lutheran Homes of Racine, Inc.*

Table 6-6

FEDERAL HOUSING ADMINISTRATION INVOLVEMENT IN THE RACINE URBAN PLANNING DISTRICT: 1969

Number of Dwelling Units	Group Served	Program Title	Number
72	Low and Moderate Income	Below Market Interest Rate Rental Housing	221(d)(3)
120 Bed	Elderly (Nursing Home)	Mortgage Insurance for Nursing Homes	232
112	Low and Moderate Income	Interest Supplements on Mortgages for Home Ownership for Low Income Families	235
120	Elderly (Apartment)	Interest Supplements on Mortgages for Rental Housing for Lower Income Families	236
–	Lower Income Families	Rent Supplements	

Source: Federal Housing Administration, Milwaukee, Wisconsin, October, 1969.

FUTURE HOUSING REQUIREMENTS

The total number of additional dwelling units required in the Racine Urban Planning District by 1990 will be largely dependent upon population growth. A 68.4 percent increase in the District population has been forecast for the planning period. Growth of this magnitude is certain to be translated into substantial additions to the existing housing stock regardless of the number of persons per dwelling unit.

Since 1950, the number of persons per household in the Racine urbanized area, Racine County, and the Southeastern Wisconsin Region has fluctuated between 3.30 and 3.40 and in 1969, an estimate of 3.32 persons per household was made for the Racine Urban Planning District. Should the number of persons per household not change appreciably for the next two decades, an increase of 27,600 occupied dwelling units would have to be added to the existing housing stock, assuming 3.30 persons per household. If, however, the relationship should decline somewhat, as has been occurring in many parts of the country, a greater number of occupied dwelling units would be required, that is, 28,400 units would be required in the event a 3.20 persons per household ratio were to occur. Assuming a three percent vacancy rate, therefore, the total increase should range between 28,400 units and 29,200 units, and the total number of dwelling units in the District would range between 67,700 units and 68,500 units.

In 1969, 4,200 units or 11 percent of the dwelling units in the Planning District were classified as either deteriorating or dilapidated. Of these 4,200 substandard residential units, more than 400 are classified as being in dilapidated condition, that is, with critical defects. These should be replaced during the planning period. Rehabilitation will be necessary for the 3,800 housing units in deteriorating condition.

Special attention should be focused on the types and sizes of housing units needed to alleviate the special problem areas confronting the District. These include housing for the elderly, low-income families, and large families requiring units with space sufficient to meet at least minimum requirements. In addition, those areas containing large numbers of substandard housing units will require immediate attention in order to prevent the deterioration of currently marginal units. The continued existence of substandard dwelling units can only result in greater pressure on the existing supply of housing, and consequently intensify the problem of accommodating housing needs in the future.

It should also be noted that some housing units will be lost to conversions, natural disasters, street and highway improvements, and other construction projects. Between 1960 and 1969, such demolitions averaged 60 units per year. But this rate will probably not be sustained as the cost of new housing continues to rise and the enduring value of the existing housing stock becomes greater. Demolition of sound residential units for the above reasons should not exceed a total of 600, or an average of 30 per year, during the planning period.

Thus, total housing construction over the next 20 years, allowing for replacement of dilapidated housing and rehabilitation of substandard residential areas should amount to between 29,400 and 30,200 units, depending

Table 6-7

EXISTING AND PLANNED HOUSING FACILITIES FOR THE ELDERLY

	Nursing Homes	Capacity	
(E)	Lincoln Lutheran Home	97 beds	Private/Non-Profit
(E)	Racine County Institution	280 beds	Public
(E)	Siena Center	33 beds	Semi-Public
(E)	Western Nursing Home	135 beds	(Private/Profit)
(P)	Others	(Approximately) 100-150 beds	(Private/Profit)
(P)	Lapour-Kayon	120 beds	(Private/Profit)
(P)	Mediatrics	155+ beds	(Private/Profit)
	Residence Homes for Elderly		
(E)	Danish Old Peoples Home	46 residents	(Private)
(U)	Lincoln Manor Personal Care Center	62 residents	(Private)
(E)	Palmeter Home	16 residents	(Private)
(U)	St. Monica Senior Citizens Home		
	43 Two-bed Rooms		
	8 Apartments	102 residents	(Private)
(E)	Theresa and Elizabeth Home	31 residents	(Will be moved to Lincoln Manor) (Private)
	Apartment Unit for the Elderly		
(P)	Lincoln Manor Apartments	120 units	F.H.A. Rent Subsidy
(P)	Others	100 units	F.H.A. Rent Subsidy

P — Planned
U — Under Construction
E — Existing

Source: Compiled by Harland Bartholomew and Associates, January, 1970 — interviews with officials and representatives of individual nursing homes or sponsoring institutions.

upon trends in household size. Approximately 1,500 dwelling units will have to be constructed each year in order to meet the need, a rate not exceeded since 1965. In 1969, new housing was being built in the District at only one-third of this rate.

SUMMARY

For the purposes of analyzing and planning the residential areas, the Planning District has been divided into 66 neighborhoods and the 66 neighborhoods, in turn, combined into 15 communities. Land use and housing statistics have been compiled for the neighborhoods and the communities.

Nearly 40,000 dwelling units were found in the Planning District in 1969. Almost seven out of each ten were single-family homes. The owner-occupied single-family home is the preferable type of housing in the Planning District.

For the past 20 years, the vacancy rate of existing housing has not exceeded three percent. A 97 percent occupancy of the housing supply can be expected.

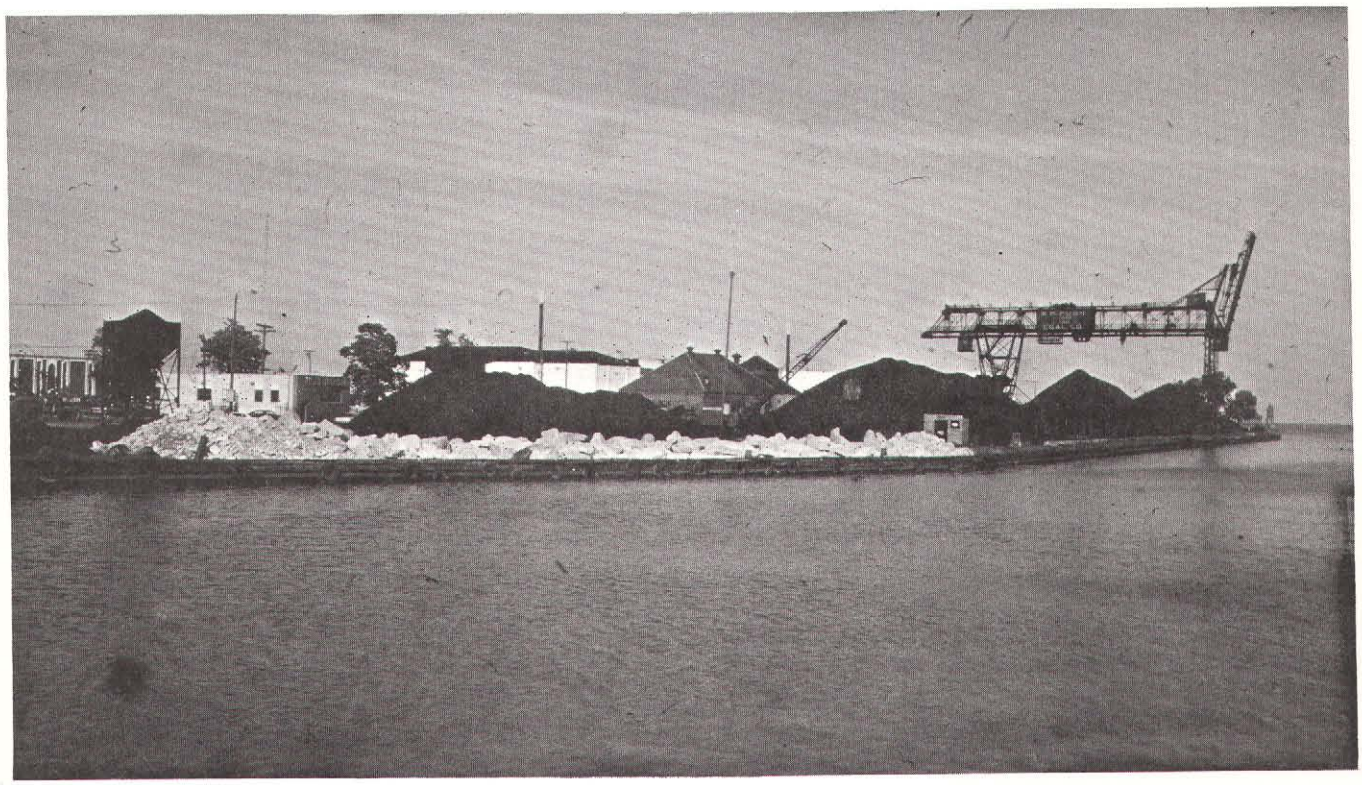
In general, the housing supply is in good condition with only 10.5 percent rated as substandard. The vast majority of the substandard units are susceptible to being rehabilitated and only about 400 are in such bad shape that they should be removed.

Housing problems result mostly from obsolescence and lack of proper maintenance. Most substandard areas are old and are found in the more centrally located parts of the Planning District.

About one-fifth of the families in the Planning District have an income so low as to make it difficult for them to find standard housing and impossible for them to purchase or rent new housing. The problem of finding standard housing is particularly difficult for low-income families with a large number of children and for elderly persons, particularly those who are on a fixed income.

Approximately 30,000 new housing units will be required in order to adequately accommodate the population growth forecast to 1990. This forecast anticipates the replacement of the more than 400 dilapidated residential units in the District and the loss of 1,200 more residential units to all causes. In order to meet the forecast housing need, approximately 1,500 dwelling units will have to be constructed each year over the 20-year period.

TRANSPORTATION – HIGHWAY AND RAIL



TRANSPORTATION – GREAT LAKES SHIPPING

Chapter VII

TRANSPORTATION

INTRODUCTION

Good transportation is essential to the social and economic life of any community. The safe, efficient, economical movement of people and goods into, out of, and within a community has always been a major development objective of urban areas. This chapter presents the results of extensive inventories and analyses of the transportation facilities of the Racine Urban Planning District, including the arterial street and highway system; associated off-street parking and truck terminal facilities; the public transit system; and the airport, harbor, railway, and inter-city bus facilities serving the District.

ARTERIAL STREET AND HIGHWAY SYSTEM

The principal mode of transportation for most residents of the Planning District is the private automobile. Together with the trucks which serve business and industry and with mass transit vehicles, automobiles utilize the public street and highway system which has been evolving since the earliest days of settlement in response to the needs of a changing technology and growing population. The public street system of today includes the original road network; much of which was located along the U.S. Public Land Survey section and quarter-section lines, but some of which, including the original military and territorial roads, predated the completion of the public land survey in the District; dedicated streets from numerous subdivisions and original plats; and other primary roads constructed and improved after the advent of the automobile by the state, county, town, and city governments.

The efficiency and effectiveness of the present public street system depends upon the foresight with which the various increments were added over the years, and their adequacy in accommodating the traffic demand placed upon them.

Experience in many communities over a long period of time has demonstrated that the most efficient method of handling vehicular traffic is to improve a relatively small number of strategically located streets and highways with adequate pavement widths and good alignment, and to develop a network of such arterial streets and highways to serve all of the major traffic movements. These main traffic arteries, which in fully-developed urban areas, generally do not total more than 25 percent of the total public street system, have become commonly known as "major streets" or "arterial streets" and normally carry between 80 and 90 percent of a community's traffic movements. The remaining 75 percent of the system, which consists of collector and land access streets, serve to collect and distribute traffic to and from the arterials and to provide access to individual properties.

Street Classifications and Standards

In its regional land use-transportation study, the Southeastern Wisconsin Regional Planning Commission defined arterials as those streets and highways which are intended to serve the through movement of fast or heavy traffic and provide transportation between two or more major subareas of the Region, between such subareas and points outside of the Region, or between major points outside the Region. Together the arterials should form an integrated area-wide system, located and designed to carry the imposed traffic loadings. Freeways, expressways, and certain parkways, as well as "standard" arterial streets and highways, are all types of facilities which may be included in this arterial system. The primary function of these facilities should be to facilitate the expeditious movement of vehicular traffic. Access to abutting property may be a secondary function of some types of arterial streets and highways, but should always be subordinate to the primary function of traffic movement. Collector streets are defined as those streets and highways which are intended to serve as connections between the arterial system and the minor street system. In addition to collecting and distributing traffic from and to the minor streets, the collector streets usually provide a secondary function of access to abutting property. Minor streets are defined as those streets and highways which are intended to serve primarily as a means of access to abutting property.[1]

Arterial street standards vary widely, depending upon the area and traffic volumes to be accommodated. Many new arterial street standards consider rights-of-way at least 130 feet wide with a minimum of 72 feet of curb-to-curb paving for four travel lanes and curbside parking. The arterial street and highway standards recommended by the Southeastern Wisconsin Regional Planning Commission in the land use-transportation study are being refined for use in the District planning program, and will include rural, urbanizing, and urban sections. The rural sections are to include two and four lane facilities with rights-of-way ranging from 66 to 160 feet. The urbanizing sections are to

[1] *Southeastern Wisconsin Regional Planning Commission, Land Use-Transportation Study, Volume One, page 114.*

include two and four lane rural facilities with provision for additional travel lanes and conversion to urban sections on 130 foot rights-of-way. The urban sections are to include two, four, and six lane facilities with rights-of-way ranging from 60 to 130 feet. Also to be included are four and six lane freeway sections on 325 foot rights-of-way for rural or urban areas. These cross-sections will be graphically shown in Volume 2 of this report.

Existing Facilities

The 1970 arterial street and highway system in the District totals about 156 miles, or about 30 percent of the 522 miles of streets and highways in the District. The arterial system is comprised of all five state trunk highways which traverse the District and total nearly 62 miles, eight of nine county trunk highways which traverse the District and total about 40 miles,[2] and approximately 54 miles of local arterial streets and highways. Interstate Highway 94–U.S. Highway 41 forms the western boundary of the District. Two state trunk highways extend to the west, 11 and 20; and three state trunk highways, 31, 32, and 38, cross the District from north to south. The county trunk highways and their urban extensions, G, K, C, H, Y, X, KR, and MM, form an intergral part of the arterial system in the District. In addition, the city has developed a system of local arterials which move large volumes of traffic. (See Map 7-1.)

In the City of Racine, with relatively intensive land use development, arterials are located at approximately one-half mile intervals. For the unincorporated areas with lower land use intensities, the arterials are spaced one to two miles apart. Movement in some areas is hampered by the poor continuity or alignment of some arterials, which contain jogs and "T" intersections which impede the steady movement of large volumes of traffic. In general, movement is easier in an east-west than in a north-south direction through the District. In the City of Racine, itself, the unusual topography and loops of the Root River make movement particularly difficult. In an effort to facilitate north-south traffic movement, the city has developed Memorial Drive as a major arterial and completed major improvements upon it from Durand Avenue to as far north as Yout Street, a distance of 3.4 miles.

Rights-of-Way and Pavement Widths

Arterial right-of-way widths vary widely in the Planning District, ranging from the original "three rod roads" with 49.5 foot rights-of-way to the more than 300 foot right-of-way of Interstate Highway 94. County trunk highways which perform arterial functions most commonly have a 66 foot right-of-way, although many have been reconstructed in more recent years, such as CTH Y and have widths from 100 feet to 140 feet. In the City of Racine, which has a standard 60 foot street right-of-way width, most arterials are located on 60 and 66 foot rights-of-way. Where new alignments have been constructed, rights-of-way up to 140 feet wide have been acquired. State trunk highways in the District have the most varied rights-of-way, reflecting the numerous widenings and improvements which have been carried out by the State Highway Commission. These highways range from 49.5 feet on original locations to 200 feet and wider for the more recent improvements. (See Map 7-1.)

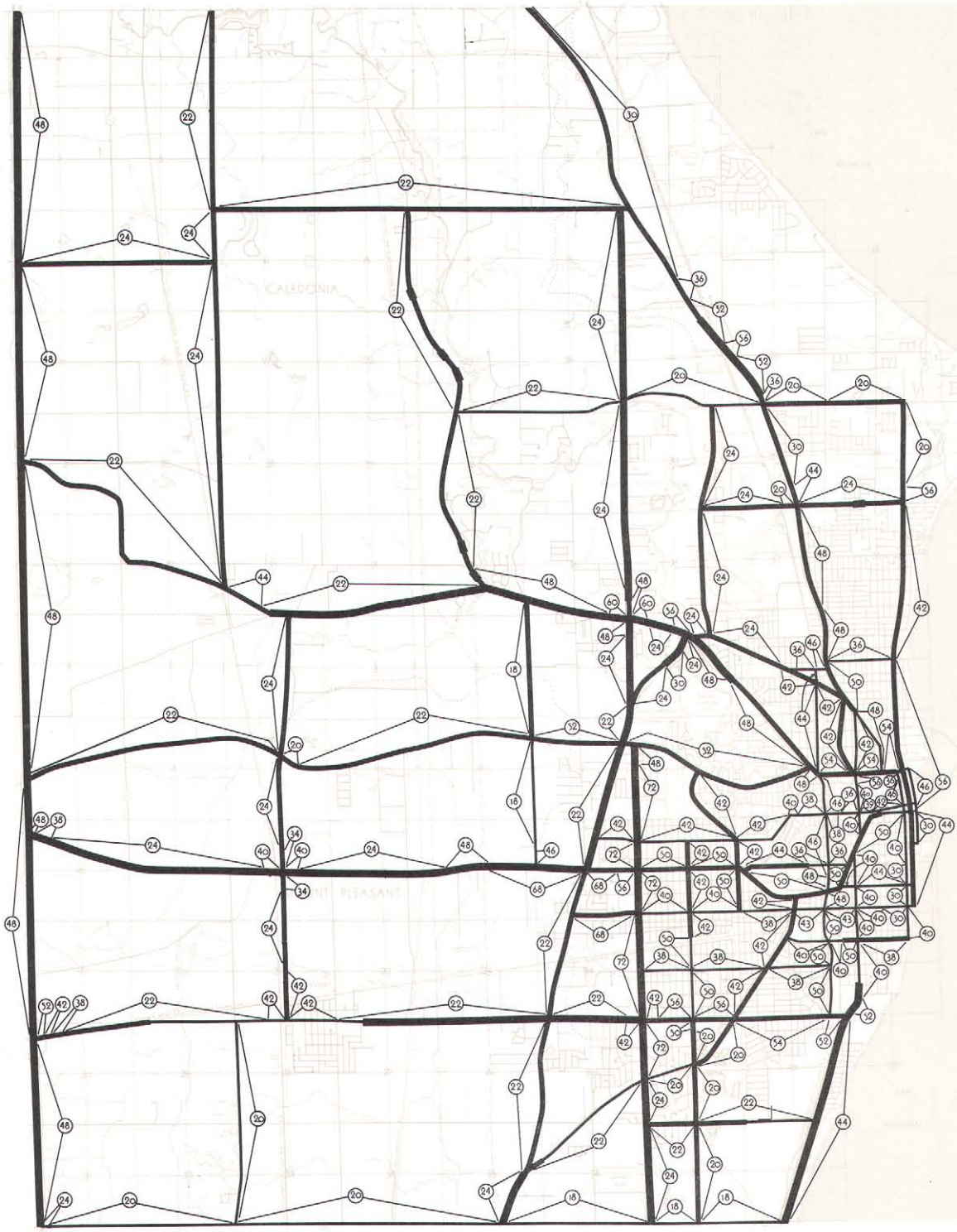
Pavement widths likewise reflect numerous improvement and rebuilding projects carried out on the original system over the years. Most rural county trunk highways provide for two moving lanes of traffic with 20 to 24 feet of pavement surface, although the pavements of a few rural sections are only 18 feet wide. City arterials are paved to a width of between 30 and 54 feet, usually without a median and with parking permitted on both sides. Most four-lane arterials in the city, which carry state trunk highway routings, have 44 and 48 foot pavements without any median.

In the past, many different arterial street standards and construction practices have been followed within the District. Street rights-of-way and pavement width deficiencies give some indication of this piecemeal approach to the development of the arterial system with many substandard sections which have not yet been upgraded to current standards. Many important arterials, including STH 32 and STH 11, have high traffic volumes but provide only two travel lanes, resulting in congested conditions during periods of peak traffic volumes. Most of the older sections, in both the developed and undeveloped areas of the District, were built to the equivalent of the SEWRPC "minimum" arterial standards or less. While the characteristics of the arterial facility should be varied according to the anticipated future traffic volumes, in undeveloped areas the "desirable" standard section should be followed. In the developed areas, the "minimum" standard may have to be adhered to in order to minimize right-of-way acquisition costs and land use disruption. A substantial amount of arterial street widening, however, will be necessary in developed areas to satisfy the anticipated future travel demand.

An additional need is to improve weak links in the system, straightening out awkward and inefficient sections and facilitating overall traffic movement within the Planning District. In newly developing urban areas, considerable improvement of the arterial system will be required to

[2] *The single county trunk highway not included in the 1970 arterial street and highway system is County Trunk Highway V which parallels IH-94–USH-41, one mile to the east from the Milwaukee County Line to STH-20.*

MAP 7-1



RIGHT-OF-WAY WIDTHS
LESS THAN 66 FEET
66-99 FEET
100 FEET OR GREATER

22 PAVEMENT WIDTHS IN FEET

SOURCE:
DIVISION OF HIGHWAYS
STATE TRUNK HIGHWAY LOG-1969
ROAD INVENTORY & NEEDS LISTING
OF RURAL ROAD INVENTORY
CARDS-1970
CITY OF RACINE ENG. DEPT.
S.E.W.R.P.C.

EXISTING ARTERIAL SYSTEM – 1970
Pavement and Right-of-Way Widths

RACINE URBAN PLANNING DISTRICT

accommodate increasing traffic volumes resulting from urban growth.

Traffic Volumes

Highest traffic volumes in the District are recorded along IH-94 which carried approximately 46,000 vehicles per day in 1970. Elsewhere, the most heavily traveled rural arterial sections carried 10,000 to 14,000 vehicles per day and the most heavily traveled urban sections carried 15,000 to 21,000 vehicles per day. (See Map 7-3.) Substantial variations do exist, however; CTH KR along the southern edge of the District carries slightly more than 1,000 vehicles per day, while STH 20 east of Emmertson Road in the Town of Mt. Pleasant accommodates more than 19,000 vehicles per day. Twelfth Street, the most lightly traveled city arterial, accommodates somewhat less than 4,000 vehicles per day, while Washington Avenue, reflecting the greatest demand, carries almost 21,000 vehicles per day. (See Map 7-2.)

Arterial Street Capacities

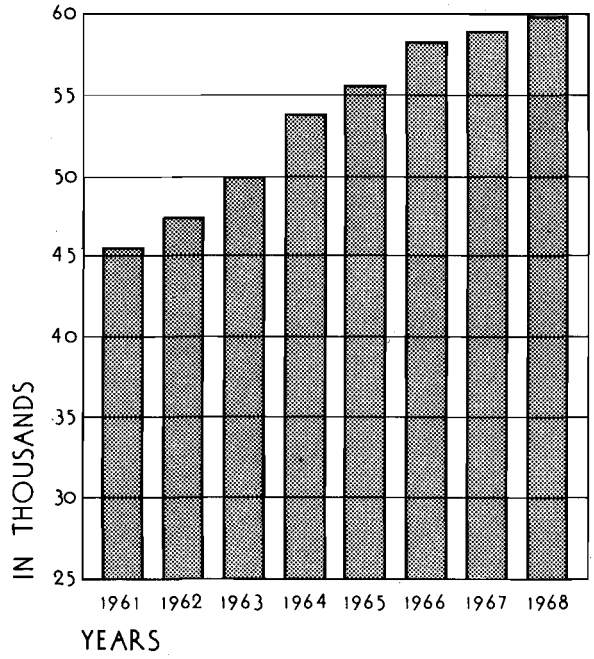
Arterial street capacity estimates prepared by the Southeastern Wisconsin Regional Planning Commission[3] indicate that in the outlying areas of the District, most arterials presently have a capacity in excess of the traffic volumes utilizing the arterials. Most two-lane arterials are able to accommodate at least 5,500 vehicles per day with the more highly improved sections able to carry up to 8,500 vehicles per day. Three important exceptions exist, STH 11 east of Sturtevant where traffic volumes are more than one-third greater than the capacity, a portion of STH 31 between STH 38 and STH 11 which is operating at up to 50 percent above capacity and STH 20 west of Willow Road which is operating at nearly 75 percent above capacity. (See Maps 7-2 and 7-3.) Reconstruction of STH 11 between the east edge of Sturtevant and Lathrop Avenue in the City of Racine is scheduled for 1971 and 1972. Within the developed areas, most major arterials typically are operating at or above capacity, and steadily increasing traffic volumes are forced to use an arterial system with severe limitations. In an analysis of the problem, the City of Racine Traffic Engineer recommended eliminating parking along the principal streets, the majority of which were found to be operating at or above capacity.[4] Even if parking were prohibited on both sides of certain key arterials, a serious problem of insufficient capacity would still exist on sections of Douglas, Taylor, Sixteenth, Washington, Racine, West Sixth, Memorial Drive and Main.

Motor Vehicle Registrations

Motor vehicle registrations within the District, principally autos, but also including trucks, trailers, buses, motorcycles, and municipal vehicles, increased by 38.8 percent in the ten-year period from 1960-61 to 1969-70 to a total of 62,467. (See Figure 7-1.) This was equivalent to 0.47 vehicles per person in the District, up from approximately 0.40 in 1960. The ratio of vehicles to persons in the District was virtually identical to that of the United States as a whole, which had 0.41 vehicles per person in 1960 and 0.46 in 1967.[5] There is now one registered vehicle for every 44.1 feet of roadway in the Planning District. Owing to increasing affluence, mobility and other factors, motor vehicle registration in the Planning District has increased more rapidly than population in the 1960's. This marked trend toward nearly universal use of the automobile is virtually certain to have a substantial impact upon future road use patterns and traffic volumes in the District. Further economic and population growth in the Racine Urban Planning District, which is forecast to raise total population by as much as 90,000 persons in the next 20 years, will in all probability, be accompanied by a 75 percent increase in motor vehicles to a total of more than 100,000 autos, trucks, and other vehicles.

Figure 7-1

MOTOR VEHICLE REGISTRATIONS
RACINE URBAN PLANNING DISTRICT



SOURCE: STATE OF WISCONSIN, DEPARTMENT OF TRANSPORTATION, DIVISION OF MOTOR VEHICLES

[3] *Southeastern Wisconsin Regional Planning Commission, Jurisdictional Highway Study for Racine County, Unpublished Data, 1970.*

[4] *"Traffic Conditions on Racine's Major Streets and Suggested Improvement", 1970, City Traffic Engineer.*

[5] *Motor-Vehicle Registrations, 1950-1967, The U.S. Book of Facts, Statistics and Information, 1969, page 553.*

MAP 7-2

VEHICLES PER DAY
5,000
10,000
20,000
40,000
60,000
80,000

NOTES:
(A) SHOWS COMBINED TOTAL VOLUMES OF WISCONSIN AVENUE, MAIN STREET AND LAKE AVENUE
(B) SHOWS COMBINED TOTAL VOLUMES OF WISCONSIN AVENUE AND MAIN STREET

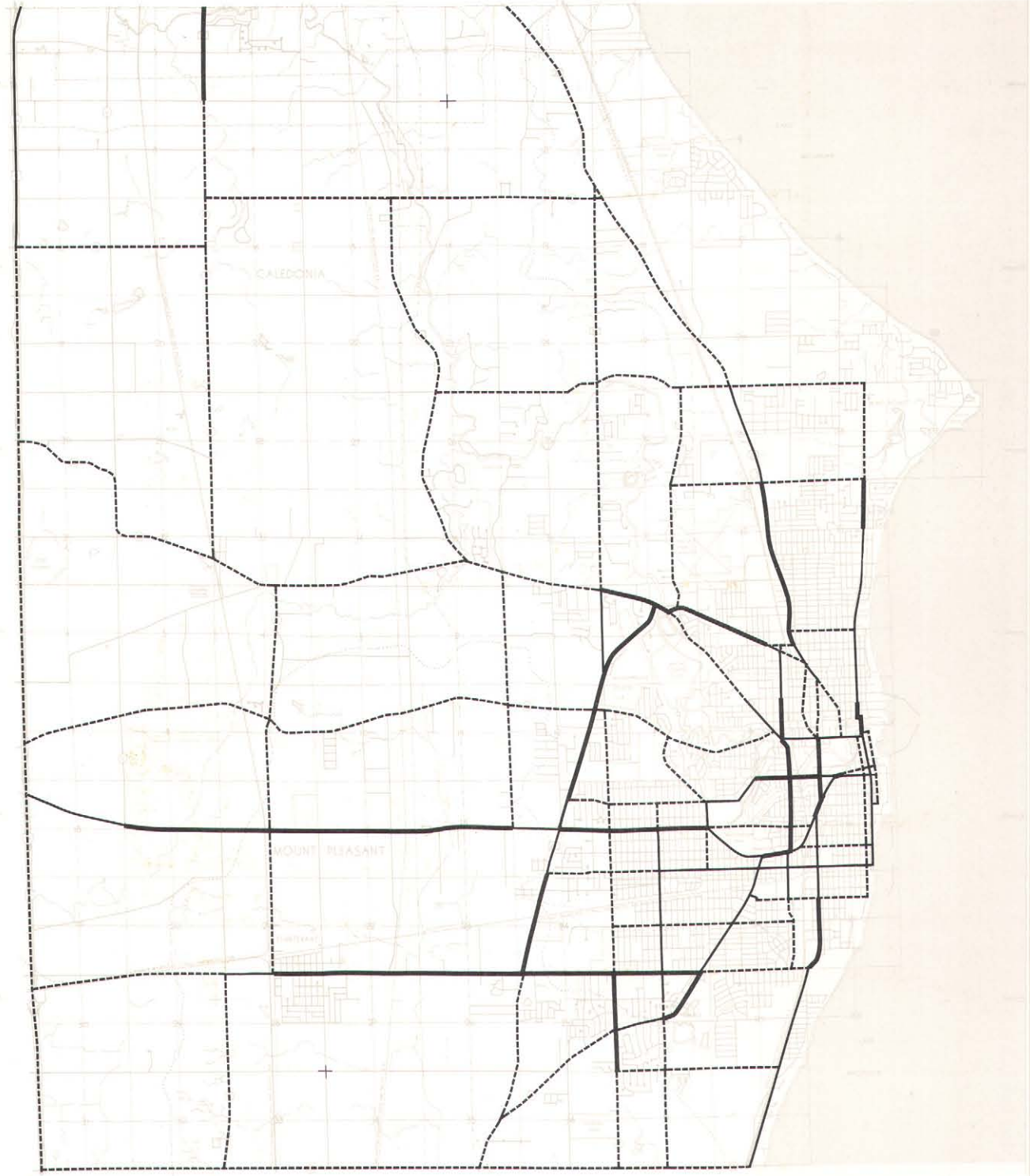
1970 TRAFFIC VOLUME
STREET CAPACITY

SOURCE: CITY TOWNS & VILLAGES AND THE RACINE COUNTY HIGHWAY DEPT - COMPILED BY SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

1970 CAPACITY AND TRAFFIC VOLUMES

RACINE URBAN PLANNING DISTRICT

MAP 7-3



SOURCE: SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

1970 VOLUME TO CAPACITY RATIO

RACINE URBAN PLANNING DISTRICT

OFF-STREET PARKING – COMMERCIAL

OFF-STREET PARKING – INDUSTRIAL

Future Traffic Volume

Reflecting the increases in population, motor vehicle registrations, and more trips per vehicle forecast for the Planning District, future traffic volumes are expected to increase markedly. The forecast 1990 travel demand as applied to the existing 1970 arterial street and highway system has been calculated by the study staff and is shown in graphical form on Map 7-4. Many of the existing arterials will have to carry several times the amount of traffic they accommodate at present if additional facilities are not provided. Among these will be State Trunk Highways 20, 31, 32, and 38, and County Trunk Highways C and K. Particularly large increases are forecast for the arterials linking the central parts of the Planning District with the proposed urban growth expected to surround the City of Racine. In the older parts of the urban area, many existing arterials will not encounter substantially greater volumes than already exist. Exceptions, however, would be sections of Taylor, Green Bay, Washington, Northwestern and Douglas.

OFF-STREET PARKING

Terminal facilities, i.e., parking and loading areas, are as essential to the functioning of the transportation system as the arterial street system itself.

Existing Facilities

There are almost 20,000 off-street parking spaces in the major commercial and industrial areas of the District.[6] (See Map 7-5 and Table 7-1.) This is equivalent to about one-half of the vehicles registered in the District.

Approximately one-half of these parking spaces (9,800 spaces) are located in the principal commercial areas. The inventory included the Racine Central Business District, six neighborhood shopping districts, shopping centers, and highway-oriented business areas in peripheral locations. Of the 9,800 spaces, 1,800 are public including the 300-space public parking ramp on Wisconsin Avenue in the City of Racine. Nearly one-third of all commercial parking spaces are located in the Central Business District.

Business and industry, on an individual basis, have provided parking for customers and employees. The city has built public parking lots, primarily in the downtown area. Elsewhere, off-street commercial parking takes the form of scattered lots adjacent to and within the neighborhood commercial areas and extensive parking lots surrounding new shopping centers.

The STH 20 commercial district, with a 2,100 car parking lot and the Elmwood Plaza commercial district, with a 1,200 car parking lot, are the largest privately developed parking lots serving commercial areas. The remaining inventoried parking facilities serving commercial areas have from 700 to less than 100 spaces. (See Map 7-5.)

Most industries within the District provide on-site parking for their employees. Although industrial activity is widely scattered, several industrial districts do exist, particularly adjacent to railroad rights-of-way within the urbanized portions of the District. In the five areas inventoried, a total of 9,917 spaces for employees and customers were identified. The largest of the individual industrial parking lots is at the J.I.Case Clausen Works. The largest number of spaces is in the southern industrial district, which lies south of Sixteenth Street on either side of the Chicago and Northwestern Railroad.

Use of Facilities

Current utilization of off-street parking lots provides a measure of the adequacy of existing facilities.[7] Since 1953, meters have been installed on many streets in commercial areas, forcing the long-term parkers (mostly employees) into off-street lots. Within the areas inventoried, average parking occupancy ranged from a low of 29 percent of the available spaces in the western portion of the central business district to a high of 82 percent at the Clausen Works of J.I.Case Company. (See Map 7-5 and Table 7-1.)

The highest occupancy rates for outlying commercial areas occurred at Elmwood Plaza and Rapids Plaza, with 72 and 68 percent respectively. Neighborhood shopping areas within the city had a generally low average occupancy rate, with only the Uptown area exceeding 50 percent occupancy. Those neighborhood shopping areas with the

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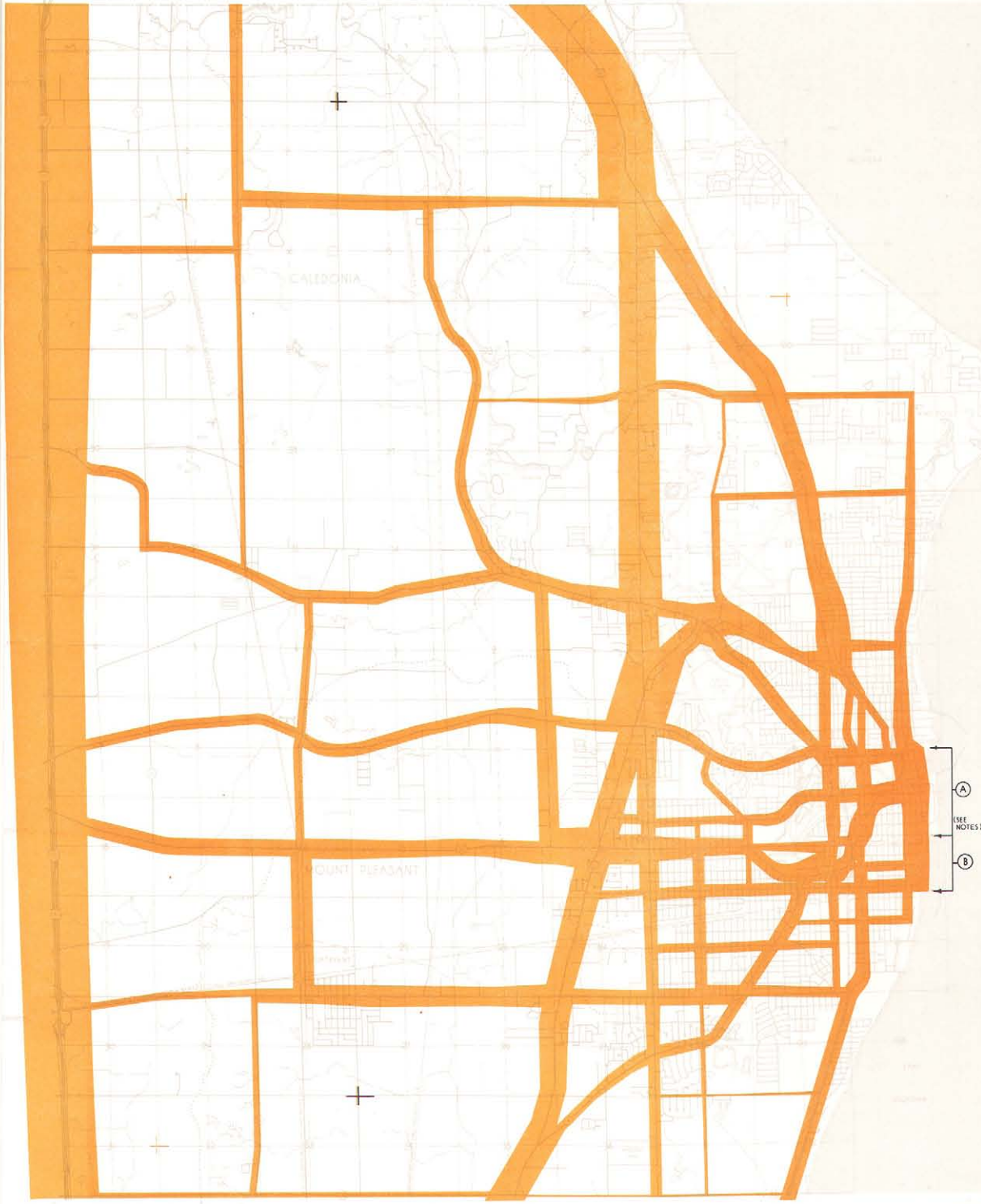
[6] *In August, 1969 two off-street parking surveys were carried out in the Racine Urban Planning District. The City of Racine's Department of Traffic and Lighting conducted a survey of on-street and off-street parking utilization in the seven principal commercial districts in the city. Parking counts were made and percentage of average hourly occupancy calculated for two different days. The resulting data was used to justify proposed parking improvements over the next five years. As a part of the Land Use Survey, Harland Bartholomew and Associates (summer 1969) off-street parking facilities were inventoried in the important commercial areas, shopping centers and major industrial areas of the Planning District. Information from both studies has been used in preparing this analysis. Occupancy levels in the lots and spaces inventoried by the city are unrealistically low in that the parking counts were made for the period between 9 a.m. and 9 p.m. which is longer than the normal business day.*

[7] *The results of the surveys conducted by the City of Racine and Harland Bartholomew and Associates are not tabulated in the same manner. Occupancy figures from the city survey are an average for 12 hour periods from 9 a.m. to 9 p.m. on each of two separate days. The Harland Bartholomew and Associates study is based on tabulated occupancy rates during business hours between 9 a.m. and 5 p.m.*

MAP 7-4



VEHICLES PER DAY
5,000
10,000
20,000
40,000
60,000
80,000

NOTES

(A) SHOWS COMBINED TOTAL VOLUME OF WISCONSIN AVE., MAIN ST AND LAKE AVE..

(B) SHOWS COMBINED TOTAL VOLUME OF WISCONSIN AVE AND MAIN ST..

SOURCE: SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

ESTIMATED 1990 TRAFFIC VOLUMES

RACINE URBAN PLANNING DISTRICT

Table 7-1

OFF-STREET PARKING INVENTORY

	Principal Parking Areas	Available Spaces				Percent of Occupancy
		Public	Public Garage	Employee and Customer	Total	
A	Commercial					
1	Central Business District	1,408	300	1,381	3,089	34.2[a]
	Area I	117	–	587	704	37.9[a]
	Area II	318	–	484	802	28.8[a]
	Area III	973	300	310	1,583	36.4[a]
2	Uptown	170	–	321	491	51.4[a]
3	West Racine	186	–	176	362	43.8[a]
4	Flat Iron Square	–	–	409	409	35.4[a]
5	High Street	–	–	65	65	33.5[a]
6	Sixteenth Street	–	–	409	409	44.9[a]
7	State Street	44	–	547	591	29.8[a]
8	Elmwood Plaza	–	–	1,198	1,198[b]	72.0[b]
9	Highway 20 Commercial District	–	–	2,100	2,100[b]	42.0[b]
10	Rapids Plaza	–	–	703	703[b]	68.0[b]
11	Shorecrest	–	–	400	400[b]	55.0[b]
	Sub-Total – Commercial	1,808	300	7,709	9,817	–
B	Industrial					
12	Clausen Works	–	–	2,200	2,200[b]	82.0[b]
13	Fifteenth St. Industrial District	–	–	1,467	1,467[b]	74.0[b]
14	N. Industrial District	–	–	1,487	1,487[b]	50.0[b]
15	S. Industrial District	–	–	2,978	2,978[b]	68.0[b]
16	W. Industrial District	–	–	1,785	1,785[b]	61.0[b]
	Sub-Total – Industrial	–	–	9,917	9,917	–
	Total – All Spaces	1,808	300	17,626	19,734	–

[a] *Percent Utilization: 9:00 a.m. to 9:00 p.m. (hourly average). City of Racine Department of Traffic and Lighting, August, 1969.*

[b] *Parking Inventory, Tabulated Occupancy – Harland Bartholomew and Associates, August, 1969.*

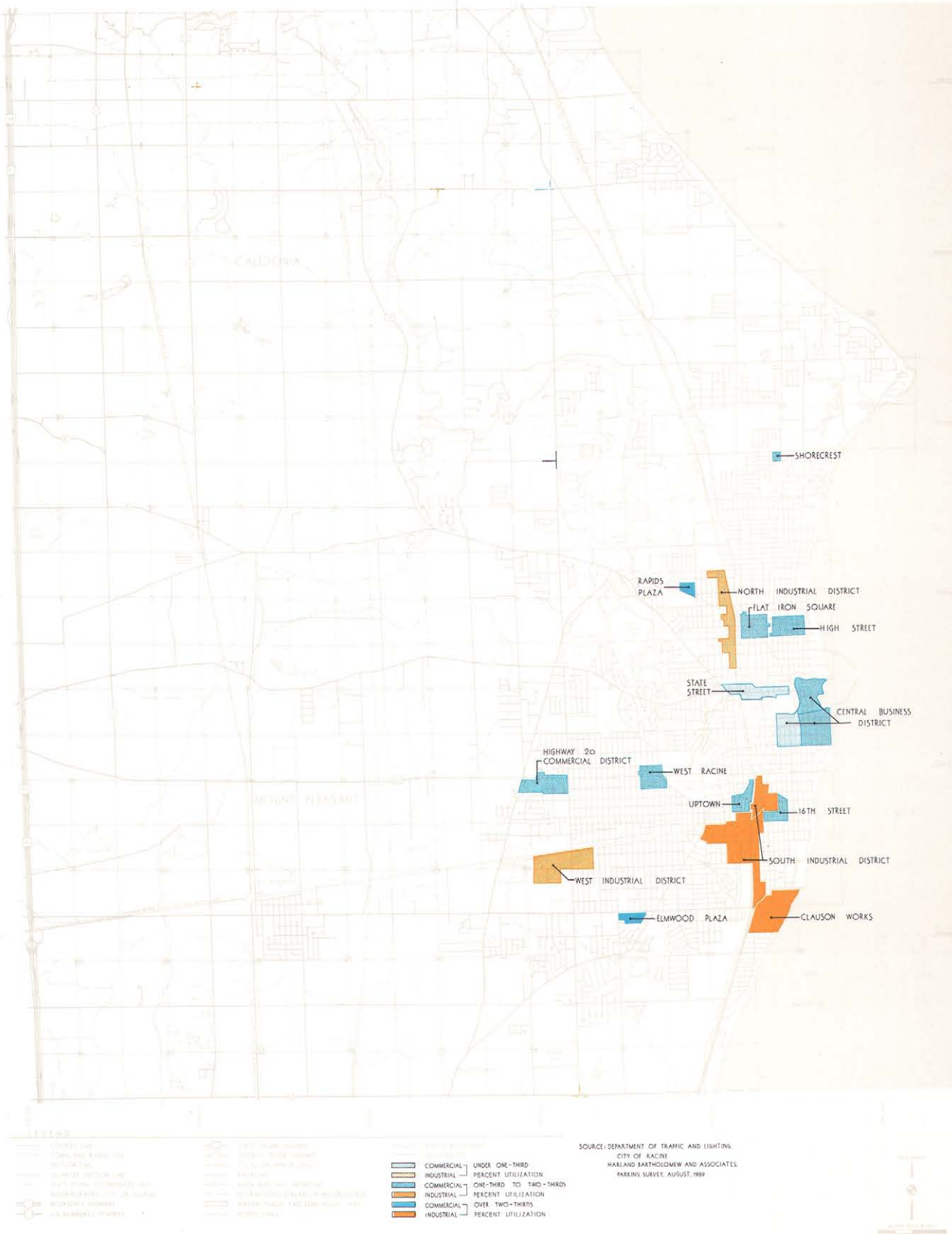
greatest variety of commercial operations (Uptown, West Racine, and Sixteenth Street) had the highest occupancy rates. The older commercial districts, suffering from a lack of building maintenance and high building vacancy rates, contain substantial surplus parking capacity of up to 70 percent. This situation is most evident along State Street, an older commercial area which is rapidiy becoming functionally obsolete.

Customer parking lots should not be used at more than 85 percent of capacity because at higher rates the facilities do not provide adequate choice of parking spaces. With no commercial lot operating above 72 percent peak occupancy, and the majority of areas in the city functioning at an average of below 50 percent of capacity, existing off-street spaces are generally adequate to accommodate current demand, except in the Uptown area, where capacity is significantly less than the peak demand.[8] With substantial excess off-street parking in most areas, on-street parking could be eliminated on some of the more congested arterials and off-street lots utilized more fully.

Industrial and commercial employees who spend the day at the plant or store typically occupy a parking space for a much longer period than shoppers who make their purchases and leave within an hour or two. The same number of persons can be expected to use the plant parking lot each day, in contrast to the peak shopping periods

8 *"Report on Parking in the Racine Business Districts", City of Racine, Department of Traffic and Lighting, March, 1970, page 13.*

MAP 7-5



MAJOR OFF-STREET PARKING FACILITIES

RACINE URBAN PLANNING DISTRICT

experienced by commercial retailers. Industrial lots are used more efficiently than commercial lots, and have higher occupancy rates. Among the five major industrial areas inventoried, the lowest occupancy rate was in the Northern Industrial District, which contains several vacant industrial plants. The West Industrial District had 61 percent occupancy; the South Industrial District, 68 percent occupancy; the Fifteenth Street area, 74 percent occupancy; and the Clausen Works, 82 percent occupancy.

Parking Problems and Potentials

While specific areas with parking deficiencies can be identified, no major overall off-street parking problem exists. In some instances lots adjacent to major parking generators are being utilized up to capacity, while other lots with excess space are available within a few hundred feet. The problem is to encourage a fuller utilization of existing spaces as it is impossible for everyone to park at the door of their destination. A comprehensive appraoch, with lots located so as to serve a multiplicity of land uses, would be a substantial improvement over the present practice of haphazard location of lots on an individual basis. In its "Report on Parking in the Racine Business Districts", the City Department of Traffic and Lighting proposed additional parking facilities for the Uptown and West Racine areas, but found no serious space deficiencies elsewhere in the city.

In the past, industries have provided their own parking, with lots sufficient in size to accommodate all employees who drive automobiles, usually equivalent to about three-fourths of the number employed on the maximum shift. This policy has been adequate to accommodate employee parking, with some exceptions among smaller industries which have carried parking problems into adjacent residential areas because of failure to provide adequate off-street parking facilities of their own. Zoning ordinances can insure that future industrial and commercial developments provide a sufficient number of off-street parking spaces. With the exception of a few limited areas, the number of existing off-street parking spaces is sufficient to accommodate current demand.

PUBLIC TRANSIT FACILITIES

Public transit service in the Racine Urban Planning District is provided by the Flash City Transit Company, which operates a fleet of 13 buses on ten routes in the city and adjacent unincorporated areas. The company, which also operates the school bus line and a taxi service, maintains office, storage, and maintenance facilities at a 2.6 acre site located at Kentucky and Twentieth Streets in the City of Racine.

All ten bus routes originate on Main Street between Fourth and Fifth, radiating from the central business district (CBD) to peripheral destinations such as industrial areas and shopping centers, most of them looping before returning to the CBD. (See Map 7-6.) The system is designed so that all buses leave and return to the point of origin at approximately the same time. This makes it possible for riders to transfer from one route to another, and thereby travel conveniently to almost any point in the city. Each round trip takes under 40 minutes. An area roughly bounded by Durand Avenue, Green Bay Road, and Three Mile Road is served by public transit, including the J.I.Case Clausen Works, Elmwood Plaza, the Highway 20 Commercial Area, Rapids Plaza, and Shorecrest Shopping Center. In the outlying portions of the District, generally including the area beyond the city limits of Racine, public transportation is non-existent.

Equipment utilized consists of 13 "Flexette" buses, each with a maximum capacity of 35 riders, 19 seated and 16 standing. Ten of the buses were built in 1967 and three in 1968. Ten vehicles are used daily with three in reserve. The buses operate between 5:30 a.m. and 6:45 p.m. weekdays, making 20 round trips daily. Service is also provided to 9:15 p.m. on Friday evenings and between 6:30 a.m. and 6:45 p.m. on Saturdays. No bus service is provided on Sundays.

Mass Transit Survey

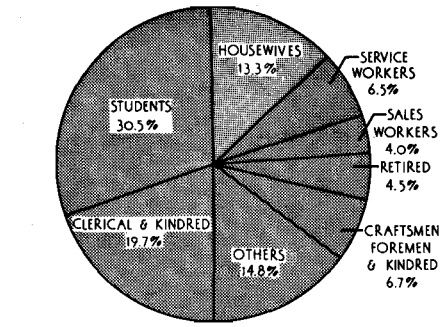
On February 12, 1970, a survey of public transit riders was carried out by the Southeastern Wisconson Regional Planning Commission and Harland Bartholomew and Associates. The principal purposes of the survey were to determine the number of persons utilizing mass transit, identify present ridership characteristics, and evaluate travel patterns within the system. Questionnaires were given to all passengers on each bus by survey personnel and the passengers were requested to complete and return the questionnaire forms before leaving the bus if possible, or if not, to complete and mail them back at the earliest opportunity. A total of 2,326 questionnaire forms were distributed with 1,230 usable forms, or about 53 percent, being returned. The personal characteristics and trips thus obtained were compiled, tabulated, and summarized through electronic data processing by individual route and by total system. A factor ranging from 0.9604 to 1.3231 was applied to the trip data to represent total transit trip movement by route on an average weekday. It was determined that approximately 2,500 persons ride the public transit system on an average weekday.

Rider Characteristics

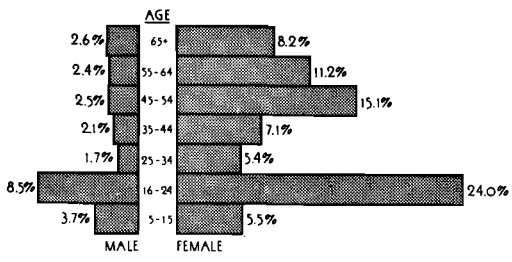
The picture of the mass transit user which emerges from the study is that of a person who uses public transportation because an alternative is either unavailable or, to a much lesser degree, inconvenient. (See Map 7-6 and Figure 7-2.)

Figure 7-2

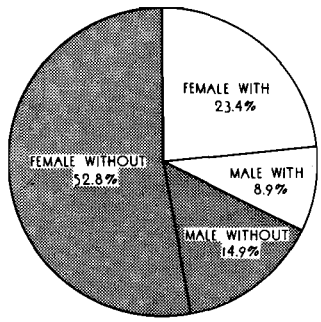
TRANSIT RIDER CHARACTERISTICS



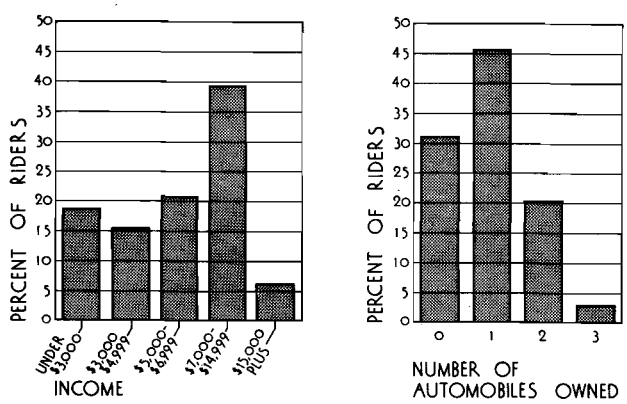
OCCUPATIONS



AGE AND SEX



AUTOMOBILE DRIVER LICENSE STATUS



SOURCE: SEWRPC, HB&A, TRANSIT SURVEY - FEBRUARY, 1970

Students represent the largest group of persons riding the buses and account for approximately 30 percent of total riders. Other major users of the system are clerical and kindred workers, 20 percent; and housewives, 13 percent. Except for a relatively small number of craftsmen, foremen and kindred workers, 7 percent, skilled workers are *minimally* represented, as are persons in professions and persons falling within the category of managers, officials and proprietors.

More than three-fourths of total users of the transit system are female, and of these nearly 70 percent do not have an automobile driver's license. Of male users of the system, accounting for about 25 percent of total transit riders, about 60 percent are not licensed to drive.

Approximately 41 percent of total transit riders are 24 years of age or younger; only approximately 16 percent fall within the age groups between 25 years and 44 years of age; and the remaining 43 percent are 45 years of age or older. Persons 65 years of age or older account for about 11 percent of total persons using the transit system.

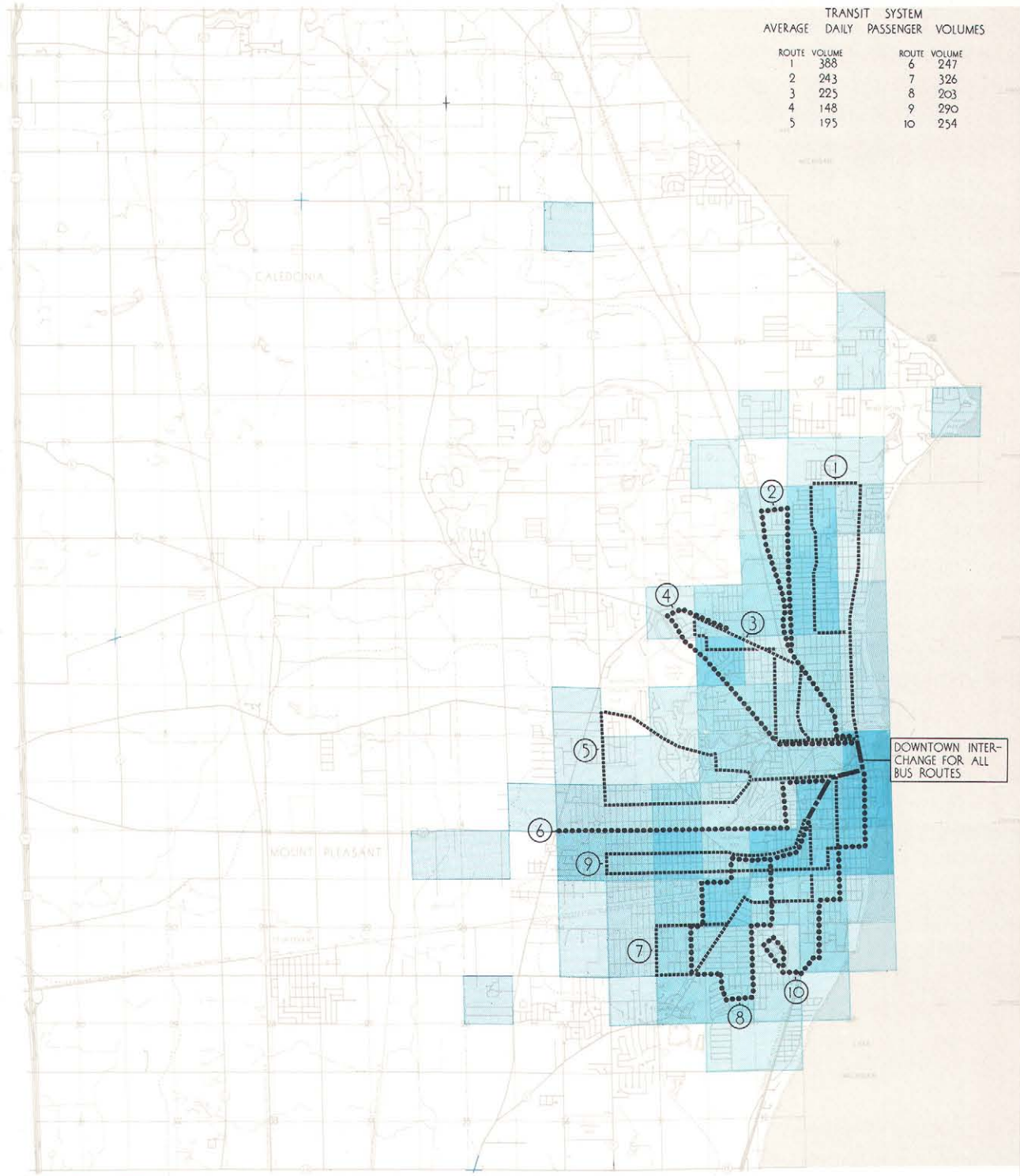
Although more than two-thirds of total riders are from households owning automobiles, only one rider in ten has an automobile available for use (and thereby has a choice of mode) when the trip is made. This absence of choice is largely explained by the fact indicated above that more than two-thirds of total riders do not have an auto driver's license.

Of those reporting household annual income, about 19 percent have household annual incomes of less than $3,000; approximately 15 percent have household incomes between $3,000 and $5,000; 21 percent fall between $5,000 and $7,000; 39 percent have incomes between $7,000 and $15,000; and only 6 percent have household annual incomes exceeding $15,000. Approximately one-fourth of the riders did not give an estimate of income.

Mass transit service in Racine primarily serves persons commuting between home and work and between home and school each weekday. Of total trips, those to home and to work each account for more than one-third; trips to school account for about 12 percent; trips to shop and for personal business reasons each account for about 8 percent; and all other trips account for the remaining four percent.

Not all who utilize mass transit in Racine use it every day. Slightly more than two-thirds of the users report that they ride by bus normally at least five times per week and about 30 percent report using the service at least 10 times per week, the latter indicating, no doubt, many round trips to and from work and to and from school. Approximately 15

MAP 7-6



DESTINATION

LEGEND

AVERAGE DAILY NUMBER OF RIDERS

0
1 - 10
11 - 25
26 - 50
51 - 100
101 - 400

BUS ROUTES

(8) BUS ROUTE NUMBER

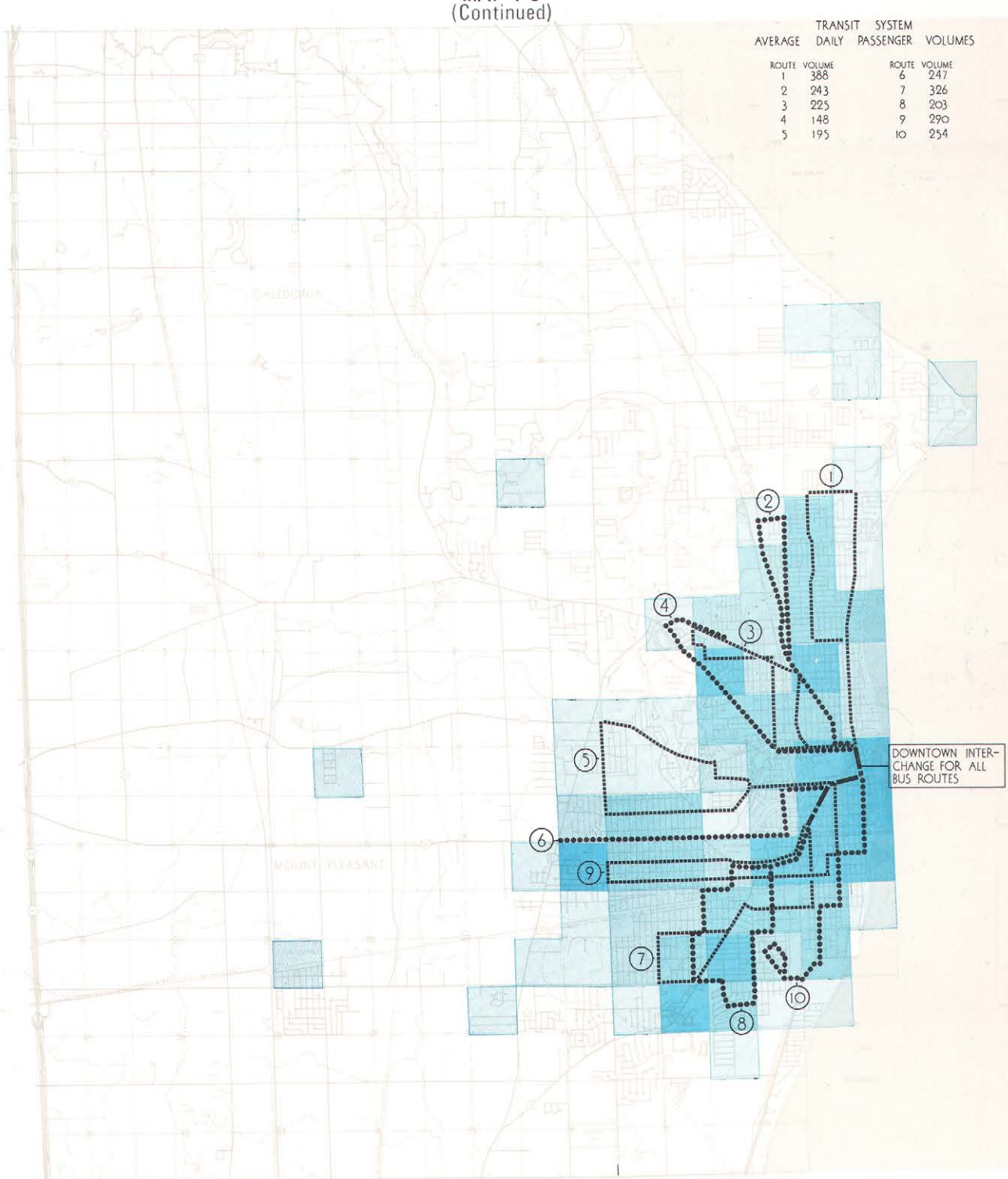
SOURCE: HARLAND BARTHOLOMEW AND ASSOCIATES

TRANSIT SYSTEM RIDERS
AND TRIP CHARACTERISTICS
RACINE URBAN PLANNING DISTRICT

MAP 7-6
(Continued)

TRANSIT SYSTEM
AVERAGE DAILY PASSENGER VOLUMES

ROUTE	VOLUME	ROUTE	VOLUME
1	388	6	247
2	243	7	326
3	225	8	203
4	148	9	290
5	195	10	254



ORIGIN

LEGEND

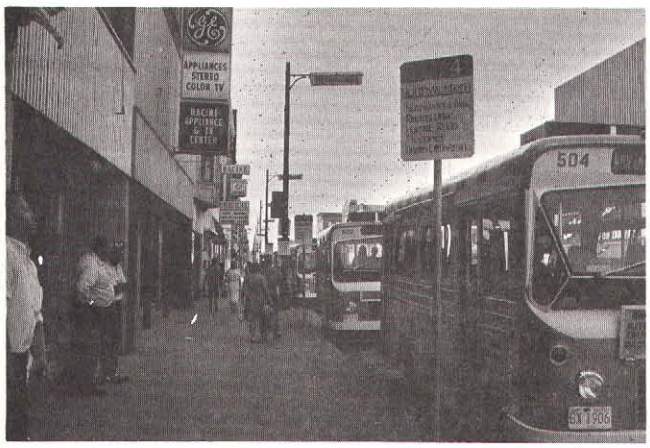
AVERAGE DAILY NUMBER OF RIDERS
0
1 - 10
11 - 25
26 - 50
51 - 100
101 - 400

BUS ROUTES
(8) BUS ROUTE NUMBER

TRANSIT SYSTEM RIDERS
AND TRIP CHARACTERISTICS

percent of the riders indicate that they use the service less than three times per week.

Most transit riders find the arrangement of the bus routes and the locations of the bus stops to be very convenient. A large majority of riders, about 79 percent, indicate that they must walk only two blocks or less to reach the bus stop, and a majority almost as large, about 74 percent, indicate that they also need to walk no more than two blocks to reach their destination upon leaving the bus. About four percent of riders report the necessity of walking more than six blocks, and about two percent walk nine or more blocks. Most of the latter, it is noted, live beyond the end of a bus route.



MASS TRANSIT

Riders of the Racine transit system were invited to make comments or suggestions concerning the transit service provided. Nearly 60 percent of those responding to the questionnaires chose to do so. Comments concerning the quality of service were generally quite favorable. Nearly 40 percent of those making comment, for example, made mention of the good service being rendered and many riders were complimentary to the politeness and friendliness of the bus drivers. The most common suggestions were those recommending the extension of service. Very many riders asked that transit service be extended later into the evening and that additional runs be made on weekends and holidays; many thought that the 40 minute headways were overlong; some asked for lower fares, and others wanted additional transfer points in the transit system.

Trip Characteristics

An estimated total of 2,500 transit revenue passengers are carried on the ten bus routes of the Racine transit system on an average weekday. Ridership volumes on Saturdays, when schools and many offices and plants are closed, are found to be smaller, ranging from 10 percent to 35 percent less than average weekday volumes by individual route. The current estimate of 2,500 daily revenue passengers carried is slightly less than one-fourth of the approximately 10,800 such daily passengers found to have been carried on the Racine transit system in 1963, as derived from data obtained in an origin-destination survey conducted by the Regional Planning Commission in that year. It is estimated that current transit travel is now no more than one percent of total travel generated in the Racine urban area.

The number of passengers carried by individual route on an average weekday range from an average of about 150 passengers on Route No. 4, the least patronized route, to about 380 passengers on Route No. 1, the most heavily patronized route. In addition to Route No. 1, Route No. 7, No. 9 and No. 10 each carry more than the overall weekday average of 250 passengers. (See Map 7-6.)

It is estimated from survey data that a transfer is involved in Racine in approximately 20 percent of total transit trips, or about 500 transit trips. No uncommonly large numbers of transfers are found between any pairs of routes and the total number of transfers involved in a given route appears to have a fairly strong relationship with the total number of transit trips originating in that route.

Utilization of transit service in Racine is found to be 30 percent greater in the afternoon than in the morning. The morning transit ridership, consisting largely of trips to work and to school, peaks between about 7:00 a.m. and 7:45 a.m. when a total of approximately 200 passengers board the buses on the combined routes. The afternoon transit ridership, consisting not only of trips from work and school but also of many shopping trips and trips for personal business, has a larger and longer peak reaching nearly 500 passengers in the period from about 3:00 p.m. to about 4:30 p.m. (See Figure 7-3.)

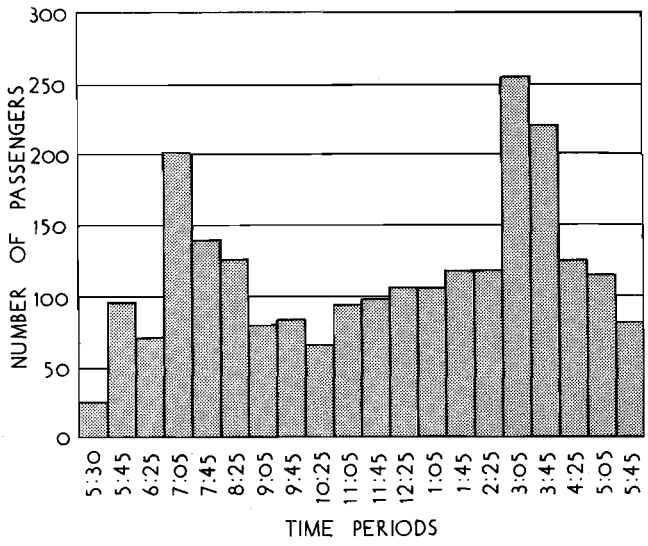
Trip Origins and Destinations

Residences generate the largest amount of travel, including transit travel, of all kinds of land uses and the effect of this trip generation throughout the Racine area may be seen on Map 7-6. Principal concentrations of residences utilizing transit service are to be found in the corridor flanking LaSalle Street to the north; in the areas just to the south and southwest of the Racine Central Business District; and in the vicinity of Taylor and Washington Avenues in the west and the southern portions of the city. Secondary concentrations are found just north of State Street on the near north side, in the Uptown area, and in parts of West Racine. It is interesting to note that the service is also utilized, although in relatively unimportant numbers, by persons traveling to or from Sturtevant, Johnson Park and the Wind Point area.

The greatest attraction of transit trips in the Racine area, however, is the Racine Central Business District and

Figure 7-3

TRANSIT PASSENGER BOARDINGS
BY TIME PERIOD



SOURCE: S.E.W.R.P.C., H.B.&A. TRANSIT SURVEY FEBRUARY, 1970
SUPPLEMENTAL DATA-FLASH TRANSIT CO.

immediate environs, containing as it does large concentrations of commercial, industrial and governmental land uses and, as a consequence, containing large concentrations of employment and shopping opportunities. Other strong attractions for transit trips include: the Shorecrest, Elmwood Plaza, and Rapids Plaza Shopping Centers, the West Racine and STH 20 commercial districts and the Clausen Plant of the J.I.Case Company. The various secondary schools of Racine, collectively, account also for very substantial numbers of transit trips. Elsewhere, destinations reflect the varying densities of the different Racine neighborhoods, with only scattered destination points located beyond the city limits.

With a theoretical capacity to accommodate 3,800 seated persons a day, the system is operating at 66.0 percent of capacity. This seemingly high level of efficiency is, to a large degree, counterbalanced by the highly irregular pattern of public transit utilization. At the peak morning and evening periods, all seats are taken and many persons are standing, but during the remainder of the day only a fraction of total space is being utilized. This is true even of the most heavily patronized routes, nine of which are operating at more than one-half theoretical seat capacity. Buses operate 1,400 vehicle miles and 26,600 seat-miles per day, carrying approximately 2,500 riders.

Passenger-miles, which represent utilization of the seating space on a mileage basis, are an estimated 8,800 daily. The ratio of seat-miles to passenger-miles utilized is 3.0, a significant improvement over the 4.1 figure prevailing in 1963 when the regional transportation study was made. The increased efficiency of the public transit system has been achieved in great part by reducing seat-miles by approximately 80 percent, thereby retaining only the most heavily patronized routes and reducing ridership to those persons who have no alternative to using public transportation.

