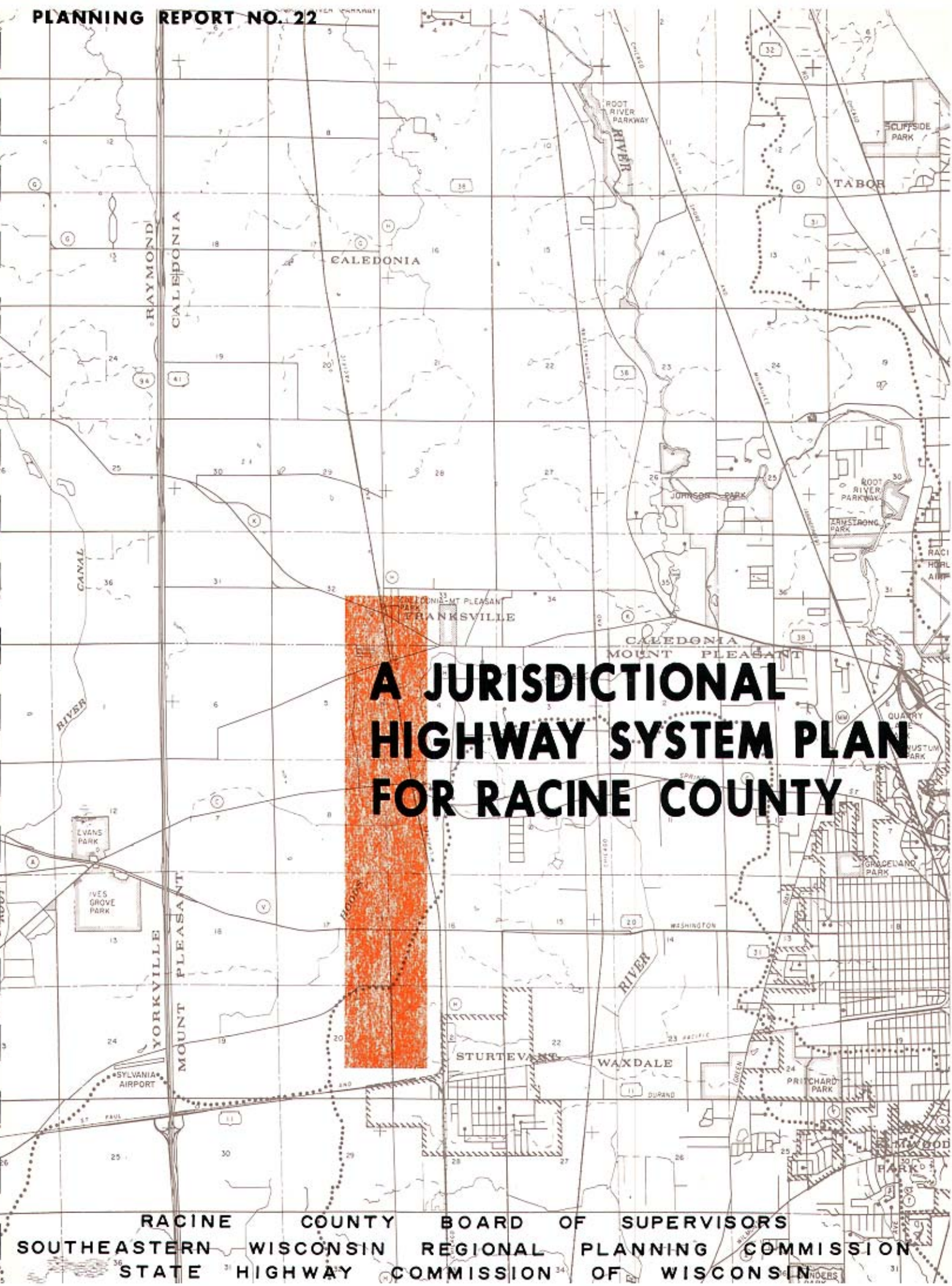
PLANNING REPORT NO. 22



A JURISDICTIONAL HIGHWAY SYSTEM PLAN FOR RACINE COUNTY

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SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
STATE HIGHWAY COMMISSION OF WISCONSIN

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RESOLUTION NO. 75-13

RESOLUTION OF THE SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION ADOPTING A JURISDICTIONAL HIGHWAY SYSTEM PLAN FOR RACINE COUNTY, AND AMENDING THE ADOPTED REGIONAL TRANSPORTATION PLAN, THE JURISDICTIONAL HIGHWAY SYSTEM PLAN BEING ONE PART OF THE MASTER PLAN FOR THE PHYSICAL DEVELOPMENT OF THE REGION COMPRISED OF THE COUNTIES OF KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WALWORTH, WASHINGTON, AND WAUKESHA IN THE STATE OF WISCONSIN

WHEREAS, petitions, in the form of resolutions, were duly adopted by the governing bodies of the governmental units located within the Counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha in the State of Wisconsin, petitioning the Honorable Gaylord A. Nelson, as the Governor of the State of Wisconsin, to create a regional planning commission, embracing the said counties, pursuant to the provision of Section 66.945(2) of the Wisconsin Statutes; and

WHEREAS, pursuant to the said petitions, the Southeastern Wisconsin Regional Planning Commission was duly created by the written Executive Order of the Honorable Gaylord A. Nelson, in his official capacity as the Governor of the State of Wisconsin, attested to by the Secretary of State of the State of Wisconsin, which said Executive Order was duly signed and issued on the 8th day of August 1960, pursuant to the provisions of Section 66.945(2) of the Wisconsin Statutes; and

WHEREAS, the said Executive Order specifically extended to the Southeastern Wisconsin Regional Planning Commission, so created, jurisdiction in the area and boundaries embraced by, included in, and limited to the said Counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha in the State of Wisconsin; and

WHEREAS, a copy of the said Executive Order was forwarded by the office of the said Governor to each of the local governmental units included within the area and boundaries defined in the said Executive Order; and

WHEREAS, following the creation of the said Commission, public hearings were held in said local governmental units, following which the membership composition of the said Regional Planning Commission was duly appointed under, and pursuant to, the provisions of Section 66.945(3) and (4) of the Wisconsin Statutes; and

WHEREAS, following the appointment of the said membership, the said Regional Planning Commission met and organized and elected a Chairman and Executive Committee and appointed an Executive Director and appointed advisory committees and adopted by-laws and established its own rules of procedure and scheduled quarterly meetings of the Commission to be held each year and hired such experts and consultants as it deemed necessary for the prosecution of its responsibilities and engaged a general counsel; and it thereafter kept a record of its resolutions, transactions, findings, and determinations, which have been and are a public record under, and pursuant to, the provisions of Sections 66.945(5), (6), and (7) of the Wisconsin Statutes; and

WHEREAS, following the organization of the said Regional Planning Commission and under, and pursuant to, the provisions of Section 66.945(8) of the Wisconsin Statutes, it proceeded to conduct all types of research studies, collect and analyze data, prepare maps, charts, and tables, and conduct all necessary studies for the accomplishment of its other duties and has prepared numerous reports presenting the findings and recommendations of its research and studies concerning the physical, social, and economic development of the Region and has distributed these reports and provided advisory services on planning problems to the local governmental units within the Region and to other public and private agencies in matters relative to its functions and objectives and made annual reports of its activities to the State Legislature of Wisconsin and the legislative bodies of the local governmental units within the Region, all leading to the ultimate adoption of a master plan for the Region when all studies, data, maps, charts, and tables have been completed; and

WHEREAS, it entered into contracts with local units of government within the Region under, and pursuant to, the provisions of Sections 66.30 and 66.945(12) of the Wisconsin Statutes, offering advice on land use, thoroughfares, community facilities, and public improvements; and