Prospects for Public Transportation

The prospects for improved public transportation revolve around two important considerations. The first of these has to do with the geographical and population characteristics of the District. It will be very difficult to extend public transportation to the newly developing unincorporated areas as they generally have insufficient population density to make it economically feasible. In the outlying areas, schools, shopping, and employment centers are widely scattered, a situation hindering growth of public transportation which needs to serve great numbers of persons going to relatively few destination points. The concentrated commercial and governmental activities of Racine's central business district make it the only attraction of large numbers of transit trips in the Planning District. In the older parts of the District, population densities were established at a time when most people relied upon public transportation, a density which still permits its survival in a modified form. Almost universal automobile ownership and decentralization of population have, however, almost completely eliminated mass transit as a means of moving persons in the Racine Urban Planning District.

As the land use plan to be completed and recommended in this study is implemented, however, industrial and commercial focal points of a size capable of supporting some public transportation will begin to develop. Similarly, by establishing new residential development adjacent to existing residential neighborhoods, population densities will increase above present levels. As these changes take place, some of the prerequisites for additional public transportation will have been met.

An additional need is to make public transportation attractive to greater numbers of people in order to bring back some of those who now rely exclusively upon the automobile. Most riders use the system because they are not able to drive a car or do not have one available. They are the young, the elderly, and middle-aged working females. While this segment of the population may increase somewhat in the future, it is not a strong base upon which to provide additional public transportation services. With great numbers of craftsmen and operatives employed in the industries of the community, few of whom use the mass transit system, there is an opportunity to provide

specialized service for this segment of the population. Their numbers are great enough, and the destinations few enough to make some type of public transit serving industry feasible in the Planning District.

With respect to the existing system, there is a possibility of providing circumferential service in the fringe areas interconnecting with existing routes so that users have an alternative to riding downtown and transferring to another bus if they want to travel to some other point in the city.

PORT FACILITIES

Airport

Racine-Horlick Airport, located on the northwestern edge of the City of Racine, between STH 38, Green Bay Road, Three Mile Road and the Chicago and Northwestern Railway, is the only airport in the Planning District. It is owned by the Racine Commercial Airport Corporation, which is jointly held by a number of the principal local industrial firms which utilize it primarily for business purposes.

The airport site has an area of 335 acres and an elevation of 669 feet. (See Map 7-7.) The three bituminous surfaced runways are 2,446 feet long east-west, 4,890 feet long northwest-southeast, and 5,825 feet long northeast-southwest, with the two largest paved to a 100 foot width. In addition, there is a 2,446 foot taxiway running east-west. The airport is equipped with navigational aids for all weather operations, including a low frequency homing beacon, an instrument landing system, wind and traffic indicators and a 24 inch rotating beacon for night approaches. The airport administration offices and hangar space for ten aircraft are located at the end of Golf Road. The S.C. Johnson Company, Twin Disc, and Tenneco maintain hangar facilities for their business aircraft.

A total of 41 planes are based at Horlick Racine Airport, over half of which are privately owned and pay a monthly fee to use the facility. The remainder of the aircraft at the field are owned by the airport's corporate stockholders. The number of field-based aircraft has increased by 14 since 1960. Although North Central Airlines made stops at the field in the post-World War II period, all commercial passenger and freight service on a scheduled basis has been discontinued.

The Federal Aviation Agency (FAA) has estimated 34,000 annual flight operations at the field with two-thirds local and one-third itinerant (originating elsewhere). The airport is capable of handling piston, turbine and the smaller commercial jet aircraft. Peak utilization exceeds 100 take-offs and landings per day. The airport is operating at only a fraction of capacity.

According to FAA regulations, the approach zones to runways must be free of structures which would present a hazard to aircraft on landing and taking off. These "clear zones" form an envelope of imaginary surfaces above the airport into which no projections from the ground can penetrate and vary according to airport size and purpose. For Racine-Horlick Airport, the approach zone surface is at a ratio of 40:1, which means that for every 40 feet of distance beyond the end of the runway, a structure may be an additional foot above the ground surface. The clear zones extend 2,000 feet beyond the end of each of the four airport runways. These controls necessitate low rise development in the vicinity of the airport.

Sylvania Airport, adjacent to Interstate Highway 94 in the Town of Yorkville, is a privately owned facility which is a base for many of the planes owned by residents of the District. Elevation is 790 feet. Facilities include a 2,370 foot bituminous surfaced east-west runway, and hangar space for ten aircraft. Of the 36 aircraft at Sylvania Airport, 18 are available for rent and charter, and 18 are privately owned. Sylvania has an estimated 12,500 annual flight operations.

General Mitchell Field in Milwaukee, less than a 30 minute drive from any part of the Planning District, provides national commercial air service. The presence of Mitchell Field, as well as the Kenosha Municipal Airport, in close proximity to the Planning District reduces the need for additional airport facilities. Future development and expansion of Racine-Horlick Airport will likely be dependent upon the ability of these nearby fields to accommodate the anticipated expansion of aviation during the planning period. The area around the airport is built-up which probably would make it unfeasible to lengthen the runways.

The Wisconsin State Airport System Plan, which is reviewed and maintained current by the State Department of Transportation, Division of Aeronautics, recommends a system of airports necessary to the present and future aviation needs of the state. Only airports in the plan are eligible for state aid. Airports are classified in eight categories by runway length and community size.[9] The 1970 plan indicates that the Racine area requires a Class 4

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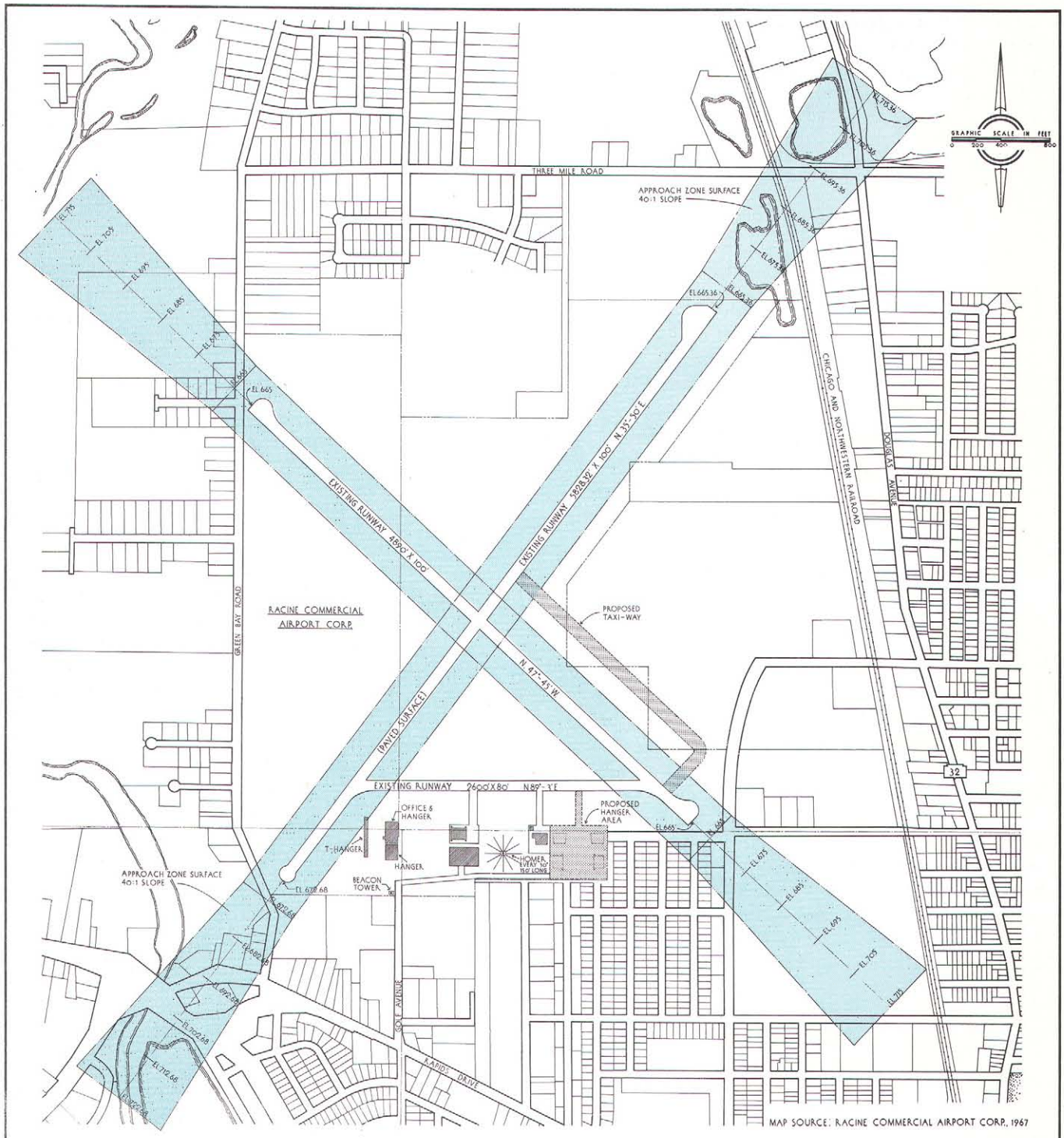
[9] *Wisconsin Airport System Plan, Department of Transportation, Division of Aeronautics, 1970.*

Class 2	*2,500-3,500 ft.*	*Class 6*	*6,500- 7,500 ft.*
Class 3	*3,500-4,500 ft.*	*Class 7*	*7,500- 8,500 ft.*
Class 4	*4,500-5,500 ft.*	*Class 8*	*8,500- 9,500 ft.*
Class 5	*5,500-6,500 ft.*	*Class 9*	*9,500-10,500 ft.*

Lengths are for sea level and must be increased by one-fourth of elevation above sea level of site.

MAP 7-7



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AIRPORT FACILITIES

RACINE URBAN PLANNING DISTRICT

DRAWN BY:
CHECKED BY:
APPROVED BY:
PROJECT DESIGN:
SCALE: 1 INCH = 400 FEET (COMPILA. SCALE)

airport, with a 4,500-5,500 foot runway. While existing runways at Racine-Horlick currently exceed ultimate recommended lengths, the field is not up to the standard of a Class 4 airport with respect to navigational aids and will require additional improvements, including VOR[10] to meet the criteria for a Class 4 rating.

According to the plan, Milwaukee with an existing Class 9 airport (9,500–10,500 foot runways), and Kenosha with an existing Class 5 airport (5,500–6,500 foot runways) will be the most extensive airport facilities in the Southeastern Wisconsin Region.

In 1968, Milwaukee County and the Wisconsin Department of Transportation requested that the Southeastern Wisconsin Regional Planning Commission initiate a comprehensive regional airport planning program. Identified as factors contributing to the need for a regional airport plan were population growth in the Region, rapid changes in the surface transportation system, growth in air traffic demand, rapid change in aircraft size, type, and performance, and the need to coordinate individual airport facility development on a regional basis. Alternative airport plans will be prepared, with one chosen after public hearings to be adopted and used as a guide to the long-range development of airport facilities within the Region. As a first step in the program, the Southeastern Wisconsin Regional Planning Commission has prepared a "Comprehensive Regional Airport Planning Program Prospectus" which specifies the scope of the program.

Harbor

The original impetus to settlement of the Planning District was an advantageous location at the mouth of the Root River, and docking facilities for Great Lakes shipping have existed since the earliest days. For many years, the fortunes of the Racine Harbor have risen and fallen with economic and technological change, and currently it is unused and neglected.

Under the auspices of several congressional River and Harbor Acts (see Map 7-8) various port improvements have been carried out. These improvements include an outer basin formed by two breakwaters; an entrance channel 21 feet deep with 23 foot depth at entrance; channel in river to below Fourth Street, 19 feet deep and removal of shoals lakeward of entrance 25 feet deep.[11] Most of the north breakwater dates from 1912-1913, with the south breakwater completed by 1924. Since completion of major projects in 1946, additional limited improvements have been carried out, with a rehabilitation of the breakwaters planned for 1970. Federal navigation projects at Racine provide for 19 to 23 foot channel depths.[12] The Port of Racine maintains an unimproved public dockage area on a 400 foot length of the northern side of the Root River channel between Main and Wisconsin Avenues. Beyond the Main Street bridge, the only use of the river is for recreational boating.

Use of the Racine harbor in recent years has been limited to bulk shipments of coal and petroleum destined for the W.H. Pugh Company which maintains docking facilities on the northern side of the channel east of Main Street. A very limited amount of commercial fishing is carried on out of the Racine Harbor. The Racine Yacht Club, located inside the breakwater north of the mouth of the Root River, maintains facilities for pleasure craft, which are the principal users of the harbor at present.

From a low point of 103,000 tons handled in 1955, commerce has risen somewhat to 122,000 tons in 1968. In comparison with the extensive Great Lakes trade carried on at the turn of the century, the Port of Racine is functioning at a much reduced level. In 1964, Racine ranked eighth of Wisconsin's eleven Lake Michigan ports in tonnage handled. (See Table 7-2.)

Table 7-2

TONNAGE HANDLED BY WISCONSIN PORTS: 1964
ON LAKE MICHIGAN

Port	Tonnage
Milwaukee	6,381,256
Green Bay	2,516,659
Manitowoc	2,126,582
Kewaunee	1,153,493
Port Washington	733,088
Marinette-Menominee	453,553
Sheboygan	464,391
RACINE	115,420
Two Rivers	79,786
Kenosha	59,190
Sturgeon Bay	16,060

Source: U.S. Army Corps of Engineers, Waterborne Commerce of the United States, 1964, part 3.

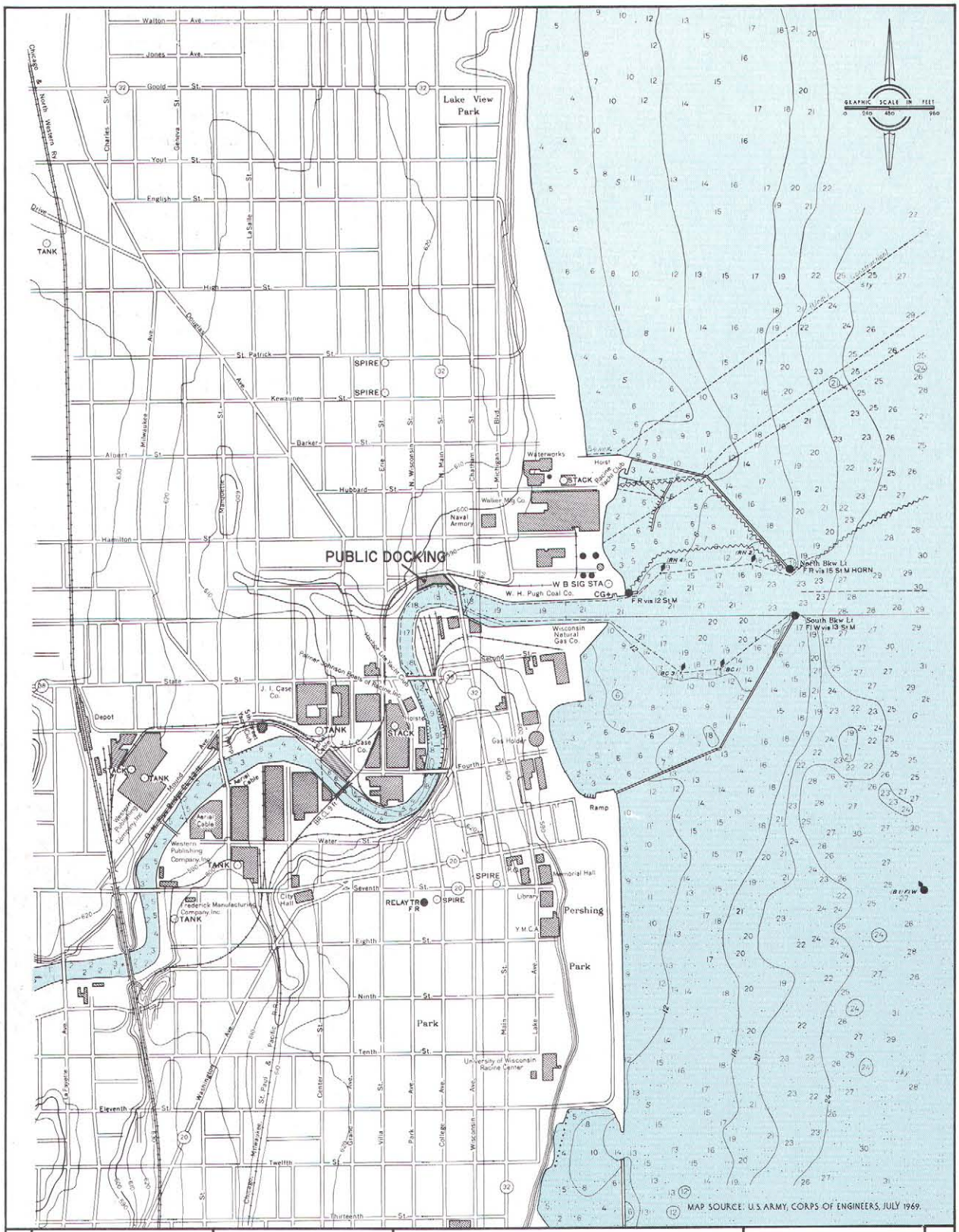
In 1969, the U.S. Army Corps of Engineers held a public hearing in Racine to explore the possibility of making deep draft improvements at the Racine Harbor. It was determined that there was insufficient demand to warrant

[10] *Very High Frequency Omni Range (VOR), a system to provide azimuth (magnetic bearing) guidance. Airport Design Standards, Department of Transportation, Federal Aviation Administration, October 8, 1969.*

[11] *Facing Sheet 3-19, Corps of Engineers, U.S. Army, Racine Harbor, Wisconsin Condition of Improvement, 30 June 1968."*

[12] *U.S. Army Corps of Engineers, "Notice of Public Hearing to Consider the Need for Additional Small Craft Harbors between Kenosha, Wisconsin and Kewaunee, Wisconsin", 1968.*

MAP 7-8



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HARBOR FACILITIES

RACINE URBAN PLANNING DISTRICT

DRAWN BY:
CHECKED BY:
APPROVED BY:
PROJECT DESIGN:
SCALE: 1 INCH = 480 FEET

undertaking harbor improvements to enhance the port's commercial potential, but that improvements for recreational use seemed both feasible and necessary.

Boat registrations in Racine County have increased from 4,752 in 1963 to 6,164 in 1969, almost a 50 percent increase.[13] All motor propelled boats and sail boats over 12 feet in length are registered in Wisconsin. There are two public boat ramps for small craft launching: located in Shoop and Pershing Parks. Inside the harbor breakwater and along the Root River there are five boat docking facilities: Racine Yacht Club, Harbor Lights Yacht Club, Fifth Street Yacht Club, Palmer Johnson, and Western Marina. These facilities provide 250 boat moorings.

With the completion of the St. Lawrence Seaway in 1959, a substantial increase in overseas shipments has been experienced by Great Lakes ports.[14] The prospect of Racine's obtaining a greater portion of this traffic seems to be remote, however. Among the disadvantages of the port are:

1. Deeper channels and expansion and modernization of docking and warehousing space at the port of Milwaukee and, to a lesser extent, at the port of Kenosha have enabled these ports to better accommodate both the traffic growth and larger size of modern ships.

2. The generally inadequate and blighted port facilities at Racine are a deterrent to shippers. Berth and storage space are seriously deficient.

3. There is no recognized need for improved port facilities on the part of Racine industries for either import or export of raw materials and finished goods.[15]

Given these conditions, the potential of the Racine Harbor for commercial use appears to be quite limited. Pleasure boating, however, is a rapidly growing outdoor recreational activity in Racine and elsewhere on the Great Lakes. In recognition of this, small craft harbors have been identified for improvements at about 15 mile intervals along the coastline. Improvement of Racine Harbor for recreation use has justification. In 1968, the U.S. Army Corps of Engineers held a public hearing at Two Rivers to determine the feasibility of improving Wisconsin and Lake Mighigan ports, including Racine, as small craft harbors.

RAILROADS

Railroads have been one of the principal determinants of the location and extent of urban growth in the Planning District since the mid-1850's when the first rail line was extended westward from the port. Until recent years, the movement of freight and passengers to and from the area was accomplished largely by rail. Despite increasing truck and air competition, the railroads continue to carry a major portion of local goods and are particularly well suited for hauling bulk items in large quantities. This continuing interdependence of industry and rail transportation is reflected in the fact that most new industrial construction in the District has taken place adjacent to the existing rail lines.

Existing Facilities

The Racine Urban Planning District is traversed by four main lines, three running in a north-south direction from Milwaukee to Chicago and an east-west line from Racine through Sturtevant to Burlington, Janesville, and as far west as Kansas City. (See Map 7-9.) The easternmost track is the passenger-freight line of the Chicago and Northwestern Railway Company which generally parallels State Trunk Highway 32 and passes through the City of Racine. The Chicago and Northwestern Railway's exclusive freight line is located between two and four miles farther west. The north-south line intersects the east-west line at Sturtevant. This is the gateway on the Milwaukee Road for freight moving west.

INTER-CITY RAIL SERVICE

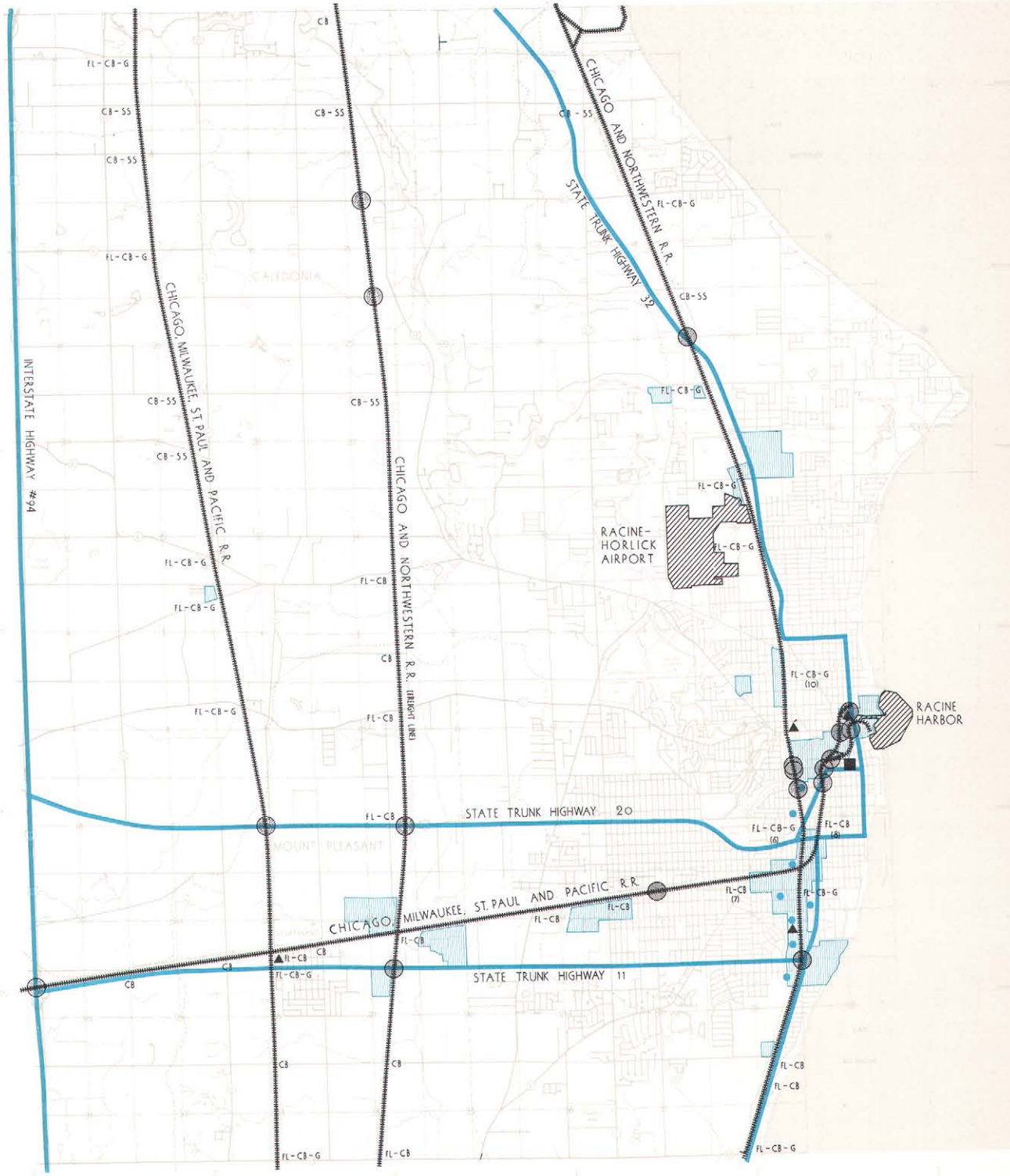
The Chicago and Northwestern Railroad operates 11 passenger trains, all with scheduled stops at Racine, and 10 freight trains daily between Chicago and Milwaukee on its eastern line, plus a "local" freight which provides service to industry north to Cudahy and south to Waukegan on a daily basis. The Chicago, Milwaukee, St. Paul and Pacific

[13] *Wisconsin Department of Natural Resources, Boat Registrations, 1969.*

[14] *"State Transportation Planning", State of Wisconsin, Department of Resource Development, 1966, page 17.*

[15] *Ibid, Footnote 12.*

MAP 7-9



LEGEND

- BUS DEPOT
- RAIL TERMINAL
- TRUCK TERMINAL
- MAJOR INDUSTRIAL AREA
- PRINCIPAL TRUCK ROUTE
- GRADE SEPARATION

FL	FLASHING LIGHT
CB	CROSS BUCK
G	GATES
OHL	OVER HEAD LIGHT
SS	STOP SIGN

SOURCE: HARLAND BARTHOLOMEW AND ASSOCIATES

RAIL, BUS AND TRUCK TERMINAL FACILITIES

RACINE URBAN PLANNING DISTRICT

Railroad's north-south line has eight passenger trains daily between Chicago and Milwaukee. Through freights on the Chicago, Milwaukee, St. Paul and Pacific (or Milwaukee Road) north-south track number between 18 and 24 daily, plus eight passenger trains, with no scheduled local stops in the Planning District. The Milwaukee Road's east-west line has four through freights daily between Racine and points west and a "local" serving industries between Racine and Union Grove.

Principal railroad facilities in the Planning District include the Chicago and Northwestern's freight and passenger station on State Street, its DeKoven yards, the Milwaukee Road's yard and freight station in the central area of the City of Racine and its depot in Sturtevant. These facilities are adequate to handle both local trains and the through traffic which comprises most of the railroad activity in the Planning District, although the passenger station is deteriorating and will need to be completely rehabilitated during the planning period. There are no facilities to accommodate the transfer of truck trailers to railroad flat cars and vice versa in the Planning District.

Separated and At-Grade Intersections

There are 86 road crossings, 67 at-grade and 19 separated on the estimated 47 miles of main line railroad right-of-way in the Planning District. (See Map 7-9.) About half of the 19 grade separations are located in the central area of the District with the remainder at principal highway-rail intersections in the towns of Caledonia and Mt. Pleasant. At other crossings, warning devices ranging from flashing lights and automatic gates to wooden crossbuck signs are utilized. In two locations on the Milwaukee Road there are no warning signs of any kind. These two locations are: (1) the service road serving the Sturtevant sewage treatment plant as it crosses the east-west main line; and (2) the little-used freight line serving the Wisconsin National Gas Company complex just south of the Root River as it crosses Main Street. Most of these warning devices date from an earlier period when that part of the Planning District outside the Racine city limits was almost entirely rural, and local roads were used primarily to provide access to fields and farmsteads. Urbanization and increased use of rural roads means that many crossings, particularly those which do not have automoatic warning gates, are inadequately protected. As the area continues to develop, additional grade separations and warning device improvements at grade crossings become imperative. These needs, based on traffic volume forecasts and other factors, will be identified in the comprehensive development plan.

INTER-CITY BUS FACILITIES

Inter-city bus service to and from the District is provided by two bus companies: Greyhound Bus Lines and Wisconsin Coach Lines, Inc. Wisconsin Coach Lines provides local intra-state service with nine buses operated daily each way between Kenosha and Milwaukee on State Trunk Highway 32. Greyhound, with three buses daily each way between Chicago and Milwaukee, is classified as an inter-state carrier and can only board passengers at Racine for destinations outside the State of Wisconsin. Express buses between Milwaukee and Chicago operate at frequent intervals on Interstate Highway 94, but do not stop in the Planning District.

Both bus lines operate out of the bus station located on Park Avenue at Sixth Street in downtown Racine. This facility is overcrowded and inadequate by modern standards. Passengers board vehicles parked at the curb and the waiting room is small and poorly lighted. Expansion of the facility at its present location is not feasible, and a new location for the bus terminal will be needed during the planning period. For air passengers, Tri-State Coach Lines, Inc. provides limousine service between Milwaukee and Chicago's O'Hare airport with an intermediate stop at Kenosha. Their schedule provides four trips each weekday and three trips daily on the weekends with pickup at the Racine Uptowner Motel.

TRUCK TERMINAL FACILITIES

Truck terminals are transfer points for goods moving to and from the Planning District with shipments arriving and departing via common carrier truck lines. The terminal itself is a break-of-bulk and assembly point where goods are stored, loaded and unloaded for either local delivery or trans-shipment to another city. Most facilities consist of a loading dock (a covered platform for loading and storing freight) and sufficient space for maneuvering and parking the tractors and trailers. Terminals often have office space, driver's quarters and repair and refueling facilities as well.

Principal considerations in truck terminal location and design are:

1. Relatively flat, well-drained site.
2. Sufficient size to accommodate expansion with a minimum of at least five acres.
3. Good access to expressways and rail sidings.
4. Site dimensions which permit maneuvering of vehicles in and out of dock berths. In general, 110 to 140 feet of space is required for parking and maneuvering a 55 foot trailer tractor combination.
5. Convenient movement to and from truck customers.

6. Minimum deleterious effect upon adjacent residential areas. Vehicle entrances should not be less than 200 feet from residential areas.

There are eight truck terminals located in the Planning District, all concentrated in the industrial corridor along the Chicago and Northwestern Railroad right-of-way in the southern portion of the City of Racine and adjacent areas in the Town of Mt. Pleasant. (See Map 7-9.)

Most locally-based trucking firms are concentrated in the Durand-Memorial Drive area, which has evolved into a trucking terminal district because of locational advantages including: close proximity to major industrial truck traffic generators, good access to State Trunk Highways 11 and 20, railroad sidings for transfer of freight from railroad cars to trucks and vice versa, and available large sites for terminal facilities. Memorial Drive, formerly Industrial Drive, has been developed as an arterial street designed to accommodate traffic generated by industrial firms in the City of Racine's industrial corridor along the Chicago and Northwestern Railroad right-of-way.

Truck terminals in the District vary in size from ones providing six docks to the Motor Transport Company terminal on Industrial Drive which has 24 docking spaces. Facilities have been expanded as needed, and most but not all sites are sufficiently large to accommodate further expansion within the terminal district on Memorial Drive. Elsewhere, several terminals are located in mixed industrial-residential areas with difficult access, and additional expansion would not be desirable.

The basic truck route network in the District consists of State Trunk Highways 11, 20, 32, and Interstate Highway 94. Nearly all truck movements are within the southeastern Wisconsin and northeastern Illinois area, principally within the Lake Michigan urbanized corridor. Freight destined for more distant points is transferred to other carriers in Milwaukee and Chicago.

As part of its regional transportation study, the Southeastern Wisconsin Regional Planning Commission inventoried truck travel volumes. The survey, based upon 1963 data, revealed about 25,000 internal and about 1,000 external (i.e., beyond the boundaries of the Southeastern Wisconsin Region) truck trip destinations on an average weekday. In addition to the Planning District, the survey area included the towns of Raymond and Yorkville and rural portions of the City of Oak Creek and Franklin, and the Town of Dover. Truck traffic has grown substantially since then as reflected in part by the 20 percent increase in truck registrations between 1963 and 1969 when truck registrations rose from 4,302 to 5,188 trucks. Of the total truck trip destinations, approximately 450 were made by heavy trucks, which are defined as tractor trailer units. These large trucks are the kind most frequently making use of truck terminal facilities, which suggests that in the neighborhood of 550 terminal-oriented truck movements were being made each business day by 1970. Interviews with Racine-based trucking firms revealed that local firms have more than 250 movements daily. An equal or greater number of movements are made by Milwaukee and Kenosha-based haulers serving the Planning District from terminals in those cities. Heavy truck traffic represented only 2.4 percent of truck traffic volume in 1963, only a small portion of the total. This situation is not likely to have changed appreciably in the past seven years.

The Regional Land Use-Transportation Study determined that only 14 percent of all trucks in the Southeastern Wisconsin Region are garaged at transportation and public facility land uses, which include truck terminals. The great majority are kept elsewhere, principally in commercial, residential and industrial areas. Since trucking activity is fragmented into a wide variety of operations, with different objectives, functions, origins and destinations, the impact of terminal facilities on truck movements is relatively small.

Regional growth forecasts indicate substantial increases in population and traffic volumes. Trucking activity should increase proportionately, generating the need for additional truck terminal facilities located within or adjacent to industrial areas in the District. Best locations will have quick access to the freeways serving the District. This will facilitate access to adjacent urban areas for local operations.

SUMMARY

The Racine Urban Planning District is served by an extensive array of transportation facilities facilitating the movement of people and goods both within and beyond its boundaries. Major components of the transportation system include: arterial streets and highways, off-street parking facilities, the public transit system, airport and harbor facilities, railroads and inter-city bus lines and truck terminals.

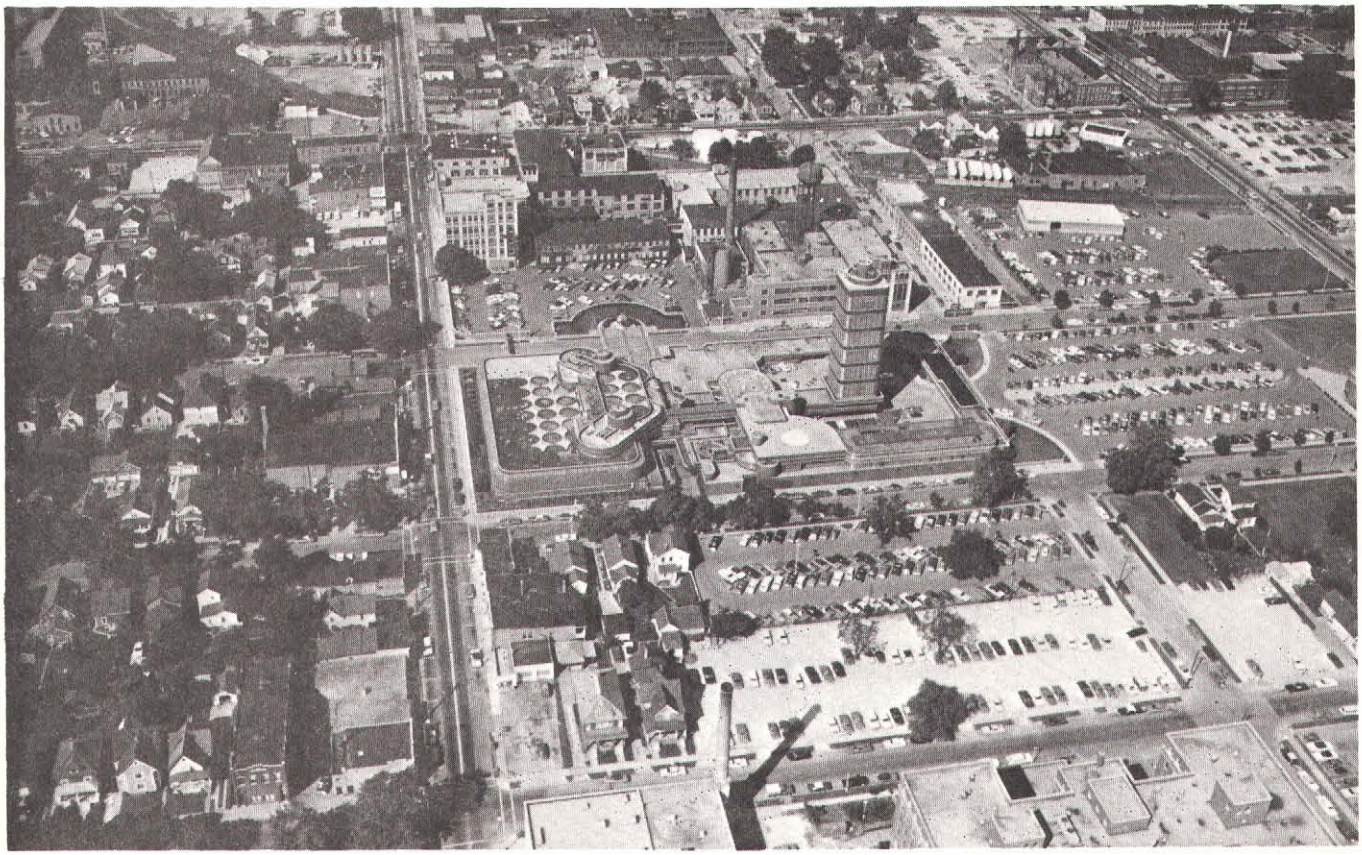
The arterial street and highway system accommodates major automobile and truck traffic volumes within the District. Principal elements of the system include Interstate Highway 94-U.S. Highway 41, five state trunk highways, eight county trunk highways, and major town, village and city streets. Major elements of this system are spaced approximately one-half mile apart in the City of Racine and at one to two mile intervals in peripheral areas. The system is generally adequate to accommodate current traffic volumes but will have to be substantially expanded to accommodate forecast growth by the year 1990.

Automobile registrations which increased from 45,000 to 60,000 between 1961 and 1968 are expected to increase to 100,000 by the year 1990.

An inventory of off-street parking facilities revealed almost 20,000 spaces are located in the principal commercial and industrial areas of the District. While some individual parking lots in key locations have high occupancy levels, the overall number of spaces provides substantial surplus parking over current demand levels. Occupancy rates are highest in the industrial district which experience few fluctuations in the number of vehicles accommodated day-to-day and in several of the newer shopping centers which have provided large off-street parking lots for employees and customers. In the older commercial areas, under 50 percent long-term occupancy is typical. Future demand for off-street parking facilities should be provided by requiring adequate spaces to serve new commercial and industrial developments. Specific improvements to remedy existing deficiencies found in some areas are now being planned by the City of Racine.

Public transit facilities serve the central urban area and consist of an inter-connecting system of 10 bus routes. A survey of this system indicated a daily average of approximately 2,500 passengers, principally comprised of: students, female employees, housewives and the elderly. The central business district and adjacent commercial and industrial areas were the most important trip destinations. Ridership increased in number as the routes approached the downtown area. Passenger boardings peak between 7 and 8 a.m. and 3 and 4 p.m. daily. There is a relatively low overall ratio of 1.8 riders per vehicle mile traveled. In order to expand and improve public transit service it will be necessary to attract riders back to the system and to find a means of accommodating several employment centers developing in areas surrounding the City of Racine.

Two railroads, the Chicago and Northwestern and the Milwaukee Road, have a total of four main lines which cross the Planning District. Both passenger and freight service is available to Chicago, Milwaukee and other national locations. This ready access by rail to the neighboring metropolitan areas, which are 65 and 21 miles distant respectively, is an important locational advantage for District residents in that the social and cultural opportunities available in these cities are readily accessible. There are 68 at-grade and 19 separated railroad crossings in the District. Assuming that rail traffic volumes will grow, it will be necessary to construct grade separations at the most heavily used crossings.



EMPLOYMENT CENTER – TRAFFIC GENERATOR

Chapter VIII

PUBLIC UTILITIES[1]

INTRODUCTION

Certain basic services, such as the distribution of potable water, the collection and treatment of sewage, the drainage of storm waters and the disposal of solid wastes are essential for the health, safety, and welfare of every citizen. Modern urban communities require adequate sanitation measures and large volumes of high quality water. Population growth, increasing per capita consumption, and commercial-industrial expansion in the District has resulted in a major expansion of utility services. In the last nine years, total water consumed daily in the District has increased by 75 percent, (see Figure 8-1) as has the amount of waste water discharged to sewage facilities. Since most of the sewage is ultimately treated by one of four wastewater treatment plants, increases of this magnitude require sizable expansions of trunk sewers and treatment facilities to accommodate the rising flows.

WATER

A municipal water system is a primary life-sustaining facility, essential for sanitation, commerce, industry, and fire protection, and valuable for recreation and irrigation. The availability of an adequate and dependable water supply has a direct influence on the growth and prosperity of a community. The various facilities that make up a water system – supply, treatment, pumps, transmission and distribution lines, storage tanks, fire hydrants, valves and other appurtenances – require a large, long-term capital investment preceded by careful long-range planning to adequately serve a growing population in the most efficient and economical manner.

With more than 30 inches of precipitation annually and a location adjacent to Lake Michigan, the Planning District is relatively well situated to obtain water for all present and foreseeable future needs. As growth has occurred and the demand for water has increased, more water has been drawn from the lake and underground aquifers. Water consumption in the City of Racine has grown from 0.5 million gallons per day (MGD) in 1887, the first year the city water department was in operation, to an average of more than 21 MGD in 1969. The demand for water has increased from 12.1 MGD in 1960 to 21.4 MGD in 1969, an increase of 63.4 percent, far more rapid than the 16.9 percent increase in people over the same period when the population grew from 113,000 to 133,000. (See Figure 8-1.)

Local Sources of Water

There are two principal local sources of water: (1) Lake Michigan, which represents an almost unlimited supply of high quality water and provides approximately 95 percent of the water utilized daily in the District for residential, commercial and industrial purposes and (2) groundwater, held in the soil and rock strata underlying the District. The groundwater reservoir can be categorized as comprising two aquifers: a shallow aquifer, made up of the surface glacial deposits and the interconnected dolomitic bedrock, and a deep aquifer which includes Cambrian and Ordovician sandstones and dolomites. The deep aquifer is separated from the shallow by relatively impermeable strata such as the Maquoketa shales. The groundwater in the District is chemically classified as hard because of high concentrations of calcium, magnesium, and sulfates. Water temperature increases with depth, averaging 50°F. in the shallow aquifer and 55°F. in the deep aquifer.

The depth to the water table of the shallow aquifer varies from at or near the surface to nearly 50 feet deep. (See Map 8-1.) It is the source of water for the more than three-fourths of the land area of the Planning District not served by municipal or large private systems. This aquifer is tapped by numerous small domestic and farm wells, which serve the scattered suburban and farm population. Approximately 25,000 persons, or about 19 percent of the total current population of the District, obtain their water from such wells. In addition, industry in the Waxdale area of the Town of Mt. Pleasant withdraws approximately 500,000 gallons per day for cooling purposes from this shallow supply. The shallow aquifer provides water of a generally good bacterial and chemical quality but is highly vulnerable to contamination because it is primarily recharged by local precipitation and percolation.

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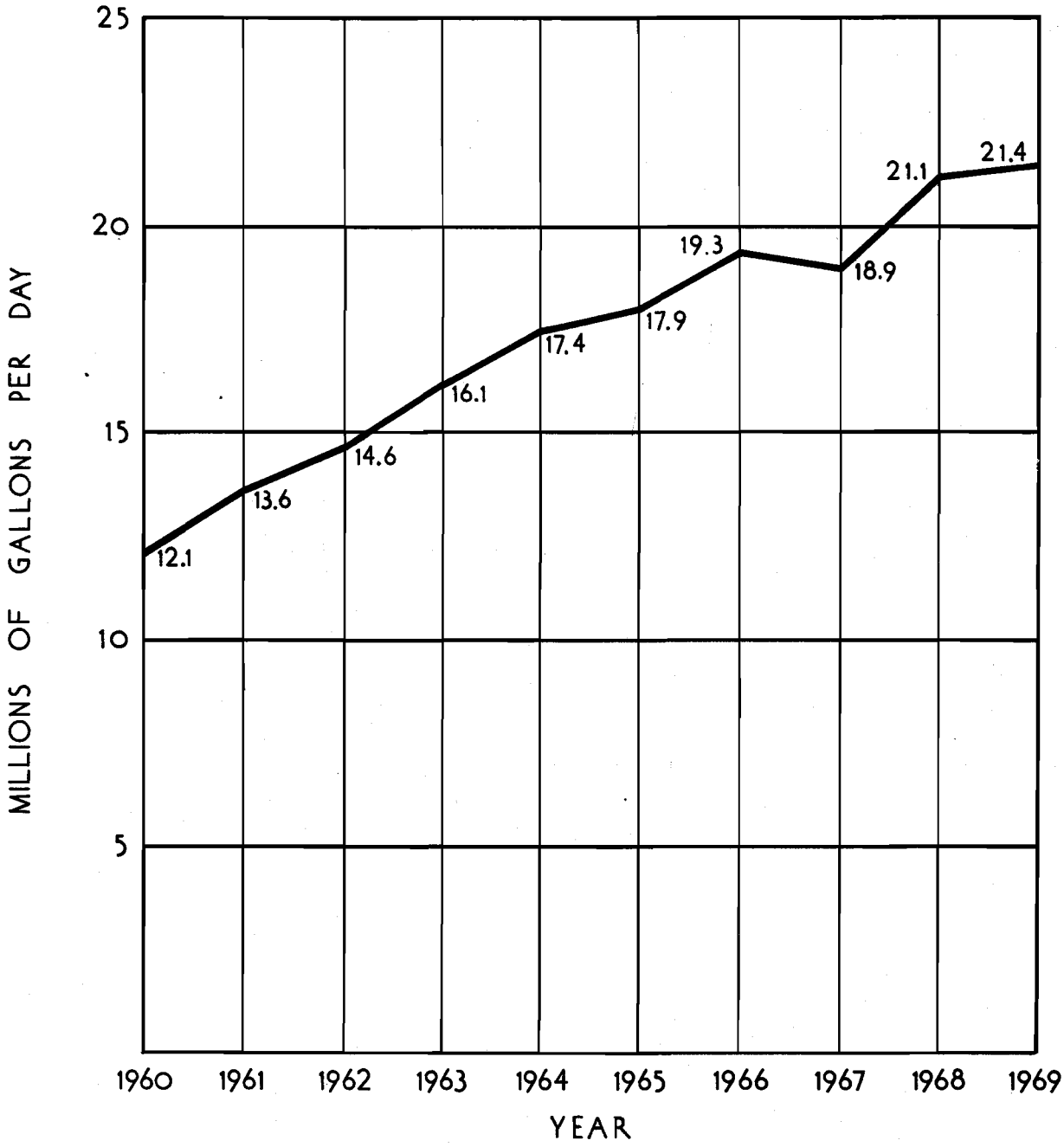
[1] *To study the existing public utility systems, contacts were made with officials of the various utility systems and districts, the Racine Department of Public Works, the Racine City Engineer's Office, the Wisconsin Division of Public Health and the Wisconsin Department of Natural Resources. The information obtained from these sources is graphically shown in a series of illustrations of the water, sewer, storm drainage and solid waste disposal facilities noting the major facilities, their location and area of service. A special map showing pipe size, grades, and invert elevations of the sanitary and combined sewers was prepared and is on file. The detailed information did not permit reduction to page size. Statistical data describing the principal characteristics of the systems and services are listed in tabular form.*

Figure 8-1

AVERAGE DAILY WATER CONSUMPTION

Racine, Wisconsin*



* AREAS SERVED BY THE CITY OF RACINE WATER DEPARTMENT

SOURCE: RACINE WATER DEPARTMENT

MAP 8-1

LEGEND

750' ABOVE MEAN SEA LEVEL
700' " " " "
650' " " " "
600' " " " "
SHALLOW AQUIFERS (1)
DEEP AQUIFERS (1)

(1) NUMERICAL FIGURE SHOWN INDICATES THE APPROXIMATE MEAN SEA LEVEL ELEVATION OF THE SHALLOW AND DEEP AQUIFERS

SOURCE: ROOT RIVER WATERSHED STUDY - S.E.W.R.P.C.

PIEZOMETRIC SURFACE OF SHALLOW AND DEEP AQUIFERS

RACINE URBAN PLANNING DISTRICT

Due to the always present possibility of surface pollutants entering the shallow aquifer, this supply should not seriously be considered for large-scale withdrawals to serve either sizable residential areas or any large industrial operations requiring potable water. Its use for scattered small developments is satisfactory for limited consumption; however, extreme caution and constant surveillance in its use is mandatory.

The piezometric surface[2] of the deep aquifer lies approximately 200 feet below that of the shallow aquifer. The water in the deep aquifer can be visualized as a very slowly flowing underground stream moving generally toward Lake Michigan through the rock strata. It is recharged primarily by precipitation and percolation in the Kettle Moraine area of eastern Jefferson, western Waukesha, and western Walworth counties. Waters of the deep aquifer are generally of excellent quality in terms of bacterial and chemical content but like the groundwater of the shallow aquifer are classified as hard because of the relatively high concentrations of calcium, magnesium and sulfate. The deep aquifer, unlike the shallow aquifer, is not readily subject to contamination or pollution. Current withdrawal from the deep aquifer is estimated at 1.5 million gallons per day. Two subdivisions, Caddy Vista and Crestview in the Town of Caledonia, using deep wells drilled to depths of 1,700 and 1,200 feet, respectively, withdraw 160,000 GPD, but the largest single user of the deep ground water is the Western Printing Company which pumps about 1.0 MGD for cooling purposes. Dominican College and industry in the Franksville area also utilize deep wells. As a result of excessive pumpage, the piezometric surface of the deep aquifer has declined about 200 feet from its original level in the Racine area. Continued heavy use of the deep aquifer is not recommended for any substantial length of time due to the constantly lowering level and the hardness and chemical properties that are undesirable for some uses.

Based on the long-term lowering of the water level of the deep aquifer within the District with pumpage of less than 1.5 MGD, it is probable that total withdrawals in the District from this aquifer should be reduced in an attempt to prevent further lowering of the water level. This would then reserve the deep aquifer for use in the more remote locations of the District and the Region with close-in urban areas being served by the water supply systems drawing Lake Michigan water.

Except for Lake Michigan, the surface waters of the District are limited to the Pike and Root Rivers, Hood's and Husher Creeks, and several small streams, watercourses, ponds and marshes. None of these are suitable as a source of water supply since flows are unreliable, insufficient, and the waters seriously polluted. At certain times of the year, flow in the Root River consists almost entirely of sewage effluent,[3] a condition which eliminates almost all uses for which the river might otherwise be considered. The adopted Comprehensive Plan for the Root River Watershed contains several recommendations designed to remedy this situation, including the abandonment of all existing municipal sewage treatment plants on the Root River and connection of their tributary drainage areas to the Milwaukee Metropolitan sewerage system and the construction of a multi-purpose (flood control, low flow augmentation, recreation) reservoir on the Root River in the City of Franklin, Milwaukee County.

Areas Served by Centralized Public Water Supply Systems

Most of the more intensively developed portions of the District such as the City of Racine, Villages of Elmwood Park, North Bay, Sturtevant and Wind Point, and portions of the Towns of Caledonia and Mt. Pleasant, are served by the Racine Water Department. Thus Lake Michigan water serves as the source of supply for about 23 square miles (see Map 8-2) or 23 percent of the total area of the District and for 82 percent of the population of the District with most of the larger industries obtaining water from this system. (See Table 8-1.) Two large separate public water systems, Caddy Vista and Crestview, serve an additional 3,000 persons and the St. Bonaventure School has its own well system. The remainder of the Planning District, particularly in the western and northern portions, obtains water from individual wells, except at a few scattered locations where up to a dozen or more homes may be served by a common well.

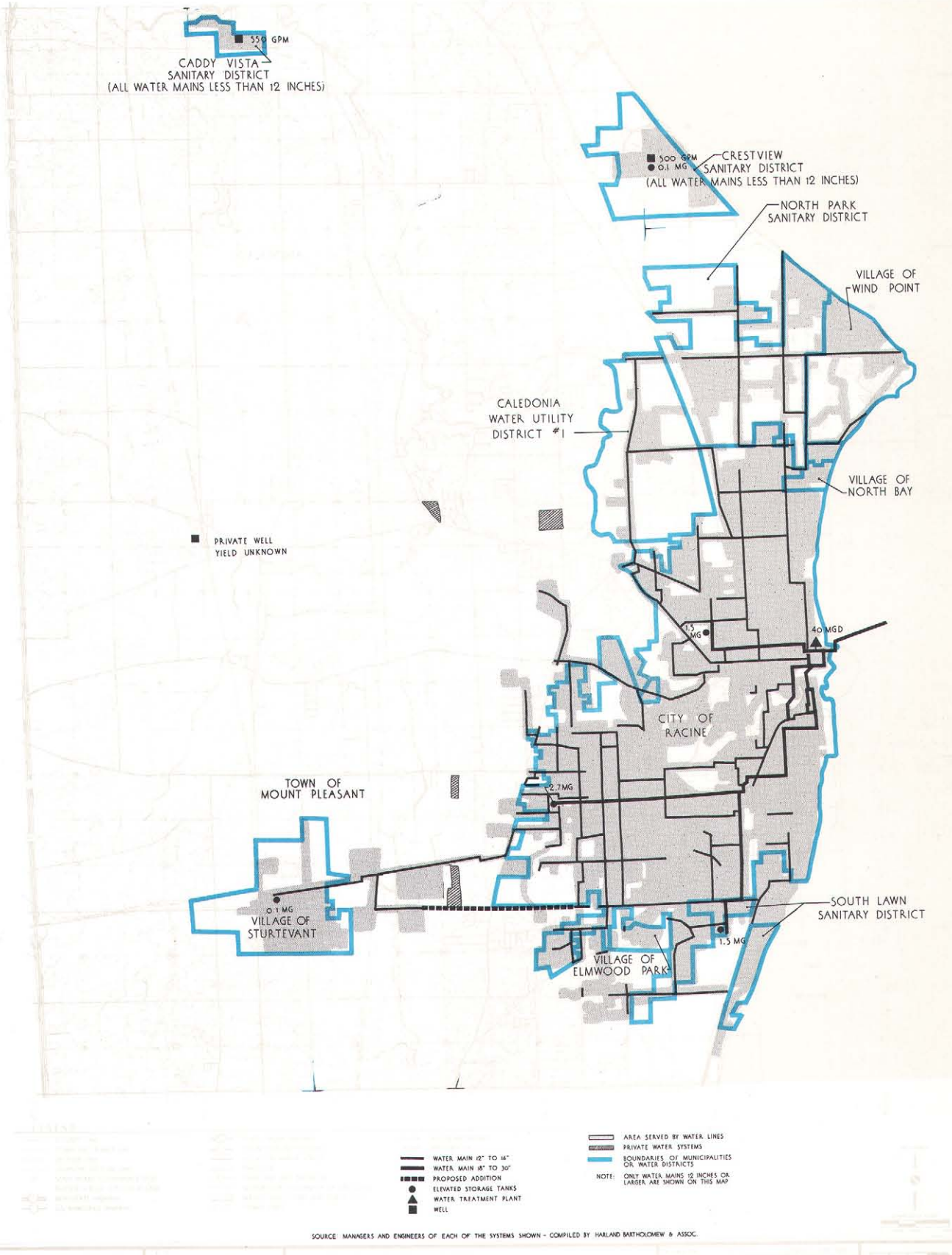
Intergovernmental Water Agreements

The Racine Water Department, in addition to providing water on a "retail basis" to the city, owns and maintains the transmission and distribution mains in Elmwood Park, North Bay, and Mt. Pleasant, charging 25 percent more to these customers than to city residents. Water rates and regulations are established by the Wisconsin Public Service Commission with billing by the individual districts. It is assumed the differential in rates is a means of equitably distributing some of the prior costs of the systems to the new additions. The city may extend service to all parts of these three areas, except to that portion of Mt. Pleasant lying within the Des Plaines River watershed, which is located on the west side of the sub-continental divide. Distribution of water to this area could create certain

[2] *An imaginary surface that coincides with the static level of the water in an aquifer.*

[3] *A Comprehensive Plan for the Root River Watershed, Report No. 9, Southeastern Wisconsin Regional Planning Commission.*

MAP 8-2



SOURCE: MANAGERS AND ENGINEERS OF EACH OF THE SYSTEMS SHOWN - COMPILED BY HARLAND BARTHOLOMEW & ASSOC.

WATER SYSTEM SERVICE AREAS AND DISTRIBUTION SYSTEMS

Table 8-1

WATER SUPPLY FACILITIES: 1969

System	Area Served (Sq.Mi.)	Population Served	Number of Connections	Water Consumption Yearly (M.G.)	Water Consumption Daily (M.G.D.)	Supply Source	Water Treatment	Distribution Lines	Storage Capacity	Age of System (Yr. Built)
Racine	13.40	93,000	26,277	7,600.0	Max. 36.74 Avg. 21.4 Min. 12.68	Lake Michigan	Coagulation, sedimentation, rapid sand filtration, chlorination. (40.0 MGD - capacity)	275 miles of 6" to 30" lines.	3 elevated tanks, 2.7, 1.5 and 1.5 M.G.	1886 to present
Caddy Vista	0.17	1,200	268	22.7[a]	Max. .230 Avg. .062 Min. .017	Well 1,925' deep 550 GPM	Iron removal	6" diameter and smaller.	7,500 gal. pneumatic tank	1956
Crestview	0.46	1,800	300	34.3	Max. .350 Avg. .094 Min. .028	Well 1,255' deep 600 GPM or less	Chlorination	6" diameter and smaller.	100,000 gal. elevated tank	1955
South Lawn Sanitary District	0.39	1,933	573	46.0	Avg. .126[b]	From Racine	(See Supply Source)	6" diameter and smaller.	No storage	1930's
Mt. Pleasant (Town)	-	2,075	546	1,000.0	Avg. 2.72[b]	From Racine	(See Supply Source)	12" diameter and smaller.	No storage	After 1951
Sturtevant	1.61	3,000	802	80.3	Max. .405 Avg. .22[b] Min. .091	From Racine	(See Supply Source)	12" diameter and smaller.	100,000 gal. elevated tank	N.A.
North Park	4.29	3,250	773	244.7	Avg. .67[b]	From Racine	(See Supply Source)	12" diameter and smaller.	None	After 1951
Caledonia Water Utility District No. 1	1.98	1,354	319	28.9	Avg. .08[b]	From Racine	(See Supply Source)	12" diameter and smaller.	None	After 1951
Wind Point	1.28	1,385	(Connections included under North Park)			From North Park	(See Supply Source)	One 12" line others smaller.	None	After 1951
North Bay	0.12	294	91	13.8	Avg. .038[b]	From Racine	(See Supply Source)	6" diameter and smaller.	None	-
Elmwood Park	0.19	550	133	12.3	Avg. .034[b]	From Racine	(See Supply Source)	12" diameter and smaller.	None	After 1951
Totals	23.89	109,841	30,027	9,087.0	21.556					

[a] *Estimated*

[b] *Included in Racine Pumpage Figures*

difficult and far-reaching legal problems related to inter-basin water diversion. Racine sells water on a "wholesale basis" to four other jurisdictions – Caledonia Water Utility District No. 1, North Park Sanitary District, South Lawn Sanitary District, and Village of Sturtevant. Agreements with these governmental units provide that the city will sell water to these areas as they develop, although the districts and villages own and maintain the mains.

Present service areas generally correspond with the more intensely developed portions of the Planning District. The Caledonia Utility District No. 1 includes only that portion of the town lying east of the Root River and south of Four Mile Road. The agreement between North Park and Racine provides that the city extend water to only a portion of the utility district, which in turn sells water to the Village of Wind Point. All of Sturtevant may be served as well as the South Lawn District, which was established some years ago to provide water to Sheridan Woods and the older urban strip south of Racine along Lake Michigan.

The City of Racine then provides water to adjacent developed areas, with the North Park Sanitary District in turn providing water to the Village of Wind Point. The conditions governing the supplying of water are set forth in a series of six water service agreements. (See Table 8-2.) The five agreements entered into by the Water Works Commission of the City of Racine and (1) the Water Utility District No. 1 of the Town of Caledonia, (2) the Town of Mt. Pleasant, (3) the Village of Sturtevant, (4) the North Park Sanitary District, and (5) the South Lawn Sanitary District are generally similar with respect to the nature of the agreements, purpose of service, quantity and quality of water provided, and prohibition on resale of water by the purchasing party. The basic difference in the service agreements lies in the "wholesale-retail" distinction. In the "wholesale" communities – Caledonia, North Park, South Lawn and Sturtevant – the districts or villages install, maintain, and own the systems. In the "retail" communities – Elmwood Park, North Bay, and Mt. Pleasant – the City of Racine Water Works Commission installs, maintains and owns the system. In every case, however, there must be mutual agreement between the Commission and the town, village, or district as to the nature and timing of extension to the distribution system. The sixth agreement is between the North Park Sanitary District and the Village of Wind Point. The District sells water on a "wholesale" basis to the

Table 8-2

INTERGOVERNMENTAL WATER SERVICE AGREEMENTS[a]

Principal System	Other Party To Agreement	Nature of Agreement				Service Area	Cost of Operation
		Effective Date	Duration of Agreement	Provision For Extension	Provision For Termination		
Water Works Commission of the City of Racine	Water Utility District No. 1 of the Town of Caledonia	July 23, 1963	30 Years	Based Upon Mutual Agreement of both parties	Requires six months written notice from either party	Water Utility District No. 1 of the Town of Caledonia. (See Map 8-2.)	Rates and regulations as established by the Public Service Commission of the State of Wisconsin: In general, 25% above urban rate
Water Works Commission of the City of Racine	Town of Mt. Pleasant	January 31, 1968	30 Years	Based Upon mutual agreement of both parties	Notice required at least one year in advance	Those portions of Mt. Pleasant not being served. (See Map 8-2.)	Rates and regulations as established by the Public Service Commission of the State of Wisconsin: In general, 25% above urban rate. $105.00 per year per hydrant for fire protection.
Water Works Commission of the City of Racine	North Park Sanitary District	November 17, 1959	30 Years	Based Upon mutual agreement of both parties	Requires six months written notice from either party	North Park Sanitary District (See Map 8-2.)	Rates and regulations as established by the Public Service Commission of the State of Wisconsin: In general, 25% above urban rate.
Water Works Commission of the City of Racine	South Lawn Sanitary District	August 21, 1961	25 Years	Based Upon mutual agreement of both parties	Requires six months written notice from either party	South Lawn Sanitary District (See Map 8-2.)	Rates and regulations as established by the Public Service Commission of the State of Wisconsin: In general, 25% above urban rate.
Water Works Commission of the City of Racine	Village of Sturtevant	October 15, 1962	25 Years	Based Upon mutual agreement		Village of Sturtevant (See Map 8-2.)	Rates and regulations as established by the Public Service Commission of the State of Wisconsin: In general, 25% above urban rate.
North Park Sanitary District	Village of Wind Point	June 2, 1966	30 Years	Based Upon mutual agreement of both parties		Village of Wind Point (See Map 8-2.)	*Same as District pays to City* plus 7% override on quantities in excess of 200,000 cubic feet quarterly.

INTERGOVERNMENTAL WATER SERVICE AGREEMENTS[a] (Continued)

Principal System	Other Party to Agreement	Conditions of Service			Conditions of Operation		
		Quality and Quantity	Sale of Water Outside District	Additions to System	Ownership of System	Repair, Maintenance and Cost Thereof	System Installations
Water Works Commission of the City of Racine	Water Utility District No. 1 of the Town of Caledonia	Same as supplied to city	Not allowed	1. Must be approved by Commission. 2. Must be in accordance with ultimate configuration of water system.	District	Commission (In actuality the Town)	District
Water Works Commission of the City of Racine	Town of Mt. Pleasant	Same as supplied to city[b]	-	1. Provided after request by landowner or Town Board. 2. Commission determines locations and specifications.	Commission	Commission	Commission
Water Works Commission of the City of Racine	North Park Sanitary District	Same as supplied to city	-	1. Must be approved by Commission. 2. Must be in accordance with ultimate configuration of water system.	District	Commission (In actuality the District)	District
Water Works Commission of the City of Racine	South Lawn Sanitary District	Same as supplied to city in adequate amounts	Not Allowed	1. Installations in accordance with Commission practice. 2. Must be in accordance with ultimate configuration of water system.	District	Commission (In actuality the District)	District
Water Works Commission of the City of Racine	Village of Sturtevant	Same as supplied to city in adequate amounts	Not Allowed	1. No cross connections between village system and that of the Commission.	Village	Village	Village
North Park Sanitary District	Village of Wind Point	Standards and Specifications same as supplied to District.	Not Allowed	1. Must be approved by District 2. Must be in accordance with ultimate configuration of water system.	Village	Village	Village

[a] *The purpose of the agreements is to define the terms of service of providing water from the principal system to the other party to the agreement.*

[b] *The Commission shall provide as much water as requested, but is not responsible if for some reason this is not possible.*

village, which owns, maintains, and constructs extensions to its system.

While the framework of intergovernmental water agreements is adequate to insure a ready supply of water to those portions of the District outside the City of Racine, in actuality water service to the standard anticipated has not been generally available. This situation which has become a major source of conflict between the city and towns, has its origin in the same growth trends which initially produced the friction between Racine and Mt. Pleasant and later, the Moratorium Agreement. The unincorporated areas have gained much new industry in recent years, which has relocated from constricted sites in the City of Racine. Concerned with this loss of tax revenues and faced with the need to meet present and future financial obligations, the city has sought to annex developing unincorporated areas only to meet opposition from the towns. Unable to expand into areas it is required to service with public utilities, the city has been reluctant to accommodate requests from the towns for more water. This reluctance has been accompanied by massive demands for water on the part of existing and proposed industry in the towns which exceed current capacity in the area and will require major expansion of the system. These developments have produced a situation which is satisfactory to none of the parties involved.

Inventory of Existing Facilities

There are three major water supply systems in the Planning District: the Racine, the Caddy Vista and the Crestview systems. Each system is comprised of three major elements: a supply (a well or treatment plant), storage facilities, and transmission and distribution mains.

City of Racine Water System. This system dates from 1886 when the first intake and pumping station were built on the shore of Lake Michigan by a private company. In 1919, the city purchased the privately owned Racine Water Company and the initial portion of the present filtration plant was constructed in 1927-28. Since that time periodic expansions and improvements have increased the plant capacity to the present 40 MGD and the transmission and distribution system to more than 275 miles of mains.

The Racine Water Department is a municipally-owned public utility functioning as an independent city department which is governed by a Board of Water Commissioners. This Board, which sets policy for the Water Department is composed of the Mayor, one alderman, and three citizens appointed by the Common Council. It is operated on a self-sustaining basis and pays city, unified school, and vocational school taxes. The cost of extending water service to new areas is borne by those receiving the water. The city government pays the water utility in excess of a quarter of a million dollars yearly for water for fire protection.

The Racine water treatment plant is located on Hubbard Street east of Michigan Boulevard on the shore of Lake Michigan. The plant provides treatment by coagulation, sedimentation, rapid sand filtration and sterilization with chlorine prior to distribution. The rated capacity is 40 MGD. The original plant, located two blocks south at the mouth of the Root River, is no longer in operation.

There are presently three raw water intakes from Lake Michigan. A 24-inch diameter line was constructed in 1886, and a 26-inch diameter line was added in 1924. A 54-inch intake has recently been completed which will more than double the present intake capacity to a theoretical ability of 110 MGD.

Low lift pumps, which bring raw water from Lake Michigan to the treatment plant, consist of four pumps rated at 10.5, 16.5, 16.5 and 24.0 MGD each operated in parallel. A fifth pump having a capacity of 12.5 MGD serves as a stand-by unit.

High lift pumps that pump treated water from the plant to the distribution system include four units of 8.0, 12.0, 18.0 and 23.5 MGD, respectively, each having a total discharge head of 200 feet.

A chemical analysis of treated water processed from the Racine Water Works is as follows:

Chemical Analysis of Furnished Water[4]

Hardness	136
pH	7.7
Alkalinity	100
Calcium	36.6
Chlorides	9.5
Sulfates	31.0
Fluorides	1.0
Total Solids	172

The water distributed is of excellent quality, being well within U.S. Public Health Service Standards, but is generally classified as "hard" as determined by the U.S. Geological Survey Water hardness ratings shown in Table 8-3. This requires more soap to perform cleaning and causes some "scaling" on the walls of heaters and boilers. Some homeowners and industries soften the water to overcome these difficulties.

Elevated storage of treated water consists of three tanks having a combined capacity of 5.7 million gallons. The 2.7

[4] *All values, except pH, in parts per million.*

Table 8-3

U. S. GEOLOGICAL SURVEY WATER HARDNESS RATINGS

Hardness Range [a]	Designation	Remarks
0–60	Soft Water	Suitable for public or domestic use without softening.
61–120	Moderately Hard Water	Can be used for public or domestic use without softening. Softening may be desirable to reduce soap consumption and accumulation of scum on water fixtures.
121–180	Hard Water	Generally unsuitable for public or domestic use without softening.
More than 180	Very Hard Water	Requires softening for almost all uses other than irrigation.

[a] *Hardness range in terms of $CaCO_3$ expressed in milligrams per liter (mg/l).*

Source: U. S. Geological Survey

MG Fifteenth Street standpipe was built in 1930, followed in 1957-58 by two 1.5 MG elevated tanks, one at Summit Avenue and the other at Sheridan Woods.

A network of water mains ranging in size from six inches to 30 inches comprises the transmission and distribution system which serves the city and much of the adjacent urbanized areas. Mains 12 inches in diameter and larger form the primary system to carry water to the existing city and the developing fringe. (See Map 8-2.) By 1930, much of the present water system within the city had been completed, although more recent additions (since 1951) have provided additional capacity for Racine by completing loops at several locations and extending lines into the fringe areas. The major additions include "loop lines" in North Park, the Caledonia Water District No. 1, northwest Racine, southwest Racine, around Meachem Road, and near Elmwood Park. (See Map 8-3.) One 16-inch line to Sturtevant serves that village and the adjacent Waxdale industrial area. Plans call for completing a loop to serve this area by extending the 16-inch main eastward on Durand Avenue to Ohio Street. Service in Racine and within the contiguous urbanized areas is being improved. Several uncompleted loops are proposed to be closed and periodic extensions to the existing system within the service area are anticipated. A large tract, intended for industrial use, lying between Racine-Horlick Airport and the Chicago and Northwestern Railroad is to be provided with water service in 1970.

Caddy Vista. This water system was started in 1954 and serves only this subdivision, located in the northwest part of the Planning District. Its source of supply consists of one deep well (1,925 feet) with pump capacity of approximately 550 gallons per minute. Yield from this well when pumped for 16 hours is estimated at 528,000 gallons per day.[5]

The distribution lines are entirely six inches in diameter or smaller which is insufficient to provide Caddy Vista with an emergency reserve. Storage consists of one 7,500 gallon pneumatic ground tank used to pressurize the system. In periods of peak water demand customers are virtually drawing water directly from the well because the small tank cannot provide enough supply for these lines. No system outages have been reported.

Crestview. A separate water system initiated in 1956, this system now serves an area of about one-half of a square mile in the northeast part of the Planning District adjacent to Lake Michigan. It is supplied by one 1,255 foot well reported as producing approximately 600 gallons per minute. Yield when pumped for 16 hours at this rate is estimated at 576,000 gallons per day.[6] No system outages have been reported.