WHEREAS, for the purpose of accomplishing the objectives of the Regional Planning Commission, it accepted from local, state, and federal government agencies aids and grants, which items have been furnished on a basis not incompatible with the provisions of Section 66.945 of the Wisconsin Statutes under conditions that are in accordance with the accomplishment of its objectives; and

WHEREAS, 18 important elements of the master plan have been duly adopted by the Southeastern Wisconsin Regional Planning Commission; namely,

1. The comprehensive plan for the Root River watershed at a meeting held on the 22nd day of September 1966; and

2. The regional land use plan at a meeting held on the 1st day of December 1966; and

3. The regional transportation plan (highway and transit components) at a meeting held on the 1st day of December 1966; and

4. The comprehensive plan for the Fox River watershed at a meeting held on the 4th day of June 1970, amended at meetings held on the 13th day of September 1973 and the 5th day of June 1975; and

5. The Milwaukee County jurisdictional highway system plan at a meeting held on the 4th day of June 1970; and

6. The comprehensive plan for the Milwaukee River watershed at a meeting held on the 2nd day of March 1972; and

7. The Milwaukee area transit plan at a meeting held on the 2nd day of March 1972; and

8. The comprehensive plan for the Kenosha Planning District at a meeting held on the 1st day of June 1972; and

9. The Walworth County jurisdictional highway system plan at a meeting held on the 1st day of March 1973; and

10. The Ozaukee County jurisdictional highway system plan at a meeting held on the 7th day of March 1974; and

11. The regional sanitary sewerage system plan at a meeting held on the 13th day of May 1974; and

12. The library facilities and services plan for southeastern Wisconsin at a meeting held on the 12th day of September 1974; and

13. The Racine area transit development program at a meeting held on the 12th day of September 1974; and

14. The Waukesha County jurisdictional highway system plan at a meeting held on the 5th day of June 1975; and

15. The regional housing plan at a meeting held on the 5th day of June 1975; and

16. The comprehensive plan for the Racine Urban Planning District at a meeting held on the 5th day of June 1975; and

17. The Kenosha County jurisdictional highway system plan at a meeting held on the 11th day of September 1975; and

18. The Washington County jurisdictional highway system plan at a meeting held on the 11th day of September 1975; and

WHEREAS, the said adopted regional transportation plan recommends as an important step in plan implementation that the State Highway Commission of Wisconsin, the Milwaukee County Expressway Commission (now the Milwaukee County Expressway and Transportation Commission), and the seven county highway committees, in cooperation with the local units of government within the Region, convert the functional highway plan contained in the adopted regional transportation plan into a jurisdictional plan on a county-by-county basis; and

WHEREAS, the Racine County Highway Commissioner, acting pursuant to a directive of the Racine County Board of Supervisors, dated January 24, 1967, requested the guidance, cooperation, and assistance of the Commission in the preparation of a jurisdictional highway system plan for Racine County; and

WHEREAS, a Technical Coordinating and Advisory Committee on Jurisdictional Highway Planning for Racine County was created to assist in the preparation of such a study, which consisted of knowledgeable and experienced engineers and planners from the U. S. Department of Transportation, Wisconsin Department of Transportation, Racine County, representatives of municipalities within Racine County, and the Southeastern Wisconsin Regional Planning Commission; and

WHEREAS, under the guidance of the Technical Coordinating and Advisory Committee on Jurisdictional Highway Planning for Racine County and of a competent interagency staff, all research studies undertaken for the accomplishment of a jurisdictional highway system plan for Racine County have been concluded, including: 1) the preparation and printing of a map setting forth the proposed jurisdictional highway system plan in Racine County as projected to the calendar year 1990; and 2) the preparation and publication of SEWRPC Planning Report No. 22, entitled A Jurisdictional Highway System Plan for Racine County, published in February 1975, which contains specific recommendations as to the level and agency of government of each segment of the total 1990 planned arterial street and highway system within Racine County, and concomitant recommendations for the realignment of the federal aid highway systems and the state and county trunk

highway systems, together with descriptive and explanatory matter and other matters intended to comprise a conversion of the functional highway plan for Racine County into a jurisdictional highway system plan, said functional plan being a component of the adopted regional transportation plan; and

WHEREAS, the process of converting the adopted functional highway plan for Racine County into a jurisdictional highway system plan has necessarily resulted in refinements to the functional highway plan, such refinements consisting of additions, deletions, and changes to the functional highway system, thus constituting recommended amendments to the adopted functional plan; and

WHEREAS, the aforementioned map and the aforementioned SEWRPC Planning Report No. 22 have been prepared and will shortly be distributed to the local units of government within Racine County as an aid in the performance of their functions and duties; and

WHEREAS, the provisions of Sections 66.945(9) and (10) of the Wisconsin Statutes have been duly complied with in connection with the preparation of the jurisdictional highway system plan for Racine County.

NOW, THEREFORE, BE IT RESOLVED:

FIRST: That the jurisdictional highway system plan for Racine County, being an amendment to the highway system component of the adopted regional transportation plan, which plan is an integral part of the master plan for the Region, comprised of:

1. The map showing the proposed jurisdictional highway system in Racine County; and

2. The jurisdictional highway system plan for Racine County, Wisconsin, contained in SEWRPC Planning Report No. 22, together with all descriptive and explanatory matter;

be and the same hereby is in all respects ratified, approved, and officially adopted; except that the recommendations set forth in SEWRPC Planning Report No. 22 are hereby modified as follows:

1. The Type II county trunk highway facility identified in the plan in the Town of Burlington on County Line Road from Fish Hatchery Road to Fishman Road, on Fishman Road from County Line Road to Oakwood Road, and on Oakwood Road from Fishman Road to CTH P is hereby deleted from the arterial street and highway system and the county trunk highway system, and is recommended to remain on the local collector and minor street system.

2. Six Mile Road in the Town of Caledonia from STH 31 westerly to CTH H is hereby added to the plan as a Type III local trunk arterial highway facility.

3. CTH G in the Town of Caledonia from CTH H westerly to IH 94 is hereby added to the recommended plan as a Type II county trunk arterial highway facility.

4. The proposed new alignment for STH 83 in the Towns of Waterford and Rochester is hereby altered to a proposed alignment adjacent, and approximately parallel to, the western boundaries of the Villages of Rochester and Waterford.

SECOND: That the said map; the said jurisdictional highway system plan for Racine County, Wisconsin, contained in SEWRPC Planning Report No. 22; the said descriptive and explanatory matter contained in said SEWRPC Planning Report No. 22; together with all maps, plats, charts, programs, and descriptive and explanatory matter therein contained are hereby made a matter of public record; and the originals and true copies thereof shall be kept, at all times, at the offices of the Southeastern Wisconsin Regional Planning Commission presently located in the Old Courthouse Building in the City of Waukesha, County of Waukesha, State of Wisconsin, or at any subsequent office that the said Commission may occupy, for examination and study by whomsoever may desire to examine the same;

THIRD: That a true, correct, and exact copy of this resolution, together with a complete and exact copy of the said amendments to the said parts of the master plan, the said maps, the said jurisdictional highway system plan for Racine County, and the said descriptive and explanatory matter, shall be forthwith distributed to each of the local legislative bodies of the governmental units within the Region entitled thereto and to such other parties, agencies, or individuals as the law may require or as the Commission, its Executive Committee, or its Executive Director, in their discretion, shall determine and direct;

FOURTH: That the said jurisdictional highway system plan for Racine County hereby adopted shall, following the adoption of this resolution, become an amendment to the highway system component of the transportation plan adopted as a part of a master plan for the entire Region, which master plan shall be for the general purpose of guiding and accomplishing a coordinated, adjusted, and harmonious development of the entire Region and which will, in accordance with existing and future needs, best promote public health, safety, morals, order, convenience, prosperity, or the general welfare, as well as efficiency and economy in the process of development, and the purpose and the effect of the adoption of this master plan shall be solely to aid the Regional Planning Commission, the local governments and the local governmental officials, the state government and state governmental officials, and the federal government and federal governmental officials within the Region in the performance of their functions and duties.

The foregoing Resolution, upon motion duly made and seconded, was regularly adopted at the meeting of the Southeastern Wisconsin Regional Planning Commission held on the 4th day of December 1975, the vote being: Ayes 15, Nayes 0.

George C. Berteau, Chairman

ATTEST:

Kurt W. Bauer, Deputy Secretary

PLANNING REPORT
NUMBER 22

A JURISDICTIONAL HIGHWAY SYSTEM PLAN FOR RACINE COUNTY

Racine County Board of Supervisors
Southeastern Wisconsin Regional Planning Commission
Wisconsin Department of Transportation

Southeastern Wisconsin Regional Planning Commission
Continuing Regional Land Use-Transportation Study
P. O. Box 769
Old Courthouse
916 N. East Avenue
Waukesha, Wisconsin
53186

The preparation of this report was financed in part through a joint planning grant from the Wisconsin Department of Transportation, Division of Highways; the U. S. Department of Transportation, Federal Highway Administration; and the U. S. Department of Housing and Urban Development under the provisions of the Federal Aid Highway legislation and Section 701 of the Housing Act of 1954, as amended. The necessary local financing was provided by Racine County.

February 1975

Inside Region $ 5.00
Outside Region $10.00

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RACINE COUNTY HIGHWAY & PARK COMMISSION

ROUTE 1, BOX 226A
STURTEVANT, WIS. 53177 414-886-2766

February 19, 1975

TO: Racine County Board of Supervisors
Southeastern Wisconsin Regional Planning Commission
State Highway Commission of Wisconsin

The Racine County Board of Supervisors on January 24, 1967, directed that a comprehensive study be made of the jurisdictional responsibility for the construction, maintenance, and operation of arterial streets and highways in Racine County and that such study culminate in the recommendation of a long-range plan for integrated state, county, and local highway system development within the County. In order to carry out the study, an interagency planning staff was assembled with representation of the County, the Regional Planning Commission, and the State Highway Commission. In order to further involve the federal, state, and local units and agencies of government concerned with highway development within the County in this important study, a Technical Coordinating and Advisory Committee was formed to assist and advise the interagency staff. The membership of this Committee included representation from the U. S. and Wisconsin Departments of Transportation; the Regional Planning Commission; the County; and most importantly, of the local units of government within the County having full time professional planning and engineering staffs concerned with land use and transportation system development.

This report contains the findings and recommendations of more than three years of intensive study by the interagency staff and the Technical Coordinating and Advisory Committee. The report sets forth a recommended plan for state trunk highway, county trunk highway, and local trunk highway system development within Racine County to the year 1990, and contains specific recommendations for carrying out that plan.

The findings and recommendations contained in this report were carefully reviewed and unanimously approved by the Technical Coordinating and Advisory Committee. Adoption and implementation of the recommended plan would, in the Committee's opinion, provide the County with an integrated highway transportation system which would effectively serve and promote a desirable land use pattern within the County, abate traffic congestion, reduce travel time and costs, and reduce accident exposure. It would also serve to concentrate appropriate resources and capabilities on corresponding areas of need, assuring the most effective use of the total public resources in the provision of highway transportation and providing a sound basis for the establishment of long-range fiscal policies and for the systematic programming of arterial street and highway improvements within Racine County.

The report and plan are hereby respectfully submitted for your careful consideration and, hopefully, adoption. Favorable action on the report and plan is respectfully urged by the interagency staff and by the Technical Coordinating and Advisory Committee.

Respectfully submitted,

Earl G. Skagen

Earl G. Skagen, Chairman
Technical Coordinating and Advisory
Committee on Jurisdictional
Highway Planning for Racine County

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Chapter I

INTRODUCTION

On December 1, 1966, the Southeastern Wisconsin Regional Planning Commission, pursuant to its statutory responsibilities and after four years of intensive study, adopted two key elements of a comprehensive plan for the physical development of the seven-county Southeastern Wisconsin Region: a land use plan and a transportation plan. On March 17, 1967, in accordance with its advisory role, the Commission certified these plans to the constituent counties, cities, villages, and towns, as well as to certain state and federal agencies, for adoption and implementation. On March 28, 1967, after careful consideration and upon the recommendation of the Racine County Highway Committee, the Racine County Board of Supervisors adopted the recommended transportation plan as a guide to be used in making decisions concerning transportation facility development within the county.

The adopted regional land use and transportation plans, as well as the salient findings and recommendations of the comprehensive regional land use-transportation study upon which the plans are based, are set forth in SEWRPC Planning Report No. 7, Volume 1, Inventory Findings-1963; Volume 2, Forecasts and Alternative Plans-1990; and Volume 3, Recommended Regional Land Use and Transportation Plans-1990. The regional transportation plan recommends a threefold approach to the solution of the growing transportation problems of the rapidly urbanizing Region. First, it recommends the development of an expanded, fully integrated regional freeway system which would serve to remove heavy volumes of fast, through traffic from the existing surface arterial street and highway system. Second, it recommends the development of an integrated regional modified rapid transit and rapid transit system designed to complement and supplement the transportation services provided by the regional freeway and standard arterial street and highway systems and to provide, efficiently and economically, a high level of transit service to the most intensely urbanized areas of the Region. Third, and of direct concern to this report, it recommends improvements and additions to the existing surface arterial street and highway system in order to provide an areawide system of standard arterials properly related to the recommended freeway and modified rapid transit and rapid transit systems.

The regional transportation plan thus contains, as an integral element, a functional arterial street and highway system plan. This functional plan consists of recommendations concerning the general location, type, capacity, and service levels of the arterial street and highway facilities required to serve the rapidly developing Southeastern Wisconsin Region to the year 1990. Except for freeways, the functional plan does not, however, contain recommendations as to which levels and agencies of government should assume responsibility for the construction, operation, and maintenance of each of the various facilities included in the functional plan. [1]

As a logical sequel to, and in anticipation of, the certification by the Commission and subsequent adoption of the recommended regional transportation plan by the Racine County Board of Supervisors, and pursuant to specific implementing recommendations contained in that plan, the County Board, on January 24, 1967, directed that the County Highway Committee, in cooperation with the U.S. Department of Transportation, Federal Highway Administration; the State Highway Commission of Wisconsin; the Southeastern Wisconsin Regional Planning Commission; and the local units of government concerned proceed with the conversion of the functional highway system plan contained in the adopted regional transportation plan to a jurisdictional highway system plan. The jurisdictional highway system plan was to contain specific recommendations as to the level and agency of government which should assume responsibility for the construction, maintenance, and operation of each segment of the total arterial street and highway system. Such a plan was also to contain concomitant recommendations for the realignment of the federal aid highway systems, as well as of the state and county trunk highway systems and, if warranted, propose necessary changes in the various state and federal aid formulas.