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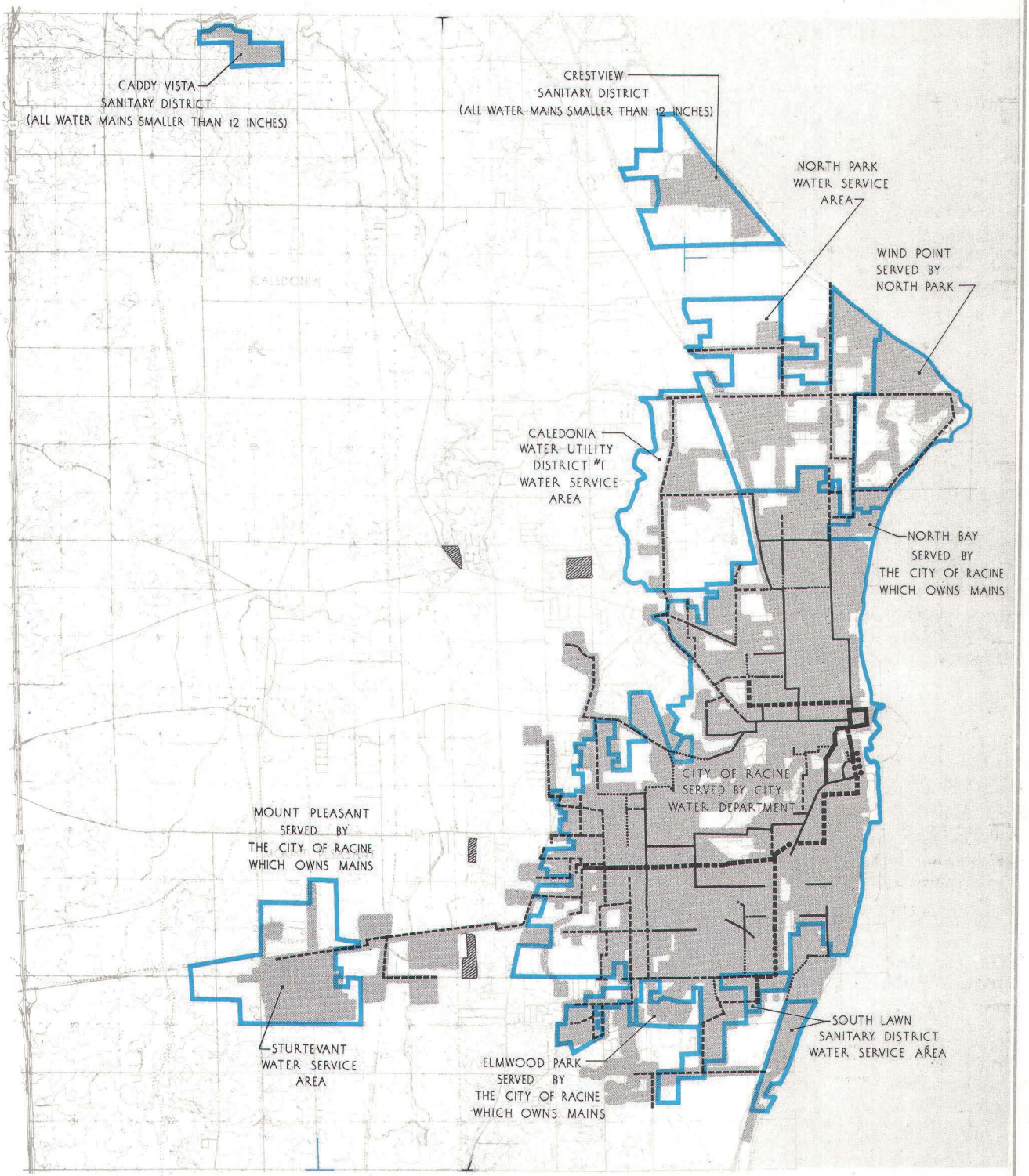
[5] *A well pumping period of 16 hours has been used in calculating total daily yield to permit time for well recharge and to avoid a third working shift which materially affects operating and maintenance costs. Additionally, continual operation provides no time for normal maintenance or repair of pumps. Naturally, occasional use for as much as 24 hours is permissible for critical times but cannot be considered on a permanent basis.*

[6] *Ibid.*

MAP 8-3



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AGE OF WATER SYSTEMS

RACINE URBAN PLANNING DISTRICT

Distribution lines are primarily sized to serve the residential character of the area and are six inches in diameter or smaller. One elevated storage tank (100,000 gallon capacity) provides the reserve and pressure for the system.

Other Systems. Eight other villages, towns, or operational utility districts distribute water in the suburban areas (see Table 8-1); however, all of these obtain their treated water from the Racine Water Department and rely on Racine for storage and supply. None of these units of government, except Sturtevant, have any storage facilities. Sturtevant has a 100,000 gallon elevated tank located in the western portion of the village. (See Map 8-2.)

At least two industries, one institution and four small groupings of residences (5 to 25 homes) operate private wells and minor distribution systems. Due to their private nature and generally small size, these cannot be considered as providing any material facilities that could be combined with larger systems.

Quality of Ground Water

Water analysis of both the Caddy Vista and Crestview supplies indicate that while the water is potable it also possesses some undesirable qualities. (See Table 8-4.)

Table 8-4

CADDY VISTA AND CRESTVIEW WATER ANALYSIS

	Caddy Vista	Crestview
pH	7.2	7.4
Chlorides	10.5	23
Hardness	369	292
Alkalinity	234	212
Aluminum	–	–
Iron	1.8	0.33
Sulfates	185	150
Fluorides	0.6	0.95
Calcium	111	82
Magnesium	22.0	20.4
Total Solids	488	508
Manganese	0.04	0.04
Nitrates	0.5	0.5
Sodium	17	53

All values, except pH, in parts per million.

Source: Wisconsin Department of Health and Social Services

The Caddy Vista well water is extremely hard, has far too much iron, is too alkaline, and is very near the suggested limit of 500 parts per million of total solids. Because of this an iron reduction process has been installed to lower the iron content to within the U.S. Public Health Service Standards of 0.03 PPM.

The Crestview supply is rated as hard (although not as severe as Caddy Vista), is also alkaline, is slightly over the iron content standard, and has even more total solids than Caddy Vista.

Current Trends in Use

Water consumption in the Planning District has increased steadily due to population growth, industrial expansion, and a rising per capita consumption of water. (See Figure 8-2.) Since 1920, the population of the District has doubled, while water consumption has increased almost four times. This trend stems from increasing personal affluence and changing life styles, which have resulted in the development and installation of many new water using devices for both domestic and industrial use. Increasingly, homes contain dishwashers, garbage disposers, and other water using appliances, while commerce and industry place a growing reliance on water for cooling, cleansing, quenching, and other purposes.

Per capita consumption, a convenient means of analyzing the growth in water use, reveals a 22.6 percent increase in the City of Racine system between 1959 and 1969 – while total daily consumption rose from 12.1 MGD to 21.4 MGD during the same interval, an increase of about 75 percent. Maximum daily consumption exceeded the average by more than 50 percent on several occasions, with 36.7 MGD being the highest demand recorded in 1969. Minimum pumpages were as low as 40 percent below the average demand. Both minimum and maximum consumption figures, however, are rising and are expected to continue to do so.

During 1969 water from the Racine system was used as follows:

Residential	28.8%
Commercial	11.3%
Industrial [a]	48.6%
Public	4.9%
Sale for Resale [b]	6.4%
	100.0%

[a] *Does not include groundwater used by some industries.*

[b] *Wholesale water sold to five service districts.*

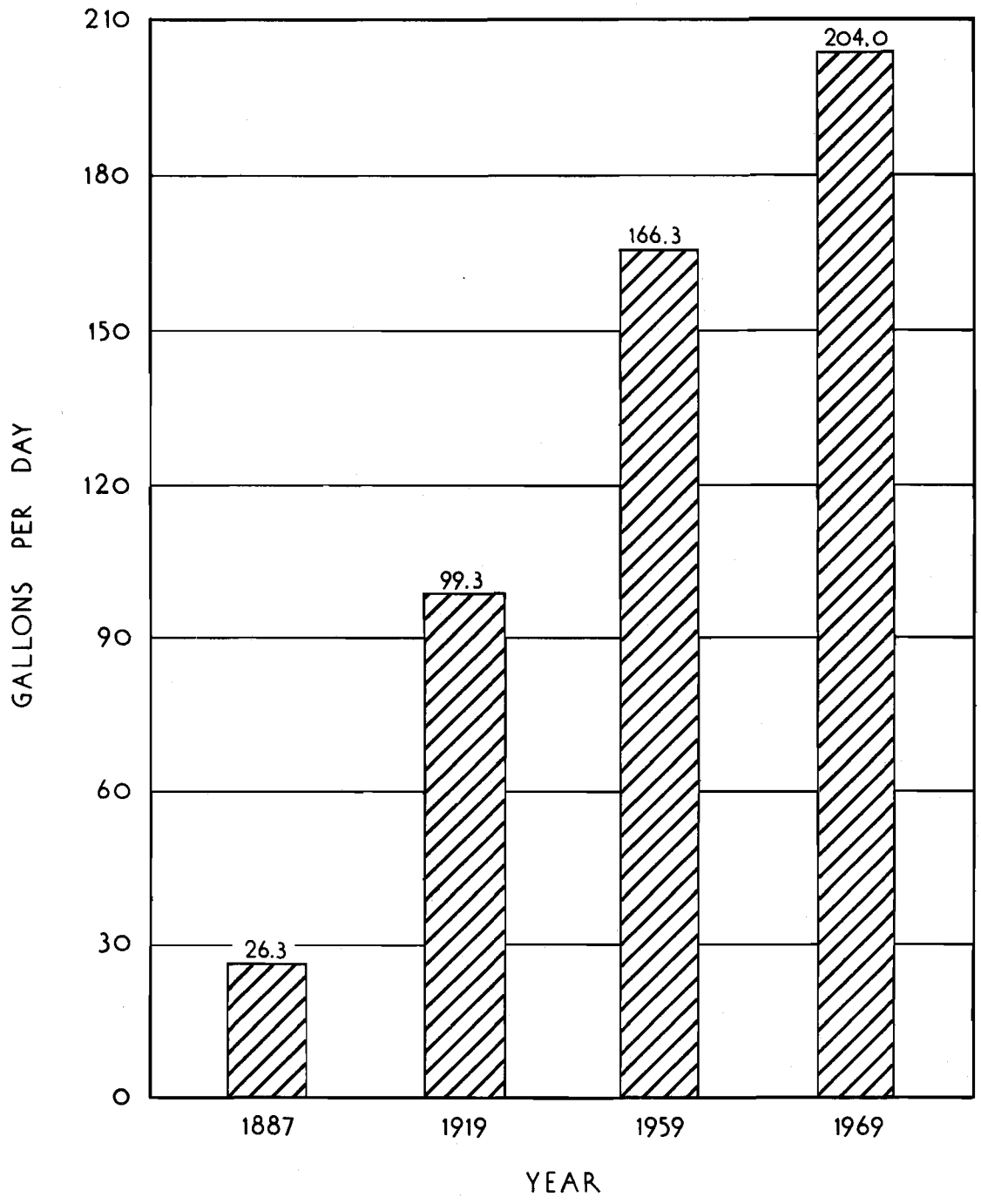
Industries are the largest water users in the District, consuming more than one-half of the total water pumped. Residential users, including peripheral service areas which buy water from the city, consume another one-third of the water, while the remainder is used for commercial and public uses.

Water consumption within the other governmental units is relatively low except in North Park and Mt. Pleasant. Use in 1969 varied from 12.3 million gallons per year in Elmwood

Figure 8-2

PER CAPITA WATER CONSUMPTION

Racine, Wisconsin*



* AREAS SERVED BY THE CITY OF RACINE WATER DEPARTMENT

SOURCE: RACINE WATER DEPARTMENT

Park to one billion gallons per year in Mt. Pleasant. (See Table 8-1.) Slightly more than 92 percent of the Mt. Pleasant use was for industrial purposes, indicating the impact industry can have on water demand and the distribution system that must supply these large volumes.

Evaluation of Facilities – 1970

As already noted, water service in 1970 was provided to approximately 23 percent of the land area and 83 percent of the population of the District. Except for Caddy Vista and Crestview, the major urbanized area was served by one interconnected water system, comprised of one major supplier and eight individual municipalities who purchase water by contractual agreement. This interconnection provides a firm basis for enlargement of the system to serve developing areas as needed. Extensions are provided for within the agreements between the governmental units although the city's shrinking industrial tax base and the towns' reluctance to allow annexations of developing areas have produced a situation where the intent of the water service agreements has, in large part, been frustrated.

In 1970 approximately 17 percent of the population (23,000 persons) was not served by central water supply systems. This population was located in the 76 square mile area of the District beyond the major urban area served by the systems noted in Table 8-1. In several instances, service to small clusters of development has been provided by individual wells and small, short-service lines. As the population of the Planning District grows, it will be necessary for municipal or utility district systems to be extended to provide a safe and continuous supply of potable water to new growth areas.

With the population in the Planning District expected to reach 224,000 persons by 1990, the ability of the water treatment and distribution systems to serve both more people and larger areas becomes critical. The present interconnected water system is the product of cooperative development over an extended period of time. These systems have been financed and constructed based upon established long-term agreements and it is reasonable to assume that future growth areas can be served by extending these systems.

The Racine area is fortunate in having a virtually unlimited supply of good quality water available in Lake Michigan, which supply should be given preference as a source over groundwater because of quality, available yield, and dependability.

Several basic elements of the water systems already have fixed locations but nevertheless will be required to serve water needs throughout the planning period. As growth occurs and water consumption increases, additions will be required in some locations with older portions in need of replacement in others. Determination in this respect must be accomplished through future detailed engineering studies. Some problems, however, are evident and may be summarized as follows:

1. One major water treatment plant serves about 99 percent of all water supplied to the various systems. This plant will require major expansion to serve future growth.

2. The low and high lift pumps will require enlargement to match future plant capacity and the recently enlarged intake system.

3. As water service is extended to new growth areas, portions of the existing major water mains will need to be extended outward. Small water mains in some fringe areas will also need to be replaced by larger mains as service is extended.

4. Storage capacity will affect fire ratings and should be planned to provide adequate fire flow in existing and new growth areas.

5. Present fringe growth has created isolated distribution lines that should be "looped" to other parts of the system to provide reliability of flow and pressure.

6. Portions of the water system are from 40 to 60 years old, many even older. During the planning period, it is reasonable to assume that some of these facilities will need to be replaced. (See Map 8-3.)

7. Present policy for expansion and interconnection varies. A clear-cut single policy is needed to serve development on the growing fringes of the present interconnected system.

Water Use Forecast

Existing public water systems served 83 percent of the total population in the District in 1970. As future growth of the systems occurs more developed areas should be provided with centralized public water service, and gradually the percentage of the total District population provided with a public water supply should increase. This increase is estimated at about 3.5 to 4 percent each decade in the planning period.

Concommitantly, the per capita water consumption is expected to increase at a rate similar to recent increases (3.8 GPD per capita increase per year from 1959 to 1969 which is mostly due to large volume industrial users). The

Table 8-5

WATER USE FORECAST

Year	Population			Per Capita Consumption (GPD)	Total Average Water Consumption [a]
	Total	Percent Served	Number Served		
1970	133,000	82%	110,000	196	21.6 MGD
1980	179,000	86%	154,000	230	35.5 MGD
1990	224,000	90%	202,500	260	53.5 MGD

[a] *Water consumption figures indicate average day's use. Peak days are from 50 to 75 percent greater than average day.*

result of these increases, estimated at about 30 GPD per capita per decade would be to more than double water consumption in the planning period. (See Table 8-5.)

SANITARY SEWERAGE SERVICE

A complete sanitary sewer system is essential to the proper collection, removal, and disposal of domestic and industrial waste in order to avoid contamination of water supplies and hazards to community health. Inherent in a community's normal utility operation of supplying fresh water is the collection and treatment of the resultant waste water. Based on studies throughout the nation, approximately 70 to 80 percent of the water used for municipal and industrial purposes eventually flows to sewage treatment plants as waste water. Recent emphasis on correcting pollution problems associated with urbanization have spurred the initiation of stronger controls and elimination of many of the sources of pollution. The Wisconsin Department of Natural Resources has taken an increasingly active role in monitoring pollution in the state, and stronger regulations governing the discharge of waste water are in prospect.

Sewage Treatment

Sewage treatment plants are designed to convert raw sewage into an acceptable final product (effluent), and to dispose of the solids removed in the process. Sewage contains four contaminants which inevitably contribute to the possibility of pollution when such wastes are discharged to watercourses without treatment or with inadequate treatment. These contaminants are:

1. Course Solids and Debris: Removed by screens and grit removal facilities.

2. Fine Suspended Solids: Settled in clarification tanks.

3. Dissolved organic and colloidal matter: Removed or reduced by biological oxidation methods such as trickling filters, activated sludge process, extended aeration, etc.

4. Bacteria, many of fecal origin: Some removed by the standard treatment process mentioned above, with remainder disinfected by chlorination.

5. Nitrogen and Phosphorus: Removed by chemicals through coagulation and precipitation.

Because volume and strength of sewage varies daily, the capacity of a treatment plant must be capable of handling average daily loadings with some capacity for peak conditions. Furthermore, allowance should be made for future increased sewage flows and anticipated population growth.

There are four sewage treatment plants in the District, all providing primary and secondary treatment. (See Figure 8-3.) Primary treatment removes 50 to 60 percent of the influent suspended matter and 25 to 35 percent of the biochemical oxygen demanding organic matter (BOD). It removes little or no colloidal or dissolved matter.

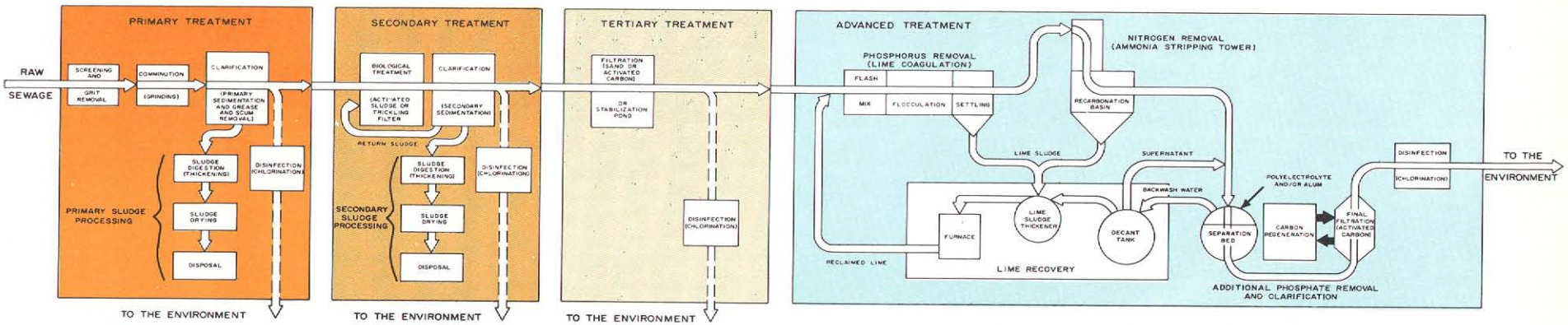
Secondary sewage treatment is the biological treatment of the effluent from primary treatment by means of trickling filters or activated sludge tanks and additional sedimentation. Secondary treatment provides up to 90 percent overall removal of the suspended matter and 75 to 95 percent overall removal of BOD.

Tertiary sewage treatment is defined as additional solids and BOD removal following secondary treatment. Processes include detention of secondary effluent in shallow ponds to provide additional biochemical treatment and settling of solids or filtration either by sand or mechanical filters. Ponding may provide overall removal of up to 99 percent of the suspended matter and 95 and 97 percent of the BOD. (See Figure 8-3.)

Advanced treatment may be defined as additional treatment process, following secondary treatment or combined with tertiary treatment, to provide removal of additional constituents, particularly phosphorus and nitrogen compounds, by such means as chemical

Figure 8-3

SEWAGE TREATMENT PROCESSES

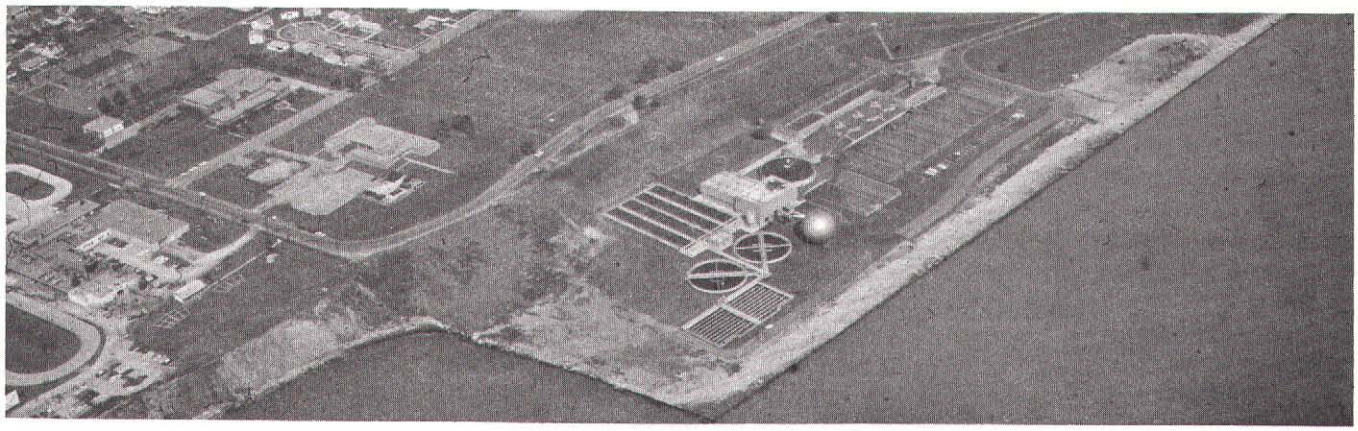


The above diagram schematically illustrates the sequential steps in the sewage treatment process. Sewage treatment may be defined as any physical, biological, or chemical process to which sewage is subjected in order to remove or alter its objectionable constituents and thus render it less damaging to the receiving environment. Four degrees or levels of treatment are shown in this diagram, with each level providing a better quality of effluent that is eventually discharged into receiving waters. Only three of these levels of treatment are presently in common use, and most sewage treatment plants now operating in the Southeastern Wisconsin Region provide only secondary treatment.

In the first, or primary, level of treatment, metal screens remove large objects, such as sticks and rags, from the raw sewage. The sewage then passes into a grit chamber where coarse suspended materials, such as sand and gravel, settle to the bottom. From the grit chamber the sewage flows through a comminutor, which grinds any remaining large suspended solids, and then into a sedimentation tank where the velocity of flow is reduced so that the suspended particles sink to the bottom, forming a sludge blanket. Floating solids, oils, and greases are removed through skimming. Up to this point the primary treatment process is essentially physical (mechanical) in nature. The sludge is pumped to a heated tank where it is reduced by anaerobic bacteria – that is, bacteria which can exist without free oxygen – to a stable residue. The sludge digestion process is essentially biological in nature. By itself, this primary treatment removes only about 30 percent of oxygen-demanding organic matter in the raw sewage, the matter removed representing the coarser suspended solids in the sewage. Primary treatment removes little or none of the colloidal and dissolved matter in the sewage.

In secondary treatment most of the remaining oxygen-demanding organic matter is consumed by bacteria in the presence of oxygen. The effluent from the primary treatment facilities is further treated by such means as trickling filters or activated sludge tanks and additional sedimentation. The secondary treatment process is both physical and biological in nature. Secondary treatment removes up to 90 percent of the suspended matter and from 75 to 95 percent of the oxygen-demanding organic matter present in the raw sewage. In tertiary treatment additional solids and oxygen-demanding material are removed through detention of the secondary effluent in oxidation or stabilization ponds and through filtration by either sand or mechanical filters. Tertiary treatment, which may be either physical or biological or both in nature, removes up to 99 percent of the suspended matter and from 95 to 97 percent of oxygen-demanding organic matter present in the raw sewage.

Secondary and tertiary treatment processes remove and stabilize the oxygen-demanding organic waste materials in sewage but do not normally remove at best more than about 40 percent of the total phosphorus and 40 percent of the total nitrogen in the raw sewage, materials that are essentially good fertilizers. In advanced waste treatment, the effluent from either the secondary treatment or tertiary treatment facilities is further treated by essentially chemical processes to achieve the removal of the dissolved phosphorus and nitrogen compounds in the sewage that cause undesirable algae and weed growths in the receiving waters. The particular method of advanced waste treatment shown in the above diagram is only one of several possible methods. The method shown includes chemical coagulation, sedimentation, charcoal filtration, and aeration. Advanced waste treatment may be expected to remove up to 90 percent of the nitrogen and 95 percent of the phosphorus in the raw sewage. An auxiliary chemical treatment which should be used in combination with all four sewage treatment processes is disinfection by chlorination.



SEWAGE TREATMENT PLANT – CITY OF RACINE

coagulation, sedimentation, charcoal filtration, and aeration. Advanced treatment may remove up to 90 percent of the nitrogen and 95 percent of the phosphorus in the influent sewage. The expression "advanced treatment" ordinarily is understood to encompass tertiary treatment, but the expression "tertiary treatment" does not include advanced treatment. An auxiliary treatment which is now required to be used in Wisconsin in combination with all treatment methods, is disinfection by chlorination or other chemical treatment.

Service Areas

The area served by sanitary sewers in the Racine Urban Planning District closely corresponds to the intensely urbanized area of the District, with two additional narrow service areas extending westward to Franksville and Sturtevant. All parts of the City of Racine are served by public sewers, and as new subdivisions and industries have grown up on the urban fringe, service has been extended to them. Because much recent building has been of a highly scattered low density nature, the pattern of sewer service in the suburban areas is generally haphazard. Approximately 83 percent of the District population, residing generally in the eastern two-fifths of the Planning District was served by public sewers in 1970. (See Tables 8-6 and 8-7.) In all, the service area included nearly 40 square miles.

In addition to Racine and the Village of Sturtevant, which have their own systems, five utility districts have been set up to provide sewers in developing areas adjacent to the city. The largest in terms of size and population served is the Mt. Pleasant Sewer Utility District No. 1. The other four districts are: the Caledonia Sewer Utility District No. 1, Caddy Vista Sanitary District, Crestview Sanitary District, and North Park Sanitary District, all of which are located in the Town of Caledonia.

Intergovernmental Sewerage System Agreements

The City of Racine has entered into agreements with the Sewer Utility District No. 1 of the Town of Caledonia, the Town of Mt. Pleasant, and the Village of North Bay to provide sewage disposal facilities, by connecting their systems with the Racine sewer system and wastewater treatment plant. (See Table 8-8.) The Village of Elmwood Park has requested a similar agreement with the City of Racine but, to date, has been refused service. The agreements specify that only flows amenable to treatment shall be accepted, and that installations made by the parties to the agreements shall be in accordance with city standards. It is assumed that the differential in rates is a means of equitably distributing some of the prior costs of the systems to the new additions.

The North Park Sanitary District contracts to provide treatment for sewage from the Crestview Sanitary District. The Village of Wind Point lies within the North Park Sanitary District, and as the village was incorporated after the establishment of the Sanitary District, there is no written agreement between the two.

Inventory and Analysis of Existing Sewerage Facilities

There are presently seven sewerage systems within the Racine Urban Planning District, with the largest (Racine) through interconnection, serving about 83 percent of the entire District population in 1970. (See Map 8-4.) Only four of the systems – Racine, North Park, Caddy Vista and Sturtevant – operated treatment facilities. The Racine, Caledonia and Mt. Pleasant systems are connected to the Racine system with sewage treatment being provided by the Racine Wastewater Treatment Plant located at 21st and Main Streets on the shore of Lake Michigan. The seven systems include the Racine Sewerage System, Caledonia Sewer Utility District No. 1, Mt. Pleasant Sewer Utility District No. 1, Sturtevant Sewer System, North Park Sanitary District, Crestview Sanitary District, and the Caddy Vista Sanitary District.

Areas without central collection systems rely on individual septic tank systems for waste disposal or else discharge to holding tanks which must periodically be pumped and hauled to public sewers for proper disposal. Septic tanks

Table 8-6

SANITARY SEWER SYSTEMS: 1969

System	Community Population	Population Served	Percent of Total Population Served	Number of Sewer Connections	Size of Area Served	Sewage Flows - 1969			Plant Design Capacity	Year Built	Size of Site	Room to Expand Site
						Average Daily Flow	Peak Daily Flow	Peak Hourly Flow				
CALEDONIA SEWER UTILITY DISTRICT NO. 1	3,680	2,700	73%	674	7.72 Sq.Mi.	0.46 MGD Part of Racine	0.76 MGD Total Flow	N.A.	No Plant	-	-	-
MT. PLEASANT SEWER UTILITY DISTRICT NO. 1	13,000	11,500	88%	2,873	10.75 Sq.Mi.	2.31 MGD Part of Racine	2.73 MGD Total Flow	N.A.	No Plant	-	-	-
CITY OF RACINE SEWER SYSTEM	93,400	93,400	100%	N.A.	12.01 Sq.Mi.	23.89 MGD	29.90 MGD	N.A.	23 MGD (Primary) - - - - 12 MGD (Secondary)	1938 Expanded 1967	21.58 Acres	Yes, by expansion into Lake Michigan on fill.
CADDY VISTA SANITARY DISTRICT	1,200	1,200	100%	271	0.18 Sq.Mi.	.06 MGD	.09 MGD	N.A.	0.25 MGD	1956	5.59 Acres	Yes
CRESTVIEW SANITARY DISTRICT	1,800	1,800	100%	352	1.06 Sq.Mi.	N.A. Part of North Park	N.A. Total Flow	N.A.	No Plant	-	-	-
NORTH PARK SANITARY DISTRICT	4,100	4,100	100%	1,100	5.85 Sq.Mi.	.86 MGD	1.37 MGD	N.A.	0.90 MGD	1953 Changed from trickling filter to activated sludge- 1965	3.32 Acres	Yes
VILLAGE OF STURTEVANT SEWER SYSTEM	3,000	3,000	100%	797	1.61 Sq.Mi.	.24 MGD	.27 MGD	N.A.	0.40 MGD	1959	3.24 Acres	Yes
TOTAL FOR DISTRICT	130,000	117,700	90.5%	-	39.18 Sq.Mi.	25.05 MGD	-				33.73 Acres	

N.A. — Not Available.

Source: Engineer Manager — City of Racine Wastewater Treatment Plant; Caledonia Sewer Utility District No. 1, Mt. Pleasant Sewer Utility District No. 1; Caddy Vista Sanitary District; Crestview Sanitary District; North Park Sanitary District; Operator, Sturtevant Sewer System.

Table 8-7

SEWAGE TREATMENT FACILITIES: 1969

System	Treatment			Effluent Discharged to	Frequency of Emergency Overflows	Overall Plant Efficiency	Number of Treatment Plant Personnel	Sludge Disposal	Current Problems	Future Plans
	Primary	Secondary	Tertiary							
CALEDONIA SEWER UTILITY DISTRICT NO. 1	TREATMENT PROVIDED BY RACINE									An expansion of the area served is planned.
MT. PLEASANT SEWER UTILITY DISTRICT NO. 1	TREATMENT PROVIDED BY RACINE									An expansion of the area served is planned.
CITY OF RACINE SEWER SYSTEM	Primary Sedimentation	Activated Sludge (12 MGD Capacity); Chlorination 72 MGD	Phosphorus removal to be provided by 1972.	Lake Michigan	±12 times a year during periods of heavy rainfall.	Suspended Solids Removed 81.0% 5-Day BOD Removed 67.5%	Class I - 2 Class II - 1 Class III-13 Class IV - 8	Solids Trucked From Site	A substantial portion of the system is not separated; only half of current volumes receive secondary treatment.	Expansion to 30 MGD by 1972; 36 MGD by 1980; secondary treatment for all wastewater by 1972; complete separation of system by 1977.
CADDY VISTA SANITARY DISTRICT	Primary Sedimentation	Trickling Filter; Secondary Sedimentation; Chlorination	None	Root River	Infrequent backup at periods of high river flow.	N.A.	Class III- 1 Class IV - 1	Solids Trucked From Site	None Identified	Connection with the Milwaukee Metropolitan Sewer District has been proposed.
CRESTVIEW SANITARY DISTRICT	TREATMENT PROVIDED BY NORTH PARK									An expansion of the area served is planned.
NORTH PARK SANITARY DISTRICT	Mixing Settling	Activated Sludge; Aerobic Digestion; Chlorination	None	Lake Michigan	One time on occasion of power outage.	N.A.	Class IV - 2	Solids Trucked From Site	None Identified	An expansion of the area served is planned.
VILLAGE OF STURTEVANT SEWER SYSTEM	Primary Sedimentation Tank	Trickling Filter; Sedimentation; Chlorination		Pike River	Four times a year during periods of heavy rainfall.	N.A.	Class IV - 2	Solids Trucked From Site	None Identified	At time of initial construction, plans prepared to double size of treatment plant should it become necessary.

N.A. — Not Available

Source: Engineer Manager — City of Racine Wastewater Treatment Plant; Caledonia Sewer Utility District No. 1; Mt. Pleasant Sewer Utility District No. 1; Caddy Vista Sanitary District; Crestview Sanitary District; North Park Sanitary District; Operator, Sturtevant Sewer System.

Table 8-8

INTERGOVERNMENTAL SEWER SERVICE AGREEMENTS[a]

Principal System	Other Party to Agreement	Nature of Agreement				Service Area	Cost of Operation
		Effective Date	Duration of Agreement	Provision For Extension	Provision For Termination		
City of Racine	Sewer Utility District No. 1 of Town of Caledonia	September 5, 1963	30 Years	Based Upon mutual agreement of both parties	Requires one year written notice from either party	Sewer Utility District No. 1 of the Town of Caledonia (See Map 8-4.)	1. 150% of pro-rated cost of accommodating district sewage. 2. 40.00 per million gallons to cover depreciation. 3. 100% of additions to city system and plant necessitated by District sewage.
City of Racine	Town of Mt. Pleasant	November 19, 1959	30 Years	Based Upon mutual agreement of both parties	Requires one year written notice from either party	Town of Mt. Pleasant (See Map 8-4.)	1. 150% of pro-rated cost of accommodating district sewage. 2. 40.00 per million gallons. 3. 100% of additions to city system and plant necessitated by District sewage.
City of Racine	Village of North Bay	August 21, 1957	15 Years	Based Upon mutual agreement of both parties	Requires one year written notice from either party	Village of North Bay (See Map 8-4.)	1. Cost plus 50%.
North Park Sanitary District	Crestview Sanitary District	April 1, 1958	33 years	None included	Crestview--one year written notice; North Park--six months written notice	Crestview Sanitary District (See Map 8-4.)	1. Cost plus 40%[b]

INTERGOVERNMENTAL SEWER SERVICE AGREEMENTS (Continued)

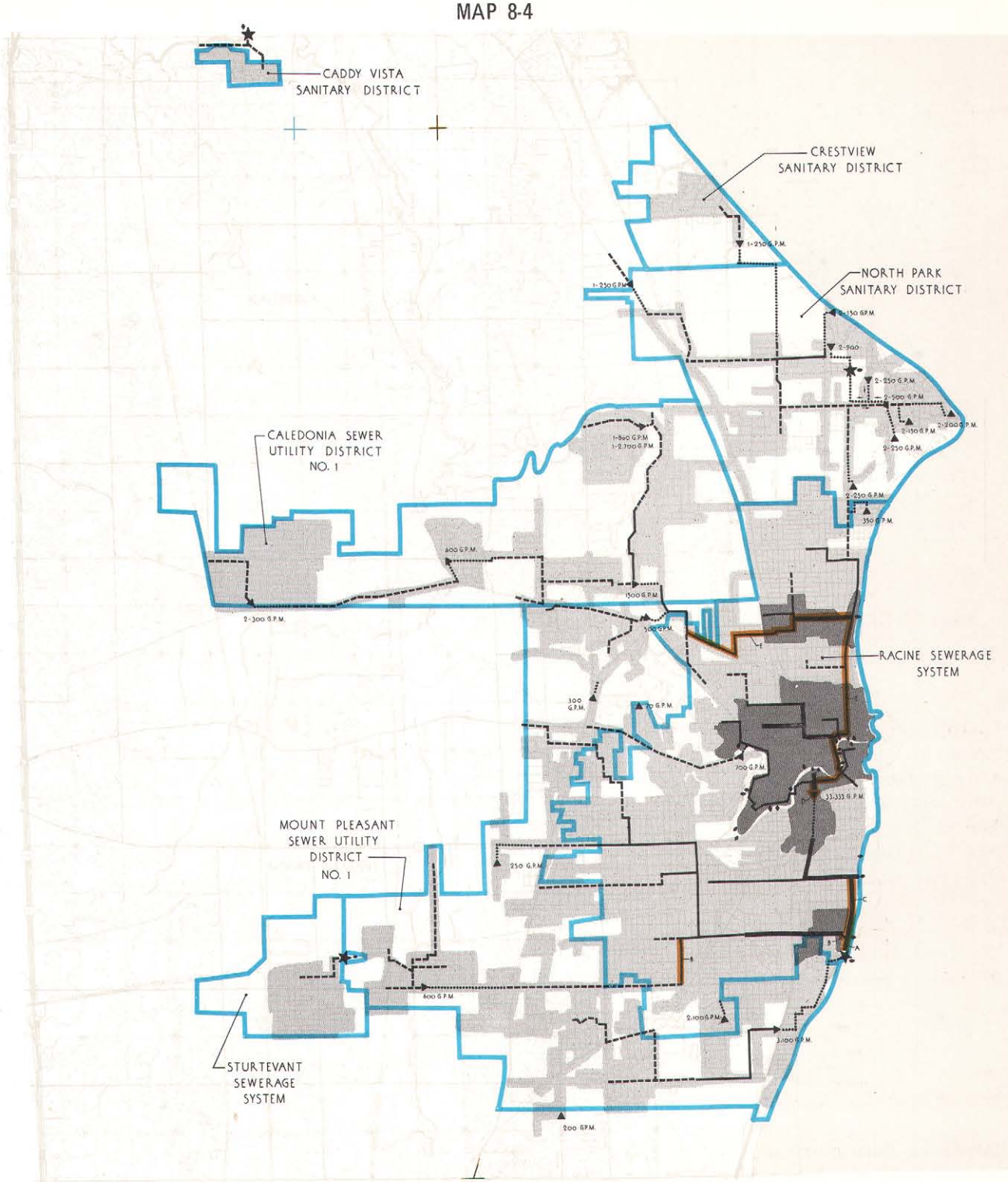
Principal System	Other Party to Agreement	Conditions of Service			Conditions of Operation		
		Quality and Quantity	Sale of Water Outside District	Additions to System	Ownership of System	Repair, Maintenance and Cost Thereof	System Installations
City of Racine	Sewer Utility District No. 1 of Town of Caledonia	Only flows amenable to treatment	-	1. Installations in accordance with city standards. 2. No storm or surface drainage connections.	District	District	District
City of Racine	Town of Mt. Pleasant	Only flows amenable to treatment	-	1. Installations in accordance with city standards. 2. No storm or surface drainage connections.	Town	Town	Town
City of Racine	Village of North Bay	-	-	1. No storm or surface drainage connections.	Village	Village	Village
North Park Sanitary District	Crestview Sanitary District	Discharge of industrial waste permitted by permit only.	-	1. Initially 300 homes may be served. 2. 200 additional homes served provided Crestview makes a new direct connection to North Park Plant. 3. No storm or surface drainage connections.	District	District	District

[a] *The purpose of the agreements is to define the terms of service between the two parties for the disposal of sewage generated by the other party to the agreement.*

[b] *Based upon Supplemental Agreement dated April 30, 1963.*

experience operational difficulties in areas having soils unsuitable for disposal of sewage through subsurface drainage fields. (See Map 4-2.) Such areas sometimes have effluent flowing in ditches and saturated soil conditions which both produce odor and health problems. Examples of this are noticeable in the vicinity of State Highway 31, State Highway 32 and Six Mile Road and the Globe Heights subdivision near County Trunk C in the Town of Mt. Pleasant. Paradise Hills in the Town of Caledonia and Camelot Downs in the Town of Mt. Pleasant are among the subdivisions which have been platted but because of poor soils have not been fully developed.

MAP 8-4



SANITARY AND COMBINED SEWER SYSTEMS

Table 8-9

AVERAGE DAILY SEWAGE FLOWS: 1969

(Figures in Million Gallons Per Day)

	Part of Racine Flow				Part of N. Park Flow			
Month	Caledonia	Mt. Pleasant	Racine	Caddy Vista	Crestview	North Park	Sturtevant	Estimated Total
January	.4	2.2	26.1	.1	N/A	N/A	.3	27.4
February	.4	2.0	23.1	.1	N/A	N/A	.2	24.4
March	.5	2.1	24.5	.1	N/A	.9	.2	25.7
April	.8	2.8	29.7	.1	N/A	1.4	.3	31.5
May	.5	2.3	22.3	.1	N/A	.9	.3	23.6
June	.5	2.5	24.2	.1	N/A	1.0	.3	25.6
July	.5	2.4	25.3	.1	N/A	1.1	.3	26.8
August	.4	2.4	23.8	.1	N/A	.7	.2	24.8
September	.4	2.1	25.0	–	N/A	.7	.2	25.9
October	.4	2.4	24.7	–	N/A	.9	.2	25.8
November	.4	2.2	19.6	–	N/A	.8	.3	20.7
December	.4	2.2	18.4	–	N/A	.7	.2	19.3
Yearly Average	.5	2.3	23.9	.1	N/A	.9	.2	25.1

N/A — Not Available

Source: Engineer Manager — City of Racine Wastewater Treatment Plant; Caledonia Sewer Utility District No. 1; Mt. Pleasant Sewer Utility District No. 1; Caddy Vista Sanitary District; Crestview Sanitary District; North Park Sanitary District; Operator, Sturtevant Sewer System

Sanitary sewer lines in the Planning District date from before the turn of the century, and most of the present system in the central portion of Racine was completed by 1910. (See Map 8-5.) Most sewers in Caledonia and Mt. Pleasant have been constructed within the past ten years. Prior to that time, these areas were served exclusively by septic tank systems.

Between 1965 and 1969, average daily flows to the four sewage treatment plants increased from 23 MGD to 25 MGD, more than 95 percent of which was generated by the city and the two utility districts for which it provides treatment. The largest percentage increase was registered by the Mt. Pleasant Sewer Utility District No. 1, where flows rose from 1.4 to 2.3 MGD. A substantial portion of this can be attributed to increased industrial flows.

Substantial fluctuations in flows can be expected on a seasonal basis with largest flows occurring in months of high precipitation. (See Table 8-9.) While occasional periods of higher precipitation can be expected in the fall and winter months, the greatest flows are usually experienced in the spring and summer, particularlythe month of April.

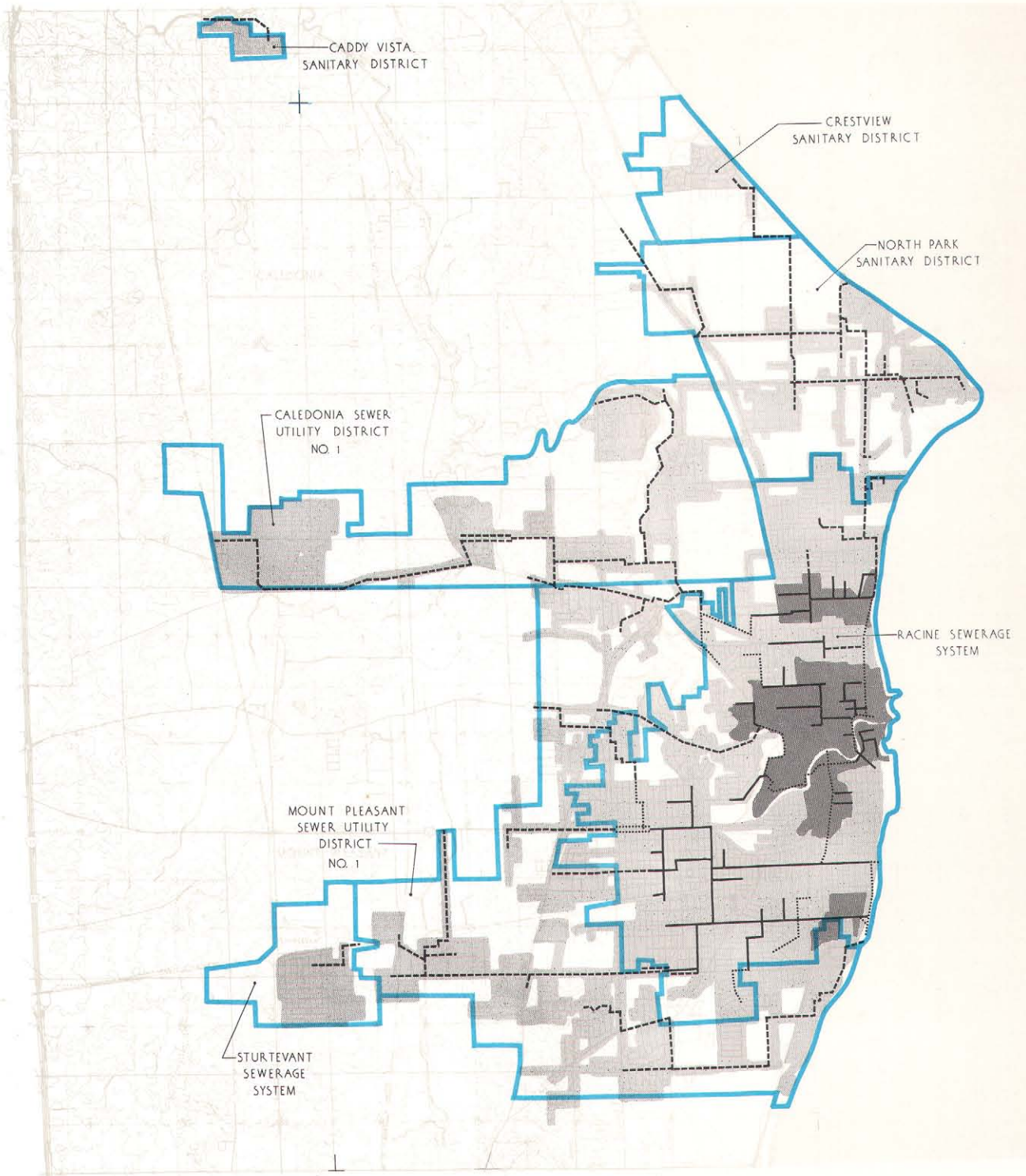
Most of this rise in flow occurs as a result of infiltration into the systems. In general, low flows are only 60 to 75 percent of the average flows. A measure of this magnitude of storm water infiltration into the sewer systems can be gained by noting the fact that average daily water consumption (approximately 204 gallons per capita per day) amounted to only 95 percent of sewage flows passing through the wastewater treatment plants in 1969, (approximately 216 gallons per capita per day). As additional sections of the Racine combined storm-sanitary sewer system are separated, this infiltration[7] of ground water and storm water is expected to be reduced.

Of the four treatment plants within the study area, only the Racine plant is continually pressed to capacity by the growing population, a large service area, and storm water entering those older portions of the city having a combined system, although all systems have experienced emergency overflows on one or more occasions. (See Table 8-7.)

To evaluate the adequacy of the existing systems with regard to present and future demand, major trunk lines were mapped to examine their potential area of service. For purposes of this evaluation, trunk lines were considered as those that receive wastewater from many tributary branches and serve a large territory, terminating at a

[7] *Infiltration is the seepage of ground water and storm water into the sewer system, commonly through the joints connecting individual sections of sewer pipe and manholes.*

MAP 8-5



SOURCE: SANITARY SERVICE DISTRICTS IN THE RACINE URBAN PLANNING DISTRICT

AGE OF SANITARY SEWER SYSTEMS

RACINE URBAN PLANNING DISTRICT

treatment plant or connecting to a large line that flows directly to a treatment plant. In most instances, these lines were larger than 15 inches in diameter, although some exceptions to this do occur at the western edge of the sewer service area.

While there are seven separate sewer systems, interconnections and operating agreements have in essence reduced these to four basic systems each having a treatment facility. The capability of each of these systems is discussed in the following section.

City of Racine Sewer System. The largest sewer system within the Planning District is the Racine system which serves not only the city but receives and treats sewage from the Caledonia and Mt. Pleasant Sewer Utility Districts and the Village of North Bay. In both utility districts, the sewage is pumped into the Racine system as the major portions of these districts are located beyond the watershed draining toward the east and the Racine system.

Treatment is provided at the Racine Wastewater Treatment Plant located at 21st and Main Streets on the shore of Lake Michigan. This plant was placed in operation in 1938 with a capacity to treat 12 MGD and in 1967 was expanded to provide primary treatment for 23 MGD and secondary treatment for 12 MGD. Treatment includes primary sedimentation, activated sludge treatment, and chlorination. The present plant is the first phase of a three-phase program designed to increase the primary and secondary capacity of the plant to 36 MGD by 1980. Present plans call for all sewage to receive secondary treatment by 1972 when capacity will be increased to 30 MGD.

This is an important expansion because average daily flow in 1969 was 23.9 MGD or slightly more than the design capacity for primary treatment. (See Table 8-6.) Under present conditions, 12 million gallons of treated wastewater is sent from the primary sedimentation tanks to the activated sludge tanks for secondary treatment, followed by two hours detention time in final settling tanks. The wastewater from these tanks is then blended with wastewater from the primary tanks, chlorinated and discharged to Lake Michigan. Thus, on an average day, 12.0 million gallons receive primary and secondary treatment and is then mixed with 11.9 million gallons that receive primary treatment only. The full flow is then chlorinated before discharge to the lake. Reported plant efficiency indicates removal of 81 percent of the suspended solids and 68 percent of the biochemical oxygen demand.

Average daily flows in 1969 (see Table 8-9) appear to have exceeded even the primary capacity of the plant during a six-month period emphasizing the urgency of funding and constructing the second phase of the treatment plant expansion. A review of treatment records shows that despite the gradual overload caused by the increased population and the extended service area, the plant is operated with a high degree of efficiency due to the training, knowledge, and experience of its staff.

The Wisconsin Department of Natural Resources, Division of Environmental Protection, has ordered the city to remove 85 percent of phosphates by October 31, 1972. Funds have been allocated for implementation of this important step with construction planned to begin in 1971.

Capability: The Racine sewer system which collects sewage from the City of Racine, two utility districts and one small village is most important in evaluating sewer services for the Planning District due to its size, geographical location, and historical position. This system was started in the 1870's when combined sewers were built in the central part of the city. For a number of years, such combined sewers were the only type constructed, eventually serving 40 to 50 percent of the land area of the city. These sewers have created serious problems for the city in terms of treating the wastewater volumes transported to the treatment plant in periods of heavy rainfall or of handling the raw sewage by-passed into Lake Michigan. (See Map 8-4.)

At the present time, there are 18 locations where excess combined sewage is discharged directly to the Root River or Lake Michigan. Present plans of the city call for the separation of storm and sanitary sewage by 1977, which will be both a sizable and expensive undertaking.

As a possible alternative to separating the combined sanitary and storm sewers, the city has embarked upon a demonstration project to study the feasibility of locating "screening-dissolved air flotation devices" at the outfalls to remove waste matter. The project, which will cost $1.4 million, of which 75 percent represents a grant from the Storm and Combined Sewer Pollution Control Branch of the Federal Water Quality Administration with the remainder coming from the state and the city, was begun in 1970 and will be completed in 1974. Four to five outfalls on a three-quarter mile stretch of the Root River will be involved in the demonstration program, with the first two years spent in design, construction, and sampling of the screening devices, and the final two years given over to a study of the results. If successful, the project could ultimately save the City of Racine between six and seven million dollars in sewer separation costs.

The design capacity of the present treatment plant of 23 MGD or primary treatment with 12 MGD also receiving secondary treatment is already being exceeded under even average flow conditions during a number of months. (See

Table 8-9.) Obviously, the improvement of the plant to handle larger volumes and to give all sewage both primary and secondary treatment should be completed as soon as possible. Present plans call for primary and secondary facilities to treat 30 MGD to be built in 1972 with further expansion to 36 MGD by 1980.

Assuming that the sewer separation program is successful in eliminating most of the storm water entering the system, it can be expected that the present average per capita sewage contribution of 216 gallons per day will be reduced. However, rapid growth of water-using conveniences for both homes and industry can be expected to continue and will offset some of this reduction. Ordinarily, per capita sewage flow represents 70 to 80 percent of per capita water consumption; however, in Southeastern Wisconsin reported per capita sewage flows equal or exceed the water consumption figures. This is attributed to large infiltration flows from high water tables predominant to the area. Under these conditions, a conservative per capita flow equal to per capita water use provides a value on which to evaluate how much population might be served by the proposed expansion program.[8] On this basis, sewage from 157,000 persons could be treated when the primary and secondary capacity of the plant is expanded to 36 MGD in 1980. With approximately 111,000 persons now contributing sewage to the Racine plant, it appears that the proposed expansion program can provide for an additional 46,000 persons in 1980 or 41 percent more than presently served by this facility. Large-scale annexations to the city or service extensions could require additional expansion of the plant, possibly in the early 1980's and again near 1990.

The present plans to provide primary and secondary treatment, followed by chlorination, for all sewage by 1972 is expected to materially improve the Racine treatment plant's efficiency above that being obtained by the present plant. Due to the large volumes of sewage discharged, the proposed plans to construct tertiary units in 1972 to remove phosphorus and nitrogen are most important to prevent nutrient pollution of Lake Michigan.

The present treatment plant is located on a 21.6 acre site, expected to be adequate for the planned expansions. If additional area is required, one alternative to be explored would be bulkheading and filling part of the lake adjacent to the present site.

While expansion of a treatment plant can generally be easily, though expensively, accomplished the enlargement of certain key facilities in the collection system may prove more difficult and troublesome. While a very sizable number of rather large lines drain toward the Raince sewage treatment plant, in actuality five critical lines (see Map 8-4) determine how much sewage will make its way through the system to the treatment plant.[9] These critical elements are as follows:

1. The 72-inch pipe immediately north of the treatment plant that conveys all sewage to the plant except that entering via the force main from the southern area of the Mt. Pleasant system. Based on the minimum grade on this line and an evaluation of design flow for peak conditions that approach 2.5 times average flow, it appears that this key segment will not be large enough to handle instantaneous peak flows in a 40 MGD day.

2. The large line beginning in 21st Street (36 inches to 66 inches in size) that serves most of the area south of the Root River and carries sewage from much of the Mt. Pleasant Sewer Utility District. The portion in 21st Street appears to have considerable reserve for additional sanitary sewage in the future; however, storm drainage contributions to this line may use up much of this reserve. Records indicate that the pipe from the aforenoted line to the main trunk into the treatment plant is only 30 inches in diameter, which does not have capacity commensurate with the larger line above it. It is to be replaced by a 72-inch pipe by 1972. The location of an outfall to Lake Michigan at this point is indicative of by-passing of flows too large for this smaller connecting line. This trunk line continues south on West Avenue to Durand Avenue, thence west on Durand to a point approximately one-half mile west of the Pike River, reducing in this length to a 12-inch diameter line at its western terminus. Nearly 0.8 miles of the western portion of this line is a 12-inch force main from the Pike River eastward. Smaller sized lines in this trunk line may not be large enough to take appreciable sewer expansion flows that would be tributary to this trunk in the Mt. Pleasant area and these lines may require replacement.

3. The large line in Main Street from 21st to 16th, thence west along 16th Street to the Chicago, Milwaukee, St. Paul and Pacific Railroad, thence north along the railroad to a point just north of 13th Street (size 54 inches to 66 inches). This

[8] *1980 — 230 gallons per capita per day; 1990 — 260 gallons per capita per day — see Tables 8-5 and 8-10.*

[9] *An inventory of major lines showing elevations, sizes and grades has been mapped to permit review and consideration of the key elements in the Planning District.*

line is the gravity portion of the sewer that receives sewage pumped by the large pumping station near 6th and Washington Streets. The most critical section of this line is the length between 16th and 21st Streets, which has a 66-inch line at a very flat grade. There is presently some reserve in this line but the tributary area to this trunk sewer is so great that this portion may not be sufficient over the planning period to serve growth in the City of Racine, Caledonia and parts of Mt. Pleasant, all of which are tributary to it.

4. The pumping station near 6th and Washington Streets. This station is being expanded to pump 33,333 gallons per minute or 48 million gallons if pumped continuously for 24 hours and will be in operation by mid-1971. It presently has sufficient capacity for sanitary sewage flows in the tributary area discharging to this station. However, growth in the north and west portions of the District during the next 20 years could exceed the capacity of the pumps, depending upon the future population development in the presently vacant areas. Continued storm water and groundwater intrusion into the sanitary system should also contribute to this condition. The 36-inch force main from the pump station has sufficient capacity to carry the discharge from the pump station but requires high velocities (over 10 feet per second) to carry the flow. Relatively high friction losses result from such velocities.

5. The large line from the pump station eastward to North Chatham, northward to Augusta, thence westward along a number of streets to the western end of the Caledonia Sewer Utility District. Three lift stations are located along the westward extension of this line. Due to the use of earlier sections for combined sewage flow, pipe diameters increase and then decrease only to be followed by another increase as the line is followed southward to the pumping station. Separation of storm flow in the Augusta Street area is scheduled for 1971 and should be of material help. However, some 36 inch and 39 inch lines near the Root River at this line's south end appear to be inadequate under present peak conditions and in all likelihood will require replacement to serve future growth in the presently lightly developed western portions of the tributary area.

To prepare the inventory of the trunk lines with elevations, grades, and pipe sizes required considerable research to uncover old records and maps, as well as trace all segments of key lines. In some instances, maps show "cross" connections between sewers, indicating a possible rerouting of flow if the initial trunk line is loaded to capacity (i.e., flow may have two or more directions to follow). These parts of trunk lines should receive special detailed engineering study, particularly where discharge to rivers or lakes can occur.

Age of System: The age of much of the Racine system creates some potential problems as many of the lines are over 40 years old with numerous portions being considerably older, some constructed nearly 100 years ago. (See Map 8-5.) Due to differences of materials from these periods, maintenance problems, settlement, and deteriorating structures flow capacity of these lines must be considered as less than would be calculated for new pipe of the same size. Consequently, lines theoretically calculated to be satisfactory may actually be capable of carrying considerably less flow. To overcome this problem, measurement of flows in major lines is urged to provide factual flow data on which to evaluate the capability of these lines to meet future flows from the growing urban area. Without such measurements, calculations of capacity have to be classified as "theoretical".

North Park Sanitary District. This district, together with the Crestview Sanitary District, provides sewer service for an estimated 5,900 persons living in Caledonia and the Village of Wind Point. Lines range from eight inches to 27 inches in size, draining to the treatment plant located in the vicinity of Four Mile Road and Erie Street. Crestview is tied into the North Park system by means of a force main on Charles Street. The North Park treatment plant, built in 1953 with a design capacity of 0.5 MGD was converted to activated sludge in 1965, and an additional 0.4 MGD capacity was added. The plant is now operating at its peak capacity of 0.9 MGD. The North Park sewage treatment plant discharges its effluent to Lake Michigan.

Capability: This system flowing to a treatment plant near Four Mile Road and Erie Street serves the North Park and Crestview Sanitary Districts, with a combined population in 1969 of an estimated 5,900 persons. Due to quite flat topography, which is interrupted by ditches and creeks flowing to Lake Michigan, the two systems require ten lift stations to compensate for elevation differences. These lift stations and accompanying force mains each place some restraint on the populations to be served by their individual capacities.

In almost all instances, sewage is lifted twice before reaching the treatment plant. Key lift stations are located at

Four and One-half Mile Road and Erie Street, and at Four Mile Road and Beacon Place. The first has two 900 GPM pumps and is estimated to have capacity to serve peak flows from approximately 1,300 homes. The second has two 500 GPM pumps and one 900 GPM pump and is estimated to be able to pump peak sewage flows from approximately 2,000 homes. Since all sewage entering the treatment plant is pumped in via these two key stations, present capacity of the system is limited not only by the size of the treatment plant but by the pumping capacities of these two key lift stations. These stations have the capacity to serve approximately 3,300 homes or an estimated 13,000 persons.

In 1969 average daily flow to the treatment plant was 0.86 MGD, while the peak flow reached 1.37 MGD. With the hydraulic design capacity being 0.90 MGD, it is apparent that the limits of the capacity of this plant have been reached. At the present time, average flow to the plant is 145 gallons per capita per day, a rather high figure for an area of a generally residential nature. While the two systems are less than 20 years old, it is probable that excessive infiltration accounts for his high per capita flow.

With two sizable areas at the northwest of these districts being considered for sewer service by the two districts, it is important to review the effects these additional areas and populations will exert on the key lift stations and on the treatment plant which is now at hydraulic design capacity. A brief study of the carrying capacity of the trunk lines flowing to these lift stations indicates that both are adequate for present conditions but the 18 inch line in Four Mile Road may require relief for peak flows if the present high per capita flows continue for the growing service area.

Sturtevant. The Village of Sturtevant maintains its own sewerage system which serves the 3,000 residents. Lines are generally eight inches in diameter with two collector lines of 10 inches through 18 inches in diameter discharging to the treatment plant in the northeast part of the village. Treatment is provided by a 0.4 MGD trickling filter-type plant located adjacent to the Chicago, Milwaukee, St. Paul and Pacific Railroad tracks on the eastern edge of the village. Flows have not exceeded 0.27 MGD, indicating that this plant still has some additional capacity. The treated effluent from this plant is discharged to the Pike River.

Capability: The sewer system serving the Village of Sturtevant collects sewage from approximately 40 percent of the land area within the village limits. The present population of about 3,000 is reported to be connected to this system which terminates at the sewage treatment plant at the east village boundary north of Durand Avenue. This plant has a design capacity of 0.40 MGD. Average and peak flows, however, are well below this figure, being 0.24 and 0.27 MGD, respectively. Under average conditions the daily per capita flow to this plant is 80 gallons. Apparently the newness of the system and the manner of line construction is such to preclude excessive amounts of groundwater infiltration to the system.

While this plant has adequate design capacity to serve the existing population, it will not be large enough to serve the undeveloped parts of the village which are expected to produce considerably more wastewater than the present average daily flow to the plant indicates. Industrial growth could materially affect the volumes of sewage that must be treated.

Most of the lines in Sturtevant are the minimum size (eight inches). The major trunk line to the plant, however, is an 18-inch diameter pipe. (See Map 8-4.) Based on Wisconsin design criteria for sanitary sewers and estimated per capita flow contributions, this line is estimated to have capacity to serve nearly 14,000 persons.

Caddy Vista. The Caddy Vista Sanitary District, serving a single subdivision (1,200 persons) on the northern edge of the Planning District, has the smallest sewer system in the Planning District. Less than a quarter section of land is served. All lines are eight inches in diameter leading to a 0.25 MGD trickling filter plant which discharges effluent to the Root River.

Capability: This system consisting entirely of eight-inch lines was designed primarily to serve one large subdivision. The average flow to the plant is 60,000 gallons per day, which equates to 50 gallons per capita. While this is a low figure, it is generally consistent with numerous studies of small communities having little or no commercial or industrial contribution to the sewer system. Caddy Vista has only one or two commercial operations, primarily of the retail variety, and thus a low sewage flow is to be expected.

Both average and peak flows (see Table 8-9) are well below the design capacity of the sewage treatment plant (0.25 MGD). This small trickling filter-type plant reportedly produces a satisfactory effluent but is nevertheless contributing suspended solids, BOD, phosphorus and nitrogen to the Root River.

Based on available system information, it is possible to serve approximately 2 to 2.5 times as many persons as are presently connected to this system. However, it should be noted that main lines are laid at grades less than present standards permit and as such may be subject to solids accumulation and reduction of capacity. The area of service of this system and the reserve remaining is so small that it

cannot be considered as providing for an appreciable growth in this part of the Planning District.

Proposed Expansions

Proposals have been made to extend sewer service to two large areas in the urbanizing portion of the Planning District. In Caledonia, a two square mile area north of the Root River on either side of Highway 31 is proposed to be connected to the 24-inch main presently terminating at Four Mile and Green Bay Roads. An adjacent area lying to the east would be connected to the North Park system. Total cost of these projects is estimated at about $470,000.

In Mt. Pleasant, a 24-inch main would be extended north of State Highway 20 to County Highway C in order to serve several subdivisions and in order to provide for expected development in those portions presently vacant or used for agriculture.

Existing and Potential Problems

Current sewer utility problems faced by the District may be divided into three areas: (1) inadequacy of sewage treatment, (2) soil conditions and attendant problems which limit use of on-site disposal systems in areas not served by sewers, and (3) inadequate capability of the existing system to serve expanding service areas and increasing numbers of people.

Four wastewater treatment plants are now in operation. They range in size from the very large Racine facility to the small trickling filter plant at Caddy Vista. Two of the systems, Racine and North Park, are operating at peak capacity. Evidence suggests that much of the water pollution along Lake Michigan and in the Root River can be traced to periodic inadequate treatment of sewage by the wastewater treatment plants.

Municipal wastewater treatment plants are the major source of surface water pollution within the Region at the present time. With but a few exceptions, these wastewater treatment plants were located, designed, and constructed on a largely uncoordinated, individual plant-by-plant basis, and the location of these plants evidence little consideration for rational urban service areas nor for sound spacing along the receiving streams in order to permit assimilation of the waste loadings without a serious deterioration in water quality levels.[10]

State and federal minimum standards for effluent discharged are being raised, necessitating a substantial improvement of the treatment provided. By 1972 all sewage will receive secondary treatment at the city plant, after completion of a $6.4 million expansion program. A program to remove phosphorus is also to be started as an advanced waste treatment step.

Until the City of Racine completes its program to separate storm and sanitary sewers or otherwise control the discharge of raw sewage to the lakes and rivers, some pollution of the lake and adjacent beaches after periods of heavy rainfall will be unavoidable. As storm water flow exceeds the capacity of the treatment plant, the excess is discharged into the river and lake through outfalls. In 1970, a large area of west Racine was separated and a major interceptor constructed. Remaining to be separated is the central portion of the city and several other older sections to the north and south. The State of Wisconsin has ordered the city to complete the job by July, 1977 at an estimated cost of $10,000,000. Possibly screening devices at the combined sewer outfalls could reduce pollution at a smaller cost than the amount required for separation.

The Lake Michigan Enforcement Conference, the Southeastern Wisconsin Regional Planning Commission, and the State of Wisconsin are advocating establishment of area-wide sewerage systems and have recommended a limitation on the haphazard construction of small package sewage treatment plants as a means of improving water quality. To this end, A Comprehensive Plan for the Root River Watershed proposes that the Caddy Vista treatment plant be connected to the Milwaukee Metropolitan Sewerage System. (See Figure 8-4.) Another recommendation of the Root River watershed plan that is applicable to the Planning District is to connect the Frank Pure Food Company plant at Franksville, which uses settling lagoons, to the City of Racine sewer system.

There are two other small package sewage treatment plants in the Planning District. These are a small activated sludge plant serving St. Bonaventure and a recently completed facility treating industrial waste at the J.I.Case Clausen Works. The latter was completed in 1969 at a cost of almost one million dollars, and is designed to treat three million gallons of foundry waste daily before it is discharged to Lake Michigan.

Problems of On-Site Disposal

Approximately 40 square miles of the Planning District's 101 square miles are within a city, village, or sewer utility district. In actuality, something less than 40 square miles is served since many parts of these governmental units are without sewers. Thus, approximately two-thirds of the Planning District must presently rely on some other means of sewage disposal.

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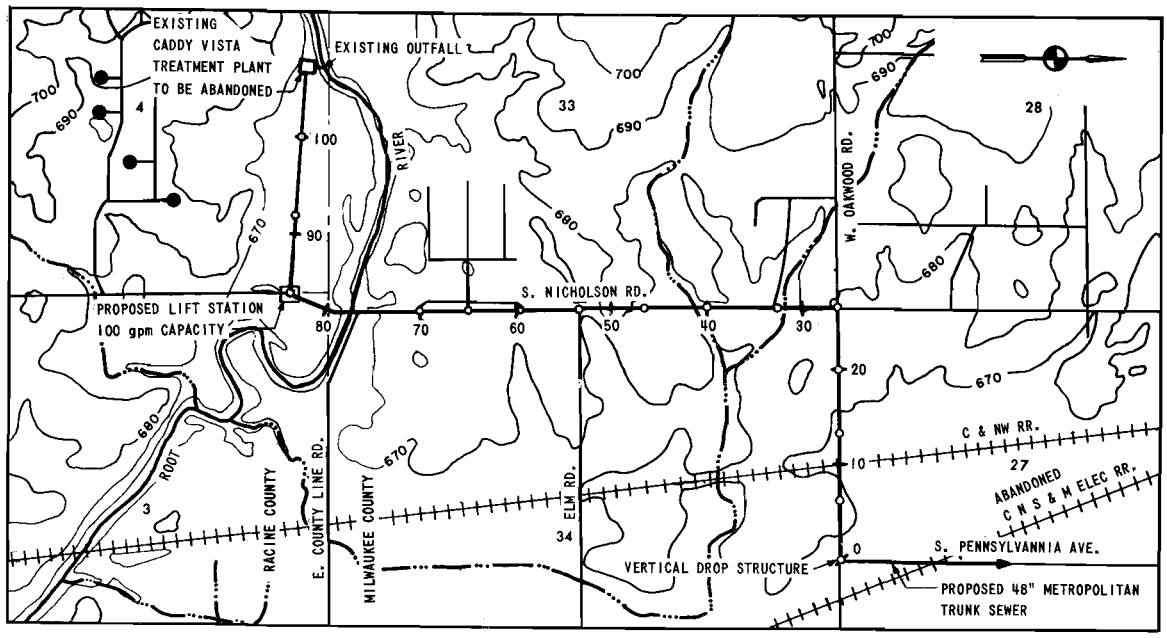
[10] *Southeastern Wisconsin Regional Planning Commission, Regional Sanitary Sewerage System Planning Program Prospectus, page 13.*

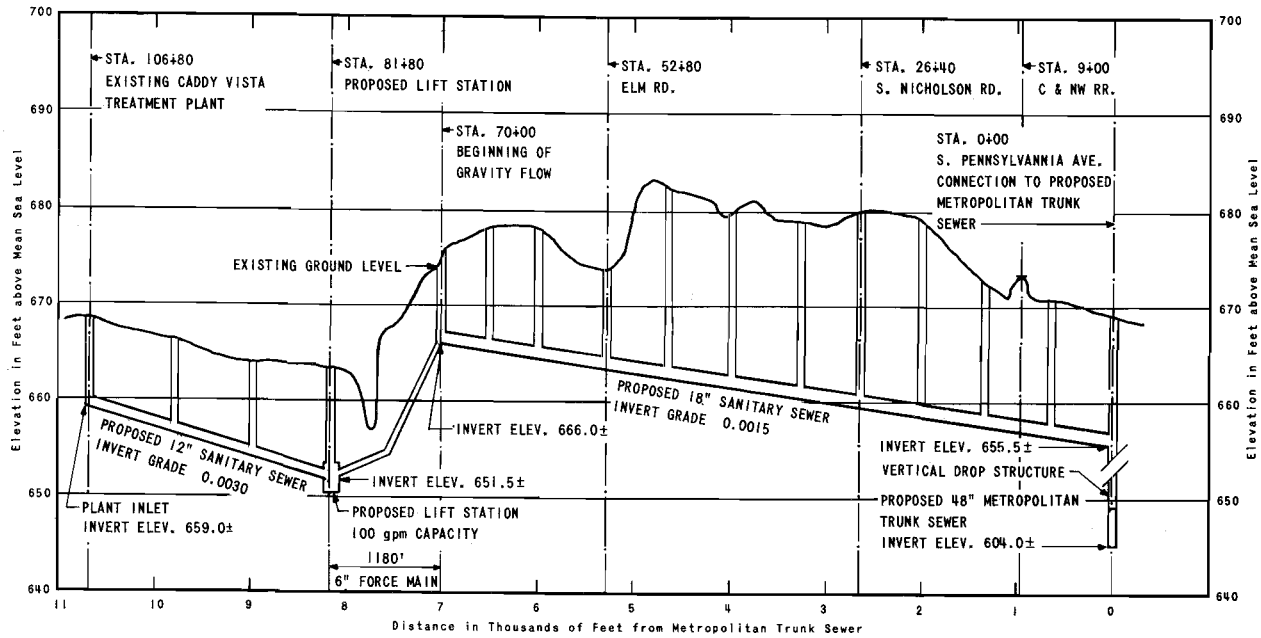
Figure 8-4

PROPOSED SEWER CONNECTION FROM CADDY VISTA TO MILWAUKEE METROPOLITAN SEWERAGE SYSTEM



PLAN

Scale: 1 Inch = 2000 Feet



PROFILE

Scale: Horizontal, 1 Inch = 2000 Feet
Vertical, 1 Inch = 20 Feet

NOTE: In absence of sanitary sewer system plan; plan and profile are intended only to indicate feasibily of connection using available existing rights-of-way. Actual connection should be designed as an integral part of sanitary sewer system plan for the city of Oak Creek.