NEED FOR A COMPREHENSIVE REVISION OF HIGHWAY JURISDICTION

Although implementation of the adopted regional transportation plan is an important reason for proceeding with a jurisdictional highway planning study, other important reasons exist. Among the most important of these is the fact that the location and extent of the state and county trunk highway systems in Racine County, as well as the related federal aid highway systems, particularly as affected by the Federal Aid Highway Act of 1973, have become increasingly obsolete in light of changing areawide land use development patterns and accompanying areawide changes in traffic demand. The rapid conversion of land from rural to urban use and the rapid development of automotive transportation within Racine County and the Region, of which Racine County is a part, have placed

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[1] *The regional transportation plan recommends that the Wisconsin Department of Transportation, Division of Highways, assume jurisdictional responsibility for all proposed freeway facilities shown on the regional transportation plan within Racine County.*

new and greatly increased demands on the existing arterial street and highway system in the county. As documented in the regional land use-transportation study, Racine County can expect to continue to experience substantial residential, commercial, and industrial growth in the next two decades, and this growth will be accompanied by still greater increases in motor vehicle registration and in the demand for improved highway transportation facilities. Moreover, a rapidly changing regional land use pattern has brought about, and will continue to bring about, important changes in the manner in which the increased traffic demand is effected upon the total street and highway system, so that the existing jurisdictional highway systems can no longer function as effective subsystems on their present alignment and in their present extent.

Another reason for proceeding with a jurisdictional highway planning study at this time is the fact that land use development has, in some cases, severely affected the ability of the existing jurisdictional highway systems to perform their intended functions on their existing alignment. As land use and traffic patterns developed over the years within developed areas of Racine County, those streets and highways which carried the heaviest volumes of traffic have become lined with extensive "strip" commercial land use development. Thus, altogether too often a poor relationship was established between the arterial street system and the adjacent land uses which served not only to increase traffic demand and impede the operating capacity of the existing arterials, but at the same time to make major capacity improvements in the existing facilities extremely difficult and expensive. Consequently, arterial traffic is, in many locations within the county, confined to facilities which were originally constructed to provide for a much lower level of traffic demand and which are difficult and expensive to improve. While these conditions have not grown to the proportions that exist in more highly urbanized counties, they do exist in Racine County and may, in the absence of sound local land use planning, be expected to increase as the county continues to develop. Under these circumstances, either rerouting of the arterial traffic is required or the necessary resources must be made available to adequately improve the existing facilities. Realignment of the jurisdictional highway systems is necessary to achieve subsystems which will adequately serve the daily demand for the movement of persons and goods without adversely affecting desirable land use patterns.

In some instances, localized improvements such as adjustments in vertical and horizontal alignment, provision of additional pavement width, control of access, signalization of intersections, and the signing and marking of intersections for channelization of traffic may provide temporary relief from growing traffic congestion. The proper integration of these improvements into a broad, areawide, and long-range effort to improve traffic operations and service also demands realignment of the existing jurisdictional highway systems into more fully integrated subsystems.

Another very important reason for proceeding with a jurisdictional highway planning study at this time is to avoid the kind of fragmented deletions from the county trunk highway system that have been made in some other counties of the Region as land had been converted from rural to urban use and concomitantly incorporated, and which have complicated the construction, operation, and maintenance of the remaining portions of the system and have destroyed the necessary system continuity. A need exists to assure the maintenance of an integrated county trunk highway system to serve the growing urban transportation needs of the county, particularly in the portion of the county east of IH 94 which encompasses the Racine Urban Planning District, where rapid urbanization and the corresponding growth in travel demand is most prevalent.

Finally, the construction of an areawide freeway system within the Region has radically altered traffic patterns on certain parallel and cross arterials in and near freeway corridors. The existing traffic patterns in Racine County will continue to change in the future as additional segments of the regional freeway system are completed and opened to traffic. Adjustment of the jurisdictional street and highway systems to these changes is essential if both the freeway and the surface arterial systems are to function properly, and will require the realignment of jurisdictional subsystems.

In summary, a jurisdictional highway planning effort is required at this time in order to cope with the growing and changing traffic demands; to adjust the existing jurisdictional systems to changes in land use development along their alignment; to assure the maintenance of an integrated network of county trunk highways as urban development proceeds within the county and large areas of the county are incorporated; and to adjust the jurisdictional systems to reflect the major changes in traffic patterns resulting from freeway utilization. The need for such a jurisdictional planning effort is, consequently, becoming increasingly more urgent with Racine County.

STUDY ORGANIZATION

Staff Requirements

The organization created for the necessary jurisdictional highway planning study is shown in Figure 1. Since the necessary jurisdictional highway planning effort was preceded by an intensive, comprehensive, areawide functional highway planning study, a large staff was not required to carry out the effort. This preceding study provided almost all of the necessary basic planning and engineering data, as well as the basic traffic simulation models, essential to any meaningful jurisdictional highway system planning effort. Thus, only a very small staff of experienced regional transportation planning engineers closely associated with the development of the functional highway system plan, and having a thorough understanding of the traffic and land use data and simulation models used in the preparation of that plan, was required to convert the functional highway system plan to a jurisdictional highway system plan from a technical standpoint.

Advisory Committee Structure

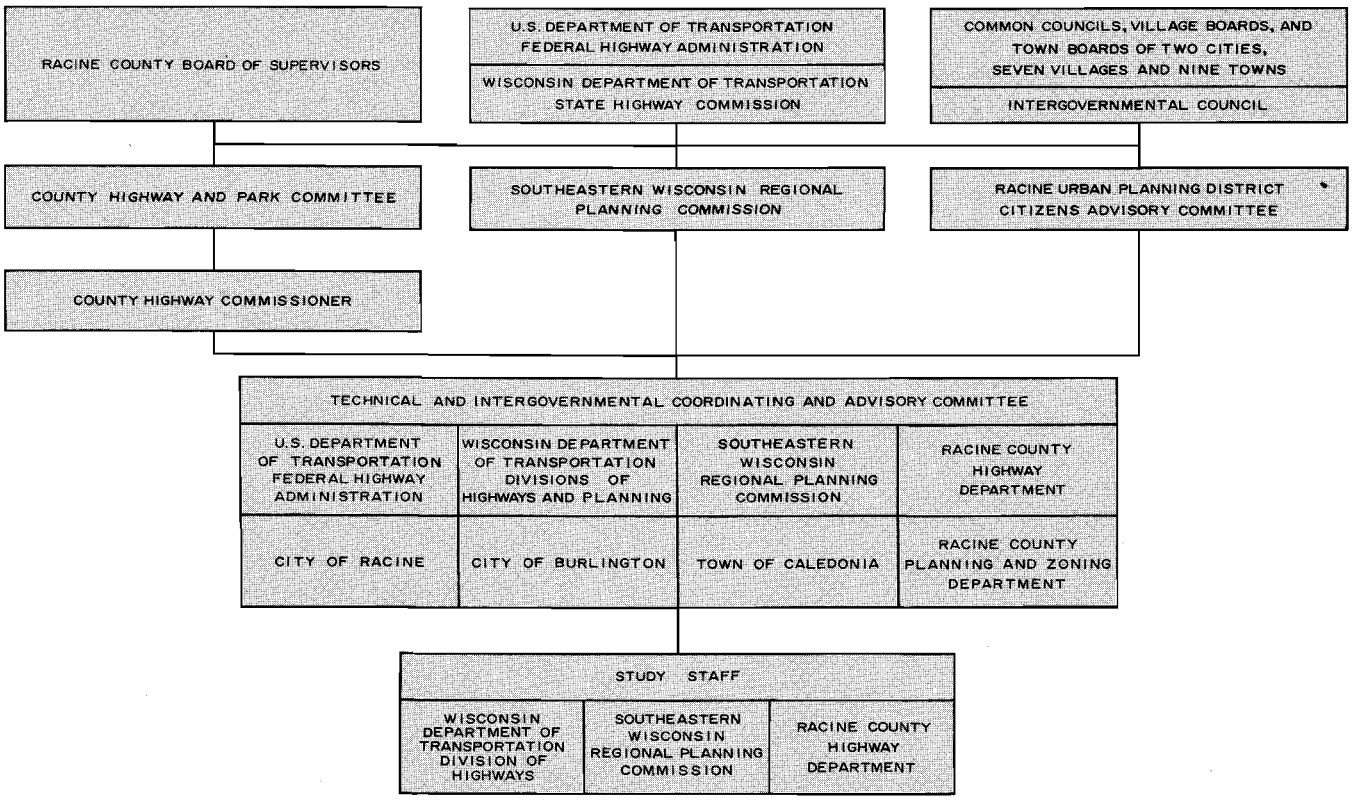
Because any realignment in the jurisdictional highway systems would affect the federal, state, and local units of government concerned in many ways, it was considered essential to actively involve these units of government in the jurisdictional highway planning process. Such participation had been previously obtained within the county in connection with the regional land use-transportation study through the use of a Technical Coordinating and Advisory Committee on Regional Land Use-Transportation Planning, with technical representation from the Cities of Racine and Burlington and from the town of Caledonia, as well as from the federal, state, and county levels. Consultation with the elected heads of the local units of government indicated that a similar arrangement for the jurisdictional highway planning effort would be considered desirable and that the technical, not policy-making, local officials should be represented on the advisory committee. A Technical and Intergovernmental Coordinating and Advisory Committee was, therefore, incorporated into the jurisdictional highway planning study organization to provide guidance and assistance to the staff during the course of the study. Specifically, this Committee was charged with assisting and advising the study staff on technical methods, procedures, and interpretations; assisting in the assembly and evaluation of planning and engineering data; assisting in the establishment, definition, and review of criteria; appraising alternative plans; and resolving any conflicts which might arise in plan preparation and selection. The Committee was intended to be a working committee and to actively involve the federal, state, and local technical officials in the planning process, an objective which it has fully met.

Membership on the Advisory Committee was drawn to include representation from the U.S. Department of Transportation, Federal Highway Administration; the State Highway Commission; the Southeastern Wisconsin Regional Planning Commission; County of Racine; Cities of Racine and Burlington; and Town of Caledonia.

A complete committee membership list is set forth in Appendix A of this report. The Committee was responsible for the detailed review and ultimate approval of the completed work of the study staff and for transmittal of the recommended jurisdictional plan to the constituent and cooperating agencies for adoption and implementation.

Figure 1

ORGANIZATIONAL STRUCTURE FOR THE JURISDICTIONAL HIGHWAY SYSTEM PLANNING PROGRAM RACINE COUNTY, WISCONSIN



Source: SEWRPC.

STUDY PURPOSE AND PLAN OBJECTIVES

The primary purpose of the jurisdictional highway planning study was to identify, and subsequently group into subsystems, classes of arterial streets and highways serving similar functions and providing similar levels of service, utilizing criteria established for this purpose, and to assign jurisdictional responsibility over the subsystems so established to the appropriate level of government having the greatest basic interest so as to achieve the following objectives:

1. Promote implementation of the adopted regional transportation plan.

2. Provide a sound basis for the efficient multijurisdictional management of the total arterial street and highway system and for the attainment of the necessary intergovernmental coordination in that management; and thereby to avoid conflicts over, and duplication in, the administration, financing, design, construction, maintenance, and operation of the individual facilities which must comprise the total arterial street and highway system.

3. Provide a sound basis for the efficient design and improvement of the total arterial street and highway system by combining into subsystems those facilities which, because of the type and level of service provided, should have similar standards for design, construction, operation, and maintenance.

4. Provide a basis for the establishment of a sound, long-range fiscal policy and for the systematic programming of arterial street and highway improvements; and thereby to assure the most effective use of the total public resources in the provision of highway transportation, focusing the appropriate resources and capabilities on the corresponding areas of need.

5. Provide a basis for the more equitable distribution of highway system development costs and revenues among the levels and agencies of government concerned.

FORMAT OF PRESENTATION

The findings and recommendations of the jurisdictional highway study, as presented in this report, have been unanimously approved by the Technical and Intergovernmental Coordinating and Advisory Committee on Jurisdictional Highway Planning for Racine County established for the study. The report briefly traces the historical development of the present state trunk, county trunk, and federal aid highway systems; describes the techniques and procedures used to prepare a plan for the realignment of these systems; and presents the recommended jurisdictional highway system plan so prepared. Existing financing formulae are described, proposals are advanced for the revision of these formulae, and the financial feasibility of the recommended plan determined and documented. Finally, means for implementing the study findings are provided, together with recommended staging of major improvements.

Chapter II

THE JURISDICTIONAL HIGHWAY PLANNING PROCESS

INTRODUCTION

The establishment, proper improvement, and efficient operation and maintenance of an arterial highway system are important to the orderly growth and development of any area. Such a system is particularly important to the orderly growth and development of a large metropolitan region and of a county, such as Racine County, which is an integral and rapidly urbanizing part of such a region (see Map 1). A well-conceived arterial highway system, delineated on the basis of sound planning and engineering principles, will provide a framework upon which good land use development can progress and, if properly improved and maintained, will stimulate and foster the social and economic, as well as the physical, development of the county and of the entire region of which the county is a part.

The arterial highways of an urbanizing region must function as a single, integrated system over the entire region; yet many levels and agencies of government are responsible for the design, construction, maintenance, and operation of various parts of that total system. The identification of jurisdictional subsystems within the total arterial highway system is, therefore, essential to the attainment of an efficient, workable, and fully integrated highway transportation system and to the avoidance of inefficiencies and duplication of effort. The planning of the total arterial highway system and the identification of the various jurisdictional subsystems on an objective, rational basis are highly complex, technical tasks requiring not only prerequisite planning and engineering skills and data but also the active participation of the several levels and agencies of government concerned with the provision of highway transportation services within the urbanizing region.

BASIC CONCEPTS

Any planning for coordinated highway system development must involve a comprehensive determination of the character of the individual facilities needed to provide an adequate highway transportation system. Such planning cannot be done effectively on an uncoordinated, "one-road-at-a-time" basis, since individual streets and highways do not serve travel independently in any significant way. Rather, most travel involves movement through a total system of highway facilities. Consequently, the planning of highway system development must begin with a consideration of the trips to be served by the facilities and the land uses which generate these trips.

Since it is impossible to provide direct-line highway connections for all travel desires existing within an urbanizing region, the trips must be channelized into a system of arterial streets and highways in a logical and efficient manner. The functional classification of highway facilities defines the nature of this traffic channelization process by identifying the function which each particular street or highway should serve in the total highway system. The functional classification of the total arterial street and highway system thus becomes one of the important elements of the comprehensive transportation planning process. It provides the means for defining travel paths through the total highway network and thereby provides the basis for estimating the amount and character of traffic which each facility in the total system may be expected to carry. The functional classification also provides the means for establishing desirable levels of service to be provided by each of the facilities comprising the total system, and a basis for determining the predominant travel distances served by various segments of the total system.

The singularly most important basic concept underlying the jurisdictional highway planning process, therefore, is that the jurisdictional highway planning process must be preceded by a functional highway planning process; that is, a jurisdictional highway system plan must be based upon, and derived from, a prior functional highway system plan. The development of a sound and viable jurisdictional highway system plan, therefore, can properly proceed only within the context of a comprehensive areawide transportation planning process which has identified the transportation needs of the entire urbanizing region to a selected design year, and which has provided definitive recommendations for meeting those needs through the improvement of both arterial highway and mass transit facilities in the form of a functional transportation plan.