International Great Lakes Datum (1955) = Mean Sea Level Datum (1929 Adjustment) - 1.3 feet.
Milwaukee Metropolitan Sewerage Commission Datum = Mean Sea Level Datum (1929 Adjustment) - 580.560.
Racine City Datum = Mean Sea Level Datum (1929 Adjustment) - 580.710.

SOURCE: Harza Engineering Company; SEWRPC.

In that portion of the Planning District not served by sewers, septic tanks and holding tanks have been resorted to by residential and business uses. As emphasized in Chapter IV, most of the undeveloped areas in eastern Racine County are underlain by soils with either severe or very severe limitations for on-site soil absorption sewage disposal systems, specifically because of their impermeability, moisture retention characteristics, and the high local water table. (See Map 4-2.) Failure to recognize this fact and adjust urban development to the ability of the underlying soils to sustain such development has resulted in the creation of innumerable problems of overflowing septic tanks with attendant widespread public health hazards, water pollution, obnoxious odors, and depreciation of property values. These problems are quite serious in several parts of the Planning District, most notably in the vicinity of Six Mile Road and Highways 31 and 32. The county has had to deny a number of proposed subdivisions in Caledonia and Mt. Pleasant that were planning to use on-site disposal systems because soil conditions were unsuitable for such development.

When isolated homes used septic tanks in the past, the spacing between dwellings kept malfunctioning systems from being a severe problem or nuisance to others, although spread of desease or contamination of ground water was still possible. However, as groupings of dwellings occur, as in subdivisions, the concentration of problems becomes acute. The cumulative effect can produce effluent flowing in roadside ditches, across one or more adjacent yards, into farm tiles, or into the shallow aquifers. Continued use could contaminate aquifers, infect livestock, and spread disease to humans. Children normally play in water and are not wise enough to know the difference when overland flows occur.

In addition to these problems, continuous saturation of soils can cause wet basements, soil slippage, nauseous odors, and breeding of mosquitoes, all of which materially reduce the value of individual homes and entire neighborhoods.

Health problems identified with unsatisfactory soil absorption systems include transmission of hepatitis, typhoid, enteric dysentary, and the breeding of mosquitoes carrying a form of sleeping sickness. In addition, contamination of wells for home or livestock have also occurred.

Percolation Tests

In 1969, the Wisconsin Administrative Code governing "percolation tests"[11] was rewritten and strengthened. Under this chapter, the former 90 minute maximum time for water to fall one inch in the test hole was reduced to 60 minutes. More importantly, septic tanks were excluded entirely from floodplains, from areas where the bottom of the soil absorption system is within three feet of high ground water or bedrock, and from areas with more than 20 percent slope. These regulations apply regardless of the size of development site, whether a 10,000 square foot lot or a 100 acre farm.

The regulations further specify that the percolation tests shall be performed by a licensed plumber or an engineer, architect, surveyor, or sanitarian registered in Wisconsin and such tests must also be approved by the municipal plumbing inspector. The presumed intent of more stringent percolation tests requirements is to preclude development in those areas identified as having severe or very severe limitations for on-site systems. (See Map 4-2.)

In addition to the strengthened percolation tests, other regulations of the State Division of Health impose further limitations on facilities proposing to utilize septic tanks for sewage disposal systems. These regulations, contained in Chapter H65, define lot area in relation to the percolation test permitting lots of 15,000 square feet where the water level drops one inch in two minutes and increasing lot size as the time to drop one inch increases. From the minimum size of 15,000 square feet, the lot area is enlarged to 40,000 square feet where the test takes 45 to 60 minutes for the water level to drop one inch.

This chapter also has requirements relating to flood water, ground water, bedrock, ground slope and other factors which limit use of septic tank installations. Pertinent portions of this chapter follow:

> H65.05 Elevation. (1) FLOOD WATER. Ninety percent of the minimum lot area of each lot shall be at least 2 feet above the highest known flood water elevation of any lake or stream affecting the subdivision, excepting when the highest flood frequency level has been established such shall be used. Where this is a factor, the plat shall show a contour 2 feet above such water elevation.
>
> (2) GROUND WATER. Eighty percent of the minimum lot area of each lot shall be at least 3 feet and 20% of the minimum lot area of each lot shall be at least 6 feet above the highest ground water level as estimated by the person certifying the soil boring test data. Estimates shall be subject to verification by a plat approving authority and the division. Verification shall include, but not be limited to, a morphological study of soil conditions with particular reference to soil color and sequence of

[11] *Chapter H62.20, Wisconsin Adminstrative Code.*

horizons. Where the natural soil condition has been altered by filling or other attempts to improve wet areas, verification may require observation of ground water levels under saturated soil conditions.

(3) BEDROCK. Eighty percent of the minimum lot area of each lot shall have at least 3 feet and 20% of the minimum lot area of each lot shall have at least 6 feet of soil cover over bedrock. Depth to bedrock shall be determined by adequate soil investigation and shall be subject to verification by the division.

(4) GROUND SLOPE. Fifty percent of the minimum lot area of each lot in the class indicated shall have ground slopes not exceeding the following:

Class	Slope
1	20%
2	15%
3	15%
4	10%

Areas containing ground slope exceeding the indicated percentage shall be accurately delineated on a subdivision plan by an engineer, architect or surveyor registered in Wisconsin and so certified to on the subdivision plan. Such information shall be submitted to the division for review and shall be subject to verification.

(5) CONTINUOUS AREA REQUIREMENT. In addition to complying with subsections (1) through (4), each lot shall have a continuous area equal to 20% of its minimum lot area which shall meet all of the following:

(a) Is at least 2 feet above the highest known or established flood water level.

(b) Is at least 6 feet above the highest ground water level.

(c) Has at least 6 feet of soil cover over bedrock.

(d) Has ground slopes not exceeding the percentages listed for its class in subsection (4).

In view of the very widespread adverse soil conditions for on-site disposal facilities, the use of septic tank or on-site disposal units should be discouraged and new developments should be connected to an approved sewer system.

Holding tanks are used by a number of commercial enterprises in the rural portion of the District, particularly along Interstate Highway 94. These tanks are large recepticals for wastewater which are pumped out at periodic intervals. At best, they serve as a temporary method of keeping waste from contaminating surrounding areas and must be considered as an interim arrangement while awaiting the extension of sanitary sewer lines.

Operating Efficiency

A review of the four treatment plants show all to be operated efficiently with the Racine facility being an extremely clean, well-run plant. This plant has the advantage of size and the availability of a staff of 24 trained personnel. The three other plants have only two men each, imposing limitations on what can be done by a few trained men. In cases of illness, inclement weather, or other mishap, considerable difficulty with maintenance schedules results. Such problems are difficult, if not impossible, to overcome for small systems.

Orders have been issued by the Wisconsin Department of Natural Resources, Division of Environmental Protection, for three of the operating sewage treatment plants. These orders may be summarized as follows:

City of Racine: (1) separate combined sewers by July, 1977; (2) remove 85 percent of phosphorus by 1972; and (3) adequately treat all waste tributary to the system by December, 1972.

Sturtevant: (1) improve the degree of sewage treatment in accordance with State Water Quality standards and recommendations of the Lake Michigan Enforcement Conference; and (2) include the continuous disinfectant of effluent.

Caddy Vista: (1) add a second trickling filter plant,[12] and (2) add disinfectant (chlorination) to effluent to kill pathogenic organisms.

North Park: No orders outstanding.

Wisconsin Water Quality Standards

Under the Federal Water Pollution Control Act of 1965, each state is required to adopt water quality standards and a plan for implementing them. Wisconsin water quality standards require the formulating, periodic updating and carrying out of long-range comprehensive plans to guide the

[12] *This order is in conflict with the proposed connection to this system to the Milwaukee Metropolitan System. See pages 204-205 of Comprehensive Plan for Root River Watershed, Southeastern Wisconsin Regional Planning Commission.*

development, management and protection of water resources. . . . . Statutes authorize issuance and adoption of rules with regard to available systems, and methods and means for preventing and abating water pollution.[13] These regulations apply to the surface waters of the state and establish minimum quality standards for public water supplies, for fish and other aquatic life, for recreation use, and for industrial and cooling purposes. In particular, limitations on debris, objectionable substances and toxic materials are outlined, together with standards for bacteria, dissolved solids and pH.[14]

The following standards are applicable where a surface water is classified for public water supply:

1. Bacteria: coliform number not to exceed 5,000 per 100 (millimeter) as a monthly arithmetic average value; nor exceed this value in more than 20 percent of the samples examined during any month; nor exceed 20,000 per 100 ml (millimeter) in more than five percent of the samples; counts to be "Most Probable Number" (MPN) or "Membrane Filter Coliform Counts" (MFCC).

2. Dissolved Solids: not to exceed 500 mg/l as a monthly average value, nor exceed 750 mg/l at any time.

3. pH: a range from 6.0 to 9.0 is permitted, except in waters naturally having a pH of less than 6.5 or higher than 8.5 where effluent discharges may not reduce the low value or increase the high value of the surface water's pH by more than 0.5 standard units.

4. The intake water supply will be such that by appropriate treatment and adequate safeguards it will meet the Public Health Service Drinking Water Standards, 1962.

5. Other: concentration of other constituents must not be hazardous to health.[15]

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[13] *Department of Natural Resources, Division of Environmental Protection, "Wisconsin Water Quality Standards".*

[14] *pH — A symbol denoting the concentration of the hydrogen ion in a solution used to express acidity or alkalinity. pH values range from 0 to 14 with 0 indicating the most acid, 14 the most alkaline and 7 neutrality.*

[15] *Department of Natural Resources, Division of Environmental Protection, "Wisconsin Water Quality Standards".*

Future Sanitary Sewer Volumes

With 83 percent of the present District population served by sanitary sewer systems in 1970, the per capita flow to the treatment plant was 216 gallons per day producing a total average flow of 23.9 million gallons daily (MGD). Forecasts of future sanitary sewer volumes are based upon the assumption that a greater percentage of the future population will be served, increasing to 86 percent by 1980 and 90 percent by 1990. (See Table 8-10.)

Per capita daily sewage volumes of 230 gallons in 1980 and 260 gallons in 1990 may be anticipated. This assumes that per capita sewer flows will equal per capita water consumption, a slight improvement from existing conditions. The average flow based upon these estimates will increase to 35.5 MGD by 1980 and 53.5 MGD by 1990.

In 1969 the peak flow was 1.72 times the average day. Assuming some lessening of this ratio to 1.50, due to the elimination of combined sewers, the peak day in 1980 would be 45 MGD, increasing to 67 MGD in 1990.

STORM DRAINAGE

Equally as important in the development of an urban area as water and sewage facilities is the provision of a storm drainage system to drain lots, streets and open areas and prevent flooding or ponding. Included in a storm drainage system are streets, pipes, ditches and natural streams. Each must be capable of carrying the drainage discharged to it if the system is to be in balance without areas of deficiency.

As roofs, streets, parking lots and other relatively impervious features replace open countryside, the hydrologic cycle is altered and the volume of storm runoff increases dramatically. Much of the rainfall that was absorbed by the soil of an agricultural area now runs on the impervious surface of the urban area, necessitating provisions to accommodate it in order to protect health and property.

Topographical Characteristics

The Planning District is flat to gently rolling, with somewhat steeper topography bordering the lower reaches of the Root River. The land generally slopes from west to east, with about 150 feet of elevation separating the highest western portions and the lowest areas along Lake Michigan. Due to the general flatness, the natural stream channels have low gradients and extensive areas are subject to flooding at periodic intervals. The principal drainage courses in the Planning District include the Root River with its two tributaries – Hood's and Husher Creeks – the Pike River and its tributary, Sorenson Creek, the Des Plaines drainage area in the southwestern corner of Mt. Pleasant,

Table 8-10

SANITARY SEWER VOLUME ESTIMATES: 1990

Year	Population			Average Flow to Plants	Gallons Per Capita Per Day
	Total	Percent Served	Total Served		
1970	133,000	83%	111,000	23.9 MGD	216
1980	179,000	86%	154,000	35.5 MGD	230 [a]
1990	224,000	90%	202,500	53.5 MGD	260 [a]

[a] *100% of Projected Water Use (See Table 8-5).*

and the strip of territory which drains directly into Lake Michigan.

Existing Facilities

Storm drainage facilities in the Planning District are provided by the City of Racine, Villages of Elmwood Park and Sturtevant, and the Hood's Creek and Mt. Pleasant drainage districts. Elsewhere, precipitation runoff is accommodated by natural drainageway system.

The City of Racine storm drainage system, part of which is combined with sanitary sewers in several older areas of the city, drains that area east of the "ridgeline" which is located a short distance west of and paralleling Green Bay Road. The system is underground, and, although much of it was constructed according to earlier engineering design standards, is generally adequate to accommodate storm water flows. Except for scattered, unserved areas, all of the city has storm sewers with drainage accomplished by means of a system of pipes ranging from 12 inches to 84 inches in diameter. Storm water is discharged into the Root River through 23 outfalls and into Lake Michigan by 10 additional outfalls.

The Village of Elmwood Park built an underground storm drainage system in the early 1960's which serves the residential and commercial properties in the village. The southwestern portion of the village drains into the Mt. Pleasant storm drainage system at Lathrop Avenue, while the northeastern portion drains into an open area of the village east of Taylor Avenue.

The Village of Sturtevant has built the major links in a strom drainage system which is anticipated to serve the entire village by 1975. The principal components of the system consist of 48 to 60 inch pipe, with tributary links to be installed over the next five years.

There are two active storm drainage districts in the Planning District, the Hood's Creek Drainage District and the Mt. Pleasant Storm Water Drainage District. (See Map 8-6.)

The Hood's Creek Drainage District was formed many years ago to drain the upper reaches of the stream watershed in order to make possible intensive agriculture operations. It has limited its activities to channel straightening and deepening along Hood's Creek and its tributaries in the absence of any substantial urbanization within its boundaries.

The Mt. Pleasant Storm Water Drainage District, formed in 1968, is an outgrowth of an agricultural drainage district originally formed in 1898. In the face of sizable industrial and residential growth, the need for a more effective means of handling drainage in the District became evident. Since early 1969, various projects to improve runoff collection have been undertaken.

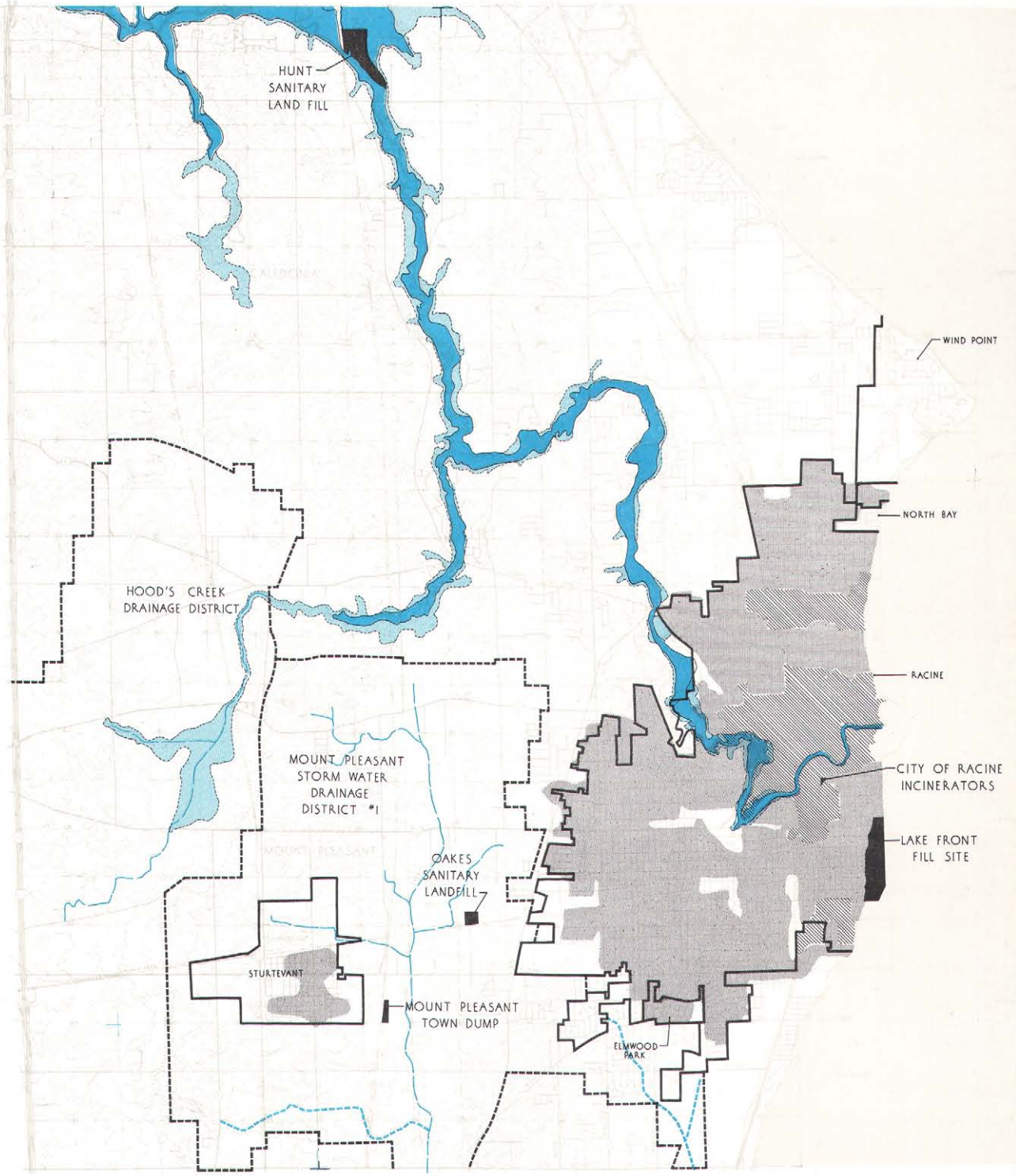
These projects have included cleaning and deepening Lamparek Ditch, installing a 56 inch underground storm sewer to drain from Sturtevant east to the Pike River, deepening parts of the Pike River north of State Trunk Highway 11, installation of a 60 inch storm sewer to drain the J.I. Case property, and a 54 inch line to drain the Welles Department store on Emmertson Road.

There are several inactive agricultural drainage districts in the Town of Caledonia. In the remainder of the Planning District, rural and suburban, drainage is accommodated by means of open ditches.

Existing and Potential Problems

Until the combined storm and sanitary sewer system present in some areas of Racine is separated, heavy rains will cause overflows in this system and raw sewage will be discharged into the lake. A program to separate all storm and sanitary sewers is currently planned for completion by 1977. With the completion of this program and the continued construction of storm drainage improvements in those small areas without drains, the city will be well provided with storm drainage. One possible exception would be if Racine-Horlick Airport was converted to some more intensive urban use than its present use which would

MAP 8-6



SOURCE: STORM WATER DRAINAGE DISTRICTS AND HARLAND BARTHOLOMEW & ASSOCIATES FIELD STUDIES

STORM DRAINAGE SYSTEMS
AND SOLID WASTE DISPOSAL SITES

appreciably increase storm runoff to existing storm sewers, possibly in excess of their capacities.

Although the complete separation of combined storm and sanitary sewers will remove one of the principal causes of Lake Michigan pollution in the Racine area, it is possible that at some time in the future storm drainage from the urban area will be so polluted by road salt, oil and other sources that some type of treatment may become necessary. This is not likely to happen during the planning period, i.e., the next 20 years.

In the remainder of the Planning District, rapid urbanization has created many problems which have been aggravated by the impermeable character of the heavy soils. After heavy rains, localized flooding and ponding occurs at many places. Numerous subdivisions relying on surface drainage have been built at densities too high to be without underground storm drains. In the developing area south of Crestview, canals to handle surface drainage have been included on the preliminary plats.

In the past, some construction has occurred within the flood plains and floodways of the Planning District, which construction impedes proper drainage. The 1969 Racine County Zoning Ordinance now precludes any residential development within the 100 year floodplain. As a result of this progressive provision, the floodlands can be kept unobstructed to handle storm waters without hindrance from inappropriately located man-made structures.

In the Mt. Pleasant Storm Water Drainage District, further industrial and residential development is expected to increase runoff from such urbanization to the extent that a substantial amount of improvement, including replacement of farm tiles with storm drainage systems will be necessary.

A similar situation exists in the Hood's Creek Drainage District where commercial and governmental development along IH-94 has overtaxed old farm tiles which were not designed to handle runoff of such magnitude. Ponding and polluted overflows occur at certain times of the year – most notably in the Franksville area and in the vicinity of IH-94 and STH 20 where a significant concentration of commercial uses are located. Outside of the City of Racine and Village of Elmwood Park and Sturtevant, storm drainage is accommodated by means of natural channels. Many channels classified as "improved" merely are natural low points that have been straightned and deepened. (See Map 8-6.) No lined or paved channels are included. Thus, it is not possible, except by extensive field surveys, to indicate elevations, grades or design capacity of such channels.

Future Requirements

The City of Racine with some possible exceptions is well provided with storm drainage and will be able to accommodate projected future growth. In the areas outside of Racine, however, the minimally developed storm drainage facilities will become increasingly unsatisfactory as urbanization and increased densities continue to occur.

Due to topographical characteristics and the relatively few natural ditches and watercourses of the area, it will no longer be possible to develop one tract at a time while ignoring storm drainage implications within the watershed. As a consequence, detailed engineering studies should be undertaken on a watershed basis before future subdivisions or industrial construction are started.

Drainage studies of all major creeks and waterways within the Planning District to determine the increased amount of runoff that will occur as areas urbanize would be most beneficial. This is most important to provide for the reservation of easements of adequate width along natural low points other than creeks. Such reservations can prevent building in these areas while detailed studies can determine in advance the size of channel or pipe that will be required.

Advance study of the waterways is of great importance to the arterial street network. The height, width and length of a bridge or culvert is determined by a combination of factors such as roadway location and type – as well as ditch size, channel velocity and volume of runoff to be carried. Lack of information on a watershed basis can result in inadequate, undersized structures or oversized, needlessly expensive structures. Arterial street planning and storm runoff systems require coordination to avoid constructing facilities that are not compatible. Otherwise, expensive changes may be required.

More extensive storm drainage improvements should be required as part of both residential and non-residential development activities. Subdivisions having lot sizes less than 20,000 square feet require more efficient drainage systems than ditches and, therefore, should incorporate a properly designed storm drainage system when built.

Areas set aside for industrial growth will require special consideration as modern plants include extensive paved areas that in sum total render much of their sites impermeable. Shopping centers must be studied in a similar manner as they too could seriously overload the minor waterways that exist, particularly in the eastern part of Racine County, unless advance planning has considered such development in the watershed.

SOLID WASTE DISPOSAL

Disposal of the growing volume of solid waste has become a national urban problem. Higher incomes and economic "advances" are producing large volumes of products and

materials which are discarded after use. There is a pronounced trend toward disposal rather than recycling, repair, or reuse of products. Packaging, in particular, has become increasingly elaborate and complex adding to the volume of waste produced by every household.

Disposal Methods

There are only a few principal methods of solid waste disposal presently used:

1. On-site disposal includes home incinerators, garbage disposals and burning. These have the advantage of reducing the amount of waste collected by the municipality but can create air pollution and other problems.

2. Open dumping is still widely found particularly in rural areas. This method presents health and other hazards and is an unsatisfactory means of solid waste disposal.

3. Incineration is burning waste in a specifically designed plant. It requires skilled operators and the incinerator must be well-located in order not to become objectionable. Ashes must be disposed of (usually as fill material). Noise and air pollution are problems associated with an incinerator operation.

4. Sanitary Landfill involves compacting and covering refuse on an open site and is an engineering refinement of the dump. This is generally an efficient and economical method of disposing of large volumes of solid waste where suitable low cost land is available and water pollution does not result.

5. Rail haul of material to areas suitable for filling has been proposed. Under this method solid waste is compressed and compacted while being loaded into special rail cars, hauled some distance and placed in areas to be filled such as large quarries, strip mines and other areas suitable for reclamation.

6. Crushing and Shredding. Other methods of special incineration, compaction and composting are being studied. In Madison, Wisconsin a shredding process is operational and has proved to be successful.

7. Recycling of Materials. This involves reclaiming and reusing materials such as glass, paper and building materials. This disposal technique is expected to increase in importance in the future.

Existing Facilities and Levels of Service

With a fleet of 28 trucks, the City of Racine provides bi-weekly collection service for its residents, one for burnable waste and the other for non-burnable material. In the remainder of the Planning District, refuse collection is contracted out to private haulers, two of which provide nearly all of the service with a combined fleet of nine trucks. Southeastern Trucking Company serves North Bay, Wind Point, and part of Caledonia, while Harlow, Inc. collects in Elmwood Park, Mt. Pleasant and Caledonia. (See Map 8-6.)

There are five solid waste disposal sites in the District. These are:

1. The City of Racine maintains an incinerator on a site between Sixth Street and Washington Avenue near the center of the city. The older portion built in 1930 and enlarged between 1944 and 1946 now has a design capacity of approximately 220 tons per day. The new portion, constructed between 1954 and 1958, has a design capacity of 120 tons per day. The effective capacity of this portion based upon eight hours of operation is 113 tons. The city disposes of its burnable wastes in the incinerator, which is operated by seven men.

2. The Racine Bulk Burning site is located next to the Wastewater Treatment Plant on the shore of Lake Michigan. It is used to dispose of old furniture, mattresses and trees, and is operated by one man. Ashes and residue are trucked from the site.

3. The Town of Mt. Pleasant maintains a 6.5 acre sanitary landfill site on State Highway 11, just east of the Chicago and Northwestern Railway which is used by town residents. This site dates from 1957 and is primarily used for non-burnable items. The site utilizes one full-time and one part-time employee, and a bulldozer is used for covering purposes. The town estimates that the dump can continue to be used until approximately 1975. The site is not licensed. An evaluation of the soils found at this site reveals that they have moderate limitations for sanitary landfill purposes. Major problems are the seasonably high water table and the imperfectly drained soils.

4. Hunts Disposal Site is an 83 acre private sanitary landfill located in the Town of Caledonia north of Seven Mile Road and east of the Root River. This acreage plus an adjacent 115 acres is being

considered for long-term landfill operations. Filling the total 198 acres to a depth of 25 feet is reported to provide sufficient site area for all waste expected to be generated by the District in the next 20 years. Waste from all jurisdictions in the Planning District, except Mt. Pleasant, is accepted at the site, plus waste from parts of Milwaukee County. This site is located within the ten-year floodplain, is subject to periodic flooding, and should be terminated as soon as possible.

The soils at the Hunt site have severe limitations for sanitary landfill purposes. The Lawson, Matherton, Sebewa, Wallkill and Warsaw loams are characterized by high water tables due to the proximity of the Root River and have little amelioration of leachate. In addition, portions of the site are subject to periodic flooding. This site is operated on an extension of the 1969 Caledonia license. The state has not issued a license.

5. The Oakes Sanitary Landfill lies to the west of Green Bay Road and north of the Chicago, Milwaukee, St. Paul and Pacific Railroad. Privately owned, the 38-acre site is being operated by the City of Racine with refuse coming from Racine and Mt. Pleasant. The land is being raised 10 feet and extensive adjacent areas are available to extend the fillable area, thereby increasing the capacity of the site. Soils at the Oakes site are similar to those at the Mt. Pleasant Sanitary Landfill and exhibit moderate limitations.

In 1968 the volume of waste generated in the Planning District was 1,554 pounds per capita. This figure is comparable with the national average of 1,420 pounds per capita. The principal source of waste is residential property, which produced 35.7 percent of the total, followed by industrial activity which accounted for 32.6 percent. Another 14.3 percent came from commercial use and miscellaneous sources, including demolition waste, bulk burn site residue, tree cuttings and municipal activities. In all, the District produced 4.15 cubic yards of waste per capita, or a total of 556,250 cubic yards weighing in excess of 100,000 tons. (See Table 8-11.)

Significant variations in the per capita volume of waste disposed exists among the seven municipalities within the Planning District. The City of Racine approximates the District average, Mt. Pleasant exceeds it by a substantial margin, and the villages and Caledonia produce relatively small amounts. The recent industrial growth in Mt. Pleasant accounts for nearly twice as much waste as the per capita District average. The villages and Caledonia, with less commerical and industrial activity than Racine or Mt. Pleasant, produce less waste per capita than the District as a whole or the national average.

Existing and Potential Problems

Substantial and growing problems are associated with the disposal of solid waste in the District. The annual volume of waste that must be collected and satisfactorily burned or placed in a landfill amounts to more than four cubic yards per capita. Population and industrial growth are expected to result in continuing increases in the volume of solid waste. Per capita volume, however, is rising as well. Precise figures on the rate of growth are not available, but a private hauler in the District has estimated that the volume of waste collected is increasing at a rate between 10 and 15 percent per year.

Present sites, which have limitations, cannot continue to be operated as they have in the past if this mountain of waste is to be disposed of within the Planning District.

One 6.5 foot deep layer over one acre of land includes 10,503 cubic yards of waste, which can be compacted to one-third of its original volume and disposed of in an acre of sanitary landfill.[16] At that rate, almost sixteen acres of land will be required each year in the District for sanitary landfills, assuming neither an increase in waste volume per capita nor in population. By creating sanitary landfills with several layers of thickness, their period of usefulness can be extended.

Many of the present landfill sites are of such size as to have filling capacity for only a limited number of years. In addition soils and ground water condition place moderate to severe limitations on all the present sites.

Due to generally adverse soil conditions for sanitary landfills throughout much of the Planning District, it may be very difficult or impossible to assemble sufficient land that is advantageously located to serve the growing population. In addition, adequate roads connecting the site and service area are important to reduce travel time from the customers to the filling area.

Equally important is the placement of the landfill on a site compatible with land use goals because landfill sites are generally unpopular neighbors, and due to the relatively few suitable sites available, deserve equal consideration in future land use allocations.

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16. *"Report on Solid Waste Disposal for the Unified Racine Area", Appendix 2.*

Table 8-11

SOLID WASTE: 1968

Solid Waste Type	Governmental Units							Total	Percent of Total
	Racine	Mt. Pleasant	Caledonia	Elmwood Park	North Bay	Wind Point	Sturtevant		
Residential	156,600 (2-3)	11,800 (2)	23,700 (1)	1,050 (1)	1,000 (1)	1,700 (1)	2,900 (1)	198,750	35.7
Commercial	74,400 (2-3)	1,350 (2)	–	–	–	100 (1)	3,850 (1)	79,700	14.3
Industrial	83,400 (2-3)	96,800 (2)	500 (1)	–	–	–	400 (1)	181,100	32.6
Bulk Burn	29,500 (4)	4,500 (4)	–	–	–	50 (4)	–	34,050	6.1
Misc. City Operations	38,500 (2-3)	–	–	–	–	–	–	38,500	6.9
Trees and Brush	3,900 (4)	–	–	–	–	–	–	3,900	0.7
Demolition Waste	10,250 (5)	10,000 (5)	–	–	–	–	–	20,250	3.7
Total Solid Waste	396,550	124,450	24,200	1,050	1,000	1,850	7,150	556,250	100.0
Population	94,000	15,000	16,000	500	300	1,400	3,000	130,200	
Cu. Yd./ Capita	4.21	8.29	1.51	2.10	3.33	1.32	2.38	4.27	

Note: Volumes shown are gross figures in cubic yards prior to compaction.

Figures in parentheses indicate disposal site used for this solid waste — (1) Hunt Site, (2) Oakes Site, (3) City Incinerator, (4) Bulky Burn, (5) Lake Land Fill.

Source: "Report on Solid Waste Disposal for the Unified Racine Area", City of Racine, 1970. Prepared as an intergovernmental report by seven municipalities in Racine County.

Report on Solid Waste Disposal for the Unified Racine Area

A committee comprised of representatives from the seven municipalities east of IH-94 in Racine County was formed to study the problems of solid waste disposal in the area. Its findings, published in a report prepared by the City of Racine Department of Public Works, recommend that the Oakes site be expanded to accommodate the solid waste generated by the seven municipalities in the next 30 years. In conjunction with this, the remaining sanitary landfill sites and the city incinerators would be phased out. The cost analysis concludes that sanitary landfill is far more economical than incineration as a means of disposing of waste.

Problems of Present Operations

Sanitary landfill is a method of disposing of refuse on land without creating nuisances or hazards to the public health or safety, but utilizing management principles to confine the refuse to the smallest practical volume and to cover it with a layer of earth at the conclusion of each day's operation, or at such more frequent intervals as may be necessary. However, a typical landfill operation quite frequently can be found utilizing one or more unsatisfactory procedures, such as

1. Refuse is not properly compacted and/or completely covered with a layer of dirt at the conclusion of the daily operation.
2. Open burning of some refuse may be practiced to reduce volume prior to compacting and covering.
3. Blowing paper is not controlled and picked up regularly.
4. Salvage operations are permitted and allowed to create unsightliness.
5. Provisions are not made to adequately control surface water drainage.
6. Improper design or operation allows ground water contamination.

7. The final two feet of cover material is not provided within a few weeks of completing the top refuse lift.

8. Access roads are not properly maintained.

9. Supervision is not provided to control and direct the land fill operation at all times the site is open to receive refuse.

One or more of these unsatisfactory procedures were observed at each of the present sites. Such practices lend support to those who object to sanitary landfills. Sanitary landfills should be operated correctly. Good operation not only accomplishes the goals of a sanitary landfill but prevents rats, insects and odors.

Requirements for Locating Sanitary Landfills

The Wisconsin Department of Natural Resources, Division of Environmental Protection, has established standards for locating sanitary landfill sites. These standards do not permit the establishment of a sanitary landfill within any of the following areas without conditional use permits:

1. Within 1,000 feet of any navigable lake, pond or flowage.

2. Within 300 feet of a navigable river or stream to the landward side of the floodplain, whichever distance is greater, when in an unincorporated municipality.

3. Within the floodplain of any watercourse within a city or village.

4. Within an area from which solid waste or leaching therefrom may be carried into any surface water.

5. Within an area from which leaching from solid waste may have a detrimental effect on ground water.

6. Within 1,000 feet of the nearest edge of the right-of-way of any state trunk highway or the boundary of a public park.[17]

Any deviations from, or exceptions to, these standards must be approved by the state, county and towns. In some instances county and town requirements are even more restrictive than those of the state. Each of the existing landfill operations is subject to at least one of the above noted limitations; however, all sites have been permitted to continue operations.

At this time, there are no outstanding state orders to the existing landfill operations to either improve or cease operations, however, letters of complaint are on file from both the state and county.

Solid Waste Disposal Site Requirements

Current trends in the amount of waste materials discarded annually indicate that per capita volumes have been increasing and will likely continue to increase. Continued industrial expansion will have a major influence on per capita volumes. In 1968 volumes per capita were 4.27 cubic yards. By 1980 this will likely increase to 4.50 cubic yards and by 1990 reach 5.0 cubic yards per capita, based upon assumed major industrial expansion.

Such increases would produce 6,785,000 cubic yards of solid waste from 1970 to 1980 and an additional 9,625,000 cubic yards from 1980 to 1990 for a total of 16,410,000 cubic yards of material over the 20 year period. Using a sanitary landfill method of disposal, this volume may be reduced to about one-third its original volume, resulting in a total compacted volume of 5,282,000 cubic yards for the 20 year planning period. Annual volumes to be disposed of, at an average volume of 4.75 cubic yards per capita, in a compacted state will be approximately 265,000 cubic yards per year. This waste will fill 183.5 acres to a depth of 20 feet which is a desirable maximum height commensurate with economical sanitary landfill operations. Naturally, a deep ravine site may permit greater depth.

In view of the relative flatness of much of the Planning District, a site of 200 acres is suggested to accommodate this volume of material. This area would provide adequate space for cover material, buffer areas, driveways, and on-site storage facilities of the equipment.

The location of sanitary landfill sites adequate to serve the Planning District until 1990, must take into consideration a number of factors. Among the more important are as follows:

1. Adequate soil type with sufficient amounts of soils for covering each day's operations.

2. Proper drainage including avoidance of floodplain areas. Geological investigation to prevent the possibility of ground water contamination is also necessary. (See "Requirements for Locating Sanitary Landfills".)

3. Accessibility for citizens and commercial haulers must be carefully reviewed as distant sites

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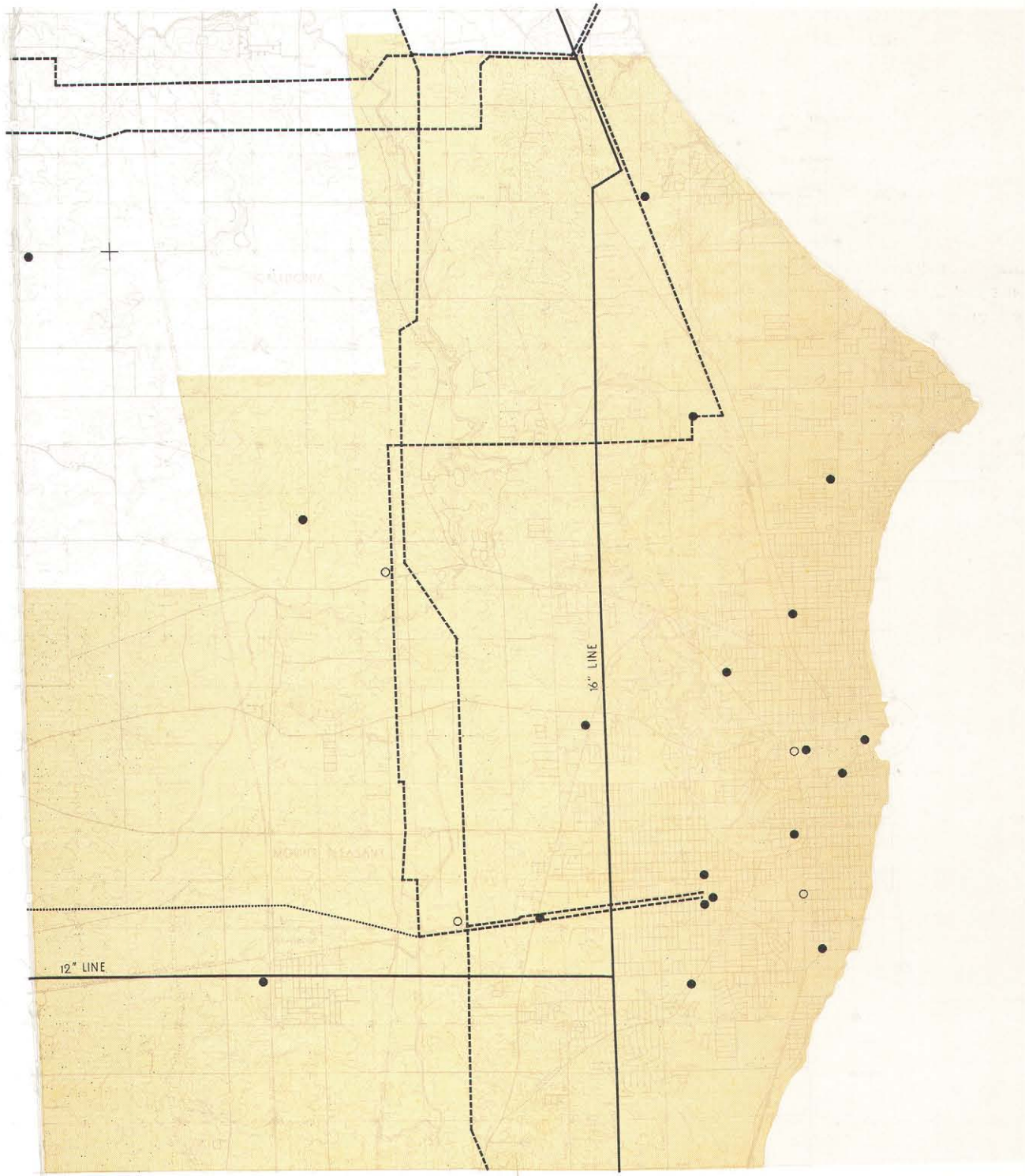
[17] *"State of Wisconsin — Solid Waste Disposal Standards", Department of Natural Resources, Division of Environmental Protection, page 8.*

MAP 8-7



AREA OF RACINE TELEPHONE EXCHANGE
MAJOR GAS TRANSMISSION LINE
ELECTRIC TRANSMISSION LINE 138 KV
PROPOSED ELECTRIC TRANSMISSION LINE
ELECTRIC SUBSTATION
PROPOSED ELECTRIC SUBSTATION

SOURCE: UTILITY COMPANIES WITHIN THE RACINE URBAN PLANNING DISTRICT.

TELEPHONE, GAS AND ELECTRIC UTILITIES

RACINE URBAN PLANNING DISTRICT

generate little use by the average householder and increase costs to the commercial hauler. To reduce travel time, two 100-acre sites may be more useful than one 200-acre site. Since most material will arrive in heavy trucks, structurally adequate highways leading to the site are also important.

4. Finally, present zoning and future land use designations must be considered if the site is to become an integral part of the comprehensive plan.

To adequately consider each of these factors and others, it is suggested that a detailed engineering evaluation to locate a site or sites meeting the needs of the Planning District be undertaken as soon as possible.

ELECTRIC SERVICE

Electric power is provided to the Racine Urban Planning District by the Wisconsin Electric Power Company. All major transmission lines carry 138KV. Most of the power consumed is generated at the Oak Creek power plant and several transmission lines from this plant to wide areas of southeastern Wisconsin cross Caledonia and Mt. Pleasant. (See Map 8-7.) An additional 138KV line is planned to connect the 345KV line west of IH-94 with existing electrical facilities in the Town of Mt. Pleasant. New transmission line towers are being built with double circuits so that additional lines can be added without obtaining new rights-of-way. Several new substations are planned to supplement the 19 located in the District.

The Wisconsin Electric Power Company is pursuing an active policy of placing underground as much of its system as possible. Many new subdivisions, including Aldebaren and Hood's Creek have been developed without unsightly overhead wiring. In the City of Racine, some existing above ground lines have been removed, most notably on North Main between North Bay and Three Mile Road. Similar improvements are being programmed.

GAS SERVICE

The primary service of natural gas to the Planning District is from the facilities of the Wisconsin Natural Gas Company. From the gas regulating station north of Kenosha, a 16-inch high pressure gas transmission line extends northward across the Planning District. A 12-inch line follows Highway 11 from IH-94 to Ohio Avenue where it intersects with the previously noted 16-inch line. (See Map 8-7.) No future expansion plans have been announced but service is extended as required.

TELEPHONE SERVICE

The Racine Urban Planning District is principally served by the Wisconsin Telephone Company's Racine exchange. The northwestern corner of the District is served by the Caledonia exchange, and a one-half to one-quarter mile strip just south of Oak Creek is part of the Milwaukee exchange. The main exchange building is located at 411 Seventh Street and was expanded in 1965 to provide additional space for offices and toll facilities. Additional offices are maintained in the Village of Sturtevant and at Four Mile Road and Charles Street. Current plans for 1971 call for completion of a new exchange facility on Meecham Road, one-quarter mile south of County Line Road in Kenosha County. The Parkside exchange will handle that portion of the Planning District south of Durand, part of Kenosha and the Town of Saners and the Parkside Campus of the University of Wisconsin. A total of 72,000 phones were operational in the Racine exchange as of February, 1970, or about 55 per 100 population. In the State of Wisconsin in 1966, there were 47.5 telephones per 100 population.

SUMMARY

With projected population of the Racine Planning District expected to increase by nearly 70 percent by 1990, it is obvious that sizable changes or additions to the utility systems will have to be made to accommodate the new homes, businesses, and industries.

For the water system, this will require extending and enlarging mains in the distribution system, adding elevated storage in some locations, and increasing the capacity of the major water treatment plant (Racine) presently supplying five out of every six residents in the District and nearly all of the industries. Present plans to increase the treatment capacity to 40 MGD are expected to provide only for the first ten years of the planning period (see Table 8-5), thus more detailed planning of the next additions should be initiated as soon as possible.

In view of the expanding service area, pressure and flow factors, and site limitations associated with one treatment facility, it may be necessary in the future to give consideration to a second large treatment facility in the District. While additional operating personnel would be required, the flexibility of operation, the reduction of "head loss" through long transmission lines, the improvement of pressure in some areas, and the stand-by capability in the event of malfunction at one location are important advantages to consider when planning increased treatment capability.

For the sanitary sewer system similar problems to the water system can be foreseen. First priority must be given to the separation of combined sewer flow, but expansion of an already overloaded plant must rank equally as high in need. Assuming that connections to the Racine system will

continue for the expected growth areas of the District, future daily volumes more than 2.2 times as large as present flows will be needing treatment by 1990.

Anticipated large daily flows will necessitate sizable expansion of the Racine treatment facility in the 1980's, as additions to the wastewater treatment plant currently planned will have sufficient capacity to serve expected population growth only to about 1982. In view of the time required to plan, design, finance and construct major additions to such facilities, preliminary planning for such plant enlargement should be initiated now.

If all wastewater treatment is concentrated at the location of the present Racine plant, several major lines conveying sanitary sewage to this plant will require replacement or improvement. Key lines to be improved or studied are the major trunk sewers shown on Map 8-4.

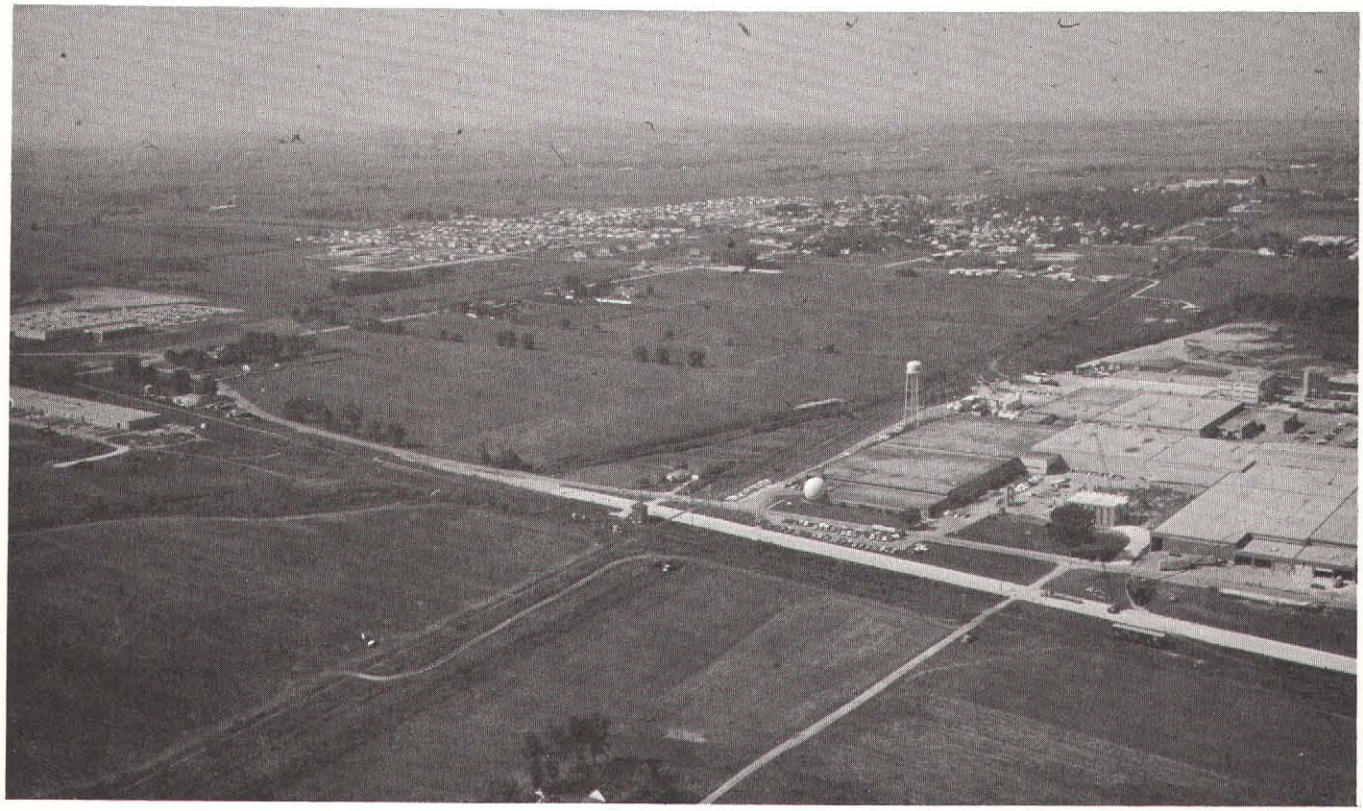
Present small systems should be connected to the major Racine system as a means of increasing overall wastewater treatment efficiency.

Logical expansion and interconnection of both water and sewer systems should be related to the agreements and controls existing between the several governmental units. An overall agreement between the governmental units establishing a uniform policy for these utilities should be agreed upon. Otherwise, an imbalance of residential growth or industry may occur and the most efficient and economical expansion of the water and sewer systems be prevented.

Storm drainage will create serious problems unless overall plans are made to improve existing channels, create new channels, and require adequate storm drainage systems in new developments. Lack of overall drainage planning can result in subdivisions or new industries blocking the logical location for collector channels or a major storm drainage trunk sewer.

In view of the relative flatness of much of the Planning District, the high water table in many portions, and the increasing urbanization expected, it is imperative to formulate plans for constructing or reserving waterways for collection of the storm water runoff ahead of urban growth so that new developments may be guided accordingly.

The volume of solid waste generated by each person is expected to continue to increase. This coupled with population growth would use up the present landfill sites long before the end of the planning period. Consequently, an additional site or sites should be acquired for the solid wastes generated within the District.



INDUSTRY – A LARGE WATER CONSUMER

Chapter IX

COMMUNITY FACILITIES

INTRODUCTION

As the Racine Urban Planning District continues to grow, additional community facilities which enable people to live together in an urban environment will have to be provided. These community facilities which include schools, parks and open spaces, library and cultural facilities, public administrative buildings, health care facilities, and police and fire protection, should be developed in accordance with uniform standards on a District-wide basis. These facilities, which are provided by the general and special purpose districts in the Planning District, are essential to the efficient operation of the local governmental units, and, in addition, constitute the framework of amenities which provide a measure of the standard of living available to District residents. The objective of the community facilities plan is to anticipate future District needs and plan for their development as growth occurs.

In this chapter, existing community facilities are evaluated in light of the degree to which they meet current requirements. Then, community facility needs to the year 1990 are projected on the basis of forecast population and economic growth, and a determination of additional facilities needed is made.

SCHOOLS

Increasingly, education is an activity which continues through the adult years, with people pursuing a wide variety of personal interests and enhancing skills through programs offered in schools. Education today serves all residents, not just those of school age, and school facilities have an increasingly important function within the framework of the community. The character of the community and the enjoyment of the full life within it is dependent upon the adequacy and quality of these services and facilities.

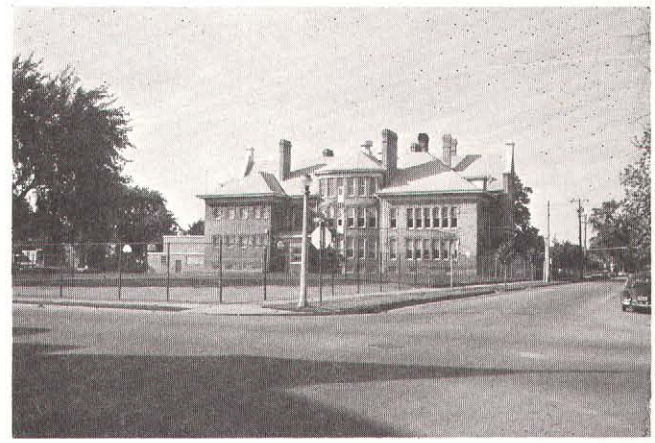
Public schools are one of the most important public facilities to be provided in the Planning District. The complexities of today's technological society demand well-educated and informed citizens. Not too long ago, a high school education was considered adequate to prepare a person for most careers. This is no longer true. Now high school graduation is a minimum level of educational attainment, and many young people go on to college and technical schools. Not only has the level of educational attainment changed in recent years, but the demands on schools have changed as well. Quality education today means a wide variety of courses, designed to meet both educational and occupational needs, and taught by highly educated professionals in modern flexible facilities – which can be adapted to the changing functions of education.

The planning study is interested primarily in the location and size of school sites rather than in details of organization or curricula. School facilities are quite permanent, some lasting more than a century. Long-range planning can substantially benefit a school system by improving relationships between the schools and the residential areas and by providing adequate sites before development takes place.

School Planning Principles

The following general principles should be followed in the long-range planning for the location and size of school sites:

Elementary schools in the Planning District include grades kindergarten through six. Enrollment may vary from 200 to 800 pupils per school with 25 to 30 students per classroom. The National Council on Schoolhouse Construction and the Elementary School Principals of the National Education Association and the Racine Education Association recommend that student interests can best be served with a maximum class size of 25 students. Schools that become too large create excessive demands for the use of general facilities such as the library, auditorium, gymnasium and cafeteria, unless these facilities are correspondingly expanded as the number of classrooms is increased. Schools that are too small have higher per-pupil cost.



ELEMENTARY SCHOOL

A typical design for elementary schools is to provide from one to four sections of seven classrooms providing for grades kindergarten through six. With an average enrollment of 25 to 30 students per grade, each section would have 175 to 210 pupils. Four sections would provide an enrollment of 700 to 840 pupils in 28 classrooms. The three-section school with an enrollment of 525 to 630 pupils and 21 classrooms is the standard currently followed in the Racine Unified School District. The three-section elementary school size generally corresponds to the elementary school size for low and medium density neighborhoods proposed in the SEWRPC Land Use-Transportation Study with 25 and 20 classrooms and an average of 688 and 540 pupils respectively.

Elementary school sites have a service radius of one-half mile in areas of medium and high population density. Elsewhere, spacing of facilities is necessarily greater. School sites should contain approximately ten acres plus an additional five to ten acres for an adjoining neighborhood park. This standard would require sites of between 15 and 20 acres for each combined school-neighborhood park site.

Junior High Schools. At the junior high school level, grades seven through nine, there is a national trend towards larger schools which can offer fuller educational programs. The National Education Association recommends an enrollment of 700 to 1,500 students for a junior high school, which is the standard currently followed in the Racine Unified School District. The population of each junior high school is drawn from three to four elementary schools. Junior high schools should serve the area within approximately one mile of the school in medium and high density areas. Because students at these schools have greater needs for active recreational facilities, a site of at least 15 acres plus an additional acre for each 100 students should be provided – a total site of about 30 acres.

Senior High Schools. The current standard for senior high school enrollment in the Unified School District is 2,200 students. Senior high school facilities serve a much wider area than the junior high school and because of the large size of these facilities and the special needs of faculty and students, accessibility of the school site is an important factor. The senior high school is a significant traffic generator and needs good access and ample parking facilities. Securing sites of sufficient size on arterial highways is an important consideration. A site of at least 25 acres plus one acre for each 100 pupils should be provided due to recreational requirements for playfields, spacious one or two-story building arrangements and the requirements for parking spaces. Senior high schools should serve a radius of two miles in medium and high density areas.

Interrelations. As a general principle, the elementary, junior and senior high schools have evolved in order that there may be specialized facilities for each age group. The learning process is enhanced when the groups are kept separate, although modern design concepts have provided sites for a "school campus", combining the three types of schools. While much of the school plant in the Planning District is already established, such arrangements of large complexes where all grades are taught, may be constructed in the planning period as student enrollments increase and outdated facilities are replaced. The advantages of the neighborhood elementary school, particularly in high and medium density areas should not, however, be disregarded. Sound land use development policies combined with the proper location and spacing of schools can bring about not only substantial savings in school transportation costs, but can also reduce the amount of time required for the home-school trip.

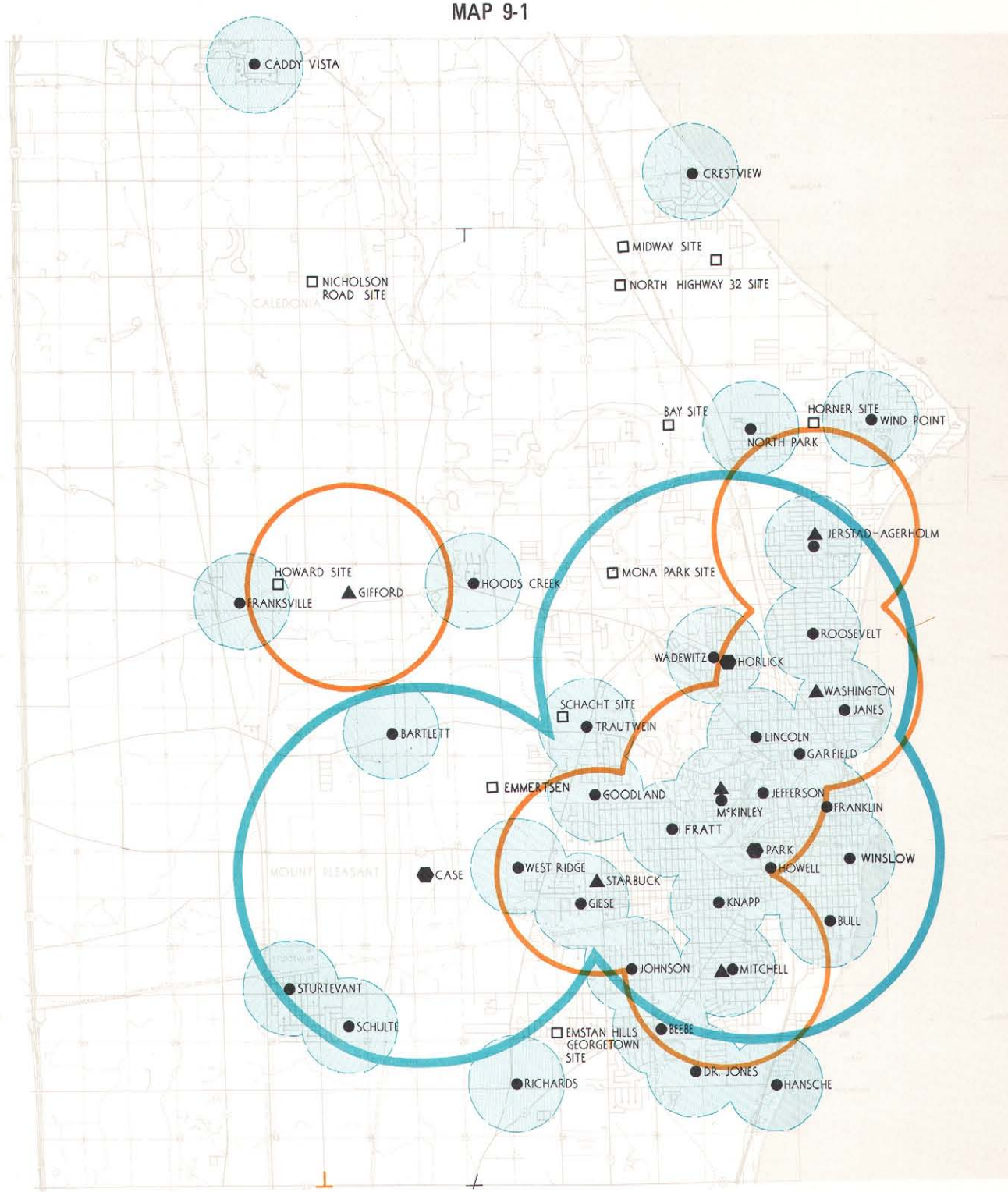
Existing School Facilities

Existing school facilities in the Planning District are the result of individual efforts of many school systems to provide for changing needs over several decades. The Unified School District, formed in 1961, combined the Racine School System with the 25 independent districts then located east of Interstate 94. Some older facilities designed at an earlier standard may not fully serve current educational needs. Experience has shown that school buildings generally require major rehabilitation after 40 years of operation and facilities over 60 years old should be carefully evaluated to determine if sufficient usefulness for economical operation remains. It was the need to provide additional and more comprehensive educational facilities for the area east of Interstate 94 that led to the unification of the school system. Since 1961, eleven smaller schools in outlying locations have been closed and seven large, new schools meeting modern standards constructed.

There are both public and private schools in the Planning District. In the 1969-70 school year a total of 38,500 public and private school students were enrolled in 32 public and 20 private elementary schools, nine public junior and senior high schools and three private high schools. (See Map 9-1.)

Public Schools. Six of the existing schools within the District were constructed prior to 1900 with the two oldest schools, Winslow and Janes, which are located in the City of Racine, having been established in 1856 and 1857, respectively. (See Appendix IX-A and Table 9-1.) Eight of the remaining elementary schools were constructed prior to 1920, making these schools more than 50 years old. Of the eight school buildings constructed in 1910 or earlier and still in regular use, all but two are located in the inner-city

MAP 9-1



ELEMENTARY SCHOOL
JR. HIGH SCHOOL
SR. HIGH SCHOOL
ONE HALF-MILE SERVICE RADIUS - ELEMENTARY
ONE-MILE SERVICE RADIUS - JR. HIGH
TWO-MILE SERVICE RADIUS - SR. HIGH
PROPOSED SCHOOL SITE

SOURCE: RACINE UNIFIED SCHOOL DISTRICT NO. 1 AND HARLAND BARTHOLOMEW & ASSOCIATES FIELD STUDIES

SCHOOLS

RACINE URBAN PLANNING DISTRICT

Table 9-1

INVENTORY OF PUBLIC SCHOOL FACILITIES – RACINE URBAN PLANNING DISTRICT

ELEMENTARY SCHOOLS

Name	Location	Area of Site (Acres)	Year Constructed	Regular Teaching Stations	Supplemental Rooms	Enrollment 1969-70	Students Per Classroom	Major Additions	Facilities A–K–L–M	Structural Conditions	Availability-Suitability For Non-Educational Functions	
Bartlett	7802 Spring	3.5	1930	9(270)	–	294	32.7	1968	K(H)	Good	Yes	Small Site/Poor Playground
Beebe	3554 Taylor Ave.	3.0	1928	4(120)	1	109	27.2	–	K(S)	Fair	Yes	Small Site and Old Buildings
Bull	815 DeKoven Ave.	2.7	1913	20(600)	–	510	25.5	–	L–M	Fair	Yes	Small Site/Well Maintained
Burbank	5419 Highway 31	1.5	1940	2(60)	1	(Closed)	–	1951	K(S)	Fair	No	Too Small – Abandon
Caddy Vista	10010 Duane Ct. (Cal.)	8.5	1956	15(450)	–	468	31.2	1966	K(S)–L–M	Good	Yes	Crowded School/Good Site
Crestview	7605 Lakeshore Dr.	3.9	1955	8(240)	–	360	45.0	1958	–	Fair	Yes	Building Overcrowded/Site Too Small
Franklin	1012 Center	1.9	1872	29(870)	4	610	21.0	1890, 1921	L–M	Good	Yes	Paved Recreation Areas
Franksville	10127 County Trunk K	2.2	1910	7(210)	–	308	42.8	1956, 1963	K(S)–M	Fair	Yes	Too Small/Overcrowded
Frett	3501 Kinzie Ave.	6.5	1915	28(840)	–	778	27.8	1925	L–M	Fair	Yes	Congested Site
Garfield	930 Milwaukee Ave.	2.6	1857	15(450)	–	301	20.1	1897, 1954	L–M	Fair	Yes	Small Site/Old Building
Giese	5120 Byrd Ave.	12.0	1965	22(660)	2	748	34.0	–	L–M	Excellent	Yes	Attractive School
Goodland	4800 Graceland	12.0	1962	22(660)	2	696	31.6	–	L–M	Excellent	Yes	Well Oriented to Neighborhood
Hansche	4214 Sheridan	6.2	1921	18(540)	1	453(+++)	25.2	1952, 1959	K(S)–L–M	Good	Yes	Old Main Building
Hood's Creek	6508 Northwestern	2.5	1900	5(150)	–	162	32.4	1954, 1958	K(H)	Fair	Yes	Old Building/Small Crowded Site
Howell	1734 Washington	5.3	1887	15(450)	–	434	28.9	1897, 1954	L(OS)–M	Poor	No	Conversion to Special Education
Janes	1425 N. Wisconsin	2.1	1857	22(660)	–	668	30.4	1897, 1958, 1967	L(OS)–M	Fair	Yes	Old Building & Additions/Small Site
Jefferson	1722 W. Sixth	3.0	1901	25(750)	1	509	20.4	1956, 1958, 1967	L–M	Fair/Good	Yes	Older Building/Small Site
Jerstad-Agerholm	3535 LaSalle	10.0	1951	27(810)	–	908	33.6	1963	A–L–M	Good	Yes	Combined School/Neighborhood Ct.
Johnson	2420 Kentucky	13.5	1955	28(840)	–	715	25.2	1960	A–L–M	Good	Yes	Site Needs Trees
Dr. Jones	3300 Chickory	24.2	1968	22(660)	2	737	33.5	–	K(S)–L–M	Excellent	Yes	Good Site
Knapp	2701 Seventeenth	8.0	1911	34(1020)	–	1,007	29.6	1925	L–M	Fair	Yes	Old Building/Fair Site
Lakeside	2317 Howe	1.1	1923	10(300)	–	(Closed)	–	–	K(S)–M	Fair	No	Old Building/Small Site
Lincoln	1840 State	2.0	1870	20(600)	–	578	28.9	1890, 1954	L(OS)–M	Fair	Possibly	Old Building/Small Site
McKinley	2326 Mohr	4.0	1921	11(330)	–	377	34.3	1951, 1956	L	Good	Yes	Steep Topography
Mitchell	2713 Drexel	4.0	1935	22(660)	–	676	30.7	1938, 1955	L–M	Good	Yes	Lighted Ball Diamond
North Park	4748 Elizabeth	8.1	1952	21(630)	–	739	35.2	1958, 1965	K(S)–L–M	Good	Yes	Neighborhood Center
Rapids	3516 Rapids Dr.	2.5	1903	4(120)	–	(Closed)	–	1954	K(S)	–	–	–
Richards	6108 Braun	7.2	1930	7(210)	–	190	27.1	1955, 1967	K(S)–L	Good	Yes	Good Site
Roosevelt	915 Romayne	3.9	1925	21(630)	1	772	36.8	1929, 1954, 1967	L–M	Fair	Yes	Crowded Facility
Schulte	8515 Westminster (Stur.)	15.0	1968	22(660)	–	698	31.7	–	K(S)–L–M	Excellent	Yes	High Quality Facility
Sturtevant	Racine Ave. (Stur.)	1.5	1926	12(360)	–	307	25.6	1953, 1958	K(S)–L–M	Good	Yes	Site Too Small
Trautwein	1318 N. Green Bay	2.2	1912	7(210)	–	277	39.6	1928, 1951, 1954	K(S)	Fair	Yes	Small/Overcrowded/Temporary Units
Tucker	County Route "C"	1.2	1920	2(60)	–	(Closed)	–	1956	–	–	–	–
Wadewitz	2700 Yout	10.0	1958	28(840)(++)	3(+)	758	27.1	1963	A–K–L–M	Good	Yes	Shares Site W/ Horlick High
Westridge	1347 S. Emmertsen	15.6	1961	13(390)	–	421	32.4	1965	K(S)–L–M	Good	Yes	Good Site/Needs Landscaping
Wind Point	4834 N. Main	8.7	1957	18(340)	–	623	34.6	1959, 1967	K(H)–L–M	Good	Yes	Good Site/Needs Trees
Winslow	1325 Park Ave.	1.3	1856	13(390)	–	300	23.1	1897, 1954	L–M	Fair	Yes	Paved Courtyard/Small Site

JUNIOR HIGH SCHOOLS

Name	Location	Area of Site (Acres)	Year Constructed	Enrollment 1969-70	Students Per Classroom	Academic Rooms	Science	Industrial Arts	Home Economics	Business Ed.	Art	Chorus	Band	Physical Ed.	Library	Cafeteria	Auditorium	Audio Visual	Structural Conditions	Availability-Suitability For Non-Educational Functions
Gifford	8332 Northwestern	23.4	1967	1,447	37.1	22	4	4	2	1	2	1	1	2(x)	1	1	1	1	Excellent	Yes
Jerstad-Agerhold	3601 LaSalle	10.6	1960	1,400	41.2	19	3	3	2	1	2	1	1	2(x)	1	1	–	–	Good	Yes
McKinley	2326 Mohr	5.6	1921	809	27.9	15	3	3	2	1	2	1	1	1	1	–	–	–	Good	Yes
Mitchell	2701 Drexel	6.2	1935	958	28.2	20	3	3	2	1	2	1	1	1(x)	1	–	–	–	Good	Yes
Starbuck	1516 Ohio	17.2	1961	1,450	38.2	23	3	3	2	1	2	1	1	2(x)	1	1	1	–	Excellent	Yes
Washington	914 St. Patrick	2.6	1872/1921	1,021	21.7	30	3	5	2	1	3	1	1	1	1	–	–	–	Fair	Yes

SENIOR HIGH SCHOOLS

Name	Location	Area of Site (Acres)	Year Constructed	Enrollment 1969-70	Students Per Classroom	Academic Rooms	Science	Industrial Arts	Home Economics	Business Ed.	Art	Chorus	Band	Physical Ed.	Library	Cafeteria	Auditorium	Audio Visual	Structural Conditions	Availability-Suitability For Non-Educational Functions
Case	7345 Washington Ave.	70.0	1968	2,406	30.8	47	6	6	3	7	4	1	1	3(xx)	1	1	1	2	Excellent	Yes
Horlick	2119 Rapids Dr.	20.3	1928/1965	2,332	35.9	34	6	6	3	6	3	1	1	5(xx)	1	1	1	2	Good	Yes
Park	1901 Twelfth	12.6	1927/1969	1,576	30.3	26	5	6	3	5	3	1	1	2	1	1	–	–	Good	Yes

SCHOOL SITES

Name	Area of Site	Name	Area of Site	Name	Area of Site	Name	Area of Site
Emstad	16.0 Acres	Midway	31.8 Acres	Mona Park	25.3 Acres	Woiteshek	40.9 Acres
Emmertsen	29.9 Acres	Highway 32	15.0 Acres	Schacht	47.2 Acres	Smerchek	50.7 Acres
Howard	20.0 Acres	Erie	21.4 Acres	Bell	20.4 Acres	Harris	13.9 Acres
Nickerson	12.0 Acres	N. Green Bay	12.0 Acres	Spring Meadows	34.0 Acres	Total	390.5 Acres

NOTES:

– Schools Closed
A – Auditorium
G – Gymnasium
AG – Auditorium-Gymnasium Combined
K – Kitchen/Cafeteria
(H) Classroom Used as Lunchroom
(S) Multi-purpose Room Used for Lunchroom
L – Library
M – Multi-purpose or Physical Education

(+) – Orthopedic Therapy Rooms
(++) – Five Orthopedic Rooms
(+++) – Follow Through Students for 1968-69 (224) are included at Hanche
(x) – Facilities Divisible
(xx) – Case has seven teaching stations within the three facilities Horlick has ten teaching stations within the five facilities
– Schools which should be replaced in the planning period
– Schools to be terminated

Source: Racine Unified School District No. 1 and Harland Bartholomew and Associates field studies, 1969-1970

of Racine. Each of these schools has been remodeled and added to with more modern construction. All of the older schools, however, are on sites which are much too small. Twelve schools have been built since 1950 and five of these have been constructed since the school systems were unified in 1961. All of the schools constructed since 1950 follow the general standards discussed earlier. The older schools constitute the major problem which the school district now faces. In addition to their age and site inadequacies, these buildings exhibit structural characteristics which render them less adaptable to modern teaching techniques, less efficient in operation, and more difficult to provide with modern safety features.