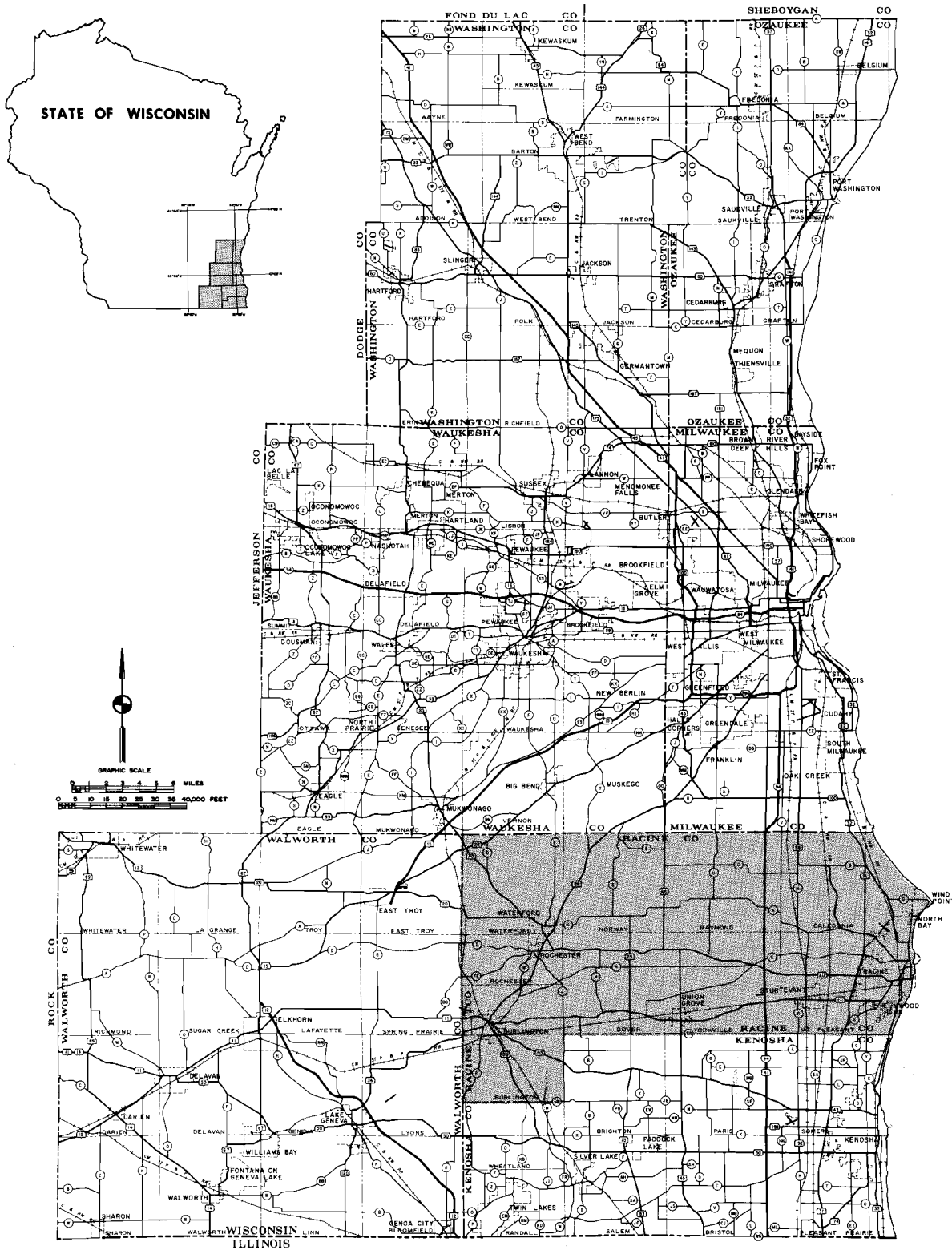
The functional arterial street and highway system established in the initial regional land use-transportation study effort for the Southeastern Wisconsin Region accordingly became the point of departure for the preparation of the jurisdictional highway system plan within Racine County. The jurisdictional highway planning problem was thus one of identifying jurisdictional subsystems within the total arterial system on an objective and rational basis, with the character of the trips served, the character of the land use activities served, and the service level of each subsystem becoming the basis for the subclassification.

Functional Classifications

In the initial regional land use-transportation study effort, all of the existing streets and highways within the Region were classified, on the basis of existing function, into two categories: arterial and all other. The latter category included the collector and local (land access) street subcategories. The initial classification was based upon

Map 1

LOCATION OF RACINE COUNTY WITHIN THE SOUTHEASTERN WISCONSIN REGION



Racine County comprises about 13 percent of the total area of the seven-county Southeastern Wisconsin Region, contains about 10 percent of the Region's population, employs about 9 percent of its labor force, and contains about 9 percent of its tangible wealth. The county, which contains rich agricultural and recreational resource areas as well as major urban concentrations, is experiencing the pressures of further urbanization, particularly in that area of the county lying along the Lake Michigan shoreline east of IH 94, and in the Waterford-Rochester-Burlington area in the western area of the county.

Source: SEWRPC.

the function which the facilities were actually performing at the time of the classification in the considered opinion of experienced, knowledgeable state and local public works engineers responsible for the construction, maintenance, and operation of the total street and highway system. This initial classification was subsequently verified by application of traffic simulation models and comparison of the resulting simulated traffic flows with actual traffic volume counts.

An arterial facility was defined, in the initial regional land use-transportation study effort, as a facility intended to serve the movement of heavy volumes of through traffic. Its primary function, therefore, must be to facilitate the expeditious movement of vehicular traffic. A secondary function may be the provision of access to abutting land, but this function should always be subordinate to the primary function of traffic movement.

Arterial facilities include freeways, expressways, certain types of parkways, and standard surface arterial streets and highways.[1] Freeways and expressways do not provide direct access to abutting land uses and are intended to provide safe, convenient, economical, and expeditious movement of the heaviest volumes of traffic involving the longest trip lengths. The standard arterials and certain parkways are intended to serve through traffic, the volumes and trip length characteristics of which do not warrant the use of freeways or expressways.

The collector streets, which were not categorized as arterials in the initial land use-transportation study, provide the transitional connection from the arterial system to the local (land access) street system. As the name implies, the function of collector streets is to collect and distribute traffic, as well as to provide access to abutting land uses. Since arterial routes serve longer trip lengths with a higher level of service, the traffic on a collector street will usually turn onto an arterial wherever the collector intersects an arterial.

In a rectangular grid street pattern, it may be difficult to distinguish clearly between the arterial and collector functions as these functions relate to existing facilities. Straight and continuous collector streets several miles in length may carry significant volumes of traffic, thus appearing to serve as arterials even though the predominant use of the streets may be to carry traffic to the next junction with an arterial so that the major portion of the trip can be made over arterial facilities. Collector streets, moreover, may serve industrial and commercial, as well as residential, land uses. In industrial and commercial areas, the collector streets may properly be used by both trucks and buses serving tributary land uses. In residential areas, collector streets may properly be used by buses serving tributary land uses. In some instances, roadway widths of some collector streets may, in response to the character and volume of traffic, be wider than the roadway widths of some arterials. Traffic control devices may be installed to protect or facilitate traffic movement on collectors, as well as on arterials.

Functional Classification Criteria

In the delineation of an arterial system, it is important to promote sound future land use development or redevelopment, as well as to protect existing desirable forms of development, by recognizing the diverse needs of the various types of existing and proposed land use development, both rural and urban, in the county. The proper spacing and location of arterial facilities, existing and proposed, are most important to the attainment of this end. The majority of the existing land uses within the western two-thirds of the county are still rural in nature, with such urban development as exists occurring primarily in and around the rural communities located throughout this part of the county. Conversely, the eastern one-third of the county, the Racine Urban Planning District, is undergoing rapid urbanization as a contiguous part of the Racine urbanized area.