Of the nine junior and senior high schools, four have initial construction which is at least 50 years old, although there have been frequent modifications and major additions. The Washington Junior High School, with a student enrollment of approximately 900, is located on a site with less than three acres, with original construction dating back to 1872.

Table 9-2

INVENTORY OF PRIVATE SCHOOL FACILITIES – RACINE URBAN PLANNING DISTRICT

ELEMENTARY, JUNIOR, AND SENIOR HIGH SCHOOLS			Area of Site (Acres)	Year Constructed	Regular Teaching Stations	Supplemental Rooms	Enrollment 1969-70	Students Per Classroom	Major Additions	Structural Conditions	Availability-Suitability For Non-Educational Functions
Name	Location	Grades									
Epiphany Lutheran	2917 Olive	K–6	0.5	1928	3	2	44	15	1953	Fair	Yes
First Evangelical	734 Villa	K–8	2.0	1909	3	M	72	24	1956	Fair	No
Holy Cross Lutheran	3350 Lathrop	1–8	2.7	1961	5	1	135	27	1962	Good	Yes
Holy Name	1510 Villa	1–8	1.25	1955	11	L–K	336	30	–	Good	Yes
Holy Trinity	2015 Franklin	1–8	3.2	1947	8	L	190	23	1952	Fair	Yes
Lutheran High	251 Levatke	9–12	3.2	1951	14	AG–L–K	324	23	–	Good	Yes
Prairie	4050 Lighthouse	K–11	35.5	1965	30	G–L–K–A	320	10	1966-1970	Excellent	Yes
Racine Christian	912 Virginia	1–9	2.0	1955	5	L	97	19	1969	Good	Yes
Sacred Heart	2023 Northwestern	1–8	4.0	1957	9	–	275	32	–	Good	Yes
St. Bonaventure High	County Trunk H (Stur.)	9–12	29.5	1906	10	G–L–K–A	176	17	1930-1964	Good	Yes
St. Catherine's High	1200 Park	9–12	2.0	1924	45	6	1,109	24	1948	Fair	Yes
St. Edward's	1435 Grove	1–8	1.3	1927	16	L	576	36	–		Yes
St. John Nepomuk	1923 Green	1–8	1.2	1912	16	L	507	31	–		Yes
St. John's Lutheran	510 Kewaunee	K–8	1.0	1965	10	G–L–K–M	320	32	–	Excellent	Yes
St. John's Lutheran	12417 7½ Mile Rd. (Cal.)	K–8	1.7	1887-1954	3	–	82	27	1954 (APP)	Fair	No
St. Joseph	1526 N. Wisconsin	1–8	0.25	1929	10	L–K–G	250	25	–	Fair	Yes
St. Louis (Graded)	13125 Highway G (Cal.)	1–8	3.0	1957-1959	8	L	225	28	–	Good	No
St. Mary's	806 Wisconsin Ave.	1–8	–	N/A	–	(Closed)					
St. Patrick's	1109 Douglas	1–8	–	N/A	–			(Now Leased to Unified School District)			
St. Rita's	4433 Douglas	1–8	8.0	1957	16	L–K–G	537	33	1966	Good	Yes
St. Rose	1032 Grand	–	4.1	N/A				(Now Leased to Unified School District)			Yes
St. Sebastians	9525 Racine (Stur.)	1–8	10.3	1957	8	L	249	31	–	Good	Yes
St. Stanislaus	1740 Grand	1–8	1.1	1907	8	L	139	17	1955	Fair	Yes
Trinity Lutheran	2065 Geneva	K–8	1.5	1960	8	K–G	207	25	–	Good	No
Trinity Lutheran	7937 Nicholson (Cal.)	1–8	9.0	1951	6	L–M	181	30	1962	Fair	Yes
St. Lucy's (Graded)	2035 Drexel	1–8	4.4	1960	8	L	280	35			Yes

NOTES:

– *Schools Closed*
A – *Auditorium*
G – *Gymnasium*
AG – *Auditorium-Gymnasium Combined*
K – *Kitchen/Cafeteria*
(H) Classroom Used as Lunchroom
(S) Multi-purpose Room Used for Lunchroom
L – *Library*
M – *Multi-purpose or Physical Education*

Source: Interviews and Mail Questionnaire, Various School Administrators, Harland Bartholomew and Associates Field Studies, 1970.

In the 1969-70 school year, 16 of the 32 elementary schools exceeded the upper limit of 30 students per classroom. Approximately half of these schools exceeded 35 students per classroom and two schools, Franksville and Crestview, had very serious overcrowding with 43 and 45 students per classroom respectively.

In 1969, four of the nine junior and senior high schools had more than 35 students per academic classroom. (See Table 9-1.) The most seriously overcrowded conditions were found at the following schools:

Elementary Schools:	Crestview	North Park
	Franksville	Roosevelt
	Giese	Trautewein
	McKinley	Wind Point
Junior High Schools:	Gifford	Starbuck
	Jerstad	Washington
Senior High Schools:	Horlick	

Last year the overall District pupil-teacher ratio was 19 in the inner-city schools and 27 in the outlying area schools. Housing construction and mobility patterns affect enrollments. Continuing population shifts within the District have resulted in lower enrollments at some elementary schools in older neighborhoods, together with crowded conditions in outlying areas, necessitating frequent adjustments in school service areas.

In the central portion of the community, it will be expensive to enlarge existing school sites because of the high costs of land and existing improvements.

Private Schools. There are 20 private elementary schools and three private high schools in the Planning District. Six of the private schools have kindergarten classes and grade divisions at the various schools range from K-6 to 1-9. (See Table 9-2.) The three high schools offer facilities for grades 9 through 12. Most of these facilities are operated in accordance with the same standards used by the Unified School District. Enrollment at private schools is declining and there is no serious overcrowding. Enrollment per classroom ranges from 15 to 35 students.

The quality of these facilities is generally good, although the sites of many of the older schools are too small. Enrollment in private schools ranges from a low of 44 students to a high of 1,109.

School Enrollment[1]

Since the unification of the school systems in 1961, public school enrollment has increased from 21,333 to 31,535 students in 1969-70, a 48 percent increase. During this period, private school enrollments have decreased from 9,033 to 6,968 students, a decrease of 23 percent. The net increase in students during this nine-year period was 8,137, an average of 900 new students being added each year. (See Appendix IX-B.)

Total school enrollment in the Planning District increased at a rate of approximately five percent per year from the 1961-1962 school year to 1964-1965. In the next three-year period, through the 1967-1968 school year, the increase in total school enrollment diminished to an average of about 2.2 percent per year. The rate of growth experienced between 1967-1968 and 1968-1969 decreased to 1.3 percent, and in the last academic year, 1969-1970, total school enrollments in the Planning District increased by only one-half of one percent. (See Appendix IX-C.)

Increases in public school enrollment by grade division indicate that major growth has been occurring at all levels of secondary education; the most substantial increases have occurred at the junior and senior high school levels. (See Table 9-3.)

Table 9-3

ELEMENTARY AND SECONDARY ENROLLMENT INCREASES
Racine Unified School District No. 1

Grade Divisions	1958-59	1969-70	1958-59 1969-70 Numerical Increase
K-6	11,499	17,491	5,992
7-9	3,344	7,088	3,744
10-12	2,607	6,330	3,723
Special Education	237	626	389

Source: Racine County School Office and Unified School District No. 1, 1958-59—1969-70.

In the past twelve years, public school enrollments at the elementary level (K-6) have increased by 52 percent; at the junior high level (grades 7-9) by 112 percent; and at the senior high school level (grades 10-12) by 143 percent.

Estimated Future Enrollment

School enrollments in both the public and private schools in the Planning District will be influenced by a number of important factors, including: (1) population growth (in-migration over out-migration and net natural increase of births over deaths) through the planning period; (2) aging of the population; and (3) the downward trend of the number of students being educated in private schools. Population forecasts adopted for the planning program indicate a 1990 population of 224,000 persons for the Planning District.

By assuming a constant level of future absolute change per unit of time between 1971 and 1990, an annual increase in population of 4,550 persons is produced. Natural increase will account for a growing proportion of the annual increase, 1,520 persons in 1971 and 2,690 persons by 1990. By leveling off annual fluctuations, this type forecast appears to indicate that in-migration will be more important as a factor in net population increase in the early part of the planning period. Actually, the reverse may occur, with economic forces producing greater in-migration in the middle or end of the planning period. However, this forecasting method, based on a target population figure, provides a reasonable estimate of how large the future population will be at a given time.

The student population may then be derived through the application of an average of known ratios: (1) for students as a percentage of total population; and (2) public school enrollment as a percentage of total enrollment. Throughout this process various assumptions based on an evaluation of past trends and estimates of the future are made.

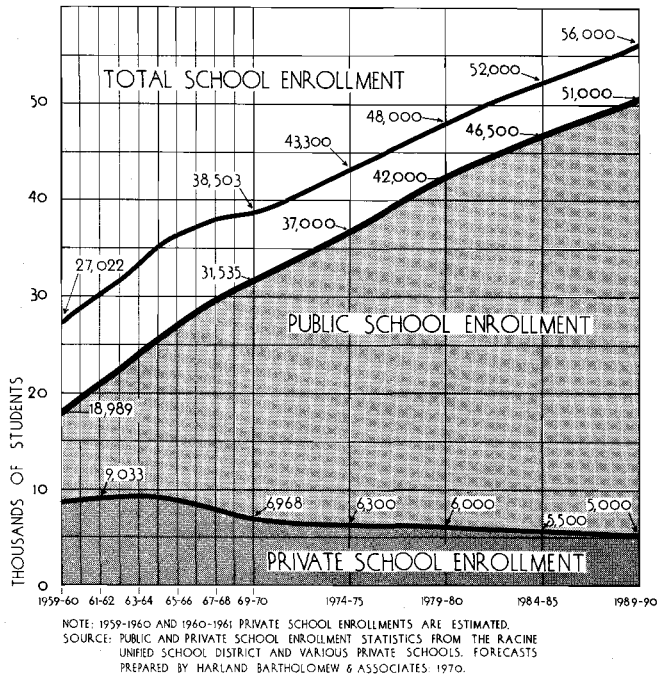
Forecast assumptions are that students will remain a fairly constant part of the total population. In 1960-1961 total student enrollments were 25.1 percent of the District's population. By 1970 this had increased to 28.9 percent. This increase was caused by the relatively high birth rate in the 1960-1965 period. It is likely that the total student population will begin to decrease in the next five years proportionate to decreases noted in the birth rate between 1965 and 1970. Through the planning period the ratio of students to total population is estimated to be a declining percentage, decreasing by 0.2 percent per year from 28.9 in 1970 to 25.0 in 1990, comparable to the ratio noted in 1960. Applying this percentage to forecast population figures produces an increase in total school enrollment from 38,503 students in 1970 to 56,000 students in 1990. (See Figure 9-1.)

Public school enrollments accounted for 70 percent of total school enrollments in 1961-1962 school year. By 1969-1970 this ratio increased to 82 percent of total school enrollments. Private schools lost 2,065 students, presumably to the public schools, during this period. Continuing declines appear to be likely, however, the rate of decline decreased in 1969-1970 after a six-year period of uninterrupted annual increase in the rate of decrease (e.g. minus 0.3 in 1963-1964 to minus 6.8 in the 1968-1969

[1] *In this report, enrollment is that of the second week of school.*

Figure 9-1

SCHOOL ENROLLMENT FORECAST – 1970-1990



NOTE: 1959-1960 AND 1960-1961 PRIVATE SCHOOL ENROLLMENTS ARE ESTIMATED.
SOURCE: PUBLIC AND PRIVATE SCHOOL ENROLLMENT STATISTICS FROM THE RACINE UNIFIED SCHOOL DISTRICT AND VARIOUS PRIVATE SCHOOLS. FORECASTS PREPARED BY HARLAND BARTHOLOMEW & ASSOCIATES. 1970.

school year). In estimating what these relationships may be in the future, there are two extremes: (1) existing ratios could remain the same at 82 percent public school enrollment (an unlikely assumption since this would mean enrollment increases for private schools which have declined in enrollment for the last seven years); and (2) all or most of the private schools would close placing almost all of the school-age population in public schools. (This also appears unlikely since many people feel that religious education should be a part of general education and others have preference for private schools.) Probable future enrollment relationships between public and private schools will rest at a mid-point between the extremes cited above, at 9.0 percent of total enrollment or about 5,000 students by 1990.

Based on the 1990 forecast of a total school enrollment of 56,000, it is estimated that 51,000 will attend public schools and 5,000 will attend private schools.

Analysis of past enrollments by grade division shows considerable fluctuations reflecting high birth rates in the late 1950's and early 1960's. As these students move through the grades, relationships between academic levels (elementary, junior, and senior) fluctuate widely, by as much as 10 percent. The average percentage distribution of total enrollments by academic level provides the following forecast of 1990 student enrollments:

Academic Level	Percent of 1990 Public School Enrollment*	Forecast Enrollment
Elementary	57.0	29,070
Junior High	23.0	11,730
Senior High	20.0	10,250
Total	100.0	51,000

*Estimated at 51,000 students.

School Facilities Required

Standards currently being utilized in the construction of schools at the elementary, junior, and senior high levels when divided into the forecast student enrollments, will produce an estimate of the number of schools required in 1990. Schools which are not expected to remain in operation are then subtracted from the number of existing schools. This results in the following number of schools to serve the estimated future student population:

	Academic Level		
	Elementary	Junior High	Senior High
Students Per School Standard	630	1,500	2,200
Total Schools Required	46	8	5
Existing Schools to Remain	24[a]	5	3
Schools to be Added	22	3	2
Classrooms to be Added	660	90	60

[a]*Eight of the 32 existing public elementary schools will be either replaced (four schools) or closed (four schools) by 1990.*

At the present time, there are 32 elementary schools, six junior high schools, and three senior high schools in operation and owned by the Unified School District. In 1969 the school system closed four old schools and converted one to special education facilities. (See Table 9-1.) In 1970 two private schools, St. Rose and St. Patrick's were closed and have subsequently been leased to the Unified School District for the 1970-1971 school year. The school district has also recently leased space in the old Hamilton Beach industrial complex. These facilities now serve as an instructional materials center.

Eight elementary schools and one junior high school have major deficiencies. They are more than 60 years old or

located on a small site or both. Enrollments in most of these elementary schools are small, well below the present more efficient standard of 525 to 630 students. At Washington Junior High School, serious overcrowded conditions exist with 1,000 students in an old building on a 2.6 acre site. This junior high school should be replaced. Four of the elementary schools should be replaced and four should be terminated and sold during the planning period. (See Table 9-1.) This results in 24 of the existing elementary schools being classified as capable of providing adequate facilities for educational purposes in the planning period. With an estimated need for 46 schools and only 24 existing schools being adequate, 22 new schools or their equivalent space will be needed.

At the elementary school level, eight existing schools have major deficiencies of age and small sites. Four of these schools should be closed and the sites sold and four should be replaced. (See Table 9-1.) Of the 32 elementary schools in the system, 24 will survive until the year 1990. Current standards (based on three section schools) show an estimated need for 22 new elementary schools in the planning period. Four of these would be replacement facilities on existing sites, leaving 18 schools to be added at new locations.

All but one of the six existing junior high schools, Washington School, will survive until 1990. Eight schools are estimated to be needed, based on the students per school standards shown above. Three new schools will be needed during the planning period.

The three existing senior high schools will remain in operation during the planning period. Forecasts indicate a need for five senior high schools, requiring the addition of two senior high schools.

This presents a major challenge for the future. While major efforts have been extended to make older school facilities useful and a productive part of the school system, 11 schools, particularly at the elementary level, are being operated below current standards. The number of 22 new elementary schools which are needed may be reduced by: (1) raising the standard of students per elementary school to four sections which would raise the number of students per school from 630 to about 800, thereby reducing the number of new schools to be added to 12. However, the equivalent classroom space would need to be added to existing schools; and (2) incorporating private school facilities into the system on a lease-purchase program, spreading the cost of acquiring facilities over an extended period.

Other Educational Facilities

The Racine Technical Institute, located in city-owned buildings in the central part of the urban area, provides a complete program of technical training. The Institute was established in 1911. City operated until 1967, RTI has been incorporated into the Wisconsin technical school system as the Vocational, Technical and Adult Education District No. 7 with boundaries including all of Racine County except the Norway-Muskego School District. The Institute has purchased the buildings of the University of Wisconsin branch campus in East Park with occupancy in 1972. Current plans call for additional buildings and an expanded campus bounded by South Main Street and Lake Avenue on the west, 8th Street on the north, 12th Street on the south, and Lake Michigan on the east. The 1970 enrollment is 1,300 full-time and about 9,200 part-time students. The 1980 enrollment projections made by RTI call for between 14,640 and 19,650 full and part-time students.

Dominican College, located on a lakefront site north of Wind Point, was established in 1946 as a four-year college and accredited in 1962. The present campus was opened in 1960 and includes an administrative and academic center, residence hall facilities for 550 students, and a campus center building. Enrollment in the 1969-1970 academic year was 625. Beginning with the 1970-1971 school year, Mount St. Paul College in Waukesha has been moved to the Dominican campus which will mean higher enrollments and more efficient use of facilities.

The new Parkside Campus of the University of Wisconsin (located in Kenosha County) provides a four-year curriculum. This campus anticipates an ultimate enrollment of 25,000 students on a 700 acre site. Parkside has the potential of serving the District as a commuter campus, being located within a 30 minute drive from all parts of the Planning District. Enrollment in the 1969-1970 academic year was 2,911.

PARKS AND OPEN SPACE

In an urbanizing region, open space should serve three primary purposes. First, it should lend form to development by shaping urban growth and providing a desirable setting for the more intensive types of urban land uses. Second, it should serve to protect outdoor recreational opportunities for the District population. And third, it should be utilized to conserve and enhance the natural resource base and to protect certain important community values. When properly related to woodlands, wetlands, and prime wildlife habitat areas, open space can be used to conserve soils, fish and game, and certain species of trees and plants, and to improve surface and ground water quality and quantity. Open space may also be used to protect sites having scenic, historic, or scientific value.

In a manner similar to the educational facilities, outdoor recreation is an element of the full life that should be

recognized as a necessity – not a luxury. Provision of public space for recreation brings valuable economic consequences in addition to the social benefits. For example, a park increases the value of surrounding property. But immediate land values are not the only economic effect. In the on-going competition for business and industry, the relative amenities of community living, of which outdoor recreation is such an important part, can be deciding factors.

Preservation of open space either for recreation or conservation has a beneficial effect on a community's water and drainage program because if the community does a good job in setting aside land for recreation, it usually will be also conserving the most important part of a drainage network – floodplains, wetlands, lake shores, and stream valleys.

The comprehensive plan is concerned with the location, size and adaptability of sites for parks and recreational uses. It is important that sites for these facilities be obtained in advance of need – before land in developing areas becomes scarce and expensive.

With a wealth of excellent recreational facilities and opportunities offering exceptional social and economic benefits, the Planning District is in an unusual position to provide for the recreation needs of the community. There should be close coordination between the various public bodies which have the responsibility for providing parks and recreation areas. School and parklands have a direct relationship one with another, particularly at the neighborhood level. School and park facilities influence the land use pattern and location of various public facilities.

The physical setting of the Racine Urban Planning District and the recreational interests of the population are important considerations in selecting the location of parks and in determining the type of recreational facilities to be provided. The topography of the District provides many interesting opportunities for various forms of recreation in both the winter and summer months as well as opportunities for preserving large areas of scenic and natural beauty.

The local role in park and open space development is to acquire, develop and maintain parks and to administer public recreation programs that will serve the needs of an urban area including the local, close-at-hand neighborhood parks.

Types of Recreation Areas

This report deals with the needs of the Planning District for public outdoor recreation areas. These areas vary in size from three or four city lots being used as a softball field and children's playground to large public reservations with boating, camping, hunting, and golfing facilities. The areas can be classified as between those providing for community activities (serving the entire community) and those providing for local neighborhood activities. (See Table 9-4.)

Most community activities require a regional park. These parks, selected for their topography or physical advantages, usually contain 200 acres or more. Locations on lakes and rivers are especially desirable as are areas containing rugged topography and heavily wooded sections. Some of the large parks might be developed as special use parks with golf courses or other special recreational facilities such as a zoo, but the major part of the large park should be maintained in its natural state to afford opportunities for picnicking, walking, camping, horseback riding, water sports, pleasure driving, and various types of passive recreation. Some of these are located within the urban area and are called large urban parks.

In addition to these facilities there are special use areas such as scenic routes (roadways on which vehicular traffic is restricted to passenger vehicles and which afford access to some feature of exceptional scenic merit, such as woods, water areas, or historic sites) providing for the most popular outdoor recreation activity – pleasure driving and conservation areas. These are among the most neglected of our public facilities, although their need has been recognized for more than 50 years. Fortunately, nation-wide and state-wide systems of scenic drives and extensive conservation areas are being established. The scenic routes should preferably be on new roads, but often existing county roads and lakeside drives can be landscaped and utilized in part to develop a scenic drive system.[2] These may extend through conservation areas.

Children's playgrounds, gymnasiums, swimming pools, hiking trails, basketball and tennis courts, ice skating and roller skating areas and baseball fields should be provided in neighborhood parks. These neighborhood parks of at least five to ten acres, should be located within one-half mile of every residence in developed urban areas, but farther apart in rural areas. Because the neighborhood parks serve the same areas as the elementary school and provide many of the same recreational facilities, it is desirable for parks and schools to be joined and the improvement of both areas coordinated. This neighborhood "park-school" should provide year-round indoor and outdoor education and recreation activities. By using both the school building and

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[2] *A system of scenic roads has been proposed for Wisconsin, one route of which starts in the northwestern corner of the Planning District. See "A Proposed Program for Scenic Roads and Parkways", President's Council on Recreation and Natural Beauty, 1966, p. 246.*

Table 9-4

STANDARDS FOR RECREATION AREAS
As Recommended by the City and County Parks Departments
And the Southeastern Wisconsin Regional Planning Commission

Type of Facility	Jurisdiction	Service Area	Service Radius	Size (Acres Per 1,000 Population)			SEWRPC Park and Recreation Land Standards
				Active Recreation	Passive Recreation	Total	
Neighborhood Recreation	City, Village and Towns	Neighborhood	Walking distance not to exceed one-half mile	1.25	1.25	2.5	10.0 Acres Per 1,000 Additional Population
Community Recreation	City, Village and Towns	Two or more neighborhoods	Multi-neighborhoods	1.25	1.25	2.5	
Large Urban Parks	City and County	Urban Area	Urban Area	–	–	5.0	
Extra-Urban[a] Parks	County	Metro Area	Within one hour driving time	–	–	15.0	Regional 4.0 Acres Per 1,000 Additional Population
Environmental Corridors[b]	County and Local Unit of Government	Metro Area	Metro Area	Environmental corridors, the components of which are (1) lakes, rivers and streams, together with their natural floodplains; (2) wetlands; (3) forests and woodlands; (4) wildlife habitat areas; (5) rough topography; (6) significant geological formations; and (7) wet or poorly drained soils, are unequally distributed throughout the District and Region. Approximately 18 percent of the total area of the Region is occupied by environmental corridors.			
Totals						25.0	14.0 Acres Per 1,000 Additional Population

[a] *Regional Parks and Conservation areas are considered to be 'extra-urban".*

[b] *Environmental corridors for the Racine Area and Southeastern Wisconsin are outlined in Recommended Regional Land Use and Transportation Plans — 1990, Volume Three, Southeastern Wisconsin Regional Planning Commission, 1966.*

Note: This table is from "Open Space for Racine", Racine Plan Commission, 1967. These standards are followed by the Racine County Parks Department with General Area Standards Added: "Racine County Parks Comprehensive Plan".

Source: National Recreation and Park Association, "Outdoor Recreation Space Standards" — 1965; Wisconsin Conservation Department, 1965.

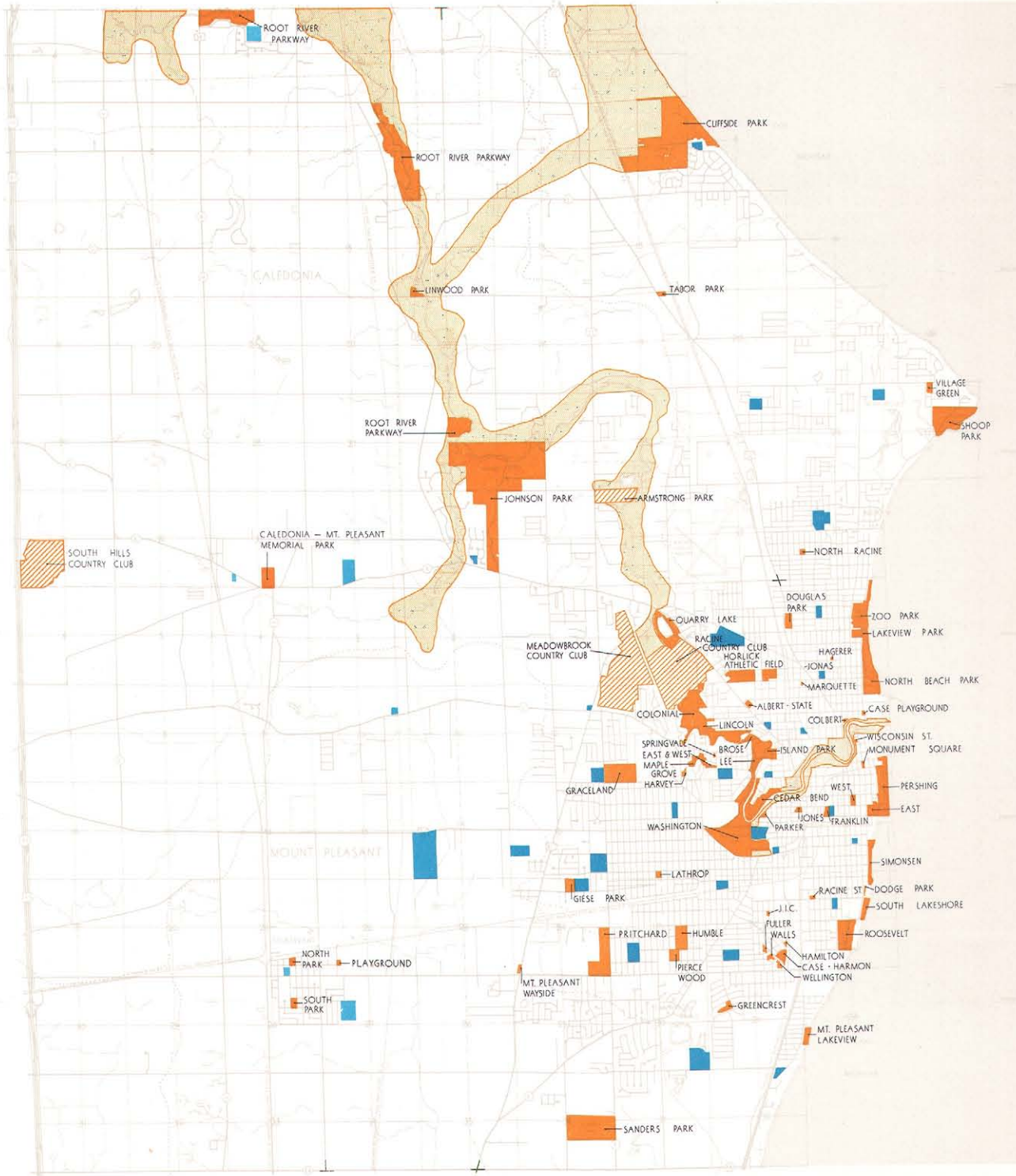
park area year-round, better play facilities and recreational opportunities can be provided for the entire neighborhood.

Existing Parks

There are 1,499.6 acres of parklands and 189.2 acres of playfields and playgrounds at public school sites in the Planning District for a total of 1,680 acres providing areas for a wide variety of recreational opportunities. (See Table 9-5 and Map 9-2.)

Regional Parks. Three parks, containing 702 acres, are classified in this category due to their size, facilities offered and present development. Cliffside Park with a spectacular location along Lake Michigan is largely undeveloped at this time. This park is heavily wooded and offers spectacular lake views from the bluffs and beach. Johnson Park is the largest park in the Planning District, with a location on the Root River which will serve as a regional park on the Root River Parkway. This park contains many recreation facilities including an 18-hole golf course, picnicking areas, woodlands, nature areas and a variety of field and court game areas. Root River Parkway lands are now being acquired to preseve open space along the river and to protect the floodplain as part of a large green belt parkway

MAP 9-2



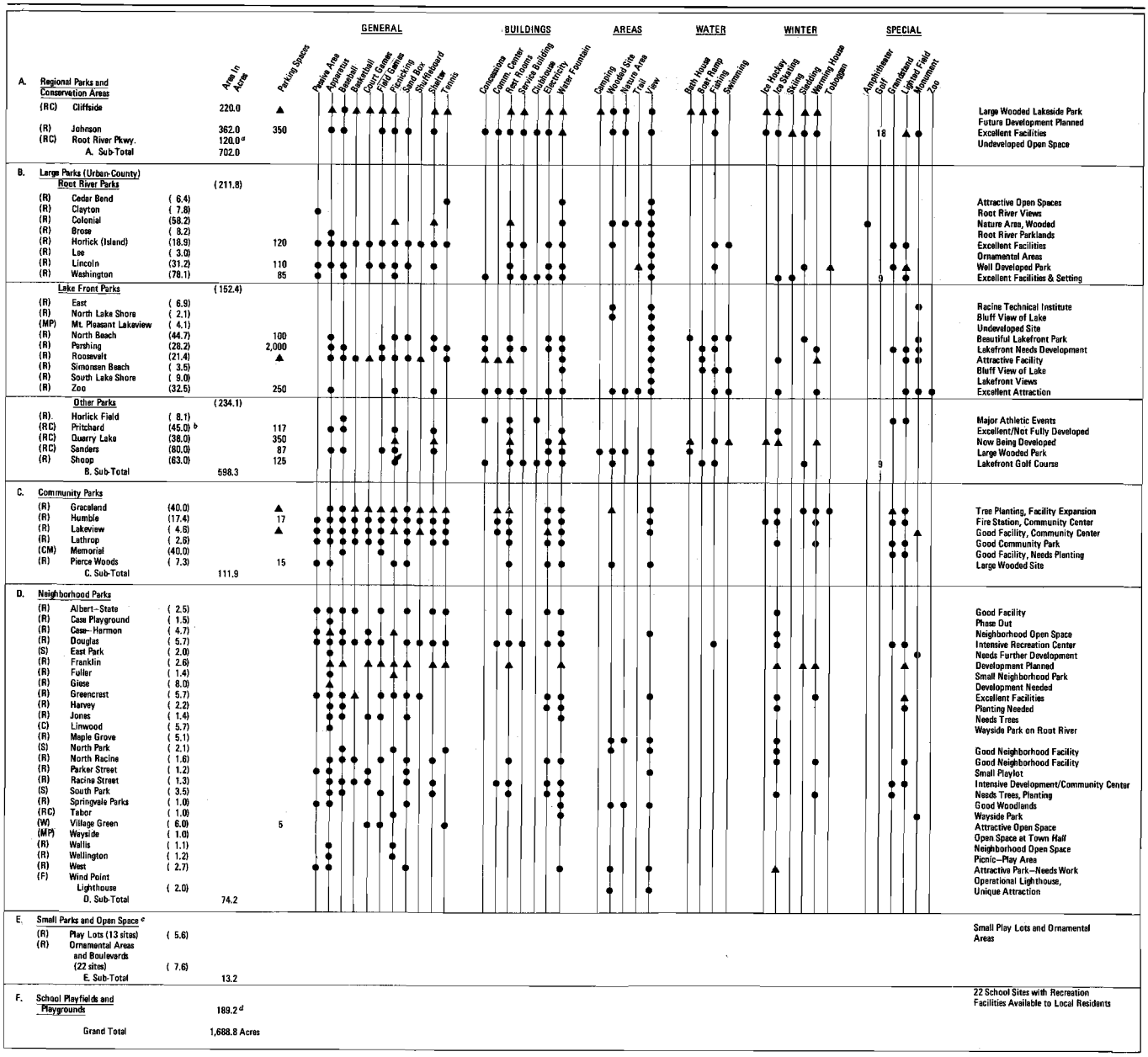
SOURCE: SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION AND HARLAND BARTHOLOMEW & ASSOC. FIELD STUDIES

PARKS, RECREATION AND ENVIRONMENTAL CORRIDORS

RACINE URBAN PLANNING DISTRICT

Table 9-5

INVENTORY OF PARKS AND RECREATION FACILITIES: 1970



Code: *Each ● represents existing facilities.*
Each ▲ stands for improvement planned.
Otherwise, facilities are not present.

Ownership Code:
(RC) — Racine County
(R) — City of Racine
(C) — Caledonia
(M) — Mt. Pleasant
(S) — Sturtevant
(W) — Wind Point
(F) — Federal Lands

[a] *Parklands along the Root River north of Caddy Vista Subdivision are owned by the Milwaukee County Park System. This area (33.4 acres) is adjacent to parklands in Milwaukee County and will be a part of the completed Root River Parkway.*

[b] *An additional 55 acres of land adjacent to Pritchard Park are owned by Racine County and will be used for park expansion.*

[c] *Small parks and open space include 35 small sites, of which only two sites have areas of more than one acre. These facilities have only limited recreational capacity and are primarily ornamental in character.*

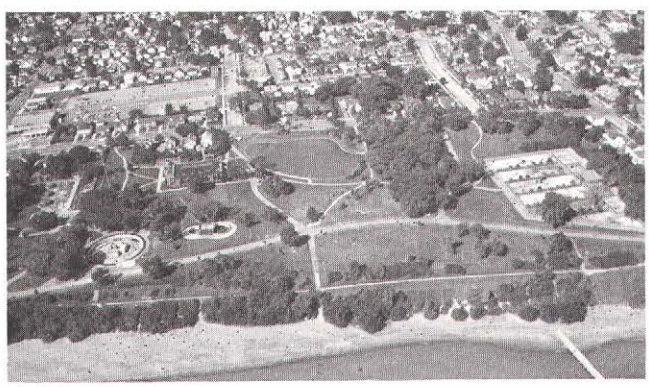
[d] *Parochial and private schools in the District also provide recreational opportunities in scattered locations throughout the urban area.*

system which includes 14 miles in Milwaukee County. In Racine County, a river frontage of more than seven miles extends from Johnson Park north to the county line.

Large Parks. Urban and county parks in this category include 590.1 acres of parkland. Along the Root River and Lake Michigan, large contiguous park and recreation areas have been acquired, comprised of individually named smaller units. In addition to these, there are other large parks and special recreational areas within the Planning District including: Root River Parks, Lakefront Parks and other parks.

Root River Parks are located in the two-mile area along the river south of the Racine Country Club. Eight parks, with a total area of 211.8 acres, comprise this exceptionally attractive grouping of parklands. Horlick Island, Lincoln and Washington Parks are the major elements in this category, offering the greatest range of recreational opportunities found in the Planning District. In addition to areas for field and court games, picnicking and playgrounds, there is a nine-hole golf course, lighted ball fields, areas for fishing and winter sport facilities for sledding and ice skating. At the northern end of this group of parks, Colonial Park offers a large wooded site with nature areas, trails and an amphitheater. In the summer months, this park is used as a nature education center.

Lake Front Parks extend from Williams Streets, north of the Zoological Park along the lake front to Lakeview Park in the Town of Mt. Pleasant with a total area of 144.2 acres. Views of Lake Michigan are found in all nine of these parks. North Beach, Pershing, and Roosevelt Parks offer recreational facilities ranging from open play and picnicking areas to large parking areas where people may enjoy views of the lake. Racine Zoological Park features the zoo and offers one of the most complete groupings of recreational opportunities found in the Planning District which makes the park an interesting and popular attraction. The beaches in front of the Zoological Park and North Beach Park, almost one mile long, are available for swimming.



RACINE ZOOLOGICAL PARK

SHOOP PARK AND WIND POINT LIGHTHOUSE

Other Parks include three large parks ranging in size from 45 to 80 acres and two special purpose recreation areas and contains 234.1 acres. The three large parks are Pritchard, featuring general recreational facilities; Sanders, a large wooded site with nature areas and trails; and Shoop, which has a nine-hole golf course, general recreational facilities and a spectacular lake front site. Special purpose recreation facilities, which because of their District-wide appeal are classified with large parks, include Horlick Field with its stadium and night-lighted ball field, and Quarry Lake, a new park now being developed as a part of the County Parks System, which will be a part of the Root River Parkway.

Large Urban Parks contain a total area of 111.9 acres. Graceland and Memorial Parks each contain 40 acres and are now being developed to provide a complete range of recreational facilities. Humble and Pierce Woods are contiguous parks containing almost 24 acres, offering one of the most complete groupings of recreational facilities in the Planning District. Lake View and Lathrop Parks are small but intensively developed. Lathrop contains lighted ball fields which are heavily used in the summer months and is a winter sports area. Lake View, located adjacent to the Zoological Park and North Beach, is a complementary park facility along the north lake shore area.

Neighborhood Parks. There are 26 neighborhood parks, widely scattered throughout the Planning District, containing a total area of 73.6 acres. These parks range from slightly more than 1.0 acre to 8.0 acres in size. Among the most fully developed neighborhood parks with good sites are: Albert State, Douglas, Greencrest, and South Park in Sturtevant.

Small Parks. In addition to the four major categories above, there are play lots and ornamental areas which usually contain less than one acre. There are 35 sites of this type, containing a total of 13.2 acres, which provide play areas for small children and ornamental open spaces such as boulevards and triangles.

School Playfields and Playgrounds. Public school grounds also serve an important recreation function, particularly in the urbanized portions of the Planning District. Each of the existing school sites has facilities available for casual recreation throughout the year. This totals about 190 acres of playfields and playgrounds. Several of the larger playgrounds are used as a part of the summer recreation program.

Other Facilities. Private as well as public golf courses are available. There are two private 18-hole golf courses in the District: Racine and Meadowbrook Country Clubs. Semi-private courses include the South Hills Country Club (18 holes) and the small par-three Bunker Hills Golf Course. There are also several driving ranges. Other private facilities include Armstrong Park which is operated by the S.C. Johnson Company for its employees. This park is located on the Root River and may, at some future time, serve as a link in the parkway system.

Recreation Program. The City of Racine provides a summer recreation program through its Department of Parks and Recreation. Activities for children and adults of all ages are scheduled throughout the community at city parks and public school playgrounds. In 1969 some 23 playgrounds (16 school playgrounds are used) were staffed and diversified programs of games, handicrafts and supervised play were offered. Organized softball (for boys, girls, men and women) and baseball leagues are conducted through the summer months at 23 ball diamonds of which 11 were lighted. Other supervised sports include swimming at the public beaches and at Horlick Pool and tennis instruction at Horlick and Humble Park courts. Additional tennis courts are available at seven parks and three junior high schools. Three municipal golf courses are operated as part of the recreation program.[3]

Other forms of recreation available include: picnic facilities in 12 parks, with four parks capable of accommodating large groups, by reservation; the Racine Zoological Park, municipal band concerts in East Park and at the zoo; the "Stage on Wheels" summer theater, a mobile showmobile with performances of children's plays throughout the community; a young peoples program of dances and the "teen hop" at the Racine Street, Franklin, and Garfield Centers; a Nature Education Program at Colonial Park; and a senior citizens program at Douglas and Humble Parks. These programs are designed to provide both organized, casual and passive recreational opportunities for local residents. Over 405,000 persons participated in the summer and winter athletic programs in 1969. An estimated additional 150,000 persons attended various concerts, performances and athletic events as spectators. Scheduled picnics had about 100,000 persons in attendance and other events and programs added about 30,000 participants. About 685,000 active and passive participations were recorded in the various phases of the 1969 recreation program.

Planned Improvements

Improvements in the county parks in the District are currently programmed at Quarry Lake and Cliffside Park. (See Table 9-5 .) Land acquisition along the Root River is among the more important current county programs. The new county golf course at Ives Grove west of the District now being developed, will add significant recreation benefits for local residents.[4]

The City of Racine is continuing to make programmed improvements to existing sites and to expand parkland holdings. Since 1967, Graceland and Giese Parks have been added to the system and other existing facilities have been gradually expanded. The 1967 Comprehensive Park Plan called for the expenditure of $1.4 million for site acquisition and about $500,000 for park development.[5] This plan is being utilized in capital improvement programming.

Estimated Future Park Needs

Local standards for parks and recreation areas indicate a need for 5,600 acres of parkland by 1990, of which about 4,480 should be located within the Planning District.[6] This will require the addition of more than 2,500 acres of parklands in the Planning District during the planning period.

Regional parks would comprise the largest portion of this area with approximately 3,400 acres of regional parks and conservation areas, of which one-third should be located outside the Planning District. Approximately 2,240 acres of regional parkland would be located in the District in 1990. Large parks serving the Planning District should contain an additional 520 acres, totaling 1,120 acres in 1990. Community and neighborhood park categories would account for an additional 920 acres, totaling 1,120 acres in

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[3] *Racine Parks and Recreation Department, 1969; "Recreation Unlimited — Summer Program", 1969; Annual Report and interviews, 1970.*

[4] *Racine County Highway and Parks Department, "Parks and Recreation Comprehensive Plan", 1969.*

[5] *Racine City Plan Commission, "Open Space for Racine", 1967.*

[6] *Twenty-five acres per one thousand population (Racine City and County Standards) existing regional or extra urban parks within the Racine Urban Planning District have been deducted in order to determine additional parkland required.*

Table 9-6

PROJECTED PARKLAND NEEDS: 1970-1990

Category	Acres 1970	Standard Acres/Person	Acres 1990	Acres to be Added
Regional	702	10/1,000	2,240	1,540
Large Urban Parks	598	5/1,000	1,120	520
Neighborhood and Community Parks	199	5/1,000	1,120	920
Total	1,499	20/1,000	4,480	2,980

Source: Harland Bartholomew and Associates Estimates

1990. The above comparison indicates the total area contained in each of the park categories and the amount of land to be added during the planning period.

LIBRARY AND CULTURAL FACILITIES

Libraries

As part of its comprehensive long-range plan for the Region, the Southeastern Wisconsin Regional Planning Commission has made an inventory of existing library facilities within the Racine Urban Planning District. All public library services in the District are provided by the City of Racine. The two towns and four villages in the District, together with the rest of Racine County, except for the Town and City of Burlington, the Town and Village of Rochester and the Village of Union Grove, have contracted with the City of Racine for this service.

The main library building, located on a site of one acre at the corner of Seventh Street and Lake Avenue in the central business district of Racine, was constructed in 1958. It contains extensive facilities in both its juvenile and adult departments. The system has one branch library, located on a quarter acre site in the Uptown neighborhood. This is a Carnegie building, constructed in 1914 and extensively remodeled in 1951. The branch library generally serves the western portion of the city.

The Racine City Library operates two different types of mobile units. A mobile library with a capacity of 4,600 books serves the city exclusively on a scheduled basis. It is supplemented three days a week in the city by a bookmobile with a capacity of 4,300 books, which serves the other part of the District and Racine County during the remainder of the week.

The Racine Public Library System had a collection of 226,642 volumes at the end of 1969, plus periodicals, records, and other educational materials. This amounts to 1.70 volumes per capita within the District. An accepted standard of volumes per capita in communities between 100,000 and 200,000 is 1.75 to 2.00, which indicates that the system's book stock is slightly below recommended size.[7] Circulation amounted to 715,500 volumes in 1969, or 5.4 per capita in the District, in comparison with a standard circulation of eight volumes per capita yearly.[8] SEWRPC is preparing a long-range plan for library facilities within the seven counties of southeastern Wisconsin. Included in the study are collections of basic data concerning existing facilities, service, personnel, financial and organizational structure and technological change in the library field; projection of future need, revenues and expenditures; and evaluation and preparation of a plan. A functional arrangement of library facilities will range from bookmobiles and neighborhood branches to large district and regional depositories, serving large populations and a multitude of specialized interests.

In order to provide 1.5 volumes per capita in 1990, an overall expansion of the book collection to 336,000 volumes would be required – 110,000 more than the present total. Yearly circulation is estimated to be in the neighborhood of 1,800,000 volumes by 1990.

Although standards vary widely, there is general agreement that branch libraries in larger cities should serve at least 25,000 to 30,000 population within a radius of one to one and one-half miles.[9] In less densely populated areas, travel distances can be greater. Prime locational considerations include easy accessibility, such as a shopping center or location on a major thoroughfare. The site itself should be rectangular and of sufficient size to provide staff parking and some landscape planting. In the Planning District, two additional branch libraries should be provided during the planning period to serve the growing areas to the north and west of the city.

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[7] *Wheeler, Joseph L.; Goldhor, Herbert, Practical Administration of Public Libraries, 1962, p. 554.*

[8] *Ibid.*

[9] *International City Managers' Association, Principles and Practice of Urban Planning, 1968, p. 222.*

Cultural Facilities

There are five major cultural facilities in the Planning District:

Memorial Hall in Downtown Racine;
Racine County Museum at the Carnegie Library;
Wustum Museum on Rapids Drive;
Golden Rondell at S.C. Johnson headquarters;
Racine Theatre Group.

There are six historic sites (see Map 9-3) and 18 identifiable buildings of either historic or architectural significance.

PUBLIC ADMINISTRATIVE BUILDINGS

Public buildings represent large investments in public funds. They should, therefore, have a useful life of 50 or more years, be located to serve the existing and future population, have adequate sites, be flexible in design, and capable of expansion. In the Planning District, public administrative buildings are found serving all levels of government, including: the Federal Government, State of Wisconsin, Racine County, City of Racine, Towns of Caledonia and Mt. Pleasant, and Villages of North Bay, Sturtevant and Wind Point. Administrative records of the Village of Elmwood Park are kept in private quarters, in charge of the village clerk.

Existing Buildings

The federal facilities are located on scattered sites. Facilities of the U.S. Post Office include the Main Post Office in the central city area which also contains some federal offices. Branches are located on State Street and Washington Street, and post offices in Sturtevant, Franksville and Caledonia. In addition, the Post Office Department has a garage west of the downtown area in the City of Racine. (See Map 9-4.)

Other federal buildings provide meeting and training facilities for various branches of the Armed Forces, including the National Guard Building south of Roosevelt Park in the City of Racine; and the Naval Reserve Training Center and U.S. Coast Guard Station located just north of the central business district in the City of Racine. Each of these facilities is designed to serve a special function and to suit the specific needs of each of these branches of the military.

Principal county buildings include the Racine County Courthouse located in the central business district in the City of Racine. Additional county administrative facilities are located at the County Highway Office adjacent to the Planning District west of IH-94. The County Courthouse contains offices for the various divisions of county government, courtrooms, and meeting rooms.

There are six municipal administrative buildings, of which the largest is the City Hall in Racine located west of the central business district on a constricted site bounded by Sixth Street, Seventh Street, and Grand Avenue. The Towns of Caledonia and Mt. Pleasant have constructed town halls in the last decade, each with sufficient site area to accommodate substantial expansion. Other buildings include the village halls in North Bay, Wind Point and Sturtevant.

HEALTH CARE FACILITIES

Three major hospitals are located in the District: St. Luke's with 265 beds; St. Mary's with 257 beds; and the County Institution with a total of 655 beds. Facilities at the County Institution include three major divisions of health care facilities: the Public Medical Institute, largely for ambulatory patients, with 179 beds; the Mental Institute with 256 beds; and the Extended Care Facility with 220 beds. Programmed expansion at St. Mary's will add 143 beds, while St. Luke's will add 80 extended care beds.

In addition to these major medical facilities, there are seven clinics and a curative work shop for the physically handicapped. The clinics include: Gateway House; Racine Medical Clinic; the Racine County Institution-Sunny Rest Sanitarium; Taylor Childrens' Home; Lincoln Lutheran Home; Kurten Clinic; Schroeder Clinic; and the Curative Workshop.

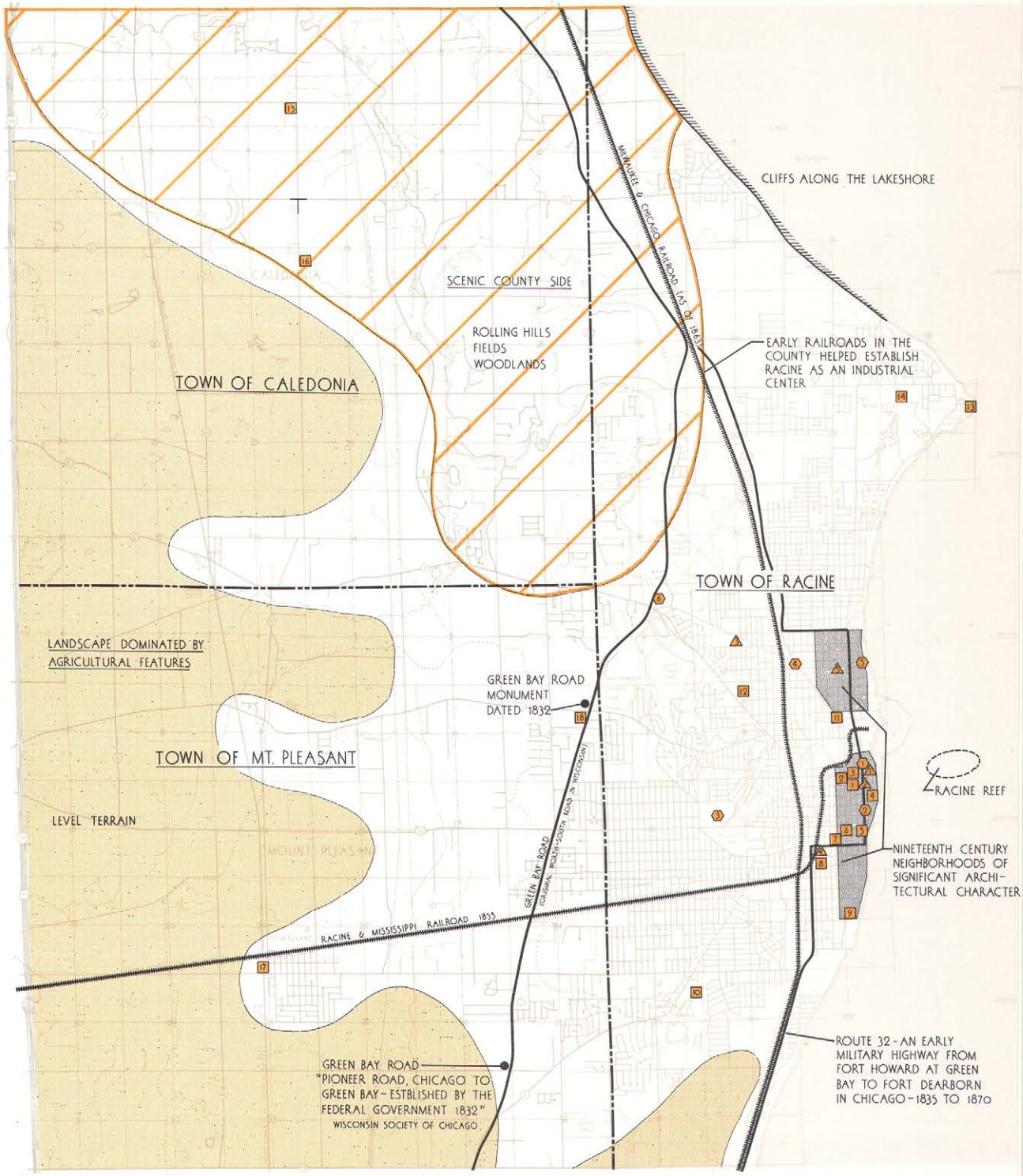
The Wisconsin State Plan for Hospital and Medical Facilities (1968-69) estimated the Racine area's acute hospital bed needs at 514 with 490 beds existing and conforming to standards. No additional acute hospital beds were estimated to be needed. The situation was deemed the same insofar as nursing home beds were concerned. However, this study did indicate a need for between 200 to 300 additional extended care beds.

POLICE AND FIRE PROTECTION

Police

Police protection is provided by the Racine County Sheriff's Department; City of Racine Police Department; the Caledonia and Mt. Pleasant Police Departments; and the villages of Sturtevant and Wind Point. Areas of jurisdiction of these protection agencies conform to the respective jurisdictional boundaries. (See Map 9-5.) Each operates out of a central police station located within its jurisdiction. The City of Racine Police Department is located in a new building it shares with the fire department just south of the City Hall. The two-story structure was completed in 1968. Caledonia and Mt. Pleasant have new Public Safety Buildings, which accommodate their police and fire departments, adjacent to their town halls. The Racine

MAP 9-3



ORIGINAL TOWNSHIP BOUNDARIES

HISTORIC SITES
1 MONUMENT SQUARE (1884)
2 MARY TODD & ABRAHAM LINCOLN STATUE (1943)
3 MOUND CEMETERY (1850)
4 CARL JONAS STATUE (1912)
5 GILBERT KNAPP MARKER (1950)
6 HORLICK DAM (1874)

CULTURAL SITES
1 MEMORIAL HALL
2 RACINE COUNTY MUSEUM (CARNEGIE LIBRARY)
3 WUSTUM MUSEUM (SINCE 1941)
4 GOLDEN RONDELL (1963 N.Y.C. WORLD'S FAIR)
5 RACINE THEATRE GROUP

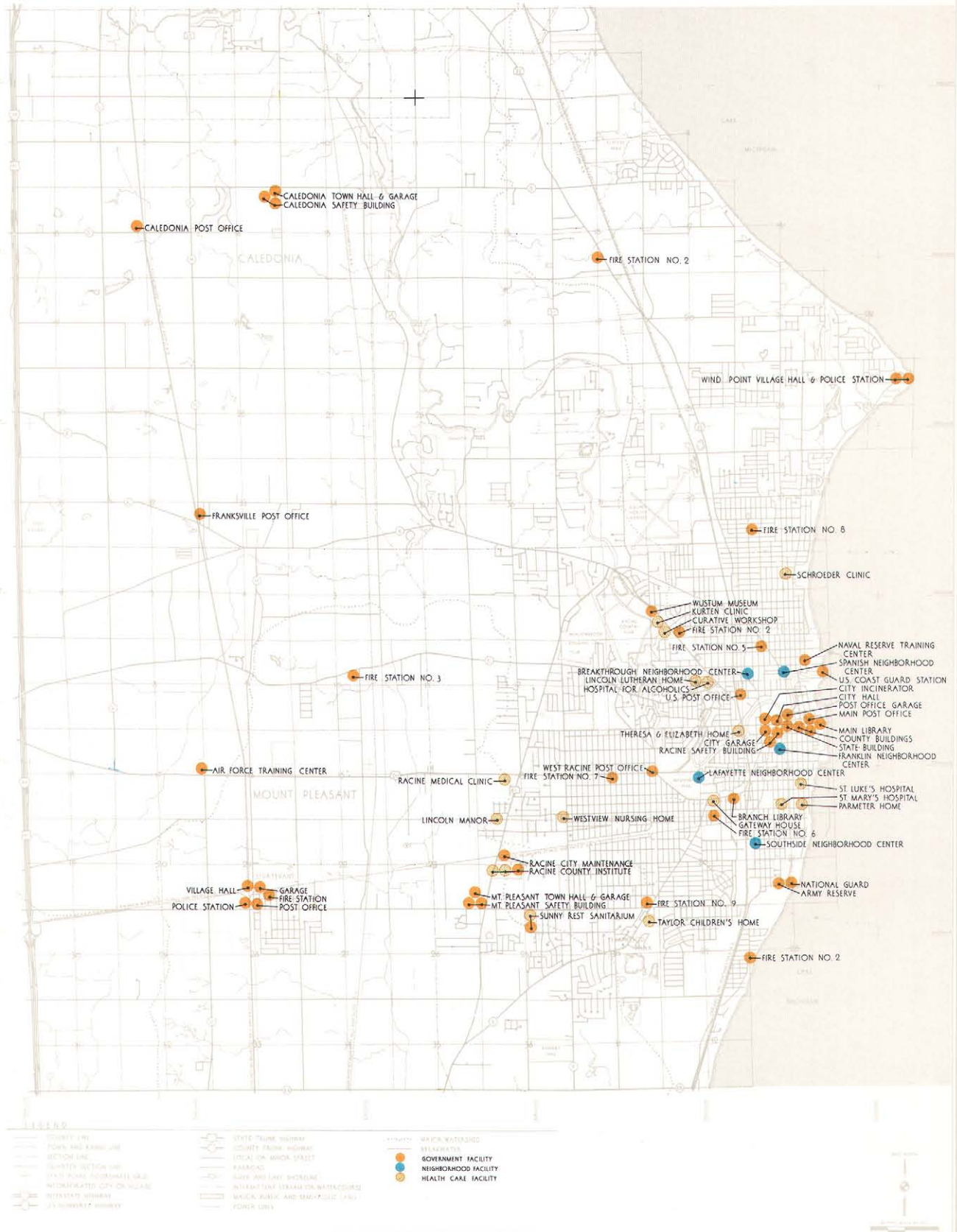
HISTORIC BUILDINGS
1 RACINE COUNTY COUAT HOUSE (1931)
2 FIRST PRESBYTERIAN CHURCH (1850)
3 ST. LUKE'S EPISCOPAL CHURCH (1866)
4 GILBERT KNAPP HOME
5 KUCHNEMAN HOME (1851 OR 1852)
6 ST. CATHERINE'S CONVENT (1863)
7 PLYMOUTH CONGREGATIONAL CHURCH (1847)
8 JOHNSON WAX (F.L. WRIGHT - ARCH.)
9 DE KOVEN (BUILT AS RACINE COLLEGE 1852)
10 TAYLOR ORPHANAGE (1872)
11 ST. PATRICK'S CHURCH (1856)
12 HORLICK'S EARLY INDUSTRIAL PLANT
13 WIND POINT LIGHTHOUSE (1880)
14 WINGSPREAD (1939)
15 TRINITY LUTHERAN CHURCH (1911)
16 GREEK REVIVAL FARMHOUSE
17 OLD RAILROAD HOTEL
18 CHURCH AT MYGATTS CORNERS

SOURCE HARLAND BARTHOLOMEW AND ASSOCIATES FIELD STUDIES

HISTORIC, SCENIC AND CULTURAL SITES

RACINE URBAN PLANNING DISTRICT

MAP 9-4

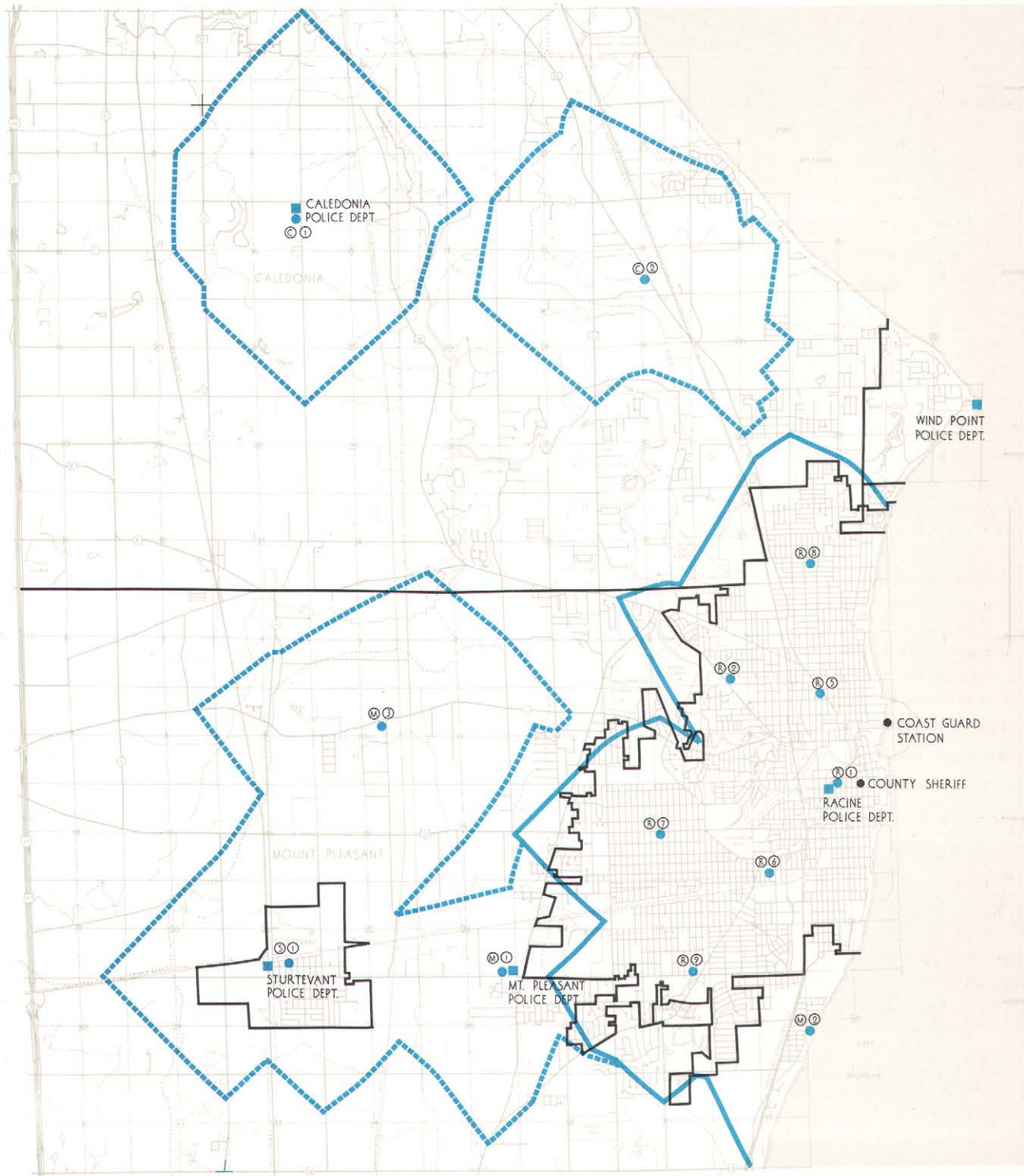


SOURCE: HARLAND BARTHOLOMEW & ASSOCIATES FIELD STUDIES

PUBLIC BUILDING, HEALTH CARE AND SERVICE FACILITIES

RACINE URBAN PLANNING DISTRICT

MAP 9-5



SOURCE CITY OF RACINE FIRE DEPT. AND HARLAND BARTHOLOMEW & ASSOCIATES FIELD STUDIES

POLICE AND FIRE STATIONS

RACINE URBAN PLANNING DISTRICT

Table 9-7

COST OF POLICE PROTECTION PER CAPITA: 1969

	Municipal	County	Total
City of Racine	22.62	4.25	26.87
Town of Caledonia[a]	4.43	4.25	8.68
Town of Mt. Pleasant[b]	1.72	4.25	5.97
Village of Elmwood Park	14.31	4.25	18.56
Village of North Bay	16.85	4.25	21.10
Village of Sturtevant	5.88	4.25	10.13
Village of Wind Point	5.17	4.25	9.42

[a] *Year Ending March 20, 1970*
[b] *Year Ending March 16, 1970*

Source: Office of the County Clerk; City Finance Office; Town and Village Clerks; 1969 Population Estimates, Harland Bartholomew and Associates.

Police Department has 176 men on a full-time basis. Caledonia has nine full and part-time policemen, and Mt. Pleasant has 12 full and part-time policemen. Police protection in the villages is provided on a part-time basis by constables and private police.

The Sheriff's Department provides police protection to the unincorporated area and smaller communities. In the City of Racine, the sheriff's office has full police powers but normally exercises only limited, court-related services such as serving subpoenas. In effect, residents of incorporated areas such as the City of Racine help provide, through their county taxes, local police protection services to the unincorporated area of the county.

Per Capita Cost

The cost of providing police protection differs sharply among the District municipalities. (See Table 9-7.) All Planning District residents paid 4.25 per capita for the County Sheriff's Department, which largely confines its operations to the unincorporated portions of the county and the county jail. Municipal cost of police protection ranged from a high of 22.62 per capita in the city to a low of 1.72 per capita in the Town of Mt. Pleasant. With 71 percent of the District population and a disproportionate share of all crimes committed east of IH-94, the city must spend far more for police protection than the towns and villages.[10] After the city, the highest costs for police protection were experienced by the villages of Elmwood Park and North Bay. Since each community has under 450 residents, the cost of their part-time protection services must be spread among relatively few persons. These two communities are below the threshold at which police protection can be efficiently provided. The Town of Caledonia, and villages of Sturtevant and Wind Point spent 4.43, 5.88, and 5.17 respectively for police protection in 1969.

Fire

All urban residential areas should be in at least Class 8 of the 10 class category of the National Board of Fire Underwriters. To have a Class 8 rating, there must be an adequate water supply and distribution system, the area must also be served by a fire protection system with residential areas within one and one-half to two miles of an adequately equipped fire station served by paid personnel or trained volunteer personnel. There should be a fire hydrant within 1,000 feet of each building; the minimum water main size should be six inches and the water system able to deliver the required fire flow.

There are 13 fire stations located in the Planning District. Seven stations provide fire protection within the corporate limits of the City of Racine; the central fire station is located in the new Public Safety Building. The Racine Fire Department has 169 men of which 70 are assigned to the Public Safety Building and the remainder are assigned to the other six fire stations in the city. The Racine Fire Department is one of the most proficient departments in the nation, having a Class 2 rating by the Board of Fire Underwriters, equaled only by the City of Milwaukee among Wisconsin cities. About nine-tenths of the incorporated area of the city is located within a one-mile travel distance of one or more fire stations. (See Map 9-5 for travel distance service areas of the fire stations.)

The Caledonia Fire Department has a full-time staff of nine men and 26 volunteers who operate two fire stations located in the east-central and west-central areas of the town. Approximately 40 percent of the area of the town is located within two miles travel distance of the two fire

[10] *Statistics of the City of Racine Police Department reveal that 92.2 percent of all District residents arrested for felonies and misdemeanors in the city in 1969 were residents of the city.*

Table 9-8

FIRE ASSISTANCE AGREEMENTS IN THE RACINE URBAN PLANNING DISTRICT[a]

	Other Party To Agreement	Type of Agreement	Provisions Of Agreement	Cost of Service Provided
CITY OF RACINE	Town of Caledonia	Reciprocal Aid	To Provide Upon Request 2 – 1,000 GPM Pumpers 2 – Rescue Squads 1 – Ambulance 4 Men Minimum Each Fire Vehicle	Any Additional Equipment Required. $1,000 Per Hour Per Vehicle.
	Village of Sturtevant	Reciprocal Aid	To Provide Upon Request 2 – 1,000 GPM Pumpers 1 – Rescue Squad 4 Men Minimum Each Fire Vehicle	Any Additional Vehicles Required. $1,000 Per Hour Per Vehicle.
	City of Kenosha	Reciprocal Aid	To Provide Upon Request 2 – 1,000 GPM Pumpers 1 Ladder or Snorkel Truck 4 Men Minimum Each Vehicle	Any Additional Vehicles Required. $1,000 Per Hour Per Vehicle.
	Town of Mt. Pleasant	Fire Service Contract	Whatever Equipment and Manpower Required Upon Request	$600 Per Hour Per Vehicle
	Village of North Bay	Fire Service Contract	Fire and Rescue Service Upon Request	$2,060 A Year Minimum. Charge of $200 Per Hour Per Vehicle
TOWN OF CALEDONIA	City of Racine	Fire Service Contract	Fire and Rescue Service Upon Request	No Charge
	Town of Mt. Pleasant	Reciprocal Aid	Fire and Rescue Service Upon Request	No Charge
	Village of Sturtevant	Reciprocal Aid	Fire and Rescue Service Upon Request	No Charge
	Village of Wind Point	Reciprocal Aid	Fire and Rescue Service Upon Request	Based Upon A Percentage of Assessed Valuation
	Town of Raymond	Reciprocal Aid	Fire and Rescue Service Upon Request	$3,200 Per Year
	City of Oak Creek	Fire Service Contract	Fire and Rescue Service Upon Request	No Charge
TOWN OF MT. PLEASANT	City of Franklin	Reciprocal Aid	Fire and Rescue Service Upon Request	No Charge
	City of Racine	Fire Service Contract	Whatever Equipment and Manpower Required Upon Request	$600 Per Hour Per Vehicle
	Village of Elmwood Park	Fire Service Contract	Whatever Equipment and Manpower Required Upon Request For Fire and Rescue	$1,000 Per Year
	Town of Caledonia	Reciprocal Aid	Fire and Rescue Service Upon Request	No Charge
	Town of Raymond	Reciprocal Aid	Fire and Rescue Service Upon Request	No Charge
	Town of Somers	Reciprocal Aid	Fire and Rescue Service Upon Request	No Charge
	Village of Union Grove	Reciprocal Aid	Fire and Rescue Service Upon Request	No Charge
	Village of Sturtevant	Reciprocal Aid	Fire and Rescue Service Upon Request	No Charge
	Town of Dover	Reciprocal Aid	Fire and Rescue Service Upon Request	No Charge
VILLAGE OF STURTEVANT	City of Racine	Reciprocal Aid	To Provide Upon Request 1 – 1,000 GPM Pumper 1 – 500 GPM Pumper 1 – Rescue Squad 4 Men Minimum Each Fire Vehicle	Any Additional Equipment Required. $1,000 Per Hour Per Vehicle
	Town of Caledonia	Reciprocal Aid (Verbal)	Fire and Rescue Service Upon Request	No Charge
	Town of Mt. Pleasant	Reciprocal Aid	Fire and Rescue Service Upon Request	No Charge
	Village of Union Grove	Reciprocal Aid (Verbal)	Fire and Rescue Service Upon Request	No Charge

[a] *Other reciprocal aid understandings exist between District Municipalities.*

Source: City of Racine Fire Department; Town Fire Departments; Village Fire Departments

Table 9-9

COMPARISON OF FIRE PROTECTION EXPENDITURES: 1969-1970

Municipality	1970 Population	Cost[a]	Cost Per Capita	Cost Per Average Family[b]
Racine	94,720	$1,620,503	$17.11	$53.05
Sturtevant	3,338	8,035[c]	2.40	7.47
Caledonia	16,663	112,675	6.76	20.10
Mt. Pleasant	16,303	154,050	9.44	29.29

[a] *Cost of operations from adopted 1969-1970 budgets.*
[b] *Average family size estimated at 3.1 persons per family.*
[c] *This does not include capital expenditures for equipment purchased in another fiscal year.*

Source: Municipal Budget Estimates 1967-1970

stations. The town has a fire insurance class rating which varies between 7 and 9 in different parts of the town.

The Mt. Pleasant Fire Department operates three fire stations: one adjacent to the Town Hall; one in a north-central location; and one on the eastern edge of the town. This fire department has a complement of seven full-time firemen and 22 volunteers, and the township is rated from Class 7 to 9.

The Village of Sturtevant has a 30-man volunteer fire department which provides services inside the village and in adjacent communities with which it has reciprocal aid agreements. The fire station is located at the corner of 96th Street and Michigan Avenue in Sturtevant. This area has a Class 7 rating.

Reciprocal agreements exist among all fire departments to provide protection services in case of an emergency on an as-needed basis. These agreements stipulate the conditions upon which fire fighting services will be provided to adjacent communities. (See Table 9-8.)

Fire Insurance Rates

Fire insurance rates are calculated using a number of variable conditions such as: rating of fire service by class divisions from one to ten, availability of water supply, and distance from fire stations among others. Insurance rates on commercial and industrial properties are based on additional factors related to specific conditions, activities, and uses of the property. Residential property insurance rates are more generally related to the class rating of fire protection service, following established insurance rate formulas.

A detailed investigation of insurance rate structures would be required to thoroughly evaluate the relationship between insurance rates and the cost of fire protection, on a per capita cost or assessed value cost ratio. This would be of questionable value since rates are subject to change and the cost of service is likely to increase. It is possible to use a hypothetical situation to discuss the cost of residential fire insurance for various parts of the Planning District. One way to do this is to examine insurance rates for a $20,000 home, which is useful for discussion purposes. The following comparison shows what fire insurance rates would be in the various class divisions:

Class Division	Area	Cost For $20,000 Home
No. 1-4	City of Racine	$15.00
No. 7	Village of Sturtevant	22.00
No. 8	Villages and Unincorporated Area with Water Supply Within 1,000 Feet of Property	24.20
No. 9	Unincorporated Area/No Water	36.50

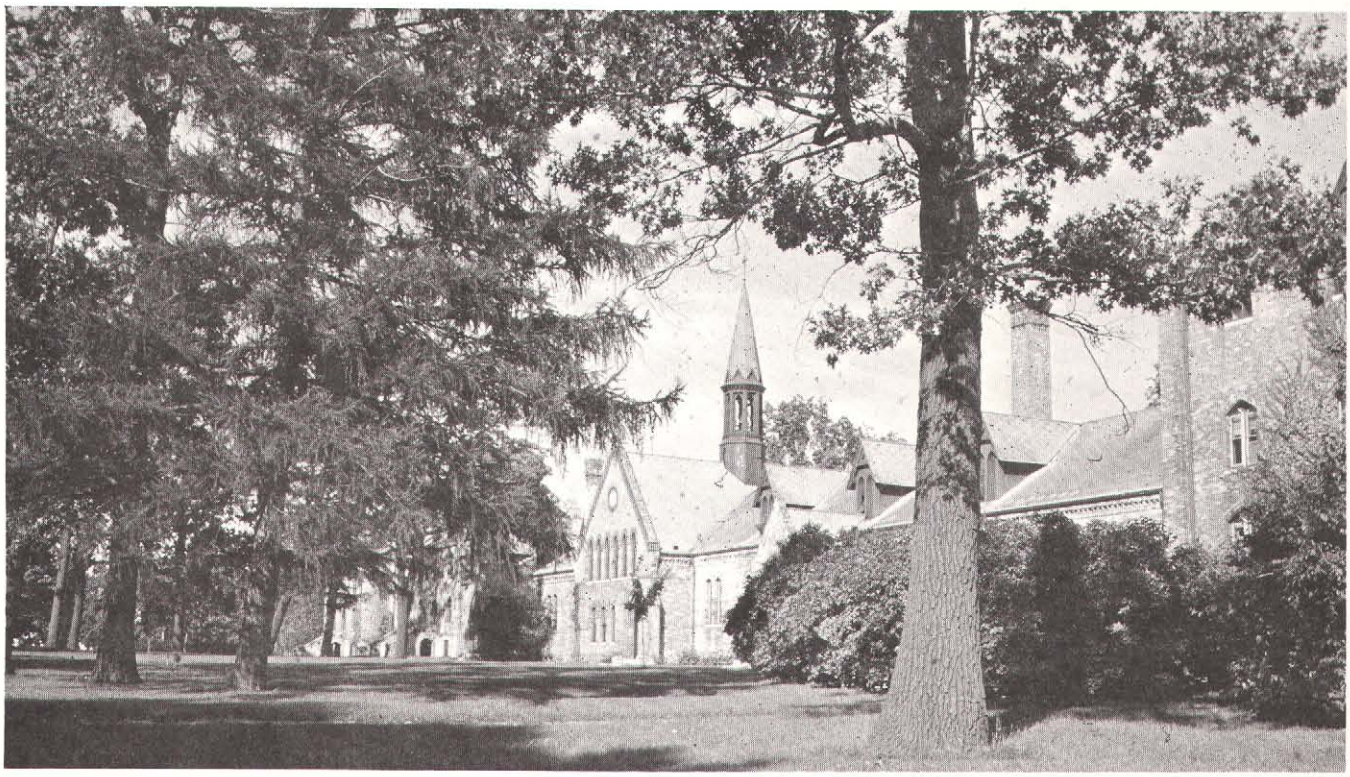
This is only a general comparison which provides an initial cost relationship. The residential insurance rates are also calculated on a sliding scale, which reduces the cost as the value of the property increases.

A more typical situation might be a $30,000 house in Racine and the same house in the unincorporated area, without a water supply available for fire protection. The annual fire insurance rate would be $20.00 in Racine and $50.00 in the unincorporated area.

Per Capita Cost

Per capita costs for fire protection should also be considered. Such a comparison between the various fire departments can be viewed as a general indication of how the cost of service relates to savings on fire insurance rates. This comparison is not precise and cannot be viewed as a definitive in evaluating these costs. The cost of fire protection service is related directly to the type and extent of services provided. (See Table 9-9.) The City of Racine's

CITY OF RACINE PUBLIC SAFETY BUILDING



DEKOVEN FOUNDATION

fire department has the largest budget reflecting equipment purchases, salaries, and operating expenses. The smaller fire departments in Caledonia, Mt. Pleasant and Sturtevant are not operated at the same level and budgeted costs are, therefore, down. However, reciprocal agreements for service when needed raises these costs in outlying areas. (See Table 9-8.)

Conclusions which can be drawn from this analysis are: (1) residents of the City of Racine have a higher degree of fire protection at a lower cost per family, i.e., a family with a $30,000 home in Racine will pay $73.05 for insurance and budgeted fire department expenditures and a family with a home of equal value in Mt. Pleasant without water service will pay $79.29.

SUMMARY

Community facilities such as schools, parks, libraries, hospitals, administrative offices and other public buildings are provided in the Planning District by various local governmental agencies and by several private institutions.

Within the Planning District, public elementary and secondary educational facilities are provided by the Racine Unified School District. Enrollment has increased 48 percent since the Unified District was created in 1961, with major increases at the junior and senior high school levels. Half of the elementary and secondary schools exceed local standards for the number of students per classroom, and several older buildings on small sites do not meet current school development standards. Projected school enrollment in the Planning District indicates a total of 51,000 students in grades K-12 by 1990. This will require 14 to 22 new elementary schools, two new junior high schools and one new senior high school. The Racine Technical Training Institute, the Parkside Campus of the University of Wisconsin, and Dominican College offer additional educational opportunities to residents of the Planning District.

Over 1,500 acres of parks and recreation areas provide a wide range of opportunities for activities ranging from picnicking, hiking and swimming to specialized features such as the Zoological Park. Major public investment in the larger parks has created an excellent system of interrelated facilities along the Root River and Lake Michigan. Most of the neighborhood parks, however, are too small and underdeveloped. To attain a desirable standard of 20 acres of recreation area per 1,000 population within the Planning District, the addition of over 2,500 acres of parkland will be required in the next 20 years.

All public library services in the Planning District are provided by the Racine City Library. Areas outside the city are served by a bookmobile on a part-time basis. To serve a population increase of 91,000 persons by 1990, the library system will need to increase its present collection by 110,000 volumes, and construct at least two additional branches.

Various governmental buildings provide space for administrative and service functions at the federal, state, and local levels. Local administrative offices are generally adequate to meet present needs and new public safety buildings have been constructed in Racine, Mt. Pleasant and Caledonia. Continued population growth will create a need for additional facilities, particularly to provide adequate fire protection within the Planning District.

Hospital facilities in the Planning District currently provide 700 medical beds, which will be increased to approximately 850 beds under current expansion plans. Present extended care facilities at the Racine County Institution will be supplemented by additional facilities to be developed by St. Luke's and St. Mary's Hospitals.

Police protection in the District is provided by the departments of the City of Racine, towns of Caledonia, and Mt. Pleasant, and the villages of Sturtevant and Wind Point which, with the other two villages in the District also employ part-time and private police. The County Sheriff's Department provides protection for the unincorporated areas of the county, and the villages, and also has jurisdiction within the City of Racine.

Firefighting service in the District is provided by the fire departments of the City of Racine, towns of Caledonia and Mt. Pleasant, and the volunteer fire department of the Village of Sturtevant. There are a total of 13 fire stations in the District. The City of Racine, with a Class 2 rating, provides an exceptionally high level of fire protection service. These communities in turn provide protection for the other three villages in the District by means of fire service contracts and reciprocal aid agreements.

Chapter X

PUBLIC FINANCE

INTRODUCTION

The local public facilities and services available to residents of the Planning District do much to determine the quality of the physical and social environment. The essential services of local government are provided by Racine County, Unified School District No. 1, Racine City, the Villages of Elmwood Park, North Bay, Sturtevant and Wind Point, the Towns of Caledonia and Mt. Pleasant, and a total of nine special purpose districts. These municipalities and special purpose districts derive their powers from the State of Wisconsin, and their responsibilities are prescribed by state law.

County

The responsibilities of county government in Wisconsin are set forth in Chapter 59 of the Wisconsin Statutes. Their purpose as an integral part of government, however, has not been precisely defined in the State Constitution. In general, the county is a geographical subdivision of the state, created in order to permit convenient administration and a high measure of self-government at the local level. The county's responsibilities revolve around activities requiring local direction, supervision and control, including matters of local finance, education, health and social services, the establishment and maintenance of highways and bridges, protection of persons and property and to a large degree, the administration of public justice.

Cities and Villages

City and village functions are outlined in Chapters 61 and 62 of the Wisconsin Statutes. Their responsibilities revolve around providing needed public service and enforcing regulations made necessary by urban conditions. These include police and fire protection, water and sewage services, recreational facilities, street construction and maintenance, garbage collection and other activities designed to promote the public welfare. Like other states, Wisconsin has delegated a broad range of powers to the cities. Chapter 62 of the Wisconsin Statutes specifies that for the purpose of giving to cities the largest measure of self-government compatible with the constitution and general law, (Chapter 62) shall be liberally construed in favor of the rights, powers, and privileges of cities to promote the general welfare, peace, good order and prosperity of such cities and the inhabitats thereof.[1]

[1] *Wisconsin Statutes, Section 62.04, p. 1142.*

Towns

Unincorporated parts of Wisconsin counties are divided into civil towns. They have been granted a wide range of administrative functions as specified in Chapter 60 of the Wisconsin Statutes. A town may assume the powers of a village by a majority vote of electors at an annual town meeting, which has the practical effect of giving urbanizing towns a substantial amount of power to provide services for their residents. Among the most important town responsibilities in Wisconsin in terms of cost of providing service to residents are assessing real property and maintaining local roads and bridges.

Districts

The Unified School District No. 1 was formed in 1961 by consolidating the City of Racine District with 25 independent school districts located east of Interstate 94. The boundaries of the resulting school district are coterminous with those of the Planning District.

Water, sewer, and storm drainage services are provided by a total of nine special purpose districts which serve various parts of the unincorporated portions of the Planning District. Detailed information pertaining to these Districts is set forth in Chapter II of this volume.

LOCAL PUBLIC SERVICES AND FACILITIES PROVIDED

Principal services provided by Racine County, the Unified School District No. 1, local municipalities and utility districts, include protection of persons and property (fire and police), education, public health and sanitation, road and bridge construction and maintenance, provision of parks and recreational facilities, environmental controls and essential administrative activities. The functioning of our democratic process requires a wide measure of citizen participation and this is an integral part of the administrative and decision making process for all units of local government.

Police and Fire Protection

Four police forces serve the Planning District: the City of Racine Police Department, two town police departments and the County Sheriff's Department, which serves all of Racine County. In addition, Elmwood Park and North Bay utilize private police, and Sturtevant and Wind Point maintain constables with deputies on a part-time basis. The Sheriff's Department provides specialized assistance to the

city, town and village departments. In practice, the city police department is able to handle most problems inside the city limits whereas the town and village departments, due to their limited size, are supplemented by patrols from the County Sheriff's Department.

Fire protection is provided by the Racine Fire Department, the two town departments in Caledonia and Mt. Pleasant, and the Village of Sturtevant Fire Department. The Racine Department is the largest, and is equipped to fight fires in high density residential, commercial and industrial areas. The fire departments have reciprocal agreements to provide assistance to each other when a fire is too big for a single department to handle. Also, Mt. Pleasant provides fire protection for Elmwood Park, the Caledonia Department serves Wind Point, and Racine protects the Village of North Bay, all on a contract basis.

Public Education

The Unified School District No. 1 provides all public elementary and secondary education in the Planning District. Enrollment has increased by 48 percent since 1961 and there were over 31,000 students enrolled for the 1969-1970 school year. The Racine Technical Institute for vocational, technical and adult education is authorized under Section 41.13 of the Wisconsin Statutes to award the associate degree. In 1967, its service area was extended to include all of Racine County, except the Norway-Muskego School District, as Area Vocational, Technical and Adult Education District No. 7. The technical school, which has independent taxing powers, has its main building in downtown Racine and additional facilities elsewhere in the county.

Public Health

Within the Racine Urban Planning District, public health services are provided at the county, city, town and village levels, as authorized in Chapter 141 of the Wisconsin Statutes.

The Racine County Nursing Service carries on a generalized public health program in all parts of the District outside the city in the area of communicable and non-communicable disease control. Nursing service activities include programs of immunization and education under the control of a medical advisor and a five member health committee of the County Board.

The City of Racine has a Health Department, run by a Public Health Officer, which maintains a full range of public health services, including programs of environmental health protection, nursing and education, laboratory testing, and maintenance of vital statistics data.

The Mt. Pleasant Board of Health and Caledonia Health Department, each consisting of two members of the Town Board and a health officer, carry out inspections of eating places for unsanitary conditions and investigate potential health hazards throughout the towns.

Responsibilities of health officers in the Villages of Elmwood Park, North Bay, Sturtevant and Wind Point include carrying out public health inspections and reporting of communicable diseases. In Sturtevant, health and sanitation activities carried out by the village also include spraying for weeds, garbage collection, and rodent control.

Social Services

Social services in the Planning District are centralized at the county level in the Departments of Social Services and General Welfare which are overseen by a four member committee of the elected County Board. Public assistance programs for persons in need serve approximately 4,500 persons in the District. The Department of Social Services administers old age assistance, aid to the disabled, aid to the blind, and aid to families with dependent children, with approximately 70 percent of the cost being borne by the state and federal governments. Activities of the Department of General Welfare include provision of general relief, administration of the Federal Surplus Foods Program, counseling and budgeting assistance for the needy, and processing applications for private pay patients entering the Racine County Home and Hospital.

Sanitation

Sewer and water services are provided by a number of agencies. The Racine Sewer Department serves the corporate area and has service agreements with the Mt. Pleasant Sewer Utility District, the Caledonia Sewer Utility District No. 1, and the Village of North Bay to treat their sewage in the Racine Wastewater Treatment plant on Lake Michigan. The Caddy Vista, Crestview and North Park Sanitary Districts, serve portions of Caledonia and the Village of Wind Point. The Village of Sturtevant has its own sewerage system. The Village of Elmwood Park has no sanitary sewer service.

The Racine Water Department is a wholly owned subsidiary of the city with its own five member Board of Water Commissioners consisting of the mayor, one alderman appointed by the mayor, and three citizens elected by the Common Council by ballot. Purchased by the city in 1919, the Water Department is operated as a corporation, serving the city along with the adjacent portions of Caledonia and Mt. Pleasant, and the South Lawn Sanitary District. Caddy Vista and Crestview have their own water systems.

Roads and Bridges

There are more than 500 miles of federal, state, county, and local roads within the Planning District. These roads are constructed with funds from various federal, state, and

local sources and are maintained according to various statutory aid formulas depending upon which political subdivision has jurisdiction. In general, however, the county maintains its system of county trunk highways outside of incorporated areas, except in some incorporated areas where the municipality has assumed responsibility, and is reimbursed by the state for maintenance of state and federal highways. County roads are subject to state and federal department of transportation standards and approval. State and federal design standards prevail on these roads, which are maintained by the county. The city and villages and towns maintain their own local roads. The incorporated municipalities have some leeway in determining needs and establishing standards for their systems. Town road standards are set forth in Section 86.26 of the Wisconsin Statutes, and are based upon average daily traffic volumes. Caledonia and Mt. Pleasant maintain their own town roads.

Parks and Recreation

Both Racine city and county maintain park departments which are engaged in parkland acquisition, development and maintenance, and carry on recreation programs. Town and village involvement in the area of parks and recreation has been limited to the development of several wayside areas and small neighborhood parks.

Environmental Controls

As with other local services, environmental control responsibilities, including planning, zoning, building inspection and enforcement are divided among the various levels of government. The city and county maintain planning staffs which carry on planning activities and administer land use controls. The city, villages, and towns each have their own building codes, subdivision controls, zoning requirements and enforcement procedures. A zoning change in a town requires both town and county approval. The Wisconsin Water Resources Act, which has required all counties in the state to adopt floodland and shoreland regulations has brought the state into the area of local environmental control.

Administration

Administrative activities include maintenance of tax rolls, proceedings of elected governing bodies, deeds and other legal records, vital statistics, machinery for elections, issuance of licenses and permits and maintenance of county, city, town and village financial records. At the county level, record keeping is conducted in the offices of the County Clerk, Register of Deeds, and Treasurer. The City of Racine's administrative activities include tax assessment and efficient functioning of the city and its various departments. Similarly, the principal administrative functions of the villages and towns are in the area of tax assessment and the day-to-day operation of local government.

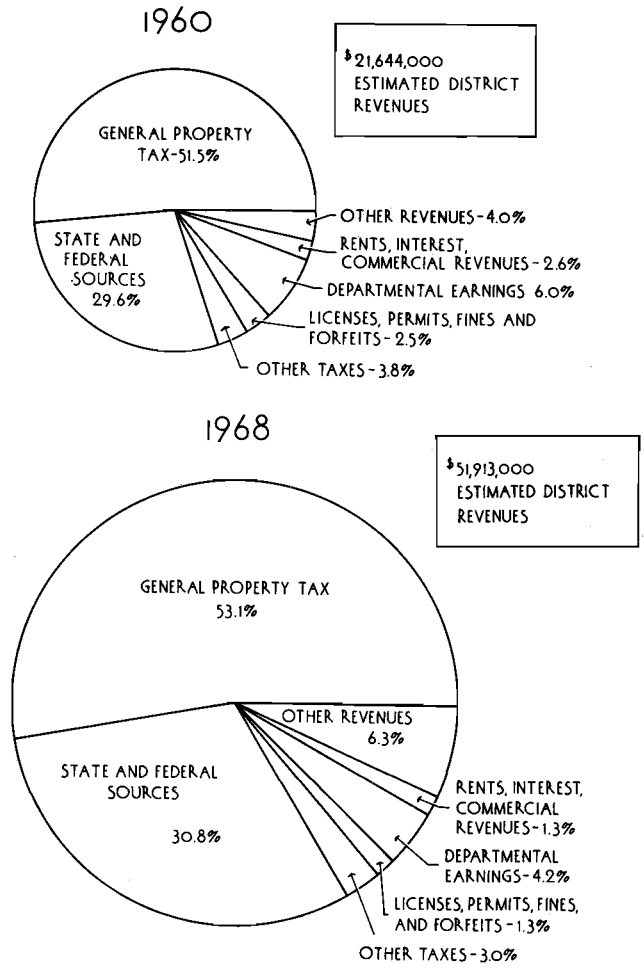
Federal and state services of a local nature are found in the Planning District and a multitude of state and federal programs are being implemented in the Planning District. These range from soil improvement projects of the Soil Conservation Service to the program of the Division of Environmental Protection of the Wisconsin Department of Natural Resources to monitor wastewater treatment systems and domestic water supplies.

INCOME AND COST OF LOCAL PUBLIC SERVICES

District revenues for county, municipal and educational purposes have been growing rapidly and were in excess of $50 million in 1968. (See Figure 10-1.) The growth of

Figure 10-1

ESTIMATED REVENUES – 1960 AND 1968
RACINE URBAN PLANNING DISTRICT



SOURCE: DIRECTOR OF BUSINESS SERVICES, UNIFIED SCHOOL DISTRICT NO. 1
COUNTY ADMINISTRATOR
CITY DIRECTOR OF FINANCE
TOWN CLERKS, VILLAGE CLERKS
TECHNICAL AND ADULT EDUCATION DISTRICT NO. 7

Table 10-1

SOURCE OF COUNTY INCOME: 1960-1969

Category	Total 1960	Percent of Total	Total 1969	Percent of Total	Percent Increase 1960-1969
Other Taxes: Income Tax Rebate Utility Tax Rebate	$ 774,960.49	12.7	$ 1,750,544.11	12.0	+115.8
Fees and Costs	91,585.68	1.5	191,656.70	1.3	+ 95.9
Licenses and Permits	916.00	–	1,096.00	–	+ 15.8
Fines and Forfeitures	82,564.40	1.4	221,625.22	1.5	+182.8
Gifts and Grants	238,902.05	3.9	861,329.58	5.9	+250.7
Highway Revenue from State	238,046.78 [a]	3.9	351,200.45	2.4	+ 33.0
Revenue from Welfare Aids	1,164,017.38	19.1	2,659,693.89	18.2	+112.4
All Other General Revenue	65,210.26	1.1	43,570.36	0.3	– 33.0
Commercial Revenues - Interest	37,556.85	0.6	137,942.55	0.9	+264.5
Revenues of County Institutions	647,107.70	10.6	1,630,429.37	11.2	+154.0
All Other Department Revenues	661,606.90	10.8	972,620.39	6.7	+ 32.6
Property Tax Estimates	2,098,418.70	34.4	5,791,236.47	39.6	+214.7
Total	$6,100,893.19	100.0	$14,612,945.09	100.0	+136.4

[a] *Figures from Financial Report of Highway Operations*

Source: Financial Report of Highway Operations, Racine County Budget 1960-1971 (Incorporating Actual Figures)

revenues between 1960 and 1968 has kept pace with the rising cost of local government in the Planning District which has more than doubled to $47.5 million over the eight year period. State and federal governments support local agencies in the Planning District by contributing a portion of the cost of many different public services which are administered locally. The proportion of the cost contributed ranges from about 70 percent of the total spent for social welfare programs to about 17 percent of the total spent for maintaining the county highway program. In 1968, state and federal sources contributed almost $16 million or 31 percent of District revenues.

County

In 1969, Racine County income from all sources totaled $14.6 million. (See Table 10-1.) The largest source was the property tax, which provided 39.6 percent of income. State and federal funds in the form of income tax rebates and monies earmarked for a wide variety of local purposes and projects provided an additional 38.5 percent and the remaining income came from departmental and institutional revenues, issuance of licenses and permits, fines and forfeitures, various taxes, and some miscellaneous services.

County expenditures have more than doubled between 1960 and 1969. (See Table 10-2.) The most costly services provided by the county are public health and welfare aid programs which accounted for 58.1 percent of total expenditures. Public assistance, however, which is centralized at the county level, represented a smaller part of total county expenditures in 1969 than it did in 1960. About 15.7 percent is spent for operations of the County Highway Department with the other activities accounting for the remainder.

In response to rising county expenditures, county income has more than doubled in the decade of the 1960's. A somewhat greater reliance is being placed upon the property tax than ten years ago. State and federal assistance to the county has increased rapidly in all areas.

Although the county includes a much greater area than the Planning District, 79.7 percent of the equalized valuation and an estimated 77 percent of the county population were located east of IH-94 in 1969. The portion of total county expenditures that went into the Planning District was estimated on a category by category basis with estimates of the percentage of funds expended in the District ranging from 90 percent of health and welfare costs to 40 percent of county highway expenditures. (See Table 10-3.) Allocations varied with functions. Some $11.2 million in county expenditures are estimated to have been made east of Interstate Highway 94 in 1969.

Schools

Education is the single most important local public service provided in the Planning District in terms of its value, the

Table 10-2

GROWTH OF RACINE COUNTY EXPENDITURES: 1960-1969

Category	Total 1960	Percent of Total	Total 1969	Percent of Total	Percent Increase 1960-1969
General Government	$ 557,383.42	9.1	$ 1,448,344.21	9.9	+ 161.6
Protection of Persons and Property	388,451.44	6.4	913,024.25	6.2	+ 136.2
Health and Social Services	3,787,813.44	62.1	8,490,768.13	58.1	+ 114.5
Transportation	856,144.39 [a]	14.0	2,288,170.82 [a]	15.7	+ 120.2
Education and Recreation	387,041.76	6.3	971,340.23	6.6	+ 278.8
Planning and Zoning	11,949.00	0.2	169,435.85	1.2	+1,405.0
Unclassified	53,720.71	0.9	31,038.11	0.2	− 41.4
Contingent Fund	58,389.03	1.0	127,097.64	0.9	+ 191.2
Capital Outlay	−	−	173,725.85	1.2	−
Total	$6,100,893.19	100.0	$14,612,945.09	100.0	+ 136.4

[a] *Figures from Financial Report of Highway Operations*

Source: Financial Report of Highway Operations, Racine County Budget 1960-1971 (Incorporating Actual Figures)

Table 10-3

ESTIMATED PORTION OF COUNTY EXPENDITURES: 1969

Category	Total	Percent of Total Expenditures	Estimated Percentage of Expenditure In Planning District	In District	Remainder Of County
General Government	$ 1,448,344.21	9.9	75.0	$ 1,086,258.16	$ 362,086.05
Protection of Persons and Property	913,024.25	6.2	70.0	639,116.98	273,907.27
Health and Social Services	8,490,768.13	58.1	90.0	7,641,691.32	849,076.81
Transportation	2,288,170.82	15.7	40.0	915,268.33	1,372,902.49
Education and Recreation	971,340.23	6.6	50.0	485,670.11	485,670.12
Conservation and Development [a]	169,435.85	1.2	80.0	135,548.68	33,887.17
Unclassified	31,038.11	0.2	75.0	23,278.58	7,759.53
Contingent Expenditure	127,097.64	0.9	75.0	95,323.23	31,774.41
Capital Outlay	173,725.85	1.2	100.0	173,725.85	−
Total	$14,612,945.09	100.0	75.4	$11,195,881.24	$3,417,063.85

79.74 Percent of Equalized Value in Planning District
77.6 Percent of County Population in Planning District

[a] *Includes County Planning and Zoning Department, Regional Planning Commission, County Advertising and Promotion*

Source: Racine County Budget, 1971 (Incorporating Actual Figures)

Table 10-4

ESTIMATED DISTRICT REVENUES: 1960-1968
(Rounded to Nearest 1,000)

1960	Seven Municipalities*	District Schools 1959-1960 School Year	Racine Vocational School	Racine County 3/4 Of Revenues	Total Estimated 1960 Revenues	Percent of Total
General Property Tax	$ 3,555,000	$ 5,761,000	$ 310,000	$1,517,000	$11,143,000	51.5
State and Federal Sources	3,450,000	1,058,000	23,000	1,889,000	6,420,000	29.6
Other Taxes (Including Utility Tax) Refunds	718,000	–	–	99,000	817,000	3.8
Licenses and Permits, Fines and Forfeits	370,000	–	43,000	131,000	544,000	2.5
Departmental Earnings, School Tuition	415,000	342,000	7,000	525,000	1,289,000	6.0
Rentals, Interest, Commercial Revenues	162,000	205,000	12,000	182,000	561,000	2.6
Other Revenues	348,000	131,000	16,000	375,000	870,000	4.0
Total	$ 9,018,000	$ 7,497,000	$ 411,000	$4,718,000	$21,644,000	100.0

*Racine – Actual Receipts
Caledonia – Year Ending March, 1961
Mt. Pleasant – Year Ending March, 1961
Sturtevant – Actual Receipts
Elmwood Park – Actual Receipts
North Bay – Actual Receipts
Wind Point – Actual Receipts

1968	Seven Municipalities**	Unified School District No. 1 1968-1969 School Year	Racine Technical Institute 80%	Racine County 3/4 Of Revenues	Total Estimated 1968 Revenues	Percent of Total	Percent Increase 1960-1968
General Property Tax	$ 5,767,000	$16,729,000	$1,260,000	$3,836,000	$27,592,000	53.1	+147.6
State and Federal Sources	6,189,000	6,565,000	160,000	3,071,000	15,985,000	30.8	+149.0
Other Taxes (Including Utility Tax) Refunds	1,336,000	–	–	220,000	1,556,000	3.0	+ 90.5
Licenses and Permits, Fines and Forfeits	370,000	5,000	–	323,000	698,000	1.3	+ 28.3
Departmental Earnings, School Tuition	507,000	353,000	57,000	1,252,000	2,169,000	4.2	+ 68.3
Rentals, Interest, Commercial Revenues	522,000	–	1,000	136,000	659,000	1.3	+ 17.5
Other Revenues	2,567,000 [a]	–	12,000	675,000	3,254,000	6.3	+274.0
Total	$17,258,000	$23,652,000	$1,490,000	$9,513,000	$51,913,000	100.0	+139.8

**Racine – Actual Receipts
Caledonia – Year Ending March, 1969
Mt. Pleasant – Year Ending March, 1969
Sturtevant – Actual Receipts
Elmwood Park – Actual Receipts
North Bay – Actual Receipts
Wind Point – Actual Receipts

[a] *Consisting principally of a bond maturity account used to pay out bonds of the old City of Racine School District and general fund surplus of the City of Racine.*

Source: Director of Business Services, Unified School District No. 1; County Administrator; City Director of Finance; Town Clerks; Village Clerks; Area Vocational, Technical and Adult Education District No. 7

cost and the number of staff employed. About half of all taxes raised (and monies spent) by local government go for school purposes. Expenditures needed to operate the Unified School District have doubled since 1960 and amounted to $20.8 million for the 1968-1969 school year. Federal and state aids to education during this period have increased from 14.1 percent of total public educational costs in 1959-1960 to 27.8 percent in 1968-1969. This dramatic growth in state and federal aids to the Unified District during the 1960's is the result of four major developments:

1. Growth in student population.
2. Improvement in state aids structure.
3. Expansion of special education programs which are funded largely from state sources.
4. Expansion of programs in aid of education funded by the federal government.

The Racine Technical Institute receives and spends in excess of one million dollars per year, more than twice the amount of ten years ago. Financing relies on property taxes to a greater extent than is the case with the Unified School District, 85 percent of revenues vs. 70 percent of revenues.

Municipalities

There are seven municipalities within the Planning District each with the power to levy and collect taxes, issue bonds, and provide public services and facilities. In terms of total income and expenditures, the city, villages and towns collectively rank higher than the county, but below the Unified School District. Between 1960 and 1968, municipal revenues grew from $9.0 to $17.3 million and expenditures from $7.6 to $16.0 million. (See Table 10-4.) This is due to an increased population, increased costs because of inflation, and demands for additional and improved public services.

Municipal revenues come from several different sources; the relative importance of which is changing. Historically, the

property tax has been the most important source and it currently provides about one-third of municipal income in the Planning District. Second in importance is the Wisconsin state income tax and various federal sources, disbursements from which amounted to $6.2 million in 1968, or 35.9 percent of total revenues received by the local units of government. Taxes on gasoline and liquor, utility taxes, transfers from unappropriated surplus and departmental earnings comprise most of the remainder.

Municipal expenditures have grown rapidly since 1960 and totaled $16.0 million in 1968. (See Figure 10-2.) Largest costs are for protection of persons and property, employee benefits, debt retirements, and various unclassified expenditures, education and recreational activities (which include such things as the library, parks and museum), and maintenance of local roads. These activities amount to 78 percent of municipal expenditures. (See Figure 10-3.) City of Racine expenditures, which account for 90 percent of

Figure 10-2

ESTIMATED EXPENDITURES – 1960-1968
RACINE URBAN PLANNING DISTRICT

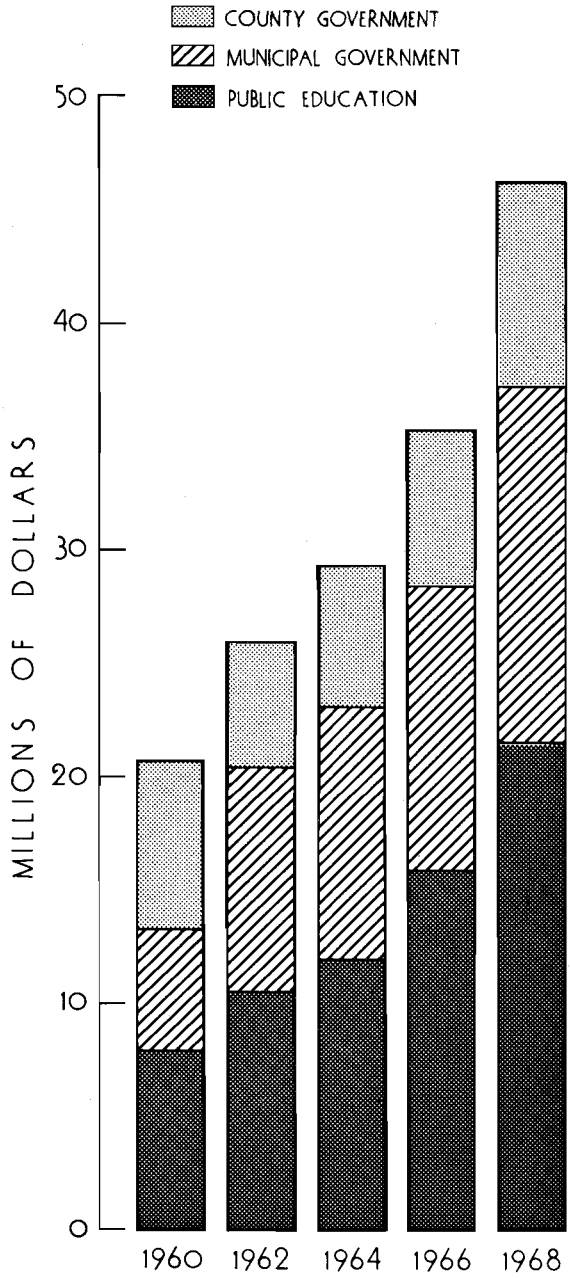
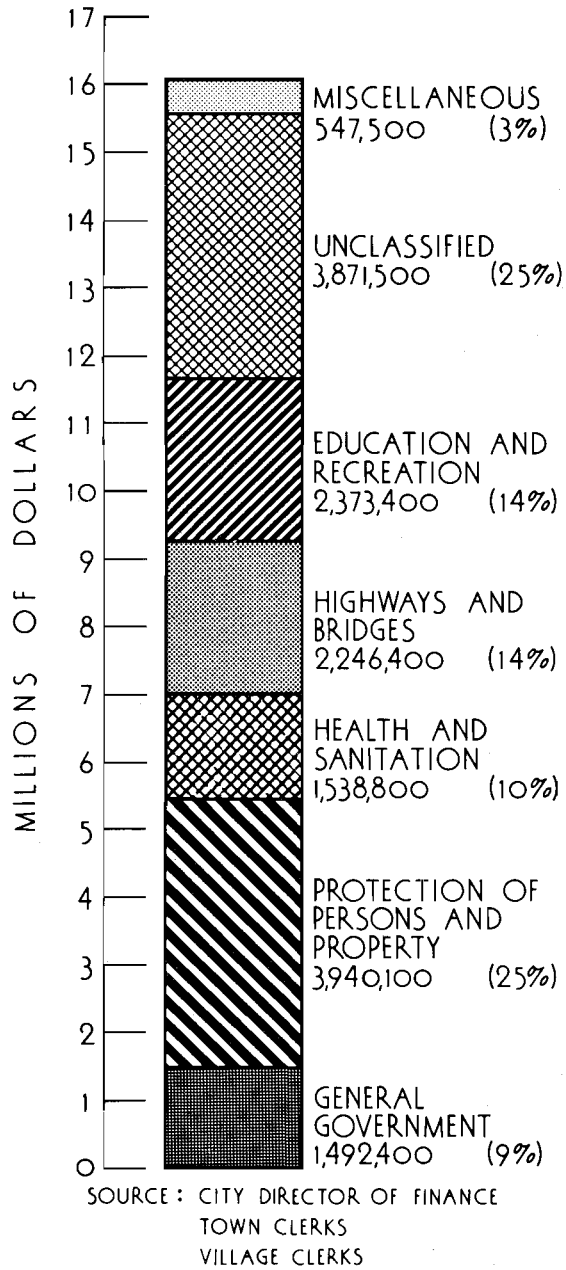


Figure 10-3

PURPOSE OF MUNICIPAL EXPENDITURES – 1968
RACINE URBAN PLANNING DISTRICT



SOURCE: CITY DIRECTOR OF FINANCE
TOWN CLERKS
VILLAGE CLERKS

Table 10-5

ESTIMATED DISTRICT EXPENDITURES: 1960-1968
(Rounded to Nearest 1,000)

1960	Seven Municipalities	District Schools 1959-1960 School Year	Racine Vocational School	Racine County Portion of District Expenditure	Total Estimated 1960 Expenditures	Percent of Total
General Government	$ 717,000	$ –	$ –	$ 408,000	$ 1,125,000	5.5
Protection of Persons and Property	1,876,000	–	–	272,000	2,148,000	10.5
Health, Sanitation and Social Services	818,000	–	–	3,409,000	4,227,000	20.7
Transportation	1,164,000	–	–	419,000	1,583,000	7.7
Education and Recreation	973,000	7,583,000	408,000	267,000	9,231,000	45.1
Insurance and Employee Benefits, Municipal Debt, Unclassified	1,456,000	–	–	50,000	1,506,000	7.4
Miscellaneous	586,000	–	–	44,000	630,000	3.1
Total	$ 7,590,000	$ 7,583,000	$ 408,000	$4,869,000	$20,450,000	100.0

1968	Seven Municipalities	Unified School District No. 1 1968-1969 School Year	Racine Technical Institute 80%	Racine County Portion of District Expenditure	Total Estimated 1968 Expenditures	Percent of Total	Percent Increase 1960-1968
General Government	$ 1,492,000	$ –	$ –	$ 866,000	$ 2,358,000	5.0	+109.6
Protection of Persons and Property	3,940,000	–	–	571,000	4,511,000	9.5	+110.0
Health, Sanitation and Social Services	1,539,000	–	–	6,201,000	7,740,000	16.3	+ 83.1
Transportation	2,246,000	–		798,000	3,044,000	6.5	+ 92.3
Education and Recreation	2,373,000	20,817,000	1,077,000	486,000	24,753,000	52.1	+156.5
Insurance and Employee Benefits, Municipal Debt, Unclassified	3,872,000	–	–	221,000	4,093,000	8.6	+171.8
Miscellaneous	548,000	–	–	424,000	972,000	2.0	+ 54.3
Total	$16,010,000	$20,817,000	$1,077,000	$9,567,000	$47,471,000	100.0	+126.9

Source: Director of Business Services, Unified School District No. 1; County Administrator; City Director of Finance; Town Clerks; Village Clerks; Area Vocational, Technical and Adult Education District No. 7

the total of all municipalities in the District in 1960, accounted for 85 percent in 1968. The city's rate of yearly increase has been large, but not of the magnitude of Caledonia and Mt. Pleasant, where much of the growth of the Planning District is taking place and where some services such as police and fire protection are being provided to a standard commensurate with the urbanizing character of the towns.

The highest costs experienced by the Towns of Caledonia and Mt. Pleasant are in the category of street improvement and maintenance which comprise from over one-third to one-half of the cost of town government. Racine, as an older and established city, has sizable expenditures in the category of protection of persons and property and debt service. Its cost of general government administration as a percent of the total is low because of the economies of serving a larger population. The villages present a varied picture in their pattern of expenditures.

The size, purposes and functions of the city, towns and villages in the Planning District are divergent, their governmental services also vary as well as the amounts of funds required to provide them.

Racine Urban Planning District

Total estimated local government revenues for the Planning District approximated $51.9 million in 1968. (See Table 10-4.) In all $25.1 million was received for education, $17.3 million by the municipalities and that portion of the county within the Planning District had an estimated $9.5 million in revenues. The property tax remains the single largest revenue source, amounting to 53.1 percent of revenues, with state and federal sources contributing another 30.8 percent, a proportion which has not changed appreciably over the last decade. Some 84 percent of 1968 revenues came from these two sources.

Local public expenditures in the Racine Urban Planning District amounted to $47.5 million in 1968. (See Table 10-5.) The cost of providing education and recreational services accounted for 52.1 percent of the total. The next largest item was public health, sanitation and social services at 16.3 percent, with protection of persons and property running a distant third at 9.5 percent.

Table 10-6

ESTIMATED CAPITAL EXPENDITURES: 1960-1968
Racine Urban Planning District [a]

	1960	1963	1966	1968
Racine County [b]	$ 177,600	$ 219,300	$ 472,100	$ 838,600
Unified School District	N/A	1,254,800	4,006,900	2,511,600
Racine Technical Institute	22,000	–	446,700	275,000
City of Racine	1,623,600	1,776,100	4,334,400	2,636,200
Town of Caledonia	68,700	106,400	125,000	77,800
Town of Mt. Pleasant	2,100	–	24,900	27,000
Village of Elmwood Park	N	N	4,400	4,400
Village of North Bay	N	N	N	N
Village of Sturtevant	73,100	54,400	224,000	206,500
Village of Wind Point	N	N	N	N
Total	$1,967,100	$3,411,000	$9,638,400	$6,577,100

[a] *Not including State Highway Construction Funds*
[b] *Not including Federal Aid Construction Funds*
N — None or Insignificant
N/A — Not Available

Source: Racine County Audit Reports: 1960, 1963, 1966, 1968
Unified School District No. 1 Audit Reports: 1960-61, 1963-64, 1966-67, 1968-69
Racine Vocational, Technical and Adult Education School District No. 7 Budgets: 1960, 1963, 1966, 1968
Town of Caledonia, Annual Reports: 1960, 1963, 1966, 1968
Town of Mt. Pleasant, Annual Reports: 1960, 1963, 1966, 1968
Village of Sturtevant, Statements of Financial Condition: 1960, 1963, 1966, 1968
City of Racine, City Finance Office
Village Clerk, Elmwood Park

Capital Improvement Expenditures

Capital improvements have been running between 10 and 14 percent of District expenditures. From less than two million dollars in 1960, capital expenditures in the District reached a total of $9.6 million in 1966 and have decreased somewhat to $6.6 million in 1968. (See Table 10-6.) Although the trend has been sharply upward in the 1960's, fluctuations in capital spending among the districts and municipalities occur from year to year. Major outlays for the expansion of the City Wastewater Treatment Plant, and construction of J.I. Case High School and Gifford Junior High School account for much of the capital spending in the peak year, 1966.

Racine County capital improvement expenditures more than quadrupled over the eight-year period to a total of $838,600 in 1968. Included are major expenditures for improvements to the county institution and county courthouse. County highway expenditures have averaged out to about half of total county expenditures in the Planning District, but tend to fluctuate widely from year to year depending upon whether most county trunk highway construction funds are spent to the east or west of Interstate Highway 94.

Since formation of the Unified School District in 1961, a sizable program to provide needed educational facilities has been carried on. A total of five elementary schools, two junior high schools, and one senior high school have been constructed and additions have been built on to many existing facilities. The $2.5 million spent for capital outlays by the Unified School District in 1968 represented 38 percent of total capital expenditures in the Racine Urban Planning District.

The relatively limited capital expenditures of the Racine Technical Institute (RTI) and its successor, the Technical, Vocational, and Adult Education District No. 7, have included funds to expand parking at the school and carry out improvements to the main building. Capital expenditures by RTI totaled $275 thousand in 1968, but can be expected to increase in the coming years as the lakefront campus is developed.

Municipal expenditures for capital improvements have increased to a marked degree since 1960. Approximately 90 percent of these funds are spent by the City of Racine for a wide range of municipal purposes, including street improvement, utility construction and park development.

Racine bond and outlay capital expenditures are up 62.4 percent since 1960 and totaled $2.6 million in 1968. The towns of Caledonia and Mt. Pleasant expend only small sums for physical improvements within their boundaries. Most noteworthy among the years shown has been completion of the Caledonia town hall and safety buildings. Capital expenditures in Caledonia and Mt. Plesant were estimated at $77,800 and $27,000 respectively in 1968. Among the villages, only Elmwood Park, which constructed a storm drainage system in 1965 which it is paying for in yearly installments out of general revenues, and Sturtevant make significant capital expenditures. In Sturtevant, capital expenditures increased by 182 percent between 1960 and 1968 when $207,000 was spent on capital outlays. Of this total, two-thirds was for paving, curb and gutter, sidewalks, and sewer and storm sewer construction.

PER CAPITA COSTS OF LOCAL GOVERNMENT

During the 1960's, while the population of the Planning District was increasing by 17.2 percent, local revenues and expenditures were increasing by 113.3 and 101.7 percent respectively. Economic and population growth, inflation, rising expectations, and the demand for an increasingly higher level of public services account for this dramatic upward trend in per capita revenues and expenditures. Per capita revenues have grown from less than $200 in 1960 to more than $400 eight years later. (See Table 10-7.)

Total annual expenditures have grown from $180 to $365 per capita. More money has been spent on education and recreation than any other phase of local government in 1968; $186 for every resident of the Planning District, compared to $81 per capita in 1960. All units of local government are seeking to provide an increased level of public services and, thus, per capita costs are increasing at a similar pace nation-wide.

Rapid growth in expenditures and revenues per capita has taken place at all levels of local government except the villages, which present a mixed picture. (See Table 10-8.) The most rapid increases have occurred in the area of education. Expenditures of the Unified School District totaled $177 per capita in 1968, up from $67 per capita being spent for public education in the District in 1960, the last year before unification took place. The cost of the Racine Technical Institute has increased substantially although at a more moderate pace. The RTI represents a relatively small portion of total educational costs in the Racine Urban Planning District, expenditures amounting to $11.55 per capita in 1968. The cost of county government to District residents has increased from an estimated $46 per capita in 1960 to an estimated $78 per capita in 1968. The steady increase reflects the increasing cost of providing public services. District revenues have kept pace with increasing expenditures for education and the county government.

Among the municipalities, the City of Racine and the towns of Caledonia and Mt. Pleasant have experienced rapid and steady increases in expenditures and revenues since 1960. The villages of Elmwood Park, North Bay, Sturtevant and Wind Point display no clear trends, in part due to their small size which magnifies changes in revenues and expenditures.

Highest cost communities in the District, in terms of revenues and expenditures per capita, are North Bay and Wind Point, which were spending $377 and $227 per capita in 1968. Both figures represent significant increases over 1960. Sturtevant and the Town of Caledonia, which were spending $46 and $78 per capita in 1968 were the least costly, with the Town of Mt. Pleasant, Village of Elmwood Park and the City of Racine being in between the two extremes.

Table 10-7

PER CAPITA INCOME AND EXPENDITURES

Income Source	Dollars Per Capita 1960	1968
Revenue from Property Tax	$ 98.28	$216.41
Revenue from State and Federal Sources	56.62	125.37
Total Revenues from All Other Sources	35.99	65.38
Total	$190.89	$407.16
Expenditure Category	**Dollars Per Capita 1960**	**1968**
General Government	$ 9.93	$ 18.49
Protection of Persons and Property	18.95	35.38
Health, Sanitation, Social Services	37.28	60.70
Transportation	13.96	23.87
Education and Recreation	81.41	185.69
Insurance, Employee Benefits, Municipal Debt, Unclassified	13.28	32.10
Miscellaneous	5.55	7.62
Total	$180.36	$363.85

Source: U.S. Census of Population, 1960
1968 Population Estimate, Harland Bartholomew and Associates
Director of Business Services, Unified School District No. 1
County Administrator; City Director of Finance; Town Clerks; Village Clerks; Technical and Adult Education District No. 7

Table 10-8

REVENUES AND EXPENDITURES PER CAPITA: 1960-1968
By Municipality and Taxing District

		1960	1963	1966	1968
Racine County (Total County Figures)	Revenues	$ 46.06	$ 53.16	$ 63.41	$ 75.36
	Expenditures	45.49	50.65	65.33	77.61
Unified School District No. 1	Revenues	66.10 [b]	99.60	132.21	175.89
	Expenditures	66.86 [b]	96.39	131.31	177.13
Racine Technical Institute [a]	Revenues	5.73	6.46	15.67	11.55 [c]
	Expenditures	5.51	5.91	12.60	8.34 [c]
Revenues and Expenditures Borne by all District Residents	Revenues	$117.89	$159.22	$211.29	$262.80
	Expenditures	$117.86	$152.95	$209.24	$263.08
Municipalities					
City of Racine	Revenues	$ 88.96	$ 91.31	$117.82	$131.53
	Expenditures	84.03	91.59	115.06	135.69
Town of Caledonia	Revenues	31.66	38.01	50.51	52.59
	Expenditures	29.19	42.68	51.81	47.61
Town of Mt. Pleasant	Revenues	24.84	28.50	44.89	72.45
	Expenditures	17.40	29.32	35.93	56.66
Village of Elmwood Park	Revenues	–	205.00	142.50	124.44
	Expenditures	–	65.00	117.50	95.56
Village of North Bay	Revenues	337.12	300.00	353.84	373.08
	Expenditures	181.82	300.00	242.31	376.92
Village of Sturtevant	Revenues	149.87	82.72	79.68	78.50
	Expenditures	154.57	47.97	129.33	45.82
Village of Wind Point	Revenues	164.15	175.29	186.42	143.12
	Expenditures	129.59	122.13	283.41	227.15

[a] *City facility until 1967*

[b] *Based upon 18-month budget*

[c] *Consolidated figure — City of Racine School District and 25 suburban school districts*

Source: Racine County Audit Reports: 1960, 1963, 1966, 1968
Unified School District No. 1 Audit Reports: 1960-61, 1963-64, 1966-67, 1968-69
Racine Vocational, Technical and Adult Education School District No. 7 Budgets: 1960, 1963, 1966, 1968
Synopsis of Tax Information, District Municipalities, Racine Chamber of Commerce
Population Estimates for District and Municipalities, Harland Bartholomew and Associates

The Planning District's total revenues were about $335 per capita in 1965. When this figure is compared to other Standard Metropolitan Statistical Areas, the Planning District's income picture seems to be in line, both in terms of the total and the amount derived from the various sources, with the midwestern cities selected. (See Figure 10-4.) Milwaukee and Minneapolis-St. Paul were slightly higher, the others somewhat less.

BONDED INDEBTEDNESS

There are a number of methods by which public improvement programs and individual projects may be financed.

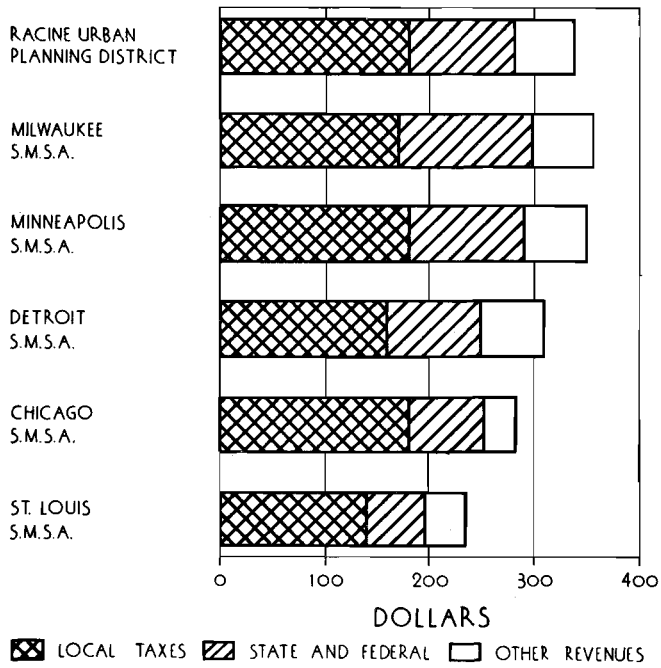
General Obligation Bonds

The most common method of financing public improvements is through the issuance of general obligation bonds. Such bond issues must be authorized by the governing agency and the amount of outstanding bonded indebtedness is limited in Section 67.03 of the Wisconsin Statutes to not more than five percent of the equalized value of taxable property in the city, villages, towns and sanitary and special districts for general purposes. For the Unified School District, bonded indebtedness for school purposes is limited to 10 percent of the equalized value of total taxable property in the entire District as specified in Section 67.03 of the Wisconsin Statutes. In the Planning District, therefore, combined general obligation bonds of the municipalities and Unified School District may be levied up to a maximum of 15 percent of equalized value. An advantage of the general obligation bond is that the improvements may be built and then used during the time they are being paid for. The disadvantage is primarily the interest costs which add materially to the amount paid, particularly when the bond issue is amortized over a period of 20 to 30 years.

General obligation bonds are the most common method of financing civic improvements in the Racine Urban Planning

Figure 10-4

PER CAPITA GENERAL REVENUES
OF LOCAL GOVERNMENTS
1965-1966



SOURCE: U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

NOTE: S.M.S.A. - STANDARD METROPOLITAN STATISTICAL AREA

District with $41.6 million outstanding at the end of 1969. (See Table 10-9.) Of this total, $24.0 million consists of debt contracted for by the Unified School District for the purpose of site acquisitions, school construction, and improvements of existing facilities. The City of Racine has $14.5 million in general obligation debt outstanding, the largest portion of which is comprised of a variety of "Corporate Purpose" bonds, representing expenditures for street improvements, right-of-way acquisition, and sewer construction. The remaining general obligation bonded debt, totaling $3.1 million, has been incurred by three of the villages, Elmwood Park, Sturtevant, and Wind Point, and six of the special utility districts established for the purpose of providing water and sewer service in the unincorporated portions of the District. At this time, the total general obligation bond debt is being retired at a rate of $3.8 million per year.

Revenue Bonds

Revenue bonds are a second method of financing public improvements. These bonds finance self-supporting public enterprises such as water, sewage disposal, and off-street parking facilities. Funds for paying the interest and retiring the revenue bonds are derived solely from the income produced by the facility. A higher interest rate is required than is the case with general obligation bonds. These bonds do not come under the limitation on general bonded debt imposed by State Statutes.

Of the $5.6 million in revenue bonds outstanding at the end of 1969, $2.8 million represented improvements to the City of Racine waterworks and public parking facilities. The remaining $2.8 million in revenue bonds have been sold by the North Park, Caddy Vista and Crestview Sanitary Districts and the Mt. Pleasant Sewer Utility District. Residents of the districts benefit from the utility improvements and the service charges provide revenues needed to retire the bonds.

"Pay-As-You-Go"

Another method of financing public improvements is the "pay-as-you-go" method which consists of levying sufficient taxes to operate and maintain municipal services and also to pay for the public improvements.

There are several difficulties inherent in a "pay-as-you-go" plan, the most obvious of which is the fact that it has been impossible in the past to raise enough money through taxes or other charges to provide for an adequate standard of operation and maintenance, to say nothing of financing a substantial improvement program. In a "pay-as-you-go" program, any major public improvement would require a long period of "saving-up" before it could be built. During this time there would be constant temptation and "pressures" to use the funds for other needy purposes. In raising funds for a "pay-as-you-go" program, many methods of taxation may be used. However, all money spent for public purposes comes from the same taxpayers in one form or another.

There is one great and obvious advantage inherent in a "pay-as-you-go" financial plan. When a project is paid for as it is built, it is cheaper than if it were financed by bonds on which interest must be paid for ten, twenty, or more years.

The "pay-as-you-go" approach has been adopted by the towns of Caledonia and Mt. Pleasant, although Caledonia has $40,000 in long-term debt for its town hall and police and fire station with pay-out scheduled in 1972. In general, however, these communities and the towns of Elmwood Park and North Bay provide for needed capital improvements out of current tax income. Racine County, which also provides facilities in the District, operates on the "pay-as-you-go" system of financing. The county has no bonded debt.

Warrants of Indebtedness

Short-term debt is sometimes handled by the issuance of

Table 10-9

LONG-TERM INDEBTEDNESS

Municipality	Character of Debt	Bonds Outstanding December 31, 1969	
		General Obligation	Revenue
City of Racine [a]	Sewer Construction	$ 2,325,000	$ –
	Corporate Purpose	11,525,000	–
	Shore Protection	250,000	–
	Promissory Notes	392,232	–
	School Debt	–	–
	Utility Debt	–	2,840,000
	Sub-Total	$14,492,232	$2,840,000
Town of Caledonia	Municipal Buildings	$ 40,000	$ –
	Sewer Utility District No. 1	1,430,000	–
	Water Utility District No. 1	285,000	–
	North Park Sanitary District [b]	(649,000)	464,000
	Crestview Sanitary District [b]	(237,481)	136,000
	Caddy Vista Sanitary District [b]	(92,000)	104,000
	Sub-Total	$ 2,733,481	$ 697,000
Town of Mt. Pleasant	Sewer System	$ –	$2,065,000
	Sub-Total	$ –	$2,065,000
Unified School District No. 1	School Bonds and Notes	$23,954,000	$ –
	Sub-Total	$23,954,000	$ –
Village of Elmwood Park	Promissory Note	$ 26,400	$ –
	Sub-Total	$ 26,400	$ –
Village of Sturtevant	General Obligation Bonds and Promissory Notes	$ 287,435	$ –
	Sub-Total	$ 287,435	$ –
Village of Wind Point	Water Distribution System	$ 130,000	$ –
	Sub-Total	$ 130,000	$ –
Racine Urban Planning District	Total Long-Term Debt	$41,623,548	$5,609,000

[a] *The City of Racine also has $5,565,000 in Sinking Fund debt, bonds of the old Racine School District which the city purchased and is paying off with income generated from investments.*

[b] *Bond against property within Sanitary District.*

Source: Unified School District No. 1, Division of Business Services; City of Racine, Finance Office; Town Clerks; Village Clerks.

warrants of indebtedness which are retired when anticipated income is received. This type of debt is generally issued to cover deficiencies in operating revenue rather than being issued for a public improvement. This is not a desirable way to finance either operation or improvements. As far as is known, this technique is not utilized by any of the jurisdictions in the Planning District.

Special Assessments

Special assessments provide another method by which public improvements may be financed, particularly those which will benefit only a certain segment or area of the community. When improvements are financed by the special assessment method, the benefited property pays for all, or almost all of the improvement costs. The cost of paving minor streets and building sanitary sewers is customarily assessed against adjacent property owners.

Most of the special assessment charges are carried by residents of the unincorporated areas who pay for utility improvements such as sewer, water, storm drainage and street lighting. Current policy of the utility districts is to have the cost of extensions to the existing systems borne by benefiting property owners.

Debt Limits

Equalized value, or the equivalent market value of property, has been rising rapidly in the District, primarily as a result of inflation, population growth and economic expansion. Since 1960, the equalized value has increased by

Table 10-10

BONDING CAPACITY BY MUNICIPALITY: 1969

Municipality	Total Bonding Limit	General Obligation Bonds Outstanding	Current Net Bonding Capacity	Percent of Bonding Capacity Utilized
City of Racine	$31,057,750	$14,492,232	$16,565,518	46.7
Town of Caledonia	4,787,400	1,755,000	3,032,400	36.7
Town of Mt. Pleasant	8,514,850	–	8,514,850	–
Village of Elmwood Park	227,550	26,400 [a]	227,550	11.6
Village of North Bay	275,100	–	275,100	–
Village of Sturtevant	774,100	287,435	486,665	37.1
Village of Wind Point	889,200	130,000	759,200	14.6
Sub-Total	$46,525,950	$16,691,067	$29,861,283	35.9
Unified School District	$93,051,900	$23,954,000	$69,097,900	25.7
Grand Total	$ –	$40,645,067	$ –	–

[a] *Promissory Note*

Source: Municipal Budgets, Racine Urban Planning District

58 percent, from $589 million in 1960 to $931 million in 1969. One aspect of this trend has been a proportional expansion of the debt limit for general obligation bonds.

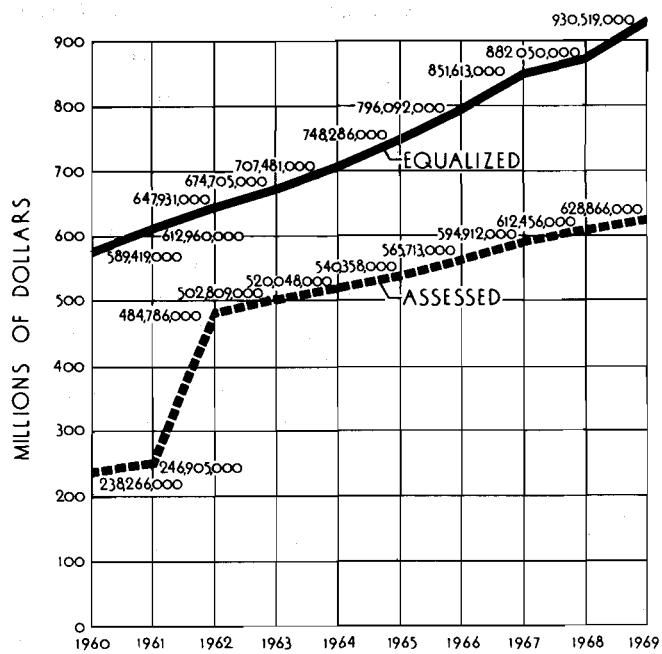
Based upon the five percent debt limit, the bonding power of District municipalities reached $46.5 million in 1969, $17 million higher than the $29.5 million figure for 1960. (See Figure 10-5.) With only $16.7 million in general obligation debt, excluding that of the Unified School District, there is a comfortable margin between the outstanding debt for general obligation bonds in the District and the statutory debt limit. (See Table 10-10.) Only 36 percent of the potential borrowing power in the District is now being utilized. The Unified School District is utilizing 26 percent of its $93 million bonding capacity.

The amount of additional general obligation bonds which can be sold varies among the jurisdiction and districts. The City of Racine, largely built up and with the greatest portion of the District population, has borrowed up to 46.7 percent of its debt limit in 1969. The villages of Elmwood Park, Sturtevant and Wind Point were bonding up to 11.6, 37.1 and 14.6 percent of capacity, respectively.

In Caledonia, which has bonded against the equalized value of the entire town in order to finance sewage system improvements in the Caledonia Sewer and Water Utility Districts, the total general obligation debt excluding that of the other utility districts amounted to 36.7 percent of equalized value. The Town of Mt. Pleasant, and the villages of Elmwood Park and North Bay had no general obligation debt outstanding. The towns and villages have a relatively higher proportion of their borrowing power intact, relying as they do, to a greater extent upon revenue bonds and current income to provide needed public facilities.

Figure 10-5

GROWTH IN EQUALIZED AND ASSESSED VALUATIONS – 1960-1969
RACINE URBAN PLANNING DISTRICT



SOURCE: RACINE COUNTY TREASURER

Table 10-11

ESTIMATED BONDING CAPACITY: 1970-1974

Year	Estimated Equalized Valuation	Estimated Bonding Capacity	Municipal General Obligation Bonds and Promissory Notes Outstanding	Additional Bonding Capacity	Practical Bonding Capacity [a]	Practical Additional Bonding Capacity [b]
Racine Urban Planning District						
1970	$ 990,351,000	$ 49,518,000	$22,883,438	$ 26,634,562	$37,138,500	$14,255,062
1971	1,054,031,000	52,701,550	20,564,843	32,136,707	39,526,162	18,961,319
1972	1,121,805,000	56,090,250	18,351,489	37,738,761	42,067,687	23,716,198
1973	1,193,937,000	59,696,850	16,315,281	43,381,569	44,772,637	28,457,356
1974	1,270,707,000	63,535,350	13,152,381	50,382,969	47,651,512	34,499,131
Unified School District No. 1 of Racine County						
1970	$ 990,351,000	$ 90,035,100	$22,314,000	$ 67,721,100	$67,526,325	$45,212,325
1971	1,054,031,000	105,403,100	20,574,000	84,829,100	79,052,325	58,478,325
1972	1,121,805,000	112,180,500	18,834,000	93,346,500	84,135,375	65,301,375
1973	1,193,937,000	119,393,700	17,144,000	102,249,700	89,545,275	72,401,275
1974	1,270,707,000	127,070,700	15,454,000	111,616,700	95,303,025	79,849,025

[a] *Represents 75 percent of legal bonding limits*

[b] *Represents practical bonding capacity minus bonds outstanding*

Source: Harland Bartholomew and Associates Estimates

The Unified School District, which may bond up to ten percent of equalized value, had a general obligation debt totaling $24.0 million in 1969, and was utilizing only 25.7 percent of its potential bonding capacity. School district debt, however, amounts to 57.6 percent of total general obligation debt outstanding in the Racine Urban Planning District.

Not all of this additional bonding capacity will be readily available for use, however, as bonding up to the maximum would leave municipalities without any additional bonding capacity in the event of an emergency. Generally, an accepted practice is followed which allows the municipality to issue bonds that would account for no more than 75 percent of the actual legal limit. Above the 75 percent level, bond buyers generally ask for additional premiums in the form of increased interest rates. This limit is usually referred to as the "practical bonding capacity".

Potential Bonding Power

Future bonding power in the District will be a factor of the growth of assessed valuation and the rate at which current debt is retired. Assuming a continuation of past trends, the legal bonding power should continue to expand at a rate sufficient to insure that necessary capital improvements can be provided. (See Table 10-11.)

Since 1960, equalized valuation has been growing at a rate in excess of six percent per year. Projected into the future, this rate of growth means that equalized value would exceed $1.27 billion in 1974. As the total of current bonds outstanding is reduced, additional bonding capacity should increase to $50.4 million in 1974. Practical bonding capacity in this District should increase to $47.7 million in 1974, and the practical additional bonding capacity which represents practical bonding capacity minus bonds outstanding would amount to $34.5 million. This is a figure almost 100 percent greater than the total municipal general obligation debt outstanding in 1969.

Similar growth in bonding capacity is forecast for the Unified School District, which should have an additional practical bonding capacity of almost $80 million in 1974, assuming no additional bond issues are passed in the interim.

HOW PUBLIC SERVICES ARE PAID FOR

Property Taxes

Taxes are levied on the assessed value assigned to all property which is a percentage of the equalized or real market value of the property. In 1968, the rate at which property was being taxed varied between 14.8 mills per one hundred dollars of equalized value in Wind Point and 35.6 mills per one hundred dollars of equalized value in the City of Racine.

Total equalized value of all property in the Planning District has increased from $589 million in 1960 to $931

Table 10-12

DETAILED ANALYSIS OF TAX BASE

	1962	1968	Percent Change
CITY OF RACINE			
Real Property	$420,622,400	$496,279,900	+ 18.0
Residential	293,847,400	345,441,700	+ 17.6
Mercantile	53,873,000	84,904,200	+ 57.6
Manufacturer	72,902,000	65,934,000	- 9.6
Agricultural	-	-	-
Other	-	-	-
Personal Property	79,849,150	107,593,000	+ 34.7
Total	$500,471,550	$603,872,900	+ 20.7
TOWN OF CALEDONIA			
Real Property	$ 44,676,400	$ 82,143,000	+ 83.9
Residential	28,161,600	57,808,200	+105.3
Mercantile	2,723,500	6,063,100	+122.6
Manufacturer	1,362,000	2,329,000	+ 71.0
Agricultural	12,069,100	15,942,700	+ 32.1
Other	360,200	-	-
Personal Property	2,741,850	3,293,200	+ 83.9
Total	$ 47,418,250	$ 85,436,200	+ 80.2
TOWN OF MT. PLEASANT			
Real Property	$ 69,365,800	$125,662,300	+ 81.2
Residential	40,020,000	70,652,700	+ 76.5
Mercantile	2,582,800	8,995,600	+248.3
Manufacturer	16,970,500	31,607,300	+ 86.2
Agricultural	9,781,100	14,392,200	+ 47.1
Other	11,400	14,500	-
Personal Property	10,782,350	29,189,400	+170.7
Total	$ 80,148,150	$154,851,700	+ 93.2
VILLAGE OF ELMWOOD PARK			
Real Property	$ 3,535,200	$ 4,172,800	+ 18.0
Residential	3,535,200	3,806,900	+ 7.7
Mercantile	-	365,900	-
Manufacturer	-	-	-
Agricultural	-	-	-
Other	-	-	-
Personal Property	-	198,300	-
Total	$ 3,535,200	$ 4,371,100	+ 23.6
VILLAGE OF NORTH BAY			
Real Property	$ 4,303,400	$ 5,379,500	+ 25.0
Residential	4,303,400	5,379,500	+ 25.0
Mercantile	-	-	-
Manufacturer	-	-	-
Agricultural	-	-	-
Other	-	-	-
Personal Property	-	-	-
Total	$ 4,303,400	$ 5,379,500	+ 25.0
VILLAGE OF STURTEVANT			
Real Property	$ 5,305,500	$ 12,778,800	+140.9
Residential	4,198,000	11,198,000	+166.7
Mercantile	598,700	1,085,800	+ 81.4
Manufacturer	377,100	352,600	- 6.5
Agricultural	131,700	142,400	+ 8.1
Other	-	-	-
Personal Property	342,000	721,200	+110.9
Total	$ 5,647,500	$ 13,500,000	+139.0
VILLAGE OF WIND POINT			
Real Property	$ 6,366,500	$ 14,596,000	+129.3
Residential	5,992,500	14,423,500	+140.7
Mercantile	39,500	-	-
Manufacturer	-	-	-
Agricultural	334,500	172,500	- 48.4
Other	-	-	-
Personal Property	40,950	42,000	+ 2.6
Total	$ 6,407,450	$ 14,638,000	+128.5
RACINE URBAN PLANNING DISTRICT			
Real Property	$554,175,200	$741,012,300	+ 33.7
Residential	380,058,100	508,710,500	+ 33.9
Mercantile	59,817,500	101,414,600	+ 69.5
Manufacturer	91,611,600	100,222,900	+ 9.4
Agricultural	22,316,400	30,649,800	+ 37.3
Other	371,600	14,500	-961.0
Personal Property	93,756,300	141,037,100	+ 50.4
Total	$647,931,500	$882,049,400	+ 36.1

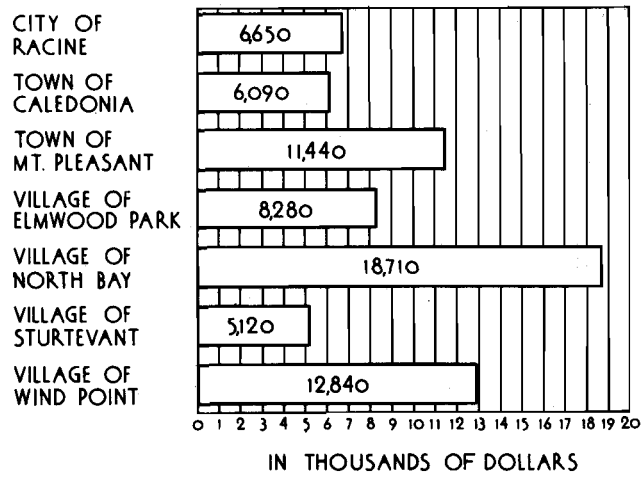
Source: Racine Chamber of Commerce — "Synopsis of Tax Information, District Municipalities", 1970

million in 1969. (See Figure 10-5.) This 58 percent growth in equalized value reflects the substantial amount of commercial, residential and industrial construction which took place in the decade of the 1960's. On a per capita basis, equalized value among District municipalities in 1969 ranged from a high of $18,710 in North Bay to a low of $5,120 in Sturtevant. (See Figure 10-6.)