In the rural areas of the county, as in the urban areas, arterial facilities must be located to support the everyday activities of families residing in these areas, including work, personal business, shopping, recreation, and social intercourse and, therefore, must facilitate reasonably fast, safe, and convenient travel between existing rural communities containing commercial, industrial, institutional, recreational, and residential development and between farmsteads and such communities. In rural areas, however, the arterial facilities must also be located to promote the economic viability and vitality of productive rural enterprises. It is important to recognize that such enterprises include active farmsteads as well as food processing industries, fowl and fur farms, gravel and stone quarries, nurseries, and orchards. Thus, farmsteads, unlike urban residential areas, represent productive enterprises and are only incidentally utilized as residential areas for farm labor and management. As productive enterprises, these farmsteads require arterial facilities to be located so as to provide ready access to sources of labor, material, and markets. The rural arterial system should also be located to provide direct connections to the regional freeway system in order to provide ready access to regional commercial, industrial, and recreational activities and to the more highly urbanized areas of the Region. Finally, in order to provide full flexibility to adapt to changing conditions, arterials in rural areas should be so located as to permit future conversion of land from rural to urban use and, in so doing, promote the sound development of planned development units, particularly residential neighborhood units, at various population densities. In order to meet this last requirement, rural arterials should be placed no closer than two miles.

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[1] *A freeway may be defined as a divided arterial highway with full control of access and grade separations at all intersections. An expressway may be defined as a divided arterial highway with full or partial control of access and grade separations at some, but not necessarily all, intersections. A parkway may be defined as an arterial highway provided for noncommercial traffic with full or partial control of access, and usually located within a ribbon of park-like development. "Standard" arterial streets and highways may be defined as arterials with intersections at grade with no control of access; i.e., direct access to abutting property.*

Within urban areas the penetration of residential neighborhoods by heavy volumes of fast, through, vehicular traffic is one of the surest means of destroying the desirable characteristics of such neighborhoods. Arterial routes should, therefore, be located on the periphery of residential neighborhoods. To this end the Regional Planning Commission, in formulating regional development objectives, principles, and standards, has recommended the following minimum spacings for arterial routes in urban areas:

1. High-density[2] urban development—one-half mile spacing.
2. Medium-density[3] urban development—one-mile spacing.
3. Low-density[4] urban development—two-mile spacing.

Accepting the premise that a well-planned and properly maintained arterial street and highway system should not only serve traffic demands but do so with minimal disruption of residential development, the location and spacing of arterial facilities becomes unusually important. The arterial system should be clearly identifiable so that it is readily apparent which routes should be carrying the heaviest volumes of through traffic and so that these routes can serve to provide boundaries between planned development units rather than to penetrate and divide these units. Finally, the component parts of the arterial system should be so located that the number of intersections with other arterials allows for good traffic progression and efficient system operation.

Scenic Drives and Rustic Roads

A third highway system facility category is the system of scenic drives, normally not considered in the jurisdictional highway planning process, but considered as both a special functional and jurisdictional classification under the Racine County jurisdictional highway planning program. The proposed system of scenic drives is comprised of two kinds of facilities: scenic drives per se and rustic roads. For the purposes of this report, the terms "scenic drive" and "rustic road" are defined as follows. A scenic drive is a marked and signed route over existing streets and highways that traverses particularly pleasing landscapes, including areas of topographic, vegetative, and geological interest and areas containing sites of scientific, cultural, or historic interest and which together with other scenic drives constitutes a network or system providing continuity for pleasure driving purposes. Because of the need for continuity, facilities comprising the scenic drive network consist of relatively high volume, high speed arterial as well as relatively low volume, low speed, nonarterial streets and highways. Consequently, portions of an overall system of scenic drives may have to be improved for traffic safety and capacity purposes, although such improvements would require particularly sensitive design in order to preserve the inherent scenic quality.

A rustic road is a low volume, nonarterial street or highway possessing outstanding scenic, natural and cultural features along its borders, including native trees, shrubs, wildflowers, grasses, and ferns, as well as open areas with rustic or natural vistas. A rustic road should be maintained essentially in its existing state and not be improved for traffic safety or capacity purposes. Operating speeds should be severely restricted and the facility may have to accommodate pedestrian, equestrian, and bicycle as well as motor vehicle traffic. It should be noted that while a system of scenic drives may encompass sections of rustic roads, all scenic drives are not rustic roads.

Scenic drives and rustic roads may be expected to be heavily utilized only during summer, weekend, and holiday periods, and are routed over both facilities that perform arterial and collector and land access functions during the remainder of the time. Although not all, or even a majority, of the facilities and facility mileage over which the scenic drives are routed function as arterials with respect to the weekday travel demand, and though the rustic roads function only as low speed, low volume land access roads, the areawide nature of the recreational travel demand served by the scenic drive and rustic road facilities during seasonal weekend and holiday periods dictates that these facilities be given careful consideration in the jurisdictional highway planning process. The areawide nature of the recreational travel demand served, the need to maintain intercommunity and intercounty continuity in the network of scenic drives and rustic road segments through proper marking and signing, and the need to relate such roads properly to the natural resource base all indicate the need for a special functional and jurisdictional classification relating to such roads. Consequently, all existing and proposed scenic drives and rustic road segments within Racine County were identified as a special functional category and assigned a jurisdictional classification as part of the Racine County highway system planning process.

FUNCTIONAL NETWORK REFINEMENT

As a prerequisite to the actual jurisdictional highway planning process, the functional arterial street and highway system prepared under the initial regional land use-transportation planning effort was refined and updated for Racine County to reflect changes in traffic patterns and to better accommodate future land use development. This refinement and updating included a careful review of the existing and desirable future functions of each route included in the original system. This review was made in cooperation with local planning and engineering staffs and

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[2] *High-density urban development is defined as development at a gross density ranging from 10,000 to 25,000 persons per square mile (4.8 to 11.8 dwelling units per gross acre).*

[3] *Medium-density urban development is defined as development at a gross density ranging from 3,500 to 9,999 persons per square mile (1.8 to 4.7 dwelling units per gross acre).*

[4] *Low-desnity urban development is defined as development at a gross density ranging from 350 to 3,499 persons per square mile (0.2 to 1.7 dwelling units per gross acre).*

included consideration of existing and proposed land uses along the facilities, as well as of the location, spacing, and operational characteristics of the facilities themselves.

The review indicated that the original functional arterial system for Racine County included some facilities, particularly in urban areas, which actually served collector rather than true arterial functions and that, particularly in rural areas, some facilities which were originally considered as collector and local streets were actually performing an arterial function, even though traffic volumes on such facilities were relatively low. It indicated also that the original classification had placed too much emphasis upon the functions actually being served by the various components of the total street and highway system at the time of the original classification and too little emphasis upon the desirable changes in these functions over time. Just because a given street or highway functions as an arterial at the present time does not necessarily mean that it should, in light of changing land use and traffic patterns, continue to perform this function in the future.

Accordingly, certain changes in the functional classification of the total street and highway system within Racine County were made. As a result, 19 miles of facilities were removed from the arterial system. The revised arterial system was once more reviewed by experienced county and municipal engineers most intimately acquainted with the construction, maintenance, and operation of the total street and highway system; and the revised arterial street and highway system was then adopted as a basis for the jurisdictional highway planning effort.

THE JURISDICTIONAL HIGHWAY PLANNING PROCESS

Based upon the preceding basic concepts, a seven-step planning process was employed in the development of a jurisdictional highway system plan for Racine County. The seven steps constituting the process were: 1) study design; 2) formulation of objectives and standards; 3) inventory of existing systems, aid formulae, and financial resources; 4) jurisdictional systems analyses; 5) plan design; 6) plan test and evaluation; and 7) plan adoption. A brief description of each of these seven steps follows (see Figure 2).