A detailed evaluation of the tax base reveals important information about the growth and change of tax values in the Planning District. (See Table 10-12.) Between 1962 and 1968, total equalized tax values of the seven District municipalities grew by 36.1 percent. The value of real property grew by 33.7 percent and the value of personal property grew by 50.4 percent although real property still comprises 84.0 percent of District tax values. Among real property categories, the most rapid rates of increase were 69.5 percent for mercantile property, reflecting the rapid development of shopping centers during the six-year period and 37.3 percent for agricultural property, possibly a result of more intensive utilization of farmland in close proximity

Figure 10-6

EQUALIZED VALUE PER CAPITA BY MUNICIPALITY – 1969



SOURCE: RACINE COUNTY TREASURER

Table 10-13

EQUALIZED PROPERTY TAX RATES: 1969
(Based Upon Each $1,000 of Equalized Valuation)

	Local	County	State	Total School Taxes	State Tax Credit	Tax Rate
Racine	11.0	5.4	0.2	20.9	−2.3	35.2
Caledonia	1.7	5.5	0.2	19.2	−1.4	25.2
Mt. Pleasant	–	5.5	0.2	19.5	−0.9	24.3
Elmwood Park	–	5.4	0.2	20.6	−1.2	25.0
North Bay	–	–	–	17.3	–	17.3
Sturtevant	10.7	5.4	0.2	18.7	–	35.0
Wind Point	–	–	–	16.2	–	16.2

Source: City, Town and Village Assessors

to the urban area for truck crops and other high value farm products. Residential property valuations were increasing by 33.9 percent as population growth and suburban development continued. Although annexations brought new residential areas into the city, much of the new housing construction has occurred in the towns of Caledonia and Mt. Pleasant which experienced residential valuation increases of 105.3 and 76.5 percent respectively. Manufacturing growth has been much less rapid, an increase of 9.4 percent between 1962 and 1968 for the District. With an actual decline in the city as several industries reduced operations and relocated elsewhere, the Town of Mt. Pleasant has been a major beneficiary of these industrial movements almost doubling its industrial property values and growing from 18.5 percent of the District total in 1962 to 31.5 percent of the District total in 1968.

Assessed value placed on property by municipalities varies and ranged between 18 and 88 percent of equalized value in 1968. The sharp jump in District assessed values that occurred in 1962 is the result of the city's doubling its assessed values and then decreasing the tax rate correspondingly. Total growth in assessed values within the District shows an increase from $235 million in 1960 to $629 million in 1969.

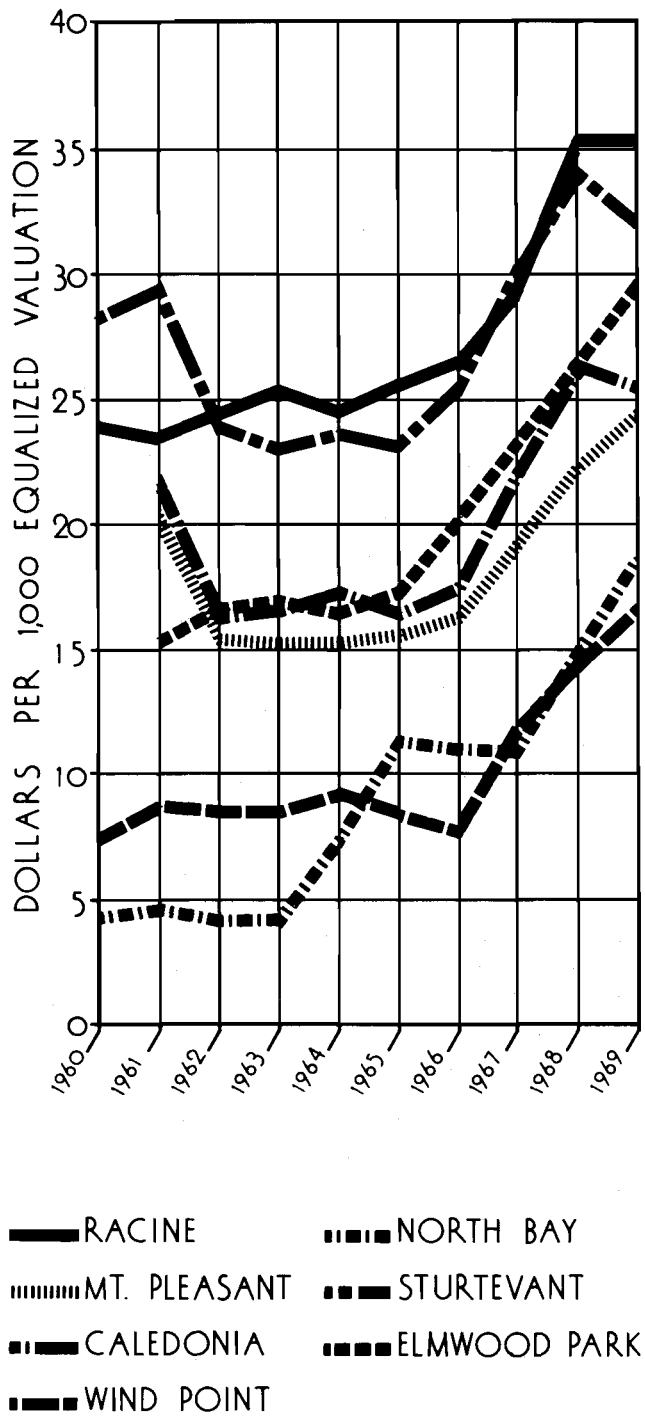
There are substantial differences in the property tax burden carried by residents of the different municipalities in the Planning District. (See Figure 10-7.) During the nine year period shown, the general trend in the tax rate has been upward although the differences between the high rate and low rate communities have tended to remain constant. The City of Racine and Village of Sturtevant have the highest tax rates, the towns of Caledonia and Mt. Pleasant and the Village of Elmwood Park have the middle rates, and the lowest rates are in the villages of North Bay and Wind Point.

Property taxes are collected by the seven District municipalities. Rates are expressed in terms of the five principal purposes to which the taxes are devoted, municipal use, county use, state use, the Unified School District, and Vocational and Technical School District use. The rate is expressed in mills per hundred dollars of equalized valuation. (See Table 10-13.) Over half of the property tax levy goes for school purposes. In general, tax rates are lowest in those municipalities with the highest rates of growth in equalized valuation, Mt. Pleasant and Wind Point. The tax levies for Racine County, the State of Wisconsin and the Vocational and Technical School District tend to be uniform throughout the Planning District. The biggest difference in local tax rates is explained by the fact that Racine and Sturtevant are spending at a high level to provide essential municipal services. The other municipalities either purchase needed services from the city, utilize county facilities, or provide their own at a lower standard as in the case of police and fire protection and local parks in the towns. Part of the disparity in tax rates among Planning District municipalities is that the communities with the lower property tax rates such as Mt. Pleasant, Wind Point and North Bay have been able to reduce their property tax rates with payments from the general fund. The community assets which make possible these reductions in the tax rate are industries and individuals with large incomes on which they pay taxes. A portion of the income tax collected by the state from residents in each municipality is returned to the municipality and used for general expenditures. If the amount is large enough, it can substantially reduce the tax rate.

In practice, where one lives in the Planning District has much to do with how much he has to pay in taxes on his property and with how much he receives in public services. For a hypothetical twenty thousand dollar house, the taxpayer would have paid in 1969 as much as $704.19 if he lived in Racine, or as little as $323.60 if his home was in the Village of Wind Point. (See Table 10-14.) But for all property, there has been a substantial increase in the

Figure 10-7

EQUALIZED TAX RATE
BY MUNICIPALITY – 1960-1969



SOURCE: CITY, TOWN, AND VILLAGE ASSESSORS
RACINE COUNTY TREASURER

property tax since 1960. For the Planning District as a whole, property tax was an estimated 3.3 percent of equalized value in 1968, a proportion almost identical to the 3.31 figures for Milwaukee and Chicago.[2]

Other Local Taxes and Costs

The real cost differential between living in the City of Racine and the other municipalities, however, is much less than is suggested by the property tax rates alone. (See Table 10-15.) Other taxes and fixed charges are paid by those residents of Caledonia, Mt. Pleasant and Wind Point who live within areas serviced by one or more of the special districts which assess the cost of providing water, sewer, storm drainage, and street lighting against the benefiting properties. For instance, the sewer hook-up charge in Mt. Pleasant is $400 with an additional $80 yearly sewer service charge. Other "hidden" costs include among others, private trash and garbage collection, water softener charges for private wells and septic tank maintenance. The net effect of these fixed costs is to eliminate most of the cost differential between less expensive homes in the city and the remainder of the Planning District. As these charges are made on a per household basis, homes of a higher assessed value pay proportionately less. The total direct and indirect expenses of home ownership will vary depending upon the municipality the property is located in and the number of districts and services it utilizes. The practical effect, however, of these special charges is to raise the cost of home ownership in the towns by $100 and more per year per property. Where local services are provided publicly, the tax cost is deductible from federal income taxes; when provided privately no such adjustment may be made and this should be then taken into account also.

Return of State and Federal Taxes

State and federal refunds represent a growing source of revenue for local governing bodies. These monies are either returned to the municipalities as a partial rebate of funds paid to the state, or they are earmarked for certain programs. Tax rebates from state, federal, utility and other sources represented 33.8 percent of the District revenues in 1968, more than the amount raised by the property tax. Most of these monies were Wisconsin income tax refunds, a portion of which the state returns to the municipality where the taxpayer resides. In addition, some of the taxes paid on utilities and telephones are rebated, and state and federal governments contribute a varying portion of the cost of highway construction (depending upon road classifications) and 70 percent of the cost of the county welfare program. Other activities partially supported by the federal and state governments are education, parkland acquisition and civil defense. In total, state and federal tax

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[2] *"Financing Our Urban Needs", Nation's Cities, p. 35.*

Table 10-14

PROPERTY TAX LEVIES ON A HYPOTHETICAL DWELLING

1962	Equalized Value	Assessed Value	Tax Rate/$1,000 Of Assessed	Tax
Caledonia	$20,000	$ 5,248	$ 61.22	$321.28
Elmwood Park	20,000	16,130	20.44	329.70
Mt. Pleasant	20,000	5,410	57.90	313.24
North Bay	20,000	17,368	5.00	86.84
Racine	20,000	17,494	25.05	438.22
Sturtevant	20,000	16,914	28.56	483.06
Wind Point	20,000	4,784	35.54	170.02
1969				
Caledonia	$20,000	$ 4,422	$114.03	$504.24
Elmwood Park	20,000	15,656	31.94	500.05
Mt. Pleasant	20,000	4,718	102.97	485.81
North Bay	20,000	14,758	23.50	346.81
Racine	20,000	17,618	39.97	704.19
Sturtevant	20,000	12,742	50.90	648.57
Wind Point	20,000	3,236	100.00	323.60

Source: Equalized and Assessed Valuations, Racine Urban Planning District

Table 10-15

SPECIAL SERVICE CHARGES LEVIED AGAINST TOWN PROPERTIES

Special Services For Which Charges Are Levied	TOWN OF CALEDONIA					TOWN OF MT. PLEASANT			
	Caddy Vista Sanitary District	Crestview Sanitary District	North Park Sanitary District	Caledonia Sewer and Water Utility Districts	Farm Drainage Districts	South Lawn Sanitary District	Mt. Pleasant Storm Water Drainage District	Hood's Creek Drainage District	Mt. Pleasant Sewer Utility District
Sewer Hookup	No Additional Property Available For Development	Borne By Individual Property Owner	Unit Charge $300.00	Unit Charge $300.00	N/A	N/A	N/A	N/A	$400.00
Sewer Service	$24.00 Yearly	$88.00 Yearly For Water, Sewer, And Garbage Collection	$28.00 Yearly	$80.00 Yearly	N/A	N/A	N/A	N/A	$80.00 Yearly
Water Hookup	No Additional Property Available For Development	Borne By Individual Property Owner	N/A	$137.00 Yearly	N/A	N/A	N/A	N/A	N/A
Water Service	Water Metered Min. $32.00 Yearly Avg. $80.00 Yearly	$88.00 Yearly For Water, Sewer, And Garbage Collection	25 Percent Above City Rate	25 Percent Above City Rate	N/A	25 Percent Above City Rate	N/A	N/A	25 Percent Above City Rate
Storm Water Drainage	N/A	N/A	N/A	N/A	Charges Levied As Needed	N/A	Charges Will Be Levied Beginning In 1971	Charges Levied As Needed	N/A
Garbage And Refuse Collection	Cost of This Service Included In Water Service Charges	$88.00 Yearly For Water, Sewer, And Garbage Collection	Other Residents of the Town Must Contract With Private Haulers for Garbage and Refuse Collection Service. Cost Averages Between $40.00 and $50.00.			Garbage and Refuse Collection is a Service Provided by the Town of Mt. Pleasant At No Cost To Residents.			
Street Maintenance Including Snow Removal	This Service is Provided Out of General Revenues and No Special Charges Are Levied Against Town Properties.					This Service is Provided Out of General Revenues and No Special Charges are Levied Against Town Properties.			
Street Lighting	The Cost of Providing Street Lights in the Franksville Area is Being Paid for Out of General Revenues.						N/A		

N/A — Not Applicable

Source: Town Clerks

returns to the county and local jurisdictions, including utility tax rebates have grown from $7.2 million in 1960 to $17.5 million in 1968, and are averaging about one-third of local District revenues. Nation-wide, the states provide between 10 and 52 percent of local general revenue with most midwestern states falling between the extremes.[3]

[3] *Ibid, p. 29.*

SUMMARY

The expense of local government is rising rapidly. District revenues and expenditures more than doubled between 1960 and 1969 to almost $52 million. The property tax is the largest source of income, contributing about 52 percent of revenues. Educational costs, which amount to 52 percent of Planning District expenditures, represent the largest single expense for local residents. Similar trends in revenues and expenditures are characteristic of other communities throughout the country, and the per capita expenses of government in the Planning District are comparable to those of other midwestern cities. Local government has become big business as reflected in a more than threefold increase in capital expenditures for schools, public buildings, roads and other public facilities since 1960.

In order to finance needed improvements, District jurisdictions have assumed $41.6 million in long-term debt. All municipalities still have substantial excess bonding capacity, although the City of Racine has bonded up to 46.7 percent of its maximum capacity. As these bonds are paid off and equalized values increase, the District will have increasing ability to finance the improvements which will be needed as a result of population growth and economic expansion.

Property taxes which are levied by the seven District municipalities have shown a generally upward trend. Rates vary according to the differing size and functions of the various communities which comprise the District. The highest tax rates are found in the City of Racine and Village of Sturtevant. Much of the differential, however, is negated by special service charges for water, sewer and other services provided to residents of the unincorporated area.

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Chapter XI

LOCAL PLANS, ORDINANCES AND PROGRAMS

INTRODUCTION

In Wisconsin, major responsibility for the regulation of urban and rural land use development lies within the local units of government, namely: counties, cities, villages and towns. Within the Racine Urban Planning District, there are eight local units of government, each a creation of the state, with planning and plan implementation powers delegated by the State Legislature. These eight units of government are the County of Racine, City of Racine, the Villages of Elmwood Park, North Bay, Sturtevant and Wind Point, and the Towns of Caledonia and Mt. Pleasant. This section of the report contains an inventory and analysis of the various plans, regulatory ordinances and implementation programs existing within the Racine Urban Planning District.

PLANNING AGENCY ORGANIZATION

Under state law, the city and villages within the District have the power to undertake the usual planning activities including employment of staff and/or consultants, preparation of planning studies and comprehensive plans. The county and the towns are authorized to excercise certain planning activities jointly and others, like the cities and villages, singly.[1] Under the State Statutes the comprehensive plan is primarily an advisory tool to guide development. The city, county, towns, and villages have the power to prepare and enforce subdivision regulations and official map requirements to implement the plans. The county and the towns jointly exercise zoning powers. The Towns of Caledonia and Mt. Pleasant have adopted village powers with respect to planning and with the exception of zoning have essentially the same planning and plan implementation powers as villages. The cities and villages also have redevelopment powers including the power to carry out urban renewal projects.

The Racine County Planning Committee, a committee of the elected county board, has five members appointed by the Chairman with the advice of the Vice-Chairmen of the County Board of Supervisors. The Committee oversees the operation of the Racine County Planning and Zoning Department and has the responsibility to carry out planning activities within the entire county area including the Racine Urban Planning District.

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[1] *See Appendices XI-A, XI-B, and XI-C for the detailed planning powers of counties, cities, villages, and towns.*

Racine County

Racine County has had a zoning ordinance since 1949. This ordinance was initially administered by the County Highway Commissioner. The position of County Zoning Administrator, whose primary activity has been the administration of the county zoning ordinance and county subdivision regulations, was established in 1950. The position of the County Planning Director was established in 1967, and the responsibilities of the department were expanded to include provision of planning services to any municipality in the county upon request. The County Planning and Zoning Department employs one professional staff member who is principally occupied with administrative duties relating to administration of the joint county-town zoning ordinance. As a result, little effective county-wide planning is now being done. Additional professional staff personnel will enable the department to provide the county-wide and local planning assistance it is authorized to do but lack of staff largely precludes.

The cost of planning to county residents was 0.31 per capita in 1968. In addition, Racine County's share of the cost of operation of the Southeastern Wisconsin Regional Planning Commission was $29,398.00 and $29,520.50 was spent for the large-scale topographic mapping program. By the end of 1972, it is expected that the entire District will be mapped by section at a scale of 1 inch equals 200 feet, with two foot contour intervals. As of the end of 1970, 56 square miles of the District have been mapped and 45 square miles remain to be mapped. These maps are already proving useful for detailed planning studies.

City of Racine

The City of Racine has a full-time planning department with a staff of three professionals. It is responsible to a seven member City Plan Commission, which is comprised of the Mayor, the City Engineer, Chairman of the Park Board, three citizen members, and one Council member appointed by the Mayor. The City Plan Department administers city land use development regulations and carries out advance planning activities for the city. The cost of planning to city residents was 0.52 per capita in 1968.

Villages and Towns

Like the county and city, villages and towns within the District have the power to undertake the usual planning activities, including employment of staff and/or consultants, preparation of planning studies and

comprehensive plans. So far, planning activity in the villages and towns have been limited to the establishment of planning commissions which review development proposals and requests for zoning changes. These villages and towns occasionally employ planning consultants for ad hoc purposes. The Villages of Elmwood Park, Sturtevant and Wind Point have seven member commissions, and the Village of North Bay and the two towns have five member commissions, all created by the elected municipal government.

PLANS

Regional Plans

Responsibility for regional planning is vested in the Southeastern Wisconsin Regional Planning Commission. The Commission completed and adopted in 1966 a regional land use plan, a regional transportation (highway and transit) plan, and a comprehensive water-related community facilities plan for the Root River watershed. The regional land use and transportation plans have to date been adopted within the District by Racine County and the Village of Elmwood Park. Principal recommendations pertaining to the Planning District include two major freeways, the Loop and Lake Freeways, creation of one new major retail and service center, regional parks on the Root River and Lake Michigan, a public airport, and two major industrial areas. One high density residential development area would remain concentrated in the City of Racine. There would be a substantial expansion of medium density residential development in peripheral areas, and low density residential development would be limited to either side of the Root River in the Town of Caledonia.

The Southeastern Wisconsin Regional Planning Commission's Root River Watershed Plan has been adopted by the county, the City of Racine and the Town of Mt. Pleasant. It contains recommendations for future physical development within the Root River watershed, a portion of which lies within the Planning District. A major objective of the plan is to improve the water quality of the river. Proposals relating to the Planning District include connecting the Caddy Vista sewer system to the Milwaukee metropolitan system and the Frank Pure Food Company at Franksville to the Racine system. Public acquisition is recommended for the entire Root River main stem floodplain in the county.

The "Jurisdictional Highway Study", now being prepared by the Southeastern Wisconsin Regional Planning Commission, the Racine County Highway Department, and other communities is to determine the units of government responsible for the construction and maintenance of the arterial highway system plan in Racine County, including the Planning District. The jurisdictional highway plan will be based upon the functional highway plan prepared by the Southeastern Wisconsin Regional Planning Commission, which forecasts traffic needs to the year 1990. It will convert the recommended arterial network into a jurisdictional plan with determinations as to which jurisdictions will be responsible for construction and maintenance of the existing and proposed federal and state trunk, and county trunk highway systems in the county.

Two additional reports, prepared by Consoer, Townsend and Associates, concerning the "Lake Freeway Location" and the "Loop Freeway Location", relate to future highway needs in the Planning District. The purpose of the "Lake Freeway Location" report was to determine the most suitable location for the Racine County portion of the Lake Freeway which has been proposed to supplement IH-94 between the Illinois State Line and the City of Milwaukee. Among the four alternative locations examined, the one paralleling the freight line of the Chicago and Northwestern Railroad between four and seven miles inland from Lake Michigan was selected as best meeting locational criteria. The "Loop Freeway Location" report, the purpose of which was to determine the most feasible general location for a freeway connecting the City of Racine with IH-94 and the proposed Lake Freeway, evaluated three alternative locations and recommended the one which made maximum use of the old Chicago and North Shore right-of-way. These reports were prepared for the Wisconsin Department of Transportation, Division of Highways.

County Plans

In 1969 the Racine County Highway and Parks Commission prepared "Racine County Parks Comprehensive Plan" for use in guiding park planning and development. The park plan contains an inventory of the general characteristics of Racine County and evaluates existing county park facilities on the basis of recommended park and recreation standards, and makes recommendations for developing and expanding this county park system. With the exception of the Root River Parkway program where land acquisition is continuing, the emphasis in the plan is placed on developing and expanding parks presently in county ownership. An additional 140 acres are recommended for addition to Cliffside, Pritchard and Sanders parks.

City Plans

The city has completed a number of planning studies over the years. (See Table 11-1.) The more significant reports published include: "Existing Land Use", 1968; "The People of Racine", 1962; "Open Space for Racine", 1967; and a "Community Analysis" of structural, environmental and socio-economic conditions published in 1968. The land use study included some adjacent unincorporated areas on the fringe of the city as well as the Village of North Bay.

Table 11-1

PLANNING INVENTORY

		County	City	Villages				Towns	
		Racine	Racine	Elmwood Park	North Bay	Sturtevant	Wind Point	Caledonia	Mt. Pleasant
Planning Commission		Committee	x	x	x	x	x	x	x
Number of Members		5	7	7	5	7	7	5	5
Full-Time Planning Staff		3	5	–	–	–	–	–	–
Professional Staff		1	3	–	–	–	–	–	–
Planning Expenditures[a]	1966	$29,151.00[b]	$31,912.54		Various Utility Studies Prepared by Consulting Engineers				
	1967	$23,227.48	$43,959.90						
	1968	$40,231.86	$48,997.24						
Cost of Planning Per Capita 1968		.31	.52			Information Not Available			
Existing Planning Studies and Activities	Economy	–	x	–	–	–	–	–	–
	Population	–	x	–	–	–	–	–	–
	Land Use	–	x	–	x	–	–	–	–
	Traffic	–	–	–	–	–	–	–	–
	Housing	–	x	–	–	–	–	–	–
	Other	–	Community Analysis	–	–	–	–	–	–
Existing Community Plans	Parks	x	x	–	–	–	–	–	–
	Master Plan	–	x	–	–	–	–	–	–
	Land Use	–	x	–	–	–	–	–	–
	Community Facilities	–	x	–	–	–	–	–	–
	Sanitary Sewers	–	x	–	x	x	x	–	–
	Water Service	–	x	–	x	x	x	–	–
	Storm Drainage	–	x	x	x	x	x	–	–
	Transportation	–	–	–	–	–	–	–	–
	Redevelopment	–	–	–	–	–	–	–	–
	Other	–	Lakefront CBD	–	–	–	–	–	–
Administration		x	x	x	x	x	x	x	x

[a] *Actual*
[b] *Budget*

Source: City Plan Commission; County Planning and Zoning Department; Town and Village Clerks

The "Land Use and Community Facilities Plan", published in 1959, outlines proposed land uses and needed community facilities including schools and parks for the period to 1975. The plan includes the area bounded by Six Mile Road on the north, Nicholson Road on the west and County Line Road on the south, and Lake Michigan on the east. It has served as a guide for the past ten years in continuing municipal planning activities. Among the deficiencies of the plan are a paucity of supporting data, sketchy evaluation of existing information, and a failure to include natural resource characteristics as an important determinant of the future urban form.

The "Major Street and Highway Plan", published in 1958, included the city and adjacent areas. This plan did not utilize a functional street classification system; no proposals were made to redesign inadequate intersections or to rearrange traffic patterns. The plan is largely intuitive, not having been based upon adequate evaluation of the present system or the nature and extent of future traffic growth. Various arterial improvements are proposed but neither the standards to which existing major streets are to be raised nor the standards to which proposed major streets are to be constructed are included.

A park study entitled "Open Space for Racine" includes recommendations for site acquisition and development to the year 1977. This report (dated 1967) includes a careful evaluation of city park needs. The city prepared a Lake Michigan shoreline plan and a central business district redevelopment plan in the middle 1960's.

Other Plans

Several plans for sanitary sewers, water supply and storm drainage have been completed by the various utility districts and local governments. (See Table 11-1.) This work has been prepared by engineering consultants and proposes extensions and improvements to existing systems.

ZONING

Good community development depends not only upon sound long-range plan formulation at all levels of government but upon practical plan implementation as well. Zoning is one of the plan implementation devices at the disposal of the community, and the primary function of zoning should be to implement the community's land use plan. A secondary function of zoning should be to protect desirable existing development. Zoning is a major tool for the accomplishment of planning and not a substitute for planning.

Zoning Defined

A zoning ordinance is a public law which regulates and restricts the use of private property in the public interest. A zoning ordinance divides a community into a number of districts for the purpose of regulating:

1. The use of land, water, and structures. (Use)
2. The height, size shape, and placement of structures. (Area).
3. The density of population. (Height)

Zoning seeks to confine certain land uses to those areas of the community which are peculiarly suited to and set aside for these particular uses, thereby encouraging the most appropriate use of land throughout the community; it seeks to assure adequate light, air, and open space for each building and reduce fire hazard; and it seeks to prevent the overcrowding of land and congestion of the street and utility systems.

Obviously, a single set of regulations applying to the entire community could not achieve these objectives of zoning, for different areas of the community differ in character and function. In this respect zoning differs from building, housing, and sanitation codes which, in general, apply uniformly to all land or buildings of like use wherever they may be located in a community. Zoning regulations for different types of districts may be different but regulations within any given district must be uniform.

A zoning ordinance consists of two parts:

1. A text setting forth regulations which apply to each of the various zoning districts together with procedural, administrative, and legal provisions.
2. A map delineating the boundaries of the various districts to which the regulations apply.

Need for Zoning

The importance of zoning cannot be overemphasized and an unzoned or poorly zoned community risks its general well-being every day it remains unzoned. Many severe development problems have occurred in unzoned or poorly zoned communities that a well administered zoning ordinance would have prevented or alleviated.

Such problems can include:

1. Misuse of land.
    a. Widely scattered development resulting in a land use pattern which is more costly to provide with municipal services.
    b. Construction of buildings in floodplains resulting in damage to property, danger to life, and pressure for expensive public flood control measures.
    c. Filling and draining of water retention areas causing downstream flood problems and pressure for expensive public drainage improvements.
    d. Destruction of land and water resources by scattered and shoddy developments.
    e. Outdoor advertising that detracts from the natural beauty of the countryside and distracts the driver.
    f. Inadequate room for expansion of businesses and industries resulting in congestion and ultimate relocation.
2. Conflicting use of land.
    a. Encroachment of business and industrial uses into existing residential areas with a resulting deterioration and depreciation of the residential area.
    b. Encroachment of homes into potential industrial areas destroying both the full potential of the industrial areas and the value of the residences.
    c. Conversion of older homes into multi-family dwellings with a resulting deterioration and depreciation of residential neighborhoods.
    d. Mixing of incompatible uses with a resulting deterioration of the overall community environment.
3. Overuse of land.
    a. Inadequate provision for off-street parking, resulting in a reduction of the traffic carrying capacity of arterial streets and highways and in the penetration of residential neighborhoods by traffic seeking parking space.
    b. "Strip" or lineal commercial development along arterial streets and highways, resulting in a reduction of the traffic carrying capacity of the arterials and an increase in traffic safety hazards.

c. Excessive land coverage and inadequate open space contributing towards slum development and fire hazards with attendant lowering of property values and shrinking of the community's tax base and higher police, fire, health, and welfare service costs.

d. Lack of adequate site and building design standards resulting in lower values and a poor environment.

Perhaps the two most important benefits of good zoning are: (1) the maintenance of the integrity of those areas best suited to certain land uses, thereby providing for the most appropriate, efficient, and desirable use of land throughout the community, and (2) the promotion of desirable residential environments abundant in light and clean air that are free from traffic, noise, dirt and hazards. Good zoning can also promote the abatement of traffic and parking problems. By regulating the bulk and location of buildings, traffic can be dispersed or concentrated as desired; and large generators of parking demand can be required to provide adequate off-street parking and loading space. Other benefits of good zoning include:

1. Control of land use conversions.

2. Control and reduction of fire hazards.

3. Preservation of property values.

4. Prevention of flood control and drainage problems and attendant hazards to persons and property.

5. Facilitating the design and provision of economical and efficient public utilities such as sewer, water, and power.

6. Permitting the orderly selection of sites for future community facilities such as schools, parks, playgrounds, libraries, and fire stations.

7. Regulation of outdoor advertising.

8. Conservation of natural resources including prime agricultural lands.

9. Stabilization of the tax base and protection of property values.

Zoning is so important that it might be said that without an adequate zoning ordinance the other essential elements of a comprehensive plan will probably never be achieved, and the sound design of municipal public works projects will be virtually impossible.

Counties, cities, villages and towns derive their zoning powers from Wisconsin State enabling legislation. In addition, judicial interpretation of zoning legislation and zoning ordinance has affected the application of these regulations. Chapter 59 of the Wisconsin Statutes authorizes joint town-county zoning and Section 59.97 states in part:

> For the purpose of promoting the public health, safety and the general welfare, the County Board of any County may by ordinance effective within the areas within such county outside the limits of incorporated villages and cities establish districts of such number, shape and area, and adopt such regulations for each such district as the County Board shall deem best suited to carry out the purposes of this section.

The Towns of Caledonia and Mt. Pleasant initially elected to participate in this type of zoning and adopted the 1949 Racine County Zoning Ordinance. The Town of Caledonia has recently adopted a comprehensive revision of the Racine County Zoning Ordinance.

Chapter 62.33(7) authorizes the cities and villages to adopt zoning regulations and states in part:

> For the purpose of promoting health, safety, morals, or the general welfare of the community, the council may by ordinance 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 provided that there shall be no discrimination against temporary structures.

The City of Racine and Villages of Elmwood Park, North Bay, Sturtevant and Wind Point obtain their powers from this statute and have adopted zoning ordinances pursuant thereto.[2] (See Table 11-2.)

Existing Zoning Ordinances

Racine County, Caledonia and Mt. Pleasant. In 1969, the

[2] *A complete discussion of zoning applicable to the District may be found in SEWRPC Planning Guide No. 3, Zoning Guide.*

Table 11-2

LAND USE CONTROL REGULATORY ORDINANCES

	Racine County	Racine City	Elmwood Park	North Bay	Sturtevant	Wind Point	Caledonia	Mt. Pleasant
Zoning	1949-69 [a]	1946 [b]	x [c]	x	1959 [c]	1962	1953 [d]	1949 [d]
Subdivision Regulations	x	x	x [c]	–	x [c]	x	x [e]	x [d]
Official Map	–	–	–	–	–	x	–	–
Building Code	–	x	x	x	x	x	x	x
Housing Code	–	x	–	–	–	–	–	x
Health Code	–	x	x	–	x	–	–	x
Plumbing Code	–	x	–	–	–	–	–	x

[a] *The county adopted a separate mobile home park ordinance.*
[b] *The city adopted a separate mobile home park ordinance.*
[c] *Ordinance entitled "Land Development and Zoning" includes both regulations.*
[d] *Town adopted county ordinance.*
[e] *Town adopted county ordinance plus amendments.*

Source: City Plan Department; Village Clerks; Racine County Planning and Zoning Department

county adopted a major comprehensive revision to its 1949 zoning ordinance. The revision was based on the Southeastern Wisconsin Regional Planning Commission model regulations and incorporates modern zoning concepts. The Town of Caledonia has approved the 1969 zoning ordinance and consideration of the ordinance is now pending in the Town of Mt. Pleasant. The town has the option of adopting either the county ordinance or its own zoning ordinance and map independent of the county ordinance with such map and ordinance being subject to County Board approval; or, Mt. Pleasant may elect to do nothing, and the old zoning will expire and the town will be unzoned.

The new county ordinance represents a major departure from the earlier ordinance and will be a much more effective tool in regulating land use development. Among the most significant features of the new ordinance are:

1. Floodland Regulations. The State has directed all counties, cities, and villages to adopt floodplain zoning under the Water Resources Act of 1965. The new ordinance incorporates the requirements of the Water Resources Act in regulating floodplains. Dumping, filling, on-site sewage disposal facilities and permanent structures are largely precluded from both the floodplain, defined as corresponding to the 100 year recurrence interval flood profile, and the floodway, defined as corresponding to the ten year recurrence interval flood profile. Such uses as are not prohibited, including navigational structures, public water measuring and control facilities, bridges and utilities, are conditional uses and require a review and public hearing before approval. Floodway and floodplain boundaries for the Root River have been delineated as part of the Root River Watershed Study, and the flood profiles have been made a part of the official zoning map. Floodland profiles for that portion of the Pike River within Racine County have yet to be completed.

2. Shoreland Regulations. The State has directed all counties to adopt shoreland regulations under the Water Resources Act of 1965. Controls over development in shoreland areas are designed to protect the public interest by insuring a high standard of development and preventing erosion, sedimentation and pollution of surface waters. Tree cutting and earth moving are carefully regulated as conditional uses which must be reviewed and approved by the County Planning Committee, and in the case of tree cutting, the State Department of Natural Resources as well. Grazing, surface water withdrawal and crop production on severely eroded land are subject to approval based upon sound conservation practices. The shoreland areas include lands lying within 1,000 feet of navigable lakes and ponds, and 300 feet of the high water elevation of navigable streams.

3. Site Restrictions. The County Planning Committee has been empowered to restrict development in areas where the land is unsuitable by reason of flooding, inadequate drainage, adverse soil conditions, including low percolation rate or bearing strength or other undesirable characteristic.

4. Exclusive Agricultural Districts. The objective of this provision, which is included in the A-1, A-3, and A-4 Districts, is to channel development into suitable areas by precluding most development not associated with agricultural activity. Zone A-3 is a holding district requiring periodic reviews of the district by the County Planning Committee and Town Board in light of changing conditions.

5. Planned Developments. The new ordinance permits greater flexibility in residential and commercial development in its R-8 Planned Residential District and B-4 Planned Business District. In the R-8 District on sites of ten acres or more developers may build residential developments of varying housing types and unit densities provided 20 percent of the development area is retained in open space.

6. Conditional Uses. The conditional use section has been broadened to give the County Planning Committee and Town Boards additional flexibility in permitting the location of compatible land uses within the various districts after a public hearing. Conditional uses were the responsibility of the Board of Adjustment under the 1949 ordinance.

7. Performance Standards. Performance standards for commercial and industrial activity are included in the ordinance. They are designed to protect water quality and set acceptable standards for noise levels and radioactivity and electrical disturbances. Under the ordinance, all industrial uses are conditional uses and must be approved by the County Planning Committee and Town Board having jurisdiction. Other performance standards may also be included when development plans are submitted for conditional use review.

8. Conservation District. The C-1 Resource Conservation District provides a means of protecting unique natural, scenic and historic areas from unwise development. Only uses compatible with natural resource protection are permitted in the C-1 District.

Other important elements of the new ordinance include off-street parking requirements, stringent sign controls and, like the 1949 ordinance, a prohibition upon locating mobile homes in the county, except in mobile home parks. Should the towns, or any one town, not adopt the county zoning ordinance, the floodland and shoreland regulations will, nevertheless, remain in effect.

In the County, zoning permits are issued by the zoning administrator, and each town has a building inspector responsible for new construction being properly carried out. After construction is completed, the town zoning deputy checks the structure for compliance with zoning regulations, after which occupancy permits are issued.

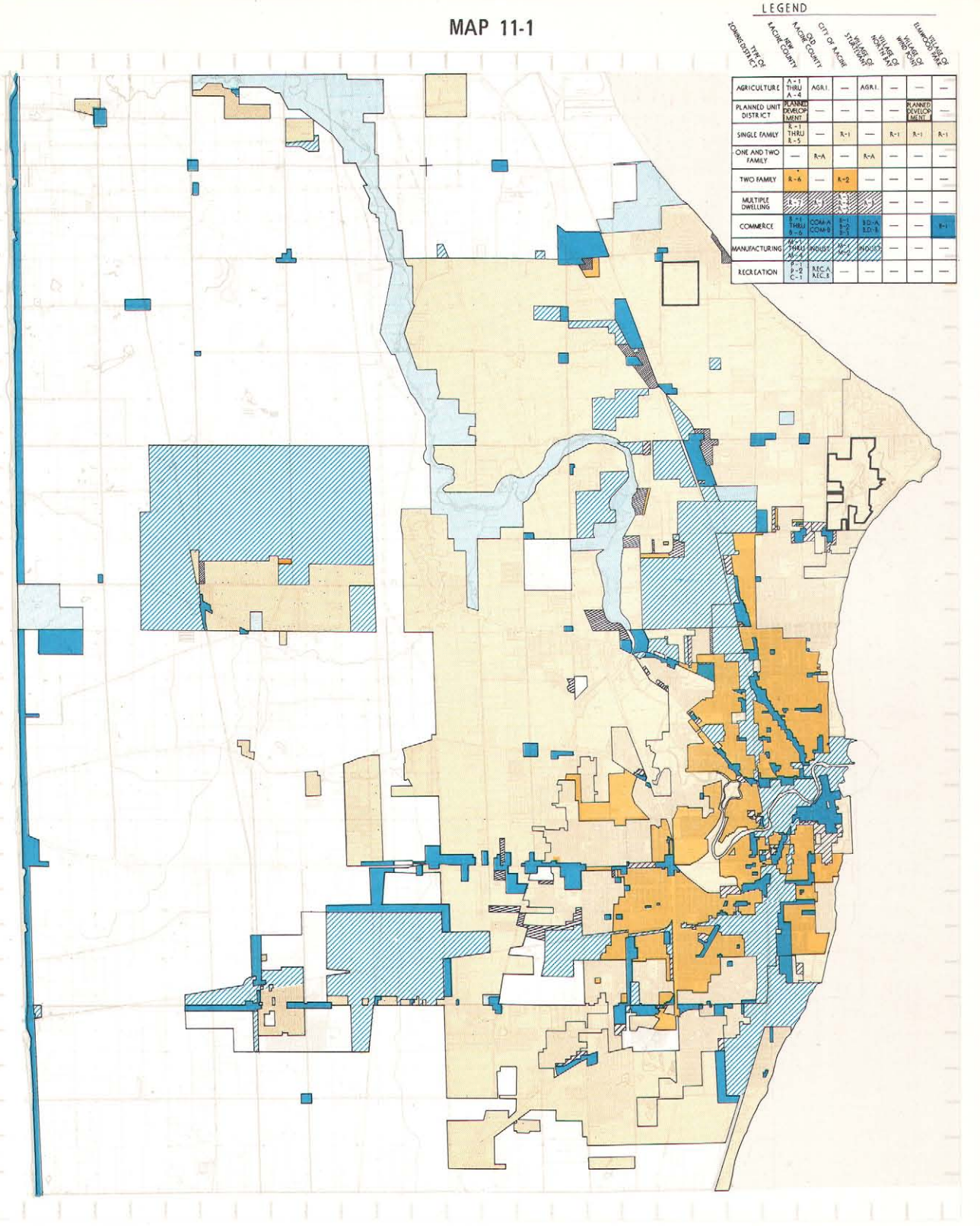
City of Racine. The city zoning ordinance was adopted in 1946. This ordinance divides the city into ten districts, five residential districts, three retail and commercial districts and two manufacturing districts. The residential districts generally permit higher densities than other ordinances within the Planning District. This ordinance is a "cumulative" type ordinance rather than an "exclusive" type such as used in most model ordinances. A "cumulative" type ordinance permits dwellings in residential districts, business districts and industrial districts, while an "exclusive" ordinance permits dwellings only in residential districts. Exceptions to the "exclusive" ordinance are normally made with planned development procedures. The zoning district map was brought up-to-date after preparation of the city plan of 1959. (See Map 11-1.)

Conditional uses are permitted only within the central business district. Sign regulations consist of structural requirements and size or location are not controlled. Mobile homes are regulated in a separate ordinance. Off-street parking is required in the ordinance; parking requirements for residential uses are based on lot size rather than number of bedrooms, dwelling units or bathrooms. The building inspector issues building permits in conformity with the zoning ordinance. There is a five member Board of Appeals.

Village of Elmwood Park. The Elmwood Park ordinance adopted in 1961, was combined with the land subdivision regulations as one ordinance. The ordinance contains only two districts, residential and business. Sign regulations exclude all but small signs for professional offices or "For Sale" signs. Conditional uses are provided for. Mobile homes are prohibited. The Village Board hears appeals. The procedure for amendment is standard.

Village of North Bay. The community of 88 single-family residences is fully developed. The zoning ordinance

MAP 11-1



SOURCE: CITY OF RACINE, TOWNS AND VILLAGES IN THE PLANNING DISTRICT, & THE RACINE COUNTY DEPT. OF PLANNING AND ZONING.

COMPOSITE ZONING DISTRICTS – 1970

RACINE URBAN PLANNING DISTRICT

contains only one residential zone. Development controls are incorporated in deed restrictions.

Village of Sturtevant. The village adopted its present ordinance in 1959. It is similar in format to the 1949 county ordinance utilizing almost the same districts, but including different standards for each. It does not have an exclusive single-family residential district, nor does it require off-street parking in business districts. The village requires a land use permit issued by the building inspector for building construction. The ordinance provides for conditional uses. There is one district for manufacturing uses. There is a five-member Board of Appeals and procedures for amendment.

Village of Wind Point. The village adopted a zoning ordinance in 1962. The building inspector is the enforcing officer and building permits must be obtained. The ordinance uses legal descriptions of three zoning districts instead of a zoning district map. The Wind Point ordinance permits planned developments if located on 50 or more acres. Use of this district requires the same procedure as that for a zoning amendment. A five-member Board of Appeals is established and amendment procedures are included.

Zoning Districts

The composite zoning map for the Planning District (see Map 11-1) summarizes the combined residential, commercial and industrial zones. The type of zoning districts currently found in each ordinance (see upper right corner of Map 11-1) illustrates the variety of provisions employed to regulate land use in the municipalities of the District, with several communities having only single-family residential zones. Proposed zoning districts contained in the 1969 Racine County Zoning Ordinance will add 18 new districts. (See Table 11-4.)

Residential Districts are found in all ordinances and vary considerably in their requirements. (See Table 11-3.) Techniques employed to enforce the ordinance are fairly standard; however, three communities (Elmwood Park, Sturtevant and Wind Point) use floor areas to establish dwelling unit controls. This control over dwelling unit size is accomplished in the other municipalities by building codes. Single-family zones vary in lot area requirements from 6,000 square feet to five acres. Two-family districts (permitting both single-family and two-family homes) are found in the City of Racine. Multiple-family zones are found in the City of Racine, Sturtevant and the Towns of Caledonia and Mt. Pleasant. Planned unit development provisions, which provide additional flexibility in residential development, are found in the Wind Point ordinance and the new county ordinance. There are 13 residential districts, predominantly single-family in character.

Commercial Districts are provided in all ordinances except those in North Bay and Wind Point. Commercial requirements are fairly standard and are related to the type of commercial uses found in the Districts, including: neighborhood, local and general commercial areas. The new county ordinance provides for six business districts, including: neighborhood, community, service, planned business, highway and water oriented business districts. (See Table 11-4.) There are now eight commercial zoning districts provided in the four ordinances regulating this land use.

Industrial Districts are found in the city, county, and Village of Sturtevant. The city ordinance has two districts, heavy and light manufacturing; the county ordinance has four industrial districts, light, general, heavy and quarrying, while the other ordinances provide for one industrial district. These provisions regulate the intensity of activities in industrial areas. Commercial uses are permitted in the light industrial districts in the city and the industrial district in the 1949 Racine County ordinance. All other industrial, manufacturing and quarrying districts prohibit commercial uses.

Other Districts include recreation and conservation and agricultural districts. Recreational and conservation zoning districts are found only in the Racine County ordinances. The 1969 ordinance provides for three zones, one each for recreation areas, institutional use areas, and resource conservation areas. Agricultural zones are found in the county, Sturtevant and Wind Point ordinances. All types of general farming are permitted. The 1949 county agricultural district places very little control on the type of uses which are permitted in the District, except for a few of the more obnoxious industrial uses which are excluded. This, in essence, is not an agricultural district at all; it is a "catch all" district, which permits residential, commercial and industrial uses. This district is still in effect in Mt. Pleasant. These provisions have contributed to the scattering of various uses throughout the rural areas of the Planning District.

Location of Districts

Examination of the Composite Zoning District Map (see Map 11-1) shows the location of the various zoning classifications found in the seven zoning ordinances. These districts have, to a large extent, been located to conform to existing development. Almost all of the zoning districts have been located without the benefit of a comprehensive plan. As a result, the principal objectives of zoning have not been accomplished. The following major problems are noted:

Table 11-3

RESIDENTIAL ZONING DISTRICT COMPARISON

		1969 Racine County	Racine City	Village of Sturtevant	Village of Wind Point	Village of Elmwood Park
Single Family Residence District Minimums/Maximums	Lot Width	60' - 300'	50'	60'	[a]	85'
	Lot Area	7,200 sq.ft./ 5 Acres	R-1 District 6,000 sq. ft.	7,200 sq. ft.		10,200
	Building Height	35'	35'	35'		35'
Two Family Residence District Minimums	Lot Width	100'	50'	60'	None Permitted	None Permitted
	Lot Area	10,000 sq. ft.	6,000 sq. ft.	4,500 sq. ft.		
	Building Height	35'	35'	35'		
Multiple Family Dwelling Districts Minimums	Lot Width	120'	50' R-4 District	Varies	None Permitted	None Permitted
	Lot Area	15,000 sq. ft.	6,000 sq. ft.	6,000 sq. ft.		
	Dwelling Units Per Gross Acre	21.7	21.3 to 217.8	34.8		
	Building Height	35'	Variable	45'		
Planned Residential Development Minimums	Minimum Total Area	10 acres	Group Housing Clause with approval of Development Plan by City Plan Commission	No Provision	50 acres	None Permitted
	Minimum Lot Single Family	8,000 sq. ft.			15,000 sq. ft.	
	Minimum Lot Row House	4,000 sq. ft.			Gross Area Per Residential Unit	
	Area Width	450'			No Restriction	
Single Family Residence Minimums/Maximums	Front Yard	25' / 100'	25'	25'	Controlled through Building Permits	35'
	Rear Yard	25' / 100'	40'	25'		25'
	Side Yards	10' / 50'	14'	8'		10'
	Living Space	- -	-	900'	-	-
Two Family District Minimums	Front Yard	25'	25'	25'	-	-
	Rear Yard	25'	40'	25'		
	Side Yards	10' or 15'	14'	8'		
Multiple Family District Minimums	Front Yard	35'	25'	25'		
	Rear Yard	50'	35'	25'		
	Side Yards	20'	Variable	20'		
Planned Residential Development	Front Yard	30'	Plan Commission requires approval of Development Plan	No Provision	Same as Existing Zoning	
	Rear Yard	50'				
	Side Yards	30'from street, all property lines,& between buildings				
Required Single Family Dwellings	Minimum Living Space	[b]	-	2 Bedroom 900 sq. ft.	1 floor 1200'sq. ft.	1 floor 1200'sq. ft.
	-	-	-	3 Bedroom 1000 sq. ft.	2 floor 1800'sq. ft.	2 floor 1500'sq. ft.
	-	-	-	4 Bedroom 1100 sq. ft.	Tri-level 1500'sq. ft.	Split level 1500'sq. ft.

[a]Various residential building permits issued on the basis of living space provided: floor areas (in square feet) of 1,200 one-floor; 1,500 tri-level; and 1,800 two-floors.

[b]Towns have local regulations governing minimum living space.

Note: Village of North Bay not included in analysis.

Source: County, City and Village Zoning Ordinances.

Table 11-4

ZONING DISTRICT COMPARISONS

Type of District	County[a] 1949	County[a] 1969	Racine City	Elmwood Park	North Bay	Sturtevant	Wind Point
Planned Unit District	-	Planned Residential District R-8	-	-	-	-	Planned Development Overlay District
Single Family	-	Country Estate District R-1	Single Family R-1	Single-family Residential District R-1	Residence District	-	Residence District
	-	Suburban R-2 Residential District (unsewered)	-	-	-	-	-
	-	Suburban Residential District Sewered R-3	-	-	-	-	-
	-	Urban Residential District R-4	-	-	-	-	-
	-	Urban Residential District R-5	-	-	-	-	-
One and Two-Family	Residence "A"	-	-	-	-	One and Two-family residence district	-
Two Family	-	Two-family Residential District R-6	Two-family R-2	-	-	-	-
Multiple Dwellings	Residence "B"	Multi-family Residential District R-7	Multiple Family R-3	-	-	Multi-family Residence District	-
	-	-	Multi-family R-4	-	-	-	-
	-	-	Multi-family R-5	-	-	-	-
Recreation and Conservation	Recreation District "A"	Institutional Park District P-1	-	-	-	-	-
	Recreation District "B"	Recreational Park District P-2	-	-	-	-	-
	-	Resource Conservation District C-1	-	-	-	-	-
Commercial	Commercial District "A"	Neighborhood Business District B-1	Neighborhood Shopping B-1	Neighborhood Business B-1	-	Business District "A"	-
	Commercial District "B"	Community Business District B-2	Local Business B-2	-	-	Business District "B"	-
	-	Commercial Service District B-3	Commercial B-3	-	-	-	-
	-	Planned Business District B-4	-	-	-	-	-
	-	Highway Business District B-5	-	-	-	-	-
	-	Water Oriented Business District B-6	-	-	-	-	-
Agriculture	Agricultural District	General Farming District A-1	-	-	-	Agricultural District	Agricultural District
	-	General Farming and Residential District II A-2	-	-	-	-	-
	-	General Farming District III A-3	-	-	-	-	-
	-	Truck Farming District A-4	-	-	-	-	-
Manufacturing	Industrial District	Light Industrial and Office District M-1	Light M-1 Manufacturing	-	-	Industrial District	-
	-	General Industrial District M-2	Heavy M-2 Manufacturing	-	-	-	-
	-	Heavy Industrial District M-3	-	-	-	-	-
	-	Quarrying District M-4	-	-	-	-	-
Total Number of Districts	8	25	10	2	1	6	3

[a]*Floodland and shoreland regulations overlay all zoning districts.*

Source: County, City and Village Zoning Ordinances.

1. In view of the forecasts for additional land use needs, excess areas have been zoned in the Planning District.[3] The following comparison illustrates this point:

	Commercial	Industrial
Land Use Areas 1969 (Acres)	673	2,025
Areas Zoned 1970 (Acres)	2,062	5,234
Forecast Needs 1990 (Acres)	1,229	3,137
Excessed Zoned 1970 (Acres)	833	2,097

Surplus areas now zoned for these uses amount to an excess of 1.3 square miles of commercial areas and 3.3 square miles of industrial areas over the 1990 forecast need.

When far more land is zoned for commercial and industrial uses than can reasonably be anticipated to be used in the foreseeable future, far-reaching negative influences on the development pattern result. Fragmented commercial and industrial districts, aside from contributing to urban "sprawl", are expensive to provide with services and facilities (i.e., water, sanitary sewers, and arterial streets). Utility lines should be sized large enough to accommodate the ultimate demand. Placing excess capacity in the ground to serve unrealistically large industrial zones is very expensive. Nor can the inclusion of lands unsuited to any kind of urban development in the industrial districts be justified as a means of protecting such areas from any kind of development. The 1969 Racine County Zoning Ordinance has a full range of zoning districts designed to accommodate all land use types in the county, including areas which because of their unique character are unsuited to urban development.

2. The strip commercial zone along Interstate Highway 94 is unrelated to realistic needs or a reasonable development pattern. This zone extends for 12 uninterrupted miles. Older strip commercial areas in the City of Racine are cluttered, inefficient and unproductive. This type of development pattern should not be encouraged. This zone should be reduced to a series of commercial centers at major interchanges.

The strip commercial zones surrounding the Mt. Pleasant industrial districts east of Sturtevant and south of Durand were presumably established as buffer zones for surrounding land uses. Buffer zones of this type are outdated as they reflect neither a probable or desirable pattern for future development. Industry tends to be a much better neighbor to other land uses than it once was, and modern zoning techniques such as performance standards are much more effective methods of controlling the undesirable aspects of industrial areas than buffer strips.

3. Agricultural zone provisions of the 1949 county ordinance are still in effect in Mt. Pleasant. This zone does not provide adequate protective measures for residential uses in this district. In general, the provisions are weak. The new agricultural zone provisions of the 1969 ordinance are a great improvement. Mt. Pleasant will be in a much better position to attract development and protect investments if it adopts the new ordinance.

SUBDIVISION REGULATIONS

Land subdivision is far more than a means of marketing land; it is the first step in the process of building a community. Much of the form and character of a community are determined by the quality of its land subdivisions and the standards which are built into them. Once land has been divided into blocks and lots, streets established, and utilities installed, the development pattern is permanently established and unlikely to be changed. For generations the entire community, as well as the individuals who occupy such subdivisions, will be influenced by the quality and character of their design.

A variety of interests are involved in, concerned with and affected by land subdivision. These include the landowner, the homeowner, the realtor, the developer, the builder, the investor, the local government, and sometimes the county and state governments.

Because land subdivision affects the welfare of the community in so many respects, its regulation and control has become widely accepted as a function of municipal, county and state government.

[3] *See Chapter III, Demographic and Economic Base, and Chapter V, Land Use, for Projections of Future Population and Land Use Requirements.*

Such regulation and control are necessary to:

1. Ensure that land subdivision will fit into the land use pattern and general plan for the physical development of the community;

2. Ensure that adequate provisions will be made for necessary community and neighborhood facilities – parks, schools, churches, shopping centers – so that a harmonious and desirable environment will result;

3. Provide for uniformly high standards in the development of land subdivisions with particular attention to such factors as utilities, drainage, street widths, street layouts, lot size and improvements;

4. Provide a basis for clear and accurate official property boundary line records; and

5. Promote the public health, safety and welfare of all citizens.

Subdivision control regulations, as a means of implementing or carrying out a community's comprehensive plan, should coordinate and integrate development, thereby insuring that new streets, lots, and sites for public facilities will be safe, pleasant, and economical to maintain. In addition to control over design, subdivision controls provide that the costs of new development will be equitably divided between the developer and the entire community.

Authority for Subdivision Control

Cities, villages, towns and counties derive their authority to control the subdivision or platting of land from State enabling lagislation. Chapter 236 of the Wisconsin Statutes authorizes this control through the administration of certain regulations. Section 236.01 of the Wisconsin Statutes states:

> The purpose of this Chapter is to regulate the subdivision of land to promote public health, safety and general welfare; to further the orderly layout and use of land; to prevent the overcrowding of land; to lessen congestion in the streets and highways; to provide for adequate light and air; to facilitate adequate provision for water, sewage and other public requirements; to provide for proper ingress and egress; and to promote proper monumenting of land subdivided and conveyancing by accurate legal description.

Section 236.02 defines "subdivision" as:

> a division of a lot, parcel or tract of land by the owner thereof or his agent for the purpose of sale or of building development, where: (a) the act of division creates five or more parcels or building sites of 1-1/2 acres each or less in area; or (b) five or more parcels or building sites of 1-1/2 acres each or less in area are created by successive divisions within a period of five years.

Existing Subdivision Regulations

Currently, Racine County, the City of Racine and the villages and towns within the Planning District exercise controls over the subdivision of land. The city exercises control over subdivisions within its boundaries and three miles beyond. (See Map 11-2.) The villages may exercise subdivision control within one and one-half miles of their corporate limits. The towns of Caledonia and Mt. Pleasant outline the site improvements they require before any subdivision can be built, in addition to the provisions of the Racine County Subdivision Ordinance, which is in effect in all unincorporated areas. Despite the number and variety of official bodies involved in regulating the subdivision of land, practical responsibility for most of this will fall upon the county in the future. Racine County may also exercise the power of objection over plats in incorporated areas, which gives it additional authority to control development.

In its program to encourage high standards of development, the SEWRPC has prepared a model land subdivision ordinance as a guide for new ordinances adopted within the area. Racine County has programmed a revision of its 1956 subdivision regulations utilizing the SEWRPC model. Once initiated this work should be completed in less than one year. In comparing current ordinances in force within the Planning District, this model ordinance has been used as a guide.

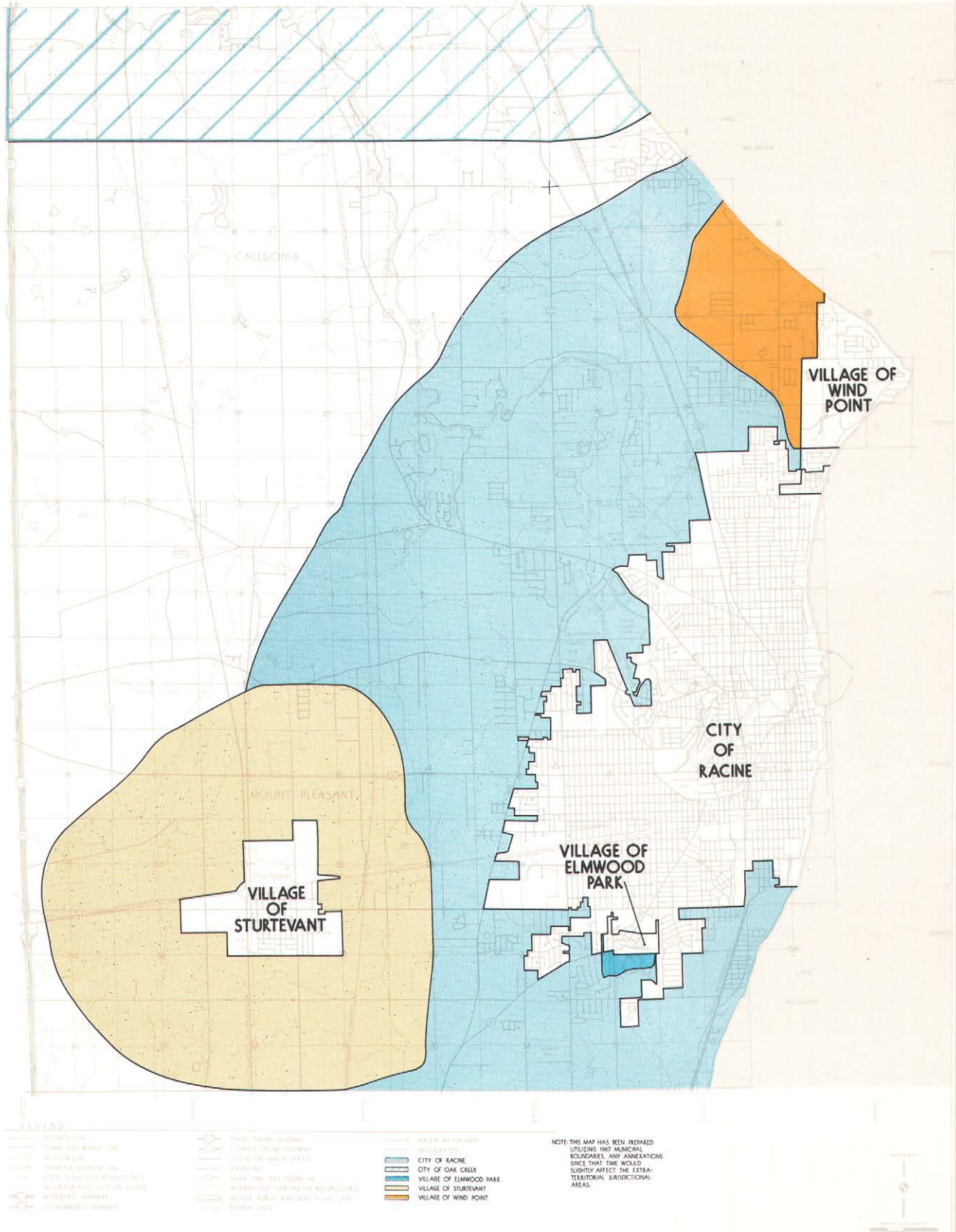
Procedures

Platting procedures in the District tend to be generally uniform in practice: first, a preliminary conference between developer and planning staff; followed by preliminary plat review and approval; and then final plat review and approval. However, only the city ordinance requires that a preliminary conference be held. A requirement in all jurisdictions that such a conference be held would allow potential problems of a particular site to be identified at an early stage and permit relevant provisions of the Comprehensive Plan to be incorporated in the preliminary plat. The villages in the District have not formally adopted extraterritorial subdivision review powers.

Subdivision Planning

The major objective of subdivision regulations is the

MAP 11-2



SOURCE CITY OF RACINE PLANNING DEPARTMENT

EXTRATERRITORIAL PLAT APPROVAL JURISDICTIONAL AREAS IN THE RACINE URBAN PLANNING DISTRICT – 1967

creation of desirable residential neighborhoods. Review of each new subdivision by local planning agencies affords the opportunity for the community to apply sound planning principles in the development of new areas within the District. Not only must each "plat" be well designed in itself, but it also should fit into a good design for the larger neighborhood of which it is a part. (See Figure 11-1.) The comprehensive plan with its proposals for streets, schools, parks and the general land use pattern establishes the framework for the neighborhood design.

In the subdivision review process, it is necessary to consider the relationship of the proposed development to the entire neighborhood design, including community facilities, the arterial street system, drainage and other features which relate the subdivision to its surroundings.

It is a widely accepted planning principle that an urban area should be developed as a number of cellular neighborhood units rather than as a formless mass. The neighborhood unit is the foundation for the planning of the individual subdivision. It should be bounded by insulating boundaries such as major streets or natural features or barriers such as a river or railroad. Heavy traffic should be routed around the neighborhood unit rather than through it. Shopping facilities serving the neighborhood should be placed at the corners of the unit. Near the heart of the neighborhood an elementary school and a park should be provided to serve as the neighborhood center. The unit should be of such size as to contain the population to be served by a public elementary school.

One of the individual subdivision plats that might constitute a part of the neighborhood unit is shown in the lower right hand corner of the drawing. The corner lots are wider so that the houses can be set back from both streets. Lot lines are always perpendicular or radial to the street lines and provision is made for an elementary school and neighborhood park and for a neighborhood shopping area. Additional right- of-way is provided for the major streets and the intersections of the minor streets. The major streets are very carefully arranged so that the maximum safety is provided. Where lots front on major streets, they are deeper and there would be special provisions for turn-arounds on such lots so that cars would not be required to back out of a driveway into a major street.

Information contained in preliminary and final plats should be sufficient to allow for evaluation of the proposed subdivision: topographic data; lot and block layout; existing property lines; streets plans and profiles; soil suitability tests; covenants on the land are among the necessary items. Ordinances in effect within the District vary from the highly specific to the broadly generalized, but only the county regulations require all the information recommended by the model ordinance. As specified by state law, preliminary and final plats must utilize the new Racine County data on section and quarter-section monuments which are part of the county mapping program. Almost one-half of the Planning District has been mapped. These new section maps, which provide topographic and cadastral information, have been tied in with the state plane grid coordinate system and monumented on the ground at the section and quarter-section points. One advantage of the monumentation program is that it eliminates most of the field surveying formerly needed prior to construction of roads, utility lines, and all other physical developments on the land. A certified survey for all division of land, regardless of size, is necessary to insure that accurate data is provided for evaluation.

Design Standards – Subdivision design standards, required in the District, have been compared to determine similarities or differences. (See Table 11-5.) These provisions regulate treatment of street arrangements, limited access highways and railroad rights-of-way; street design standards; design of intersections, blocks, lots and building setback lines, easements and dedication of public sites and open spaces. Incorporation of standards for these elements varies considerably in the ordinances; only the county and the city have comprehensive design standards. Sturtevant lacks standards for drainage; block layout; or pavement widths.

In addition to describing minimum design standards, the City of Racine ordinance includes diagrams which graphically show how a desirable plan for a residential neighborhood may be developed, based on the required standards.

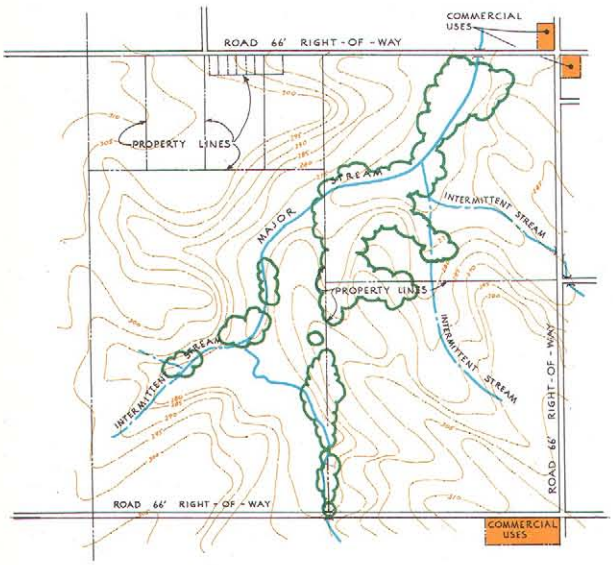
In addition to differences in the types of standards, the ordinances vary considerably in the actual standards which are required. Maximum permitted block lengths range from 600 feet to 1,500 feet, for instance; the required right-of-way width for arterial streets is different in each jurisdiction, and in all cases is less than the standard recommended by SEWRPC. Agreement on basic standards for features such as street widths, drainage easements, street alignment, and intersections on a District-wide basis would simplify the platting process for developers and administrators. Area-wide improvements such as arterial streets could then be developed uniformly insuring proper safety standards.

Acquisition of Public Sites. The city ordinance provides that major thoroughfares, park and school sites, identified on the master plan, may be dedicated or reserved for acquisition within a year, with the area not exceeding one-third of the total. Elmwood Park requires dedication of

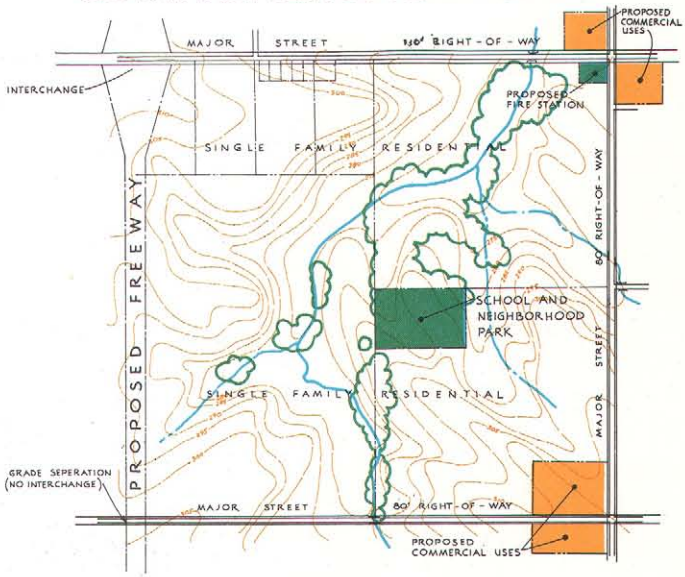
Figure 11-1

SUBDIVISION DESIGN PRINCIPLES

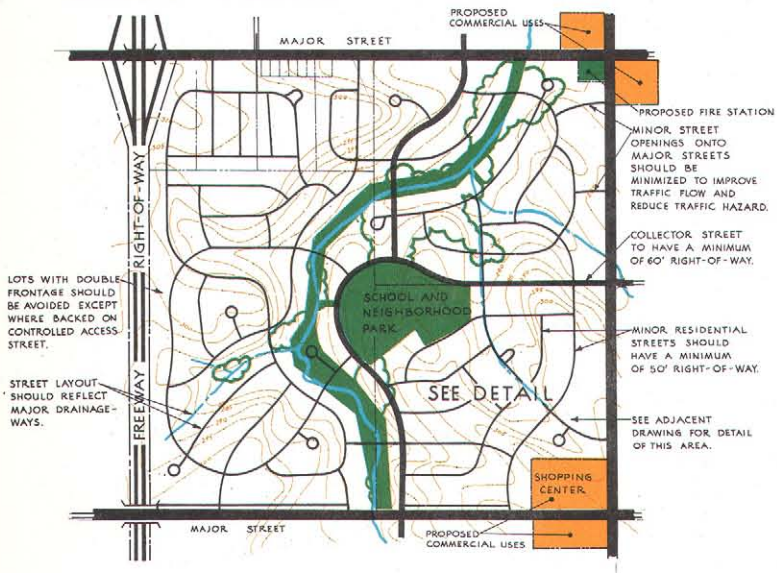
1 EXISTING CONDITIONS



2 PROPOSALS OF THE COMPREHENSIVE PLAN

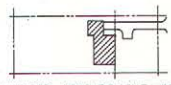


3 NEIGHBORHOOD UNIT PLAN

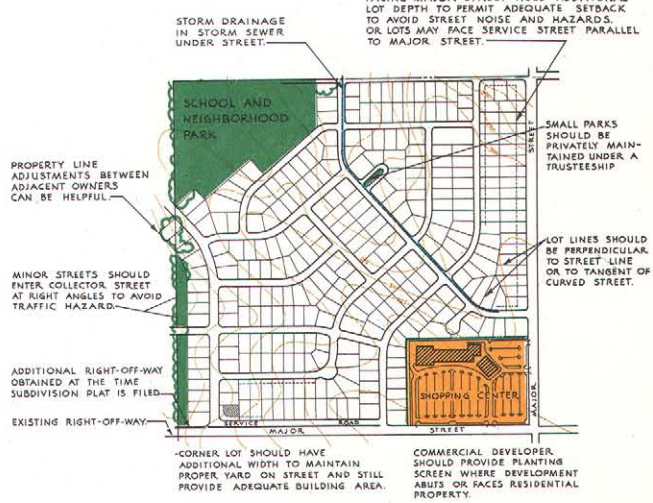


NOTE:

THIS DESIGN ILLUSTRATES PLANNING PRINCIPLES APPLYING TO TYPICAL NEW RESIDENTIAL NEIGHBORHOODS. IT DOES NOT ILLUSTRATE PLANNED INTERMIXTURES OF RESIDENTIAL LAND USES. IT HAS NOT BEEN ADJUSTED TO SIGNIFICANT LOCAL CONDITIONS OF RAINFALL, MICROCLIMATOLOGY OR WIND DIRECTION. WHILE IT SHOWS SOME PEDESTRIAN CIRCULATION ROUTES IT DOES NOT CALL FOR A COMPLETE SYSTEM OF SEPARATED PEDESTRIAN ROUTES BECAUSE THESE REQUIRE A SINGLE OWNER OF THE ENTIRE DEVELOPMENT. THIS PLAN IS BASED UPON CREATION OF A SATISFACTORY NEIGHBORHOOD THROUGH COOPERATIVE ACTION BY SEVERAL OWNERS.



RECOMMENDED DEVELOPMENT FOR LOT FACING MAJOR STREET NEED ADDITIONAL LOT DEPTH TO PERMIT ADEQUATE SETBACK TO AVOID STREET NOISE AND HAZARDS, OR LOTS MAY FACE SERVICE STREET PARALLEL TO MAJOR STREET.



HARLAND BARTHOLOMEW AND ASSOCIATES
PLANNING-ENGINEERING-LANDSCAPE ARCHITECTURE-URBAN RENEWAL
SAINT LOUIS, MISSOURI FEBRUARY 1971

Table 11-5

SUBDIVISION DESIGN STANDARDS

Municipality	Arterial Streets			Collector Streets			Minor Streets			Minor Street			Alley			Cul De Sacs		
	R.O.W. Width	Pavement Width	Maximum Grade	R.O.W. Width	Pavement Width	Maximum Grade	R.O.W. Width	Pavement Width	Maximum Grade	R.O.W Width	Pavement Width	Maximum Grade	R.O.W. Width	Pavement Width	Maximum Grade	Maximum Length	Minimum R.O.W. Diameter	Maximum Grade
SEWRPC Model Ordinance	120'	Dual 36'	6%	80'	48'	8%	60'	36'	10%	Less than 1000' length in 50'	32'	10%	25'	20'	10%	1000'	Minimum Radius 60'	10%
Racine City Ordinance Minimums	125'	Dual 36'	6%	90'	70'	6%	Marginal Access Street 50'	32'	8%	60'	40'	8%	24'	20'	8%	550'	120'	8%
1956 Racine County Ordinance	90'	--	--	--	--	--	66'	Local streets are under Township controls State standards apply					Prohibited in Residential & agricultural districts In Com. District 30'	--	--	400'	Minimum Radius Caledonia 75' 65'	--
Sturtevant Ordinance	Street width - in conformity with the Official Map Street grades - not to exceed 8 percent unless approved by Plan Commission Street alignment & visibility - 300' minimum sight distance												24' When Approved by P.C.	--	8%	500'	100'	8%
Elmwood Park Ordinance	Major Streets 90'	--	6%	60'	--	6%	45'	--	10%	--	--	--	Prohibited			--	Minimum Radius 50'	--
Caledonia (Supplements County Ordinance)	Minimum width of 66' constructed by subdivider 40' width between centers of ditches on each side of the road															--	Minimum Radius 65'	--

Municipality	Blocks		Lots				Blocks	Alignment & Visibility
	Maximum Length	Width	Access	Minimum Depth	Area and Dimensions	Lot Lines	Pedestrian Ways	Minimum Sight Distance
SEWRPC Model Ordinance	1500'	Sufficient To provide For 2 tiers of lots	30' on public street	100'	Conform to Zoning Ordinance	Appropriate	Minimum 10' Row for Blocks over 900' long	--
Racine City Ordinance	Minimum In most Cases 600'	Sufficient To provide For 2 tiers of lots	Abut on Public Street	120'	Conform to Zoning Ordinance	Appropriate	--	300' for Arterial Street 200' for Collector Street 100' for Minor Street
1956 Racine County Ordinance	1000'	Sufficient To provide For 2 tiers Of Lots	All lots Must be On public Street	100'	Conform to Zoning Ordinance	Appropriate	Minimum 20' R.O.W. for Blocks Over 1000'	--
Sturtevant Ordinance	1500'	400'	Required	--	Conform to Zoning Ordinance	Appropriate	Minimum 10' Walk way R.O.W. for Blocks over 900' long	300'
Elmwood Park Ordinance	--	--	--	120'	Conform to Land Development and Zoning Ordinance	Conform To Wisconsin Statutes	--	300' major streets 100' minor streets
Caledonia (Supplements County Ordinance)	Provision for Water & Sewer Connection and Street Construction							

Source: Southeastern Wisconsin Regional Planning Commission; Racine County Planning and Zoning Department; City Planning Department; Town Clerks; Village Clerks.

sites for public uses with compensation from the Public Site Reserve Fund. The Sturtevant ordinance states that:

> In the design of a plat, due consideration shall be given by the subdivider and the Plan Commission to the reservation of suitable sites of adequate area for future schools, parks, playgrounds, and other public purposes.

The other District ordinances include no mention of dedication and reservation of lands, which suggests that this planning tool is being neglected, particularly in the townships where the bulk of future development will be concentrated. The current county ordinance provides fees to establish school sites but the city ordinance does not contain similar provisions. While the Planning District and Unified School District boundaries are the same, the

fragmentation of political jurisdictions has precluded use of fees in the subdivision regulations as a means of providing needed school sites. Most modern subdivision regulations provide for a fee for each lot in a new subdivision to be used for park acquisition purposes.

Required Improvements. Subdivision regulations make it possible for a community to determine what improvements the developer must provide in his subdivision. These differ considerably among the jurisdictions in the District, although none of the ordinances specify all of the improvements which are usually found in urban areas. Street grading and surfacing to various standards are required, and water and sewer lines must be constructed when connections to existing systems are possible. The standards for required improvements, however, are generally minimal (only crushed rock with a seal coat is required for local street surfacing in all jurisdictions). Only Sturtevant requires storm drainage improvements and no subdivision ordinance requires sidewalks for even multiple-family, residential or commercial areas. Little effort has been made to take advantage of the improvement provision to require amenities such as street lighting and street trees although curb and gutters must be provided in Sturtevant and tree planting is necessary in Elmwood Park.

Fees. The SEWRPC model ordinance proposes a schedule of fees to cover the cost of reviewing and inspecting the plats and for engineering and administrative costs. Although not specified in Chapter 236 of the Wisconsin Statutes, Platting Lands and Recording and Vacating Plats, this has long been held as a necessary and reasonable requirement to help defray the cost of providing the review service. However, no fees are required for providing these services in the District at this time.

BUILDING CONSTRUCTION AND HABITATION CODES

Codes relating to building standards, construction, and habitation in force within the District have been tabulated. (See Table 11-6.) Coverage is quite comprehensive among the different jurisdictions, but differing requirements in some codes make uniform application of building standards throughout the area impossible.

Building Codes

Building codes are needed to insure that building design, construction standards and materials used adhere to a minimum standard. These codes are enforced by requiring a building permit for each new structure or alteration and verification of work completed by a building inspector following which an occupancy permit is issued before the building is occupied. Usually, permits are issued in conjunction with zoning and subdivision approval. All municipalities have a building code and provide for building permits and an inspector. In Racine, permits are issued after conformity with zoning and subdivision regulations has been verified. A similar procedure is followed in the villages. For the county, on the other hand, a zoning permit is first issued, after which building permits are issued by the individual towns. The principal difficulty with regard to the building codes is that standards are not entirely uniform throughout the District, although many material and structural requirements are identical. The codes date from different periods and have been updated from time to time, with the result that differences have become more pronounced.

Housing Codes

Housing codes are designed to protect public health and welfare by insuring adherance to basic sanitation and maintenance standards for residences with enforcement through a health officer or housing inspector. A housing code was in effect in the City of Racine from 1961 to 1963 when it was repealed by referendum. The reason most often given for the repeal of the city ordinance was that it was not enforced in an equitable manner. In 1969, the city enacted a new code, "Regulating Conditions of Human Habitation", which emphasizes the necessity of meeting basic living and sanitation standards and is enforced by the health officer. The Mt. Pleasant ordinance is identical in most respects to the new Racine ordinance. The other communities do not have "housing" codes, although the villages of Elmwood Park and North Bay do have sanitary ordinances enforced by health officers which are specifically concerned with keeping the communities free of refuse, control of animals and fowl, inspection of foods and restaurants, and similar activities related to protecting the public health.

Plumbing and Electrical Codes

These codes specify requirements for installation of plumbing and electrical fixtures. The most common practice among the villages and towns has been to require conformance to Wisconsin State Standards. The city publishes separate codes, but requirements closely follow state standards. The codes specify enforcement procedures.

OFFICIAL MAPS

The basic enabling legislation, under which local units of government may carry out official mapping, was enacted in 1941, and is set forth in Section 62.23(6) of the Wisconsin Statutes. Other provisions of the Statutes enable towns and counties to carry out official mapping although the county authority is in modified form.

Section 62.23(6) of the Wisconsin Statutes provides that the common council of any city may establish an Official Map for the precise designation of street rights-of-way and site boundaries of streets, highways, parkways, parks and playgrounds. Such a map has all the force of law and is deemed to be final and conclusive with respect to the

Table 11-6

BUILDING CONSTRUCTION AND HABITATION CODES

	Building Code	Electrical Code	Plumbing Code	Housing Code	Health and Sanitation Code
RACINE	X	Conforms To Wisconsin State Electrical Code	X	X	X
WIND POINT	Southeastern Wisconsin Building Code With Amendments	Conforms To Wisconsin State Electrical Code	Conforms To Wisconsin State Plumbing Code	–	X
NORTH BAY	X	Conforms To Wisconsin State Electrical Code	Conforms To Wisconsin State Plumbing Code	–	Sanitary Regulations
STURTEVANT	X	Conforms To Wisconsin State Electrical Code	Conforms To Wisconsin State Plumbing Code	–	X
ELMWOOD PARK	X	Conforms To Wisconsin State Electrical Code	Conforms To Wisconsin State Plumbing Code	–	Health and Sanitation
CALEDONIA	X	X	X	–	X
MT. PLEASANT	X	Conforms To State Code With Additional Requirements	Conforms To Wisconsin State Plumbing Code	X	Public Health

(X) — Codes are in effect *(—) — No Codes*

Note: State of Wisconsin Codes which affect all levels of local government include:

Wisconsin Administrative Code
Rules of Department of Industry, Labor and Human Relations
Building and Heating, Ventilating and Air Conditioning Code
Wisconsin Administrative Code — Section Ind. 50.01

Wisconsin Administrative Code
Department of Industry, Labor and Human Relations
Electrical Code, Volume 2
Wisconsin Administrative Code, Section E 160.01

Wisconsin Administrative Code
Rules of State Board of Health
Plumbing Code
State Board of Health

Wisconsin Administrative Code
Rules of Industrial Commission
Sanitation

Source: City and County Offices; Town Halls; Village Clerks

location and width of both existing and proposed streets, highways, and parkways; and the location and extent of existing and proposed parks and playgrounds. The Statutes further provide that the Official Map may be extended to include areas beyond the corporate limit lines but within the extraterritorial plat approval jurisdiction of the municipality. In Wisconsin the Official Map Act is a subsection of the basic local planning enabling act, Section 62.23 entitled "City Planning", and as such is made applicable to villages and towns as well as to cities. The Official Map must be adopted by the governing body of the local unit of government concerned pursuant to Section 62.23(6)(b) of the Wisconsin Statutes, and only after such adoption does it assume its legal force. Good practice would dictate that a certified copy of the resolution adopting the map appear on the face of the map.

Function

The primary function of the Official Map is to implement the community's plan of streets, highways, parks and playgrounds in a manner similar to that in which the zoning ordinance implements the District Land Use Plan. The Official Map permits the community to protect the right-of-way of future streets as well as the right-of-way of partially or wholly developed streets which are to be widened by prohibiting construction of new buildings or improvements in such rights-of-way.

The Official Map allows the municipality to express its intent to reserve land for public purposes without commitment to actual acquisition. Thus, the Official Map functions as a refinement of the comprehensive plan, reflecting certain aspects of it in a precise, accurate and legally binding manner.

A thorough discussion of official mapping and the survey control system necessary for its most effective use may be found in the Official Mapping Guide prepared by the Southeastern Wisconsin Regional Planning Commission.

Existing Official Maps

Currently, there is only one adopted official map within the Planning District. Wind Point has passed an official map ordinance and amended it on at least one occasion. In addition, the Town of Caledonia undertook preliminary steps in preparing a map but has not concluded them. The City of Racine does not have such a planning tool and since the city pattern is already well established future improvements will have to be carried out within existing physical constraints.

An excellent example of what may be accomplished with the official map is the City of Oak Creek, a former town in Milwaukee County north of the Planning District. The city has a comprehensive plan to which the official map has been keyed. Minor streets in proposed residential streets have been indicated. Together with zoning and subdivision regulations, Oak Creek has effectively insured that development will occur as it intends. Similar control over development within the Racine Urban Planning District through an effective official map is also possible.

PROGRAMS

Capital Improvement Program

Each year, counties, cities, towns and villages construct capital improvements. These physical improvements include public buildings, sewer and water lines, streets, parkland acquisition, and other necessary projects. By planning for these physical needs over an extended period, a program can be set up by which capital improvements are constructed on a priority basis, within the fiscal capability of the community. Capital improvement programs are an important means of implementing planning proposals.

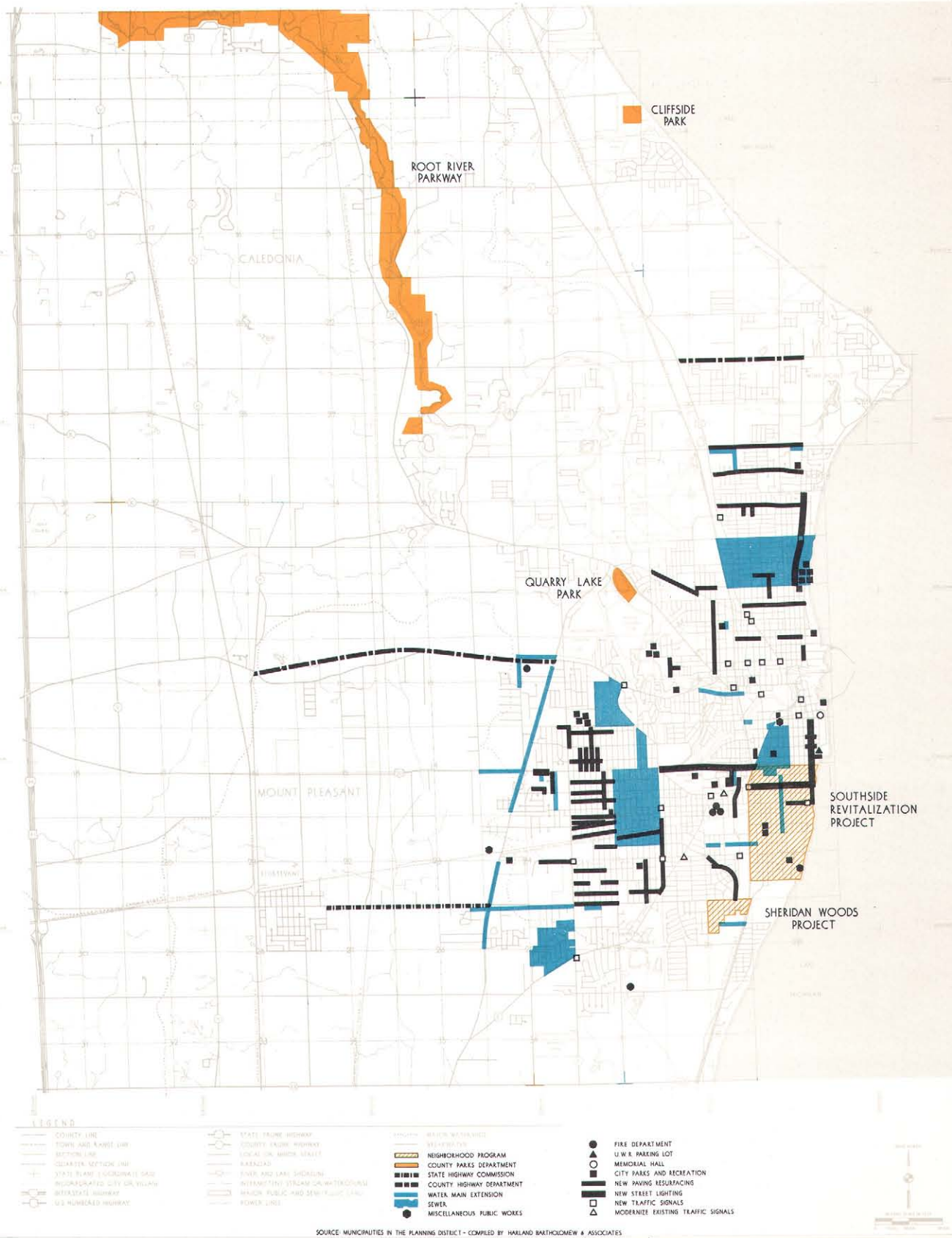
City of Racine. The City of Racine Planning Commission prepares a capital improvement program each year for the succeeding five-year period, as a statement of the future policy of the city regarding long-range physical development. This function is allocated to the Plan Commission by the Municipal Code. In addition to a financial analysis and determination of the means of financing improvements, the current report contains 1969-1973 capital improvements for the Department of Public Works, Parks and Recreation Department, Fire Department, Water Department and special projects of the Common Council. Monies have been budgeted for improvements to Memorial Hall and for constructing a parking lot adjacent to the University of Wisconsin at Racine. The total cost of the funds to be expended is almost $14 million. The largest cost items are street paving, totaling $4 million, and the municipal garage being built adjacent to the County Hospital at a cost of $2 million. (See Map 11-3.)

In the City of Racine, capital budgeting is recognized as an integral part of the planning function. Department heads submit their improvement programs to the Planning Department, and by working with the planning staff, long-term development priorities for the city are established.

Racine County. The County, the towns, and the villages have no such formalized procedure for programming capital improvements. In Racine County, the various departments separately draw up schedules of capital improvements. The County Administrator and the County Finance Committee review requests made by the various departments for funds for capital improvements and their decision making process is, in effect, an informal means of capital improvement programming. The planning function is so new in the county that there has neither been time nor staff to set up capital improvements budgeting as a function of the County Planning and Zoning Department. Public improvements in the villages and towns are undertaken as individual projects based on current needs and resources.

Three major sewer extensions are in the planning stages in the towns of Caledonia and Mt. Pleasant. The North Park Sanitary District intends to serve an area bounded by State Trunk Highways 31 and 32, and the Five and Six Mile Roads. The Caledonia Sewer Utility District intends to serve Armstrong Park and an adjacent area which is the site of a 57 lot preliminary plat. Work is scheduled to begin in 1971. The largest sewer construction program is that of the Mt. Pleasant Sewer Utility District, which intends to serve an approximately 1,000 acre area bounded by Spring

MAP 11-3



SOURCE: MUNICIPALITIES IN THE PLANNING DISTRICT - COMPILED BY HARLAND BARTHOLOMEW & ASSOCIATES

RACINE COUNTY BOARD OF SUPERVISORS
SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
HARLAND BARTHOLOMEW AND ASSOCIATES

CAPITAL IMPROVEMENT PROGRAMS 1969—1973

RACINE URBAN PLANNING DISTRICT

Street, State Trunk Highway 20, Globe Heights Subdivision, and a point to the east of the Pike River Channel. Completion is scheduled for 1971. The Mt. Pleasant Town Board also anticipates additional sewer construction in the Waxdale area within the next few years in order to accommodate the rapidly increasing industrial flows.

The County Parks Department has made a long-range study of needs and proposed a program of parkland acquisition and development, the most important of which is to acquire lands adjacent to the Root River (the take lines of the Root River Parkway are shown on Map 11-3.)

The Racine County Highway Department has made a "Five-Year Capital Needs" study which anticipates the need to spend between $1.2 and $1.5 million yearly for capital improvement projects on the county trunk highway system. One result of the study has been the initiation of an engineering study of County Trunk Highway K between Franksville and Interstate Highway 94 in order to determine future needs and alignment. Over a three-year period, $1.2 million is being spent in the Planning District for right-of-way, engineering, and construction to realign County Trunk Highway C between County Trunk Highway H and State Trunk Highway 31. The State Highway Department has begun land acquisition for a widening and upgrading project on State Highway 11 between Sturtevant and the Racine city limits.

NEIGHBORHOOD REDEVELOPMENT PROGRAMS

Although no publically sponsored redevelopment programs are underway in the District at the present, two major private programs are in various stages of planning and development. These neighborhood redevelopment projects indicate a high level of concern for environmental problems on the part of citizens and industry and a willingness to provide financial and other support.

Southside Revitalization. The largest redevelopment project in terms of area is the neighborhood redevelopment project being sponsored by S.C. Johnson and Son in the area bounded by 12th Street, 24th Street, the Chicago and Northwestern Railroad and Lake Michigan. The project covers approximately 104 blocks and was undertaken by the company in order to reverse the deterioration taking place in the neighborhood surrounding its corporate headquarters. The project plan has been developed by an English planning firm under the guidance of a citizens advisory committee. The plan was finished in the spring of 1970 and has been adopted by the Plan Commission and the Common Council as the scheme of redevelopment to be carried out in the Southside Neighborhood. Selective clearance and redevelopment of substandard structures will be combined with conservation and improvement of sound and deteriorating buildings. Public facilities are to be upgraded and expanded. Additional parkland may be created by reducing the excessive amount of land currently being devoted to streets.

Sheridan Woods. A citizen's group, the Mexican American Political Education Committee, and the Mt. Pleasant Town Board have made an effort to redevelop the Sheridan Woods area of Mt. Pleasant, a neighborhood which grew up in the 1940's as housing for low-income migrant farm laborers. Sheridan Woods suffers from multiple problems, the worst of which are deterioration of residential structures, junk strewn vacant lots and inadequate public facilities. The Town of Mt. Pleasant is undertaking a program of improvements including a playground, street paving, traffic improvements, street lighting and improved garbage collection.

SUMMARY

Planning activities in the District are conducted at the Regional, County, and City levels, where full-time staffs provide advisory services. The regional land use plan, prepared by the Southeastern Wisconsin Regional Planning Commission and adopted by Racine County serves as an overall guide for county-wide development. The City Planning Department is utilizing a land use plan dating from 1959. In addition to administering land use control measures, the department has prepared several planning studies relating to different aspects of the City of Racine. The Racine County Planning and Zoning Department is principally involved with administration of the joint county-town zoning ordinance.

Zoning and subdivision ordinances are in effect at all levels of local government as essential municipal tools to guide and control growth and development. Existing zoning in the District exhibits many deficiencies characteristic of most ordinances, such as over-zoning, strip zoning and ineffective districts which are tantamount to no zoning at all. Zoning and subdivision regulations are supplemented in all municipalities by building codes which regulate construction.

Programs now underway include a Capital Improvement Program for the City of Racine and Racine County although the county program is less formalized with various departments evaluating their needs and budgets. Both the County Highway and Parks Departments have prepared plans for capital improvements which extend five or more years into the future. The city program is prepared annually by the Planning Commission for the succeeding five-year period. This program, undertaken as a comprehensive analysis of needs, serves as a statement of policy for long-range physical development. Other programs include the Southside Revitalization in Racine and the Sheridan Woods project in Mt. Pleasant.

Chapter XII

SUMMARY

PROGRAM ORGANIZATION AND PURPOSE

The comprehensive community planning program for the Racine Urban Planning District has been initiated at the request of the county and local governments in the Planning District which is bounded by IH-94 on the west, the Milwaukee and Kenosha county lines on the north and south, and Lake Michigan on the east. The need for broad scale planning, transcending the boundaries of each of the seven municipalities within the District, was recognized as essential because of the rapid pace of development within the urbanizing corridor along the Lake.

Serious intergovernmental problems pertaining to annexation, incorporation, and utility service agreements had arisen among several of the municipalities. As a solution to these problems, three of the local units of government entered into a "Moratorium and Long-Range Planning Agreement" with Racine County, which Agreement provided for a two-phase comprehensive District planning program. The first phase is designed to provide sound recommendations for the physical development of the District. The second phase will recommend how to reorganize the local governmental structure of the District in order to more effectively provide for implementation of the development plan prepared in the first phase.

INVENTORY, ANALYSIS AND FORECAST FINDINGS

The comprehensive planning program for the Racine Urban Planning District has been published in two volumes. The first volume contains the basic concepts underlying the program, the findings of the extensive inventories conducted under the program, and the forecasts of future growth and change in the District. Principal elements inventoried and analyzed include land use, natural resources, transportation facilities, schools, parks and recreation areas, other community facilities and municipal utility systems. The inventories utilized the extensive amounts of data pertaining to the District collected by the SEWRPC and all major secondary sources of information including publications of the U.S. Census and State of Wisconsin. Forecasts of future population, land use, school enrollments, motor vehicle registrations and other changes crucial to the preparation of the plan used a variety of projection techniques.

Population and Economic Activity

The population of the District has grown at a rate exceeding that of the state and nation, and in 1970, totaled about 133,000 persons. This growth has been due mostly to natural increase and partly to net in-migration. While much of the population increase in recent years has taken the form of widespread dispersal along the urban fringe, over 70 percent of the population lives within the city limits of Racine, which has the higher population densities characteristic of older urban centers. Densities in the District range from 500 to 14,000 persons per square mile. There is a relatively youthful population, increasing levels of educational attainment, decreasing numbers of foreign born, and a growing non-white population, largely comprised of post World War II migrants from the South. Total population is estimated to reach 224,000 persons by 1990.

The growth of the District has, in great part, been the result of a vigorous and expanding economy characterized by a steadily increasing work force and rising output of goods and services. Manufacturing oriented toward providing durable and non-durable goods for national and international markets is the most important segment of the local economy. In 1960 more than half of the resident-employed labor force was engaged in manufacturing, one of the highest percentages for any Standard Metropolitan Statistical Area in the country. Farm machinery manufacture, production of other fabricated metal products, production of household chemical products, and printing and publishing are among the major local industries. Industrial expansion has produced a concomitant growth in internally oriented service industries and governmental activity which provide goods and services to the entire population. A high level of employment in well-paying industrial jobs is largely responsible for the fact that household incomes in the District are relatively high, and proportionately few families fall in the poverty categories. Future employment is forecast to increase by about 27,500 persons in the next two decades, with manufacturing remaining the dominant industry group but proportionately greater employment increases taking place in the internally-oriented sector of the economy.

Natural Resource Base

The natural resource base has been a primary influence upon the development of the District. The climate is mid-continental with sharp fluctuations in temperature between summer and winter. Precipitation averages about 32 inches yearly. The land itself has been shaped by glacial

action, which has given the area its characteristic flat-to-slightly rolling appearance. Of the four surface drainage systems, the largest is that of the Root River which drains three-fifths of the District and flows into Lake Michigan in the City of Racine. Soils are fertile and highly suited to intensive cultivation, but for the most part are underlain by clayey deposits which impede drainage and make residential development with septic tanks impractical for lots under one acre in size.

During the more than 125 years that modern man has occupied the District, much of the original fauna and flora has disappeared, and the only remaining natural areas which shelter wildlife and mirror the appearance of the area prior to extensive development are scattered woodlands, wetlands, and watercourses. In order to preserve the ecological balance and natural beauty of the Region, a system of environmental corridors to protect areas of significant natural value has been proposed, and public acquisition of open land is proceeding along the Root River. During the planning period, all significant natural areas in the District should be set aside as permanent open space.

Land Use

Developed areas, covering about 32 square miles of land, represent 31.7 percent of the entire Racine Urban Planning District. This includes residential, commercial, industrial, railroad, public and semi-public, and park and recreational land uses, together with areas occupied by streets and alleys. Most developed areas are concentrated in and adjacent to the City of Racine although scattered development is found in all parts of the District. Commercial activity is mostly found in the central business district and five suburban shopping centers. Industry has tended to locate along railroad lines in the city in the past, but most industrial growth is now taking place in suburban Mt. Pleasant and Caledonia. Public and semi-public uses are well distributed throughout the District.

Over two-thirds of the District, particularly in the western and far northern and southern sections, is still open land, devoted to agricultural use, in woodlands, wetlands, or vacant and being held in anticipation of development. Most park and recreational land is found in these open areas.

The principal land use problem is the haphazard location of much recent development. Almost universal automobile usage plus a highly developed street system has encouraged urban "sprawl" which presents serious problems with respect to provision of essential public services in the developing areas. An additional 22.3 square miles of land will be required to accommodate anticipated urban growth to the year 1990, at which time slightly more than one-half of the Planning District would be used for urban purposes.

Housing

In 1969, there were 39,300 dwelling units in the District, of which 27,200 were single-family homes, 7,300 in two-family homes, 4,700 in multi-family residences, and 100 classified as other dwelling units, including mobile homes. There were 3.38 persons per dwelling unit. Vacant units were under three percent of the total housing stock.

The Racine Urban Planning District has only a limited problem of deteriorated housing, most of which is found in the older neighborhoods of the City of Racine in proximity to the central business district and the industrial corridor along the Chicago and Northwestern railroad tracks. About 10.5 percent of the housing units were found to be substandard.

A major problem facing the District is the increasing age of much of the housing stock. Three-fifths of urbanized area housing was over 30 years old in 1960. In addition to replacing existing substandard housing, about 30,000 new dwelling units will be required to accommodate population growth during the next 20 years.

Transportation

Transportation facilities, including the arterial street and highway system, off-street parking, public transit, ports, railroads, inter-city bus, and truck terminals, make possible the movement of people and merchandise both within and beyond the Planning District. The strategic location of the District in the metropolitan corridor between Chicago and Milwaukee has been the principal influence upon the evolvement of local transportation facilities.

The major north-south arterial linking Chicago and Milwaukee, Interstate Highway 94, which accommodates most auto traffic between the two metropolitan areas, borders the District on the west. Five state trunk highways cross the Planning District. The Chicago and Northwestern and Chicago, Milwaukee, St. Paul and Pacific railroads operate three north-south and one east-west main lines in the District. There are eight local truck terminals, concentrated in the Chicago and Northwestern Industrial Corridor.

City of Racine port facilities, air and water, are overshadowed by the much more extensive airport and harbor facilities in close proximity to the north and south. Racine-Horlick Airport and the Port of Racine, however, do serve local business needs.

The City of Racine is served by a mass transit system which focuses upon the downtown area and serves most residential neighborhoods within the city limits. This system carries approximately 2,500 persons daily. Inter-city passenger service is provided by rail and bus.

Rapid growth in automobile usage has been forecast to the year 1990, necessitating substantial improvements in the existing freeway and arterial system during the planning period.

Public Utilities

The public utilities in the District consist of sewer, water, storm drainage and solid waste disposal facilities.

Sanitary sewer service is provided by the City of Racine sewer system, five independent sanitary and sewer utility districts, and one village sewer system. These systems, which connect with a total of four sewage treatment plants, serve approximately 90 percent of the population of the District. The largest treatment plant is that of the city, which has a 35 MGD primary and secondary capacity. In addition to city sewage, it accommodates the sewage of two of the sewer utility districts. The other three treatment plants are small, with none having in excess of .90 MGD capacity.

There are two major sewerage system problems in the District: (1) combined sanitary and storm sewer lines in some parts of the City of Racine which discharge raw sewage into the lake during heavy rainfalls; and (2) the difficulty in extending sanitary sewers to all developing areas in the District despite the fact that soil conditions are such that septic tanks often cannot function in the way they were designed. Plans call for completing the program of separating city sanitary and storm sewers by 1975, and expanding the Racine treatment plant with the ultimate objective of phasing out the three small treatment plants located on the periphery of the developed area.

Lake Michigan is the source for 95 percent of the water utilized by local commerce, industry and population. The remainder is drawn from underground aquifers. Both sources provide large volumes of high quality water. The Racine Water Department serves an estimated 107,000 persons in the city and adjacent areas, drawing an average 21.4 MGD from the lake. Elsewhere in the District, there are two subdivision water systems utilizing deep wells to serve an estimated 3,000 persons. Scattered wells provide water for individual homes and small subdivisions in the low density, unincorporated portions of the Planning District. Water consumption has been increasing rapidly and in 1969 exceeded 200 gallons per capita per day.

Water problems in the District revolve around the difficulty of extending mains to the more remote locations and the declining quality of the surface and subsurface water resource. As the District experiences continued population growth during the next two decades, the demand for water will be increasing even more rapidly. Preference should be given to the good water available from Lake Michigan with development served by the Racine Water System rather than private wells.

In the City of Racine, a storm drainage system was constructed in conjunction with the sanitary sewer system many years ago. The city is now in the process of separating the storm and sanitary systems which will have the effect of reducing peak flows during periods of heavy rainfall by diverting rain waters directly into the Root River and Lake Michigan. Elsewhere in the Planning District, there are two village storm drainage systems and two storm drainage districts, one of which is active. The Mt. Pleasant Storm Drainage District is currently engaged in providing storm drainage facilities along the Pike River and its tributaries adequate to accommodate runoff in the rapidly developing area south and west of the City of Racine. For the future, the remaining combined city sewers are to be separated by 1975, thereby eliminating a prime cause of lake pollution.

Current means of disposing of solid waste in the District are decentralized and inadequate to accommodate the mounting volume of solid waste for the long term. About 200 acres of land will be required to accommodate locally generated solid waste during the next two decades if sanitary landfill is the method chosen to dispose of it.

Community Facilities

Community facilities, including schools, parks, libraries, hospitals, administrative offices and other public buildings are provided by various local governmental agencies and private institutions in the District. The boundaries of the Racine County Unified School District No. 1 are coterminous with those of the Planning District. Created by merger of 26 independent school districts in 1961, the Unified District has experienced rapidly increasing enrollments and has been expanding its educational facilities on a year to year basis in order to accommodate growth. Projected enrollments for 1990 will mean an additional 19 to 20 thousand public school students. As well as providing new facilities to accommodate the student population growth during the planning period, the Unified District will have to replace many aging buildings which have outlived their usefulness. To meet the need, an estimated 22 elementary schools, three junior high schools and two senior high schools should be added during the next two decades.

Racine City and County both maintain extensive park and recreational areas which provide District residents with a high level of recreational facilities. The present 1,500 acres of parkland should be increased to more than 4,000 in the next 20 years. Among the land acquisition programs presently underway is the county's acquisition of lands along the Root River which will ultimately enable a

parkway to be developed stretching from the City of Racine into Milwaukee County.

Library services in the Planning District are provided by Racine City which maintains its central library in the downtown and a single branch in the Uptown neighborhood. Two new branch libraries will be needed to serve new growth areas.

Racine, the Villages of Sturtevant and Wind Point, and the Towns of Caledonia and Mt. Pleasant maintain various public buildings including police and fire stations in the District. With further growth, additional facilities will be required.

Public Finances

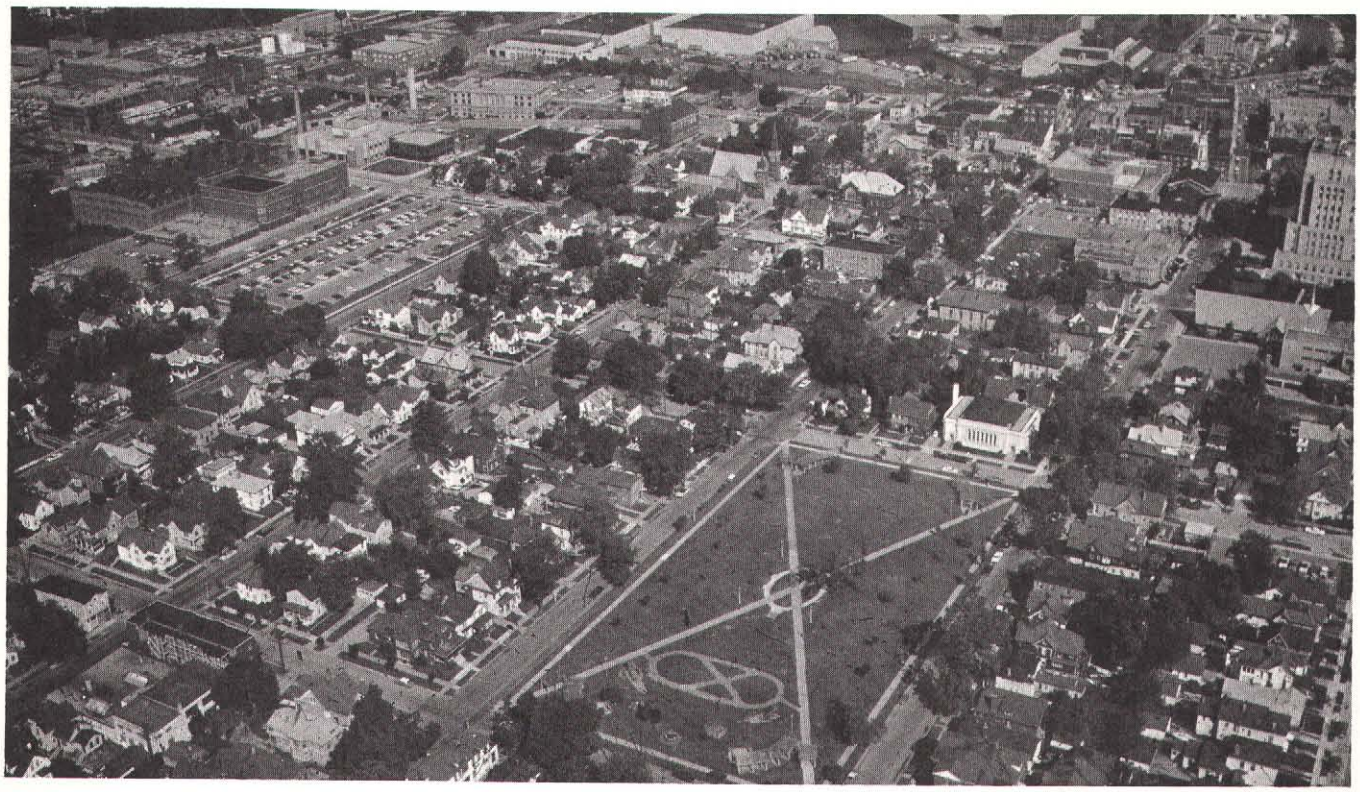
The major source of District revenues is the general property tax which produces 53.1 percent of local governmental income. Much of the remainder is derived from state and federal sources. These sources are utilized by the County, Unified School District, Vocational School, and seven municipalities, providing a full range of governmental and educational services. Both income and expenditures of local governments have more than doubled between 1960 and 1968. In 1968, District revenues totaled $51.9 million, and District expenditures amounted to $47.5 million. The equalized property tax rate in each of the local municipalities has been rising rapidly, and in 1968 ranged between 14.8 and 35.6 mills per $100 of assessed valuations among District municipalities.

Per capita cost of local government also doubled between 1960 and 1968 with major increases in education, recreation, employee benefits and municipal debt categories. Per capita revenues are derived more heavily from property taxes in 1968 than in 1960.

As an industrialized area with a strong and expanding tax base, the Racine Urban Planning District has had the wherewithal to provide a high level of governmental services in the past. Further such industrial growth, together with additional state and federal aid should assure a high standard for local governments and education in the future.

Local Plans, Ordinances and Programs

The County and City of Racine employ full-time planning staffs which prepare studies, analyses and plans dealing with the Planning District and implement a full range of land use control regulations. An additional important function of the City of Racine Planning Department is the preparation each year of a capital improvements program for the city. The villages and towns also have plan commissions, zoning and subdivision regulations, and other ordinances designed to insure a high standard of new development.



RACINE COUNTY COURT HOUSE AND WEST PARK

APPENDICES

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Appendix I-A

CITIZENS ADVISORY COMMITTEE

David Rowland . . . . . Executive Vice-President and Treasurer, Carpenter-Rowland-Batenburg Company
Chairman

William K. Eastham . . . . . .Executive Vice-President, S. C. Johnson & Son, Inc.
Vice-Chairman and Secretary

Paul J. Cody . . . . . .Urban Affairs Manager, S. C. Johnson & Son, Inc.

David Grimm . . . . . Treasurer, Racine Taxpayers Association

Wesley Hansche . . . . . .Chairman, Town of Mt. Pleasant Plan Commission

Jack Harvey . . . . . City Attorney, City of Racine

Kenneth L. Huck . . . . . Mayor, City of Racine

LeRoy Jerstad, Jr. . . . . President, Village of North Bay

Richard LaFave . . . . . Chairman, Racine County Board of Supervisors

Paul P. Lange . . . . . Councilman, City of Racine

Marshall Lee, Jr. . . . . Chairman, Town of Caledonia

John Margis, Jr. . . . . .First Vice-Chairman, Racine County Board of Supervisors

Edward Mickelson, Jr. . . . . President, Village of Sturtevant

James Mohrhauser . . . . . President, Milwaukee Cylinder Corporation

Stephen F. Olsen . . . . . Councilman, City of Racine

Henry Rohner . . . . . .Chairman, Town of Mt. Pleasant

Eric Schroder . . . . . .Board Members, Racine Unified School District No. 1

Virgil Schulz . . . . . Trustee, Village of Sturtevant

Mrs. Beryl Streiff . . . . . President, Village of Elmwood Park

Willard Walker . . . . . Executive Vice-President, Walker Forge, Inc.

Nonvoting Members of Committee

Gilbert Berthelsen . . . . . .County Administrator, Racine County

Arnold L. Clement . . . . . Planning Director, Racine County

Lester Hoganson . . . . . City Engineer, City of Racine

Karl B. Holzwarth . . . . . Park Director, Racine County

Thomas N. Wright . . . . . .Director of Planning, City of Racine

Donald Zenz . . . . . .Highway Engineer, Racine County

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Appendix III-A

ESTIMATED WORK FORCE

	1961	1963	1965	1967	July 1969
Total Civil Work Force	52,300	53,800	59,400	63,300	65,200
Percent of Civil Work Force Unemployed	6.5	4.1	3.2	4.4	5.3
Employment	48,900	51,600	57,500	60,500	61,600
Unemployment	3,400	2,200	1,900	2,800	3,500
Non-Farm Wage and Salary	41,700	45,400	53,200	54,000	55,000
Manufacturing	19,200	21,400	23,200	26,300	25,100
Durable Goods	13,300	15,600	19,300	20,300	18,400
Primary Metal Industries	1,700	2,200	2,700	2,700	2,700
Fabricated Metal Products	1,400	1,500	1,600	1,800	2,000
Non-Electric Machinery	5,800	7,200	10,600	11,200	9,800
Electric Machinery Equipment and Supplies	2,700	2,600	2,600	2,300	1,700
All Other Durable	1,800	2,000	1,800	1,600	2,200
Non-Durable Goods	5,900	5,800	3,900	6,000	6,700
Food and Kindred Products	800	800	700	800	950
Textiles, Apparel and Leather	700	700	800	700	650
Paper, Chemicals and Rubber	–	–	–	2,000	2,600
Printing, Publishing and Allied	2,400	2,300	2,400	2,500	2,500
Contract Construction	1,700	1,700	1,700	2,100	2,200
Transportation, Communications and Utilities	1,700	1,700	1,900	2,000	2,200
Wholesale and Retail Trade	7,500	8,500	8,500	9,400	9,500
Wholesale	1,500	1,700	1,800	1,800	1,900
Retail	6,000	6,800	6,700	8,200	7,600
Finance, Insurance and Real Estate	1,200	1,200	1,300	1,400	1,470
Services and Miscellaneous	5,900	5,700	5,900	6,900	7,700
Government	4,700	5,100	5,300	6,000	6,800
All Other Non-Farm Workers	4,800	4,800	5,400	4,900	4,900
Agriculture	2,300	1,500	2,000	1,500	1,800

Note: Figures do not add to total shown due to rounding. These employment categories are not comparable to those contained in Table 3-6.

Source: Wisconsin State Employment Service, 1961-1969.

Appendix III-B

COMPARISON OF NON-AGRICULTURAL EMPLOYMENT BY INDUSTRY

Non–Farm Employment Category	1965 Annual Average					
	United States	Illinois	Indiana	Iowa	Michigan	Wisconsin
Mining	1.0	0.7	0.5	0.4	0.5	0.2
Contract Construction	5.3	4.2	4.6	5.1	4.3	4.5
Manufacturing	30.0	33.8	41.3	25.4	40.9	36.9
Transportation and Public Utilities	6.6	7.1	5.7	6.7	5.0	5.7
Wholesale and Retail Trade	20.8	21.4	19.3	24.6	19.0	20.5
Finance, Insurance and Real Estate	5.0	5.2	3.9	4.8	3.5	3.9
Services and Miscellaneous	14.7	14.7	10.5	14.8	12.2	13.3
Federal, State and Local Government	16.6	12.9	14.2	18.2	14.6	15.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: U.S. Department of Labor, Employment and Earnings, March, 1966; and Employment and Earnings for States and Areas, 1939-65, (Washington: Government Printing Office, 1966.) Federal Reserve Bank of Chicago, Economic Fact Book, 1966.

Appendix III-C

METHODOLOGY

Inventories of available reference materials were compiled as the initial step in preparing comparisons and analysis of demographic and economic data. Library resources and references of the Southeastern Wisconsin Regional Planning Commission were consulted and additional references were suggested for consideration by the Racine Urban Planning District Citizens Advisory Committee. Resources of the Racine County Planning Department, Racine Public Library, Chicago Public Library and various documented publications by SEWRPC were utilized.

Based upon the scope of work and work outlined in Planning Memorandums No. 3 and No. 4, the various references were utilized to prepare comparisons of the data for local civil divisions, comparable counties in the Southeastern Wisconsin Region, the State of Wisconsin, and the United States.

From this body of data suitable illustrations, including charts, graphs, maps and tables, were prepared for analysis. In the analysis phase, comparisons were made and trends identified. The text of this chapter was then written fully utilizing all tabular comparisons and illustrations as an integral part of the text. References are footnoted at the bottom of each page and on each table and illustration. Where the text refers to a table or figure, footnotes are not repeated.

Appendix III-D

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Appendix IV-A

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Appendix V-A

THE LAND USE SURVEY

An existing land use survey was conducted between July and September of 1969 in order to classify by use all parcels of land within the Racine Urban Planning District. Work maps included: City of Racine quarter section maps (scale: 1 inch = 400 feet), county topographic maps (scale: 1 inch = 200 feet), and 1967 aerial photographs (scale: 1 inch = 400 feet).

For much of the study area, a "windshield" survey was conducted (by automobile) with detailed inspection on foot of the more complicated areas such as the central business district. Teams of three persons, one Harland Bartholomew and Associates' representative and two local assistants drove every road in the Planning District and recorded the use of each parcel according to the categories of the Standard Land Use Coding Manual of the Southeastern Wisconsin Regional Planning Commission. In addition to the land use information, the condition of each residential structure was recorded. Meetings with city and county officials were held in order to verify the location and extent of parks, schools and other publicly owned property. The Racine Chamber of Commerce's "Racine Area Manufacturers Directory 1968" was useful in identifying the activities of local industries.

With the completion of the data gathering phase, a series of 29 base maps, each covering four square miles of the Planning District, were prepared at a scale of 1 inch = 400 feet, utilizing the various map resources available. All land use information was then transferred to the new base maps. The area of land devoted to each use was measured by quarter section. Data was processed by computer to determine area totals for each use by quarter section. Quarter section control areas were supplied by the Southeastern Wisconsin Regional Planning Commission.

Land use totals by quarter section, neighborhoods, seven civil divisions, and the Planning District were then summarized by the computer. For analysis purposes, the 65 two-digit land use categories were reduced to 12 broad classifications. These are presented in the text of this report. The computer print-out and original maps are on file at the Racine County Planning and Zoning Office.

Appendix V-B

EXISTING LAND USE – 1969

Type of Land Use	City of Racine	Town of Caledonia	Town of Mt. Pleasant	Village of Elmwood Park	Village of North Bay	Village of Sturtevant	Village of Wind Point	Racine Urban Planning District
								Total Acres
RESIDENTIAL								
Single-Family	2,617.15	3,036.78	2,522.91	40.22	33.28	196.97	108.85	8,556.16
Two-Family	447.61	9.22	7.56	–	–	3.85	2.39	470.63
Multi-Family	129.45	15.30	16.02	–	–	4.86	–	165.63
Mobile Home	–	–	3.15	–	–	–	–	3.15
Group Quarters	6.48	10.04	5.13	–	–	0.68	–	22.33
Sub-Total	3,200.69	3,071.34	2,554.77	40.22	33.28	206.36	111.24	9,217.90
RETAIL AND SERVICES								
Retail Hardware	17.01	11.92	2.09	–	–	6.89	–	37.91
Retail General	69.20	–	7.25	–	–	–	–	76.45
Retail Food	35.50	6.96	3.56	0.08	–	0.82	–	46.92
Retail Automotive	59.33	25.06	23.92	–	–	2.36	–	110.67
Retail Apparel	5.10	–	2.67	–	–	–	–	7.77
Retail Furniture	10.23	–	3.49	0.07	–	1.48	–	15.27
Retail Eating and Drinking	29.95	19.13	10.52	–	–	1.61	–	61.21
Other Retail	24.68	9.96	11.03	–	–	2.76	–	48.43
Sub-Sub-Total Retail	251.00	73.03	64.53	0.15	–	15.92	–	404.63
Finance, Insurance, and Real Estate	15.67	3.71	1.82	–	–	0.17	–	21.37
Personal Services	17.00	2.76	0.47	–	–	0.19	–	20.42
Business Services	48.58	10.20	8.58	–	–	8.92	11.16	87.44
Repair Services	24.65	–	4.66	–	–	1.25	–	30.56
Professional Services	21.62	3.09	39.77	–	–	–	–	64.48
Commercial Schools	0.78	–	6.72	–	–	–	–	7.50
Motion Picture Theaters	18.37	–	–	–	–	–	–	18.37
Amusements	2.52	6.33	9.13	–	–	–	–	17.98
Sub-Total	400.19	99.12	135.68	0.15	–	26.45	11.16	672.75
WHOLESALE TRADE								
Sub-Total	32.66	2.05	39.70	–	–	0.33	–	74.74
MANUFACTURING								
NON–DURABLE								
Food Products Manufacturing	11.46	–	36.74	–	–	–	–	48.20
Textile Products Manufacturing	0.27	–	–	–	–	–	–	0.27
Apparel Etc. Manufacturing	8.36	–	–	–	–	–	–	8.36
Paper Products Manufacturing	0.14	2.29	–	–	–	–	–	2.43
Printing and Publishing	32.70	–	0.80	–	–	–	–	33.50
Chemical Products Mfg.	20.54	1.32	105.03	–	–	–	–	126.89
Rubber and Plastics Mfg.	6.18	–	–	–	–	–	–	6.18
Sub-Total	79.65	3.61	142.57	–	–	–	–	225.83
HEAVY INDUSTRY AND EXTRACTIVE								
Lumber Products	4.58	–	–	–	–	–	–	4.58
Furniture Manufacturing	3.73	–	–	–	–	0.95	–	4.68
Stone and Glass Manufacturing	5.61	3.73	–	–	–	–	–	9.34
Primary Metal Industry	33.92	–	16.48	–	–	–	–	50.40
Fabricated Metal	257.33	114.06	282.17	–	–	5.74	–	659.30
Professional Institution	0.93	1.05	–	–	–	–	–	1.98
Miscellaneous Manufacturing	10.24	0.67	–	–	–	–	–	10.91
Fishing Activities	0.96	–	–	–	–	–	–	0.96
Mining Activities	–	223.84	52.54	–	–	–	–	276.38
Construction Services	13.60	6.70	33.68	–	–	0.68	–	54.66
Sub-Total	330.90	350.05	384.87	–	–	7.37	–	1,073.19

Appendix V-B (Continued)

Type of Land Use	City of Racine	Town of Caledonia	Town of Mt. Pleasant	Village of Elmwood Park	Village of North Bay	Village of Sturtevant	Village of Wind Point	Racine Urban Planning District
								Total Acres
TRANSPORTATION, COMMUNICATIONS, AND UTILITIES								
Railroads	128.60	272.15	207.87	–	–	43.40	–	652.02
Motor Vehicle Transportation	25.53	–	1.65	–	–	–	–	27.18
Aircraft	0.63	306.59	28.10	–	–	–	–	335.32
Marine Transportation	2.07	–	–	–	–	–	–	2.07
Highways and Streets	1,910.01	1,420.22	1,148.76	25.39	13.09	104.58	51.49	4,673.54
Parking	31.42	–	–	–	–	–	–	31.42
Communications	4.40	–	6.70	–	–	–	–	11.10
Private Utilities	32.50	202.10	1.96	–	–	0.74	–	237.30
Public Utilities	29.41	41.04	6.50	–	–	3.24	–	80.19
Other Transportation	5.74	–	1.83	–	–	–	–	7.57
Sub-Total	2,170.31	2,242.10	1,403.37	25.39	13.09	151.96	51.49	6,057.71
INSTITUTIONS AND GOVERNMENT SERVICE								
Cemeteries	179.70	54.21	58.49	–	–	–	–	292.40
Government Services	23.15	71.41	38.86	–	–	0.93	2.81	137.16
Educational Services	240.22	197.40	113.24	2.47	–	27.54	26.97	607.84
Churches	131.74	21.88	42.69	1.06	–	1.97	–	199.34
Cultural Activities	12.42	–	–	–	–	0.06	0.98	13.46
Public Stadiums and Auditoriums	3.10	0.68	–	–	–	–	–	3.78
Resorts	0.77	–	–	–	–	–	–	0.77
Sub-Total	591.10	345.58	253.28	3.53	–	30.50	30.76	1,254.75
RECREATION								
Recreation	96.43	137.60	340.62	–	–	3.50	–	578.15
Parks	470.61	725.15	123.96	–	–	2.21	50.76	1,372.69
Other Cultural and Recreation	0.44	–	–	–	–	–	–	0.44
Sub-Total	567.48	862.75	464.58	–	–	5.71	50.76	1,951.28
AGRICULTURE AND RELATED								
Agricultural Land	206.99	15,799.08	15,181.99	–	–	321.03	17.97	31,527.06
Agricultural Related Activity	–	28.58	68.93	–	–	–	–	97.51
Sub-Total	206.99	15,827.66	15,250.92	–	–	321.03	17.97	31,624.57
OPEN LANDS AND WATER AREA								
Vacant Land	717.14	6,281.13	2,473.46	40.14	13.24	233.91	304.84	10,063.86
Woodlands	1.27	1,339.38	454.49	0.88	–	3.24	0.01	1,799.27
Water Area	86.14	353.44	122.40	0.50	–	2.47	19.17	584.12
Sub-Total	804.55	7,973.95	3,050.35	41.52	13.24	239.62	324.02	12,447.25
VACANT BUILDINGS								
Sub-Total	5.52	15.84	2.47	–	–	1.00	–	24.83
GRAND TOTAL	8,390.04	30,794.05	23,682.56	110.81	59.61	990.33	597.40	64,624.80

Source: Harland Bartholomew and Associates Land Use Survey, August, 1969.

Appendix V-C

LAND USE FORECAST METHODOLOGY

1990 Population SEWRPC	224,000
1970 Population (Estimated)	133,968
Population Growth	91,032

Family size for additional Dwelling Units – 3.25

Net additional Dwelling Units required 1970-1990 – 28,800

Assumed Additional Dwelling Units by Density (Net)

a. LOW DENSITY – 1.2 dwelling units per acre (net)
12 percent of additional dwelling units
3,500 dwelling units = 2,917 acres

b. MEDIUM DENSITY – 4.3 dwelling units per acre (net)
56 percent of additional dwelling units
16,100 dwelling units = 3,744 acres

c. HIGH DENSITY – 12.0 dwelling units per acre (net)
32 percent of additional dwelling units
9,200 dwelling units = 766 acres

Residential Acreages

Land Use Category	Low Density	Medium Density	High Density	Total
Single-Family	2,917	3,343	–	6,260
Two-Family	–	401	–	401
Multi-Family	–	–	766	766
Total	2,917	3,744	766	7,427

Commercial Land Use – 5 Acres/100 Employees
Total addition to work force – 31,752
Estimated 35 percent of total in retail trade, finance, insurance and real estate, and services.
Additional commercial employment – 11,113
11,113 x 5 = 556 Acres

Industrial Land Use – 7 Acres/100 Employees
Total additional work force – 31,752
Percent industrial – 50 percent
Additional industrial land – 1,111 Acres

Public and Semi-Public
Current ratio of developed land per 100 population – .96
Assume 1.00 acres of public and semi-public per 100 population vs. .90 ratio used by SEWRPC for making future public and semi-public land projections.

Parks and Recreation
Calculated 1,500 acres of parkland should be acquired by district governments, including almost 1,000 acres within the take lines of the Root River Parkway.

Streets and Alleys
Utilized percents of developed areas by densities:
16.5 percent of gross low density
23.0 percent of gross medium density
25.0 percent of gross high density

Appendix V-D

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Appendix VI-A

HOUSING INVENTORY METHODOLOGY

Housing Inventories

In the summer of 1969, a survey of existing housing was conducted to determine the number, type and exterior condition of housing units in the Planning District. This survey was completed as a part of the land use inventory by the staff of Harland Bartholomew and Associates, in the summer of 1969. Concurrently, the Federal Housing Administration office in Milwaukee, in cooperation with the United States Post Office Department (Racine and Sturtevant Post Offices), conducted an analysis of the Racine housing market to determine vacancy ratios. This was accomplished using letter carriers, who recorded dwelling units which were apparently vacant at the time of the survey. This data was used in the analysis of existing housing needs. Results of these surveys and information from the U. S. Census of Housing, 1960, and the Racine Community Analysis of 1967 were combined to identify housing trends and local problems.

Further analysis of this information indicated the extent of blighted conditions, including substandard housing and other structures. Calculations of the percentage of substandard conditions by blocks were then prepared.

To identify housing needs, interviews with housing officials, local realtors and officials from agencies providing assistance to low-income families were completed. This information was tabulated to determine the extent of needs and the involvement of these agencies in providing assistance. The various data compiled for this phase of the study are from unpublished sources and in some instances reflect opinions of the person being interviewed.

Appendix VI-B

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Appendix IX-A

COMMUNITY FACILITIES DATA COLLECTION

Information collected as a part of the community facilities section of this report was secured through contacts with officials at all levels of local government. Published reports and data from the various officials were utilized to prepare tabular summaries. Interviews with officials enabled additional information to be collected for inclusion in the tabular summaries. In addition the various school, park and public building sites were inspected in the field.

Certain private institutions were also included in this study. These include parochial and private schools and the several large hospitals and health care facilities. Because of the private nature of these facilities, detailed information is somewhat less readily available than for public facilities. Data for these private institutions has been handled in the same manner as that for the public facilities. Tabular summaries have been prepared and on-site inspections were also made.

All data and information prepared as a part of this inventory have been summarized in tabular and map form. These tables and maps are included in the body of the text with appropriate footnotes for the sources of information.

Appendix IX-B

RACINE URBAN PLANNING DISTRICT PUBLIC SCHOOL ENROLLMENTS: 1958 to 1970

	1958/1959	1959/1960	1960/1961	1961/1962	1962/1963	1963/1964
Kindergarten	2,351	2,562	2,624	2,810	2,778	2,908
First	1,729	1,846	1,920	1,999	2,191	2,201
Second	1,647	1,728	1,833	1,864	1,956	2,130
Third	1,520	1,711	1,744	1,780	1,765	1,910
Fourth	1,454	1,502	1,683	1,704	1,801	1,829
Fifth	1,367	1,509	1,546	1,651	1,712	1,815
Sixth	1,431	1,348	1,460	1,569	1,705	1,734
Seventh	1,213	1,513	1,391	1,517	1,544	1,749
Eighth	1,045	1,196	1,483	1,422	1,529	1,567
Ninth	1,086	1,079	1,244	1,634	1,597	1,815
Tenth	1,012	1,054	1,087	1,237	1,631	1,677
Eleventh	897	886	968	994	1,184	1,633
Twelfth	698	815	843	892	954	1,133
Special Education	237	240	268	260	271	329
Total	17,687	18,989	20,094	21,333	22,618	24,430
Yearly Increase	N/A	1,308	1,095	1,239	1,285	1,812
Percent Increase	N/A	7.4%	5.8%	6.2%	6.0%	8.0%

	1964/1965	1965/1966	1966/1967	1967/1968	1968/1969	1969/1970
Kindergarten	3,085	3,166	3,092	3,023	2,937	2,792
First	2,337	2,511	2,607	2,671	2,516	2,552
Second	2,119	2,228	2,385	2,458	2,543	2,465
Third	2,110	2,133	2,203	2,333	2,461	2,395
Fourth	2,039	2,174	2,185	2,307	2,397	2,550
Fifth	1,879	2,084	2,187	2,214	2,346	2,385
Sixth	1,869	1,880	2,077	2,204	2,252	2,352
Seventh	1,815	1,926	1,969	2,216	2,360	2,356
Eighth	1,785	1,861	1,959	1,996	2,199	2,339
Ninth	1,818	2,032	2,116	2,143	2,223	2,393
Tenth	1,889	1,852	2,072	2,229	2,199	2,268
Eleventh	1,636	1,748	1,729	2,204	2,127	2,101
Twelfth	1,562	1,475	1,693	1,651	1,903	1,961
Special Education	360	358	371	431	501	626
Total	26,303	27,428	28,645	30,080	30,964	31,535
Yearly Increase	1,873	1,125	1,217	1,435	884	571
Percent Increase	7.7%	4.3%	4.4%	5.0%	2.9%	1.8%

Note: Racine County School Office, County School Directories 1958-1959 enrollments for the schools in unincorporated areas are no longer available in Racine. To arrive at the grade division shown for these years the 1960-1961 percentage distribution by grades were calculated to determine enrollments for the unincorporated areas.

Source: Unified School District No. 1 of Racine County, Statistical Report 1969, Enrollment Changes by Grade by Year, p. 6, and Past and Current Enrollments by Grade by Year, Division of Pupil Services.

Appendix IX-C

PRIVATE SCHOOL ENROLLMENTS: 1961 to 1970

		1961-1962	1962-1963	1963-1964	1964-1965	1965-1966	1966-1967	1967-1968	1968-1969	1969-1970
K–6	Epiphany Lutheran	45	45	45	45	45	45	45	N/A	44
K–8	First Evangelical	70	68	70	73	71	69	64	124	72
1–8	Holy Cross Lutheran	94	85	96	99	99	99	100	114	135
1–8	Holy Name	490	500	473	474	439	377	326	334	336
1–8	Holy Trinity	352	335	338	296	280	271	217	171	190
9–12	Lutheran High	377	375	397	362	329	293	307	303	324
K–11	Prairie	–	–	–	–	87	155	261	305	320
1–9	Racine Christian	93	90	94	82	97	97	92	98	97
1–8	Sacred Heart	411	382	373	370	360	–341	308	290	276
9–12	St. Bonaventure High	191	197	188	190	174	172	167	164	176
9–12	St. Catherine's High	1,502	1,662	1,549	1,511	1,448	1,431	1,301	1,248	1,109
1–8	St. Edwards	826	779	766	754	722	709	689	604	576
1–8	St. John Nepomuk	753	774	779	760	726	691	608	551	507
K–8	St. John's Lutheran	296	311	314	320	320	315	317	334	320
K–8	St. John's Lutheran (Caledonia)	–	–	–	–	–	–	–	76	82
1–8	St. Joseph's	535	532	522	488	430	383	345	306	250
1–8	St. Louis (Graded)	270	287	289	304	288	274	248	226	225
1–8	St. Mary's	314	296	296	272	274	254	245	179	188
1–8	St. Patrick's	385	375	352	334	325	285	260	219	148
1–8	St. Rita's	564	568	630	668	677	666	594	550	537
–	St. Rose	417	424	427	409	371	307	218	119	–
1–8	St. Sebastian's	344	362	359	359	314	296	297	266	249
1–8	St. Stanislaus	171	174	176	181	178	154	156	147	139
K–8	Trinity Lutheran	150	143	186	204	234	212	213	218	207
1–8	Trinity Lutheran (Caledonia)	138	141	158	176	178	194	237	183	181
1–8	St. Lucy's (Graded)	245	320	318	320	326	328	320	272	280
	Total	9,033	9,225	9,195	9,051	8,792	8,418	7,937	7,401	6,968

Source: Private School Administrators, Racine Urban Planning District, 1969. (Fall enrollments are used.)

Appendix IX-D

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Appendix XI-A

CITY AND VILLAGE[1] PLANNING ENABLING LEGISLATION[2]

LOCAL PLANNING AGENCIES	
Park Board[3]	s.27.08(4)
Plan commission	s.62.23(1)
Joint extraterritorial zoning committee[4,5]	s.62.23(7a)(c)[6]
Plan committee of the council[7]	s.62.23(7)(d)
Board of public land commissioners[8]	ss.62.23(7)(d),(9a)
Redevelopment authority[9]	s.66.431(3)
STAFF AND BUDGET	
Experts and a staff	s.62.23(1)(e)
Building and zoning inspector	s.62.23(9)(a)
PLANS	
*Master plan	ss.62.23(2),(3)
IMPLEMENTATION	
Parkways and boulevards[10]	s.27.11
*Master plan adoption and certification	ss.62.23(2),(3)(b)
Capital improvement program	s.62.23(4)
Official map ordinance	s.62.23(6)
Zoning ordinance	s.62.23(7)
Interim zoning ordinance	s.62.23(7)(da)
*Board of zoning appeals	s.62.23(7)(e)
Extraterritorial zoning	s.62.23(7a)[6]
Building code	s.62.23(9)(a)
Fire prevention ordinance	s.62.23(9)(b)
Building line ordinance	s.62.23(11)
Public nuisance regulations	s.66.052
Offensive industry regulations	s.66.052(1)
Dumping area regulations	s.66.052(2)
Mobile home ordinance	s.66.058
Blighted area redevelopment[11]	ss.66.43,66.436
Approval of county street and highway map	s.80.64
Airport zoning ordinance	s.114.136
Smoke emission regulations	s.146.10
*Plat approval	s.236.10(1)(a)
Extraterritorial plat approval jurisdiction[12]	s.236.10(1)(b)
Land division ordinance[13]	s.236.45(2)

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* Mandatory

1. Section 61.35 provides that villages shall have all the planning powers and duties conferred by s.62.23 upon cities.
2. Wisconsin Statutes, 1961.
3. Only if the municipality has no plan commission; the park board's planning power only includes preparation of the master plan.
4. Only for recommending and approving zoning districts and regulations and amendments thereto in the extraterritorial zoning jurisdiction.
5. Only if the municipality has a plan commission.
6. Chapter 241, Laws of 1963.
7. Only for recommending zoning districts and regulations when the municipality has neither a plan commission nor a board of public land commissioners.
8. Only for recommending zoning districts and regulations and reporting on changes and amendments when there is no plan commission. Section 27.11(13) grants the board of public land commissioners in cities of the first class all the powers of city plan commissions.
9. Section 66.436 provides that villages shall have all the redevelopment powers conferred upon cities.
10. Only cities of the first class.
11. Chapter 241, Laws of 1963.
11. Section 66.436 provides that villages shall have all the redevelopment powers conferred upon cities.
12. Only if the municipality has a plan commission employing a full-time professional planner or has adopted an official map.
13. Only if the municipality has a plan commission.

Source: Organization of Planning Agencies, Southeastern Wisconsin Regional Planning Commission, June, 1964.

Appendix XI-B

COUNTY PLANNING ENABLING LEGISLATION[1]

COUNTY PLANNING AGENCIES	
County park commission[2]	s.27.02
*County rural planning committee	s.27.015(4)
County park board[2]	s.27.015(13)
County highway committee[3]	s.59.97(2)(a)
Special zoning committee[3]	s.59.97(2)(a)
STAFF AND BUDGET	
Agents and employees as necessary	ss.27.03(2),59.15(2)(d)
Mill-tax appropriation	s.27.06
Consulting rural planning experts	s.27.015(9)
Person of skill and experience in rural development	s.27.015(9)
Building and zoning inspector	s.59.07(16)
County park commissioners compensation[4]	s.59.07(43)
Air pollution control officers	ss.59.07(53),(85)
Transportation consultants[5]	s.59.07(71)
*Officer to administer the zoning ordinance	s.59.97(7)(b)
*Other necessary zoning administrative personnel	s.59.97(8)
COUNTY PLANS	
*Comprehensive county park system plan	s.27.04(1)
*County system of streets and parkways plan	s.27.04(1)
Transportation studies and plans[5]	s.59.07(71)
County regional plans[6]	s.236.46
IMPLEMENTATION	
County ordinance adopting plans[7]	s.27.04(2)
Building line regulations[8]	s.27.05(1)
Park, street and parkway acquisition	s.27.065
Zoning petition and zoning appeal fees	ss.59.07(16m),(68)
Billboard regulations	s.59.07(49)
Building and sanitary codes	s.59.07(51)
Air pollution control ordinance	ss.59.07(53),(85)
Watershed protection projects	s.59.07(60)
Zoning ordinance	s.59.97
Board of adjustment	s.59.99
County street and highway map	s.80.64
Soil conservation ordinance	s.92.09
Airport zoning ordinance	s.114.136
*Plat approval[9]	s.236.10
Land division ordinance[10]	s.236.45(2)

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* Mandatory

1. Wisconsin Statutes, 1961.
2. Replaces the county rural planning committee.
3. Only for recommending and administrating the zoning ordinance.
4. Except in counties of a population of 500,000 or more.
5. In counties having a population of 500,000 or more.
6. Includes an arterial thoroughfare system, minor street system inside arterials, and lot layout inside minor streets or arterials.
7. The comprehensive park system plan and the system of streets and parkways plan.
8. Only along streets connecting parks with municipalities or other open spaces.
9. In cities and villages only if the county planning agency employs a full-time professional planner, engineer or zoning administrator.
10. Only if the county has a planning agency.

Source: Organization of Planning Agencies, Southeastern Wisconsin Regional Planning Commission, June, 1964.

Appendix XI-C

TOWN PLANNING ENABLING LEGISLATION[1]

TOWN PLANNING AGENCIES	
Town plan commission[2]	s.60.18(12)
Town zoning committee[3]	s.60.74(2)
Town park commission	s.60.181
STAFF AND BUDGET	
Appoint agents and employees	s.60.182(2)
TOWN PLANS	
*Park and highway planning study	s.60.183
*Comprehensive town highway system plan	s.60.183
*Comprehensive town park plan	s.60.183
*Reported to the town board	s.60.183
IMPLEMENTATION	
Approval of county zoning ordinance	s.59.97(2)(d)
Watershed protection projects	s.60.18(21)
Zoning ordinance[4]	s.60.74(1)
Removal of nonconforming uses and structures in the vicinity of airports	s.60.74(1)(b)
Board of adjustment	s.60.75
Building lines[5]	s.60.184(1)
Public nuisance regulations[6]	s.66.052
Offensive industry regulations	s.66.052(1)
Mobile home ordinance	s.66.058
Approval of county street and highway map	s.80.64
Airport zoning ordinance	s.114.136
*Plat approval	s.236.10(1)(b),(c)
Land division ordinance[7]	s.236.45

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* Mandatory

1. Wisconsin Statutes, 1961.
2. The town's qualified electors may direct the town board to exercise all the powers conferred on village boards, in which case a town plan commission would have all the powers and duties of a city plan commission, s.62.23.
3. Only for the purpose of recommending the zoning districts and zoning regulations.
4. Only if the county has not adopted a county zoning ordinance or refuses or neglects to do so after the town has petitioned, except if the town has adopted village powers then the town zoning ordinance and any amendments thereto are subject to the county board's approval in those counties which have a county zoning ordinance.
5. Only along streets connecting parks with municipalities or other open spaces.
6. Only if not regulated by a city or village.
7. Only if the town has a park commission, a zoning committee, or a land use planning agency.

Source: Organization of Planning Agencies, Southeastern Wisconsin Regional Planning Commission, June, 1964.

Appendix XI-D

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