Study Design

Every planning program must embrace a formal structure or study design so that the program can be carried out in a logical, consistent, and efficient manner. A statement of policy and procedure setting forth the routine for the conduct of the study was, therefore, prepared as the initial work element of the Racine County jurisdictional highway planning study. This statement provided a sequential overview of the major work elements of the study; provided for the establishment of the Technical Advisory Committee necessary to assist in the conduct of the study and in the provision of technical policy guidance; established time schedules and a critical path diagram to assist in expediting the completion of the study; and provided for the documentation of the study results in detailed staff memoranda, the minutes of the committee meetings, and ultimately in this published report.

Formulation of Objectives and Standards

In its most basic sense, planning is a rational process for establishing and meeting objectives. The formulation of objectives is, therefore, an essential task to be undertaken before plans can be prepared. The basic transportation system development objectives governing the preparation of the jurisdictional highway plans are set forth in the adopted regional transportation plans[5] and relate to the provision of an integrated transportation system which effectively serves the existing and proposed land use pattern; to the provision of a balanced transportation system providing appropriate types and levels of transportation service to the various subareas of the Region; to the alleviation of traffic congestion and the reduction of travel time; to the reduction of accident exposure and the provision of increased travel safety; to the provision of a more economical and efficient transportation system; to the minimization of disruption of desirable development and of deterioration or destruction of the natural resource base; and to the promotion of a high aesthetic quality in the transportation system. That the functional arterial highway system recommended in the adopted regional transportation plan, and upon which the jurisdictional plan is based, met these objectives was demonstrated in the regional transportation study and documented in the planning reports issued under that study.

The conversion of the arterial highway system to a jurisdictional system, however, required the formulation and application of additional standards in the form of functional criteria for the jurisdictional classification of highway systems. These criteria, relating each jurisdictional subclassification to three basic functional characteristics—trip service, land use service, and the operational characteristics of the facilities themselves—formed the basis for plan preparation and evaluation by providing a rational and objective basis for the classification of the total arterial street and highway system into jurisdictional subsystems.

Inventory

Reliable data collected on a uniform, areawide basis are absolutely essential to the formulation of workable development plans. Consequently, inventory becomes the first operational step in any planning process, growing out of the study design. The crucial nature of factual information in the planning process should be evident, since no intelligent forecasts can be made or alternative courses of action selected without knowledge of the current state of the system being planned.

The sound formulation of a jurisdictional highway system plan for Racine County required that factual data be developed on the location and configuration of the

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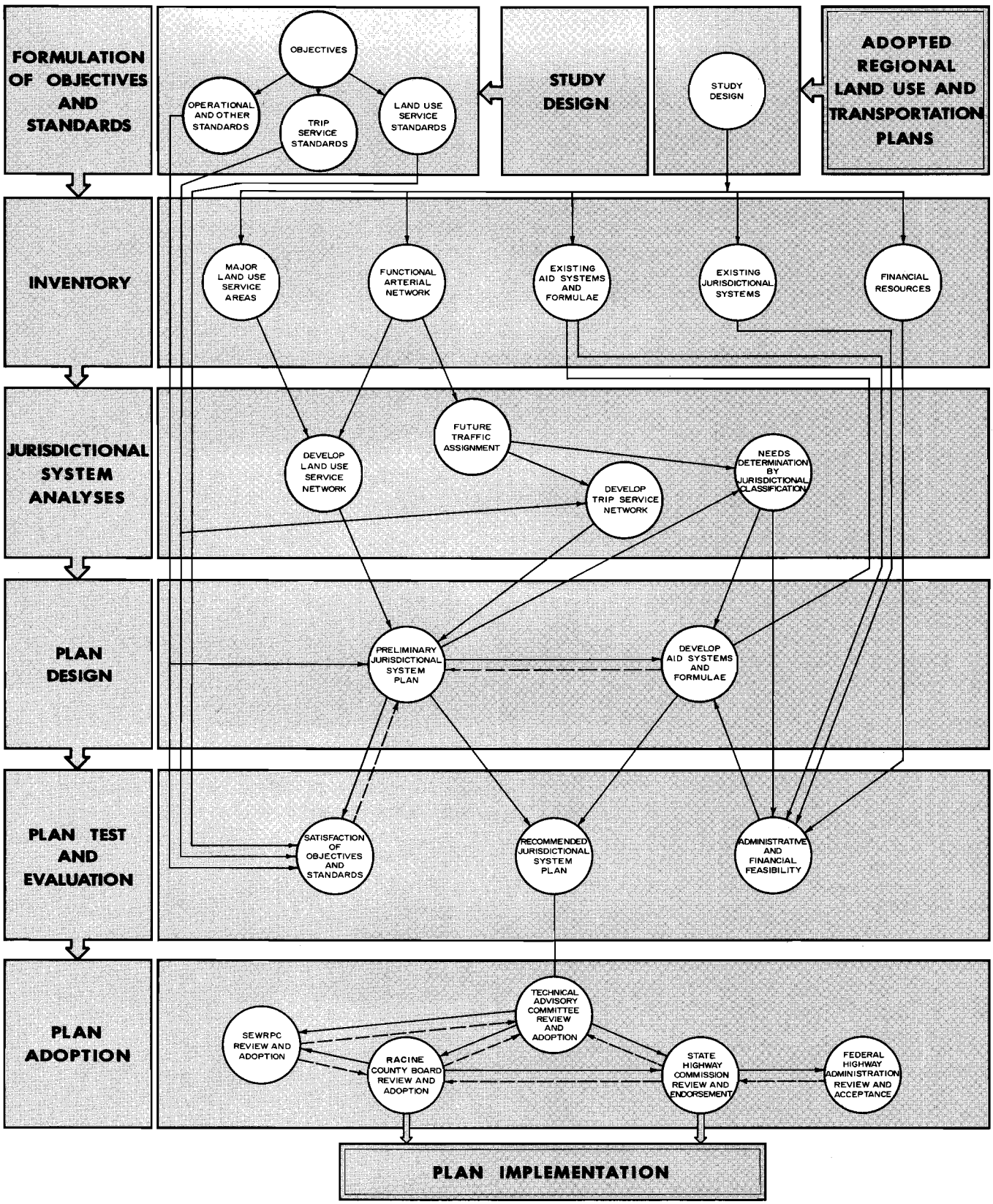
[5]*See SEWRPC Planning Report No. 7, Volume 2, Forecasts and Alternative Plans—1990, Chapter II.*

Figure 2

JURISDICTIONAL HIGHWAY PLANNING PROCESS FOR RACINE COUNTY



Source: SEWRPC.

existing jurisdictional highway systems, including the supporting federal aid routes; on the existing route mileage of each major jurisdictional type by civil division; on the attendant construction and maintenance aid formulae and related plan implementation policies and practices; and on historical patterns of highway revenues and expenditures by level and agency of government concerned. In addition, as already noted, the functional arterial highway network and the major land use service areas, as identified and delineated in the initial regional land use-transportation planning effort, were reviewed under the inventory phase and, in some cases, refined and detailed.

Since the jurisdictional highway planning process in Racine County had been preceded by a comprehensive, areawide regional transportation planning process, the inventory operations could be confined to the collection of data relating directly to jurisdictional classification. This limited inventory operation and the economies and efficiencies associated therewith were feasible only because the initial regional land use-transportation study had provided the necessary data on the existing and committed transportation facilities and their utilization and, most importantly, had also provided data on the existing travel habits and patterns, including a complete origin and destination study. The initial regional land use-transportation plan had, moreover, provided a full battery of calibrated and operable traffic simulation models essential to the analysis of existing and probable future traffic flows required for proper execution of the jurisdictional highway planning process.

Jurisdictional Systems Analyses

Inventories provide factual information about the existing state of the system being planned, but analyses and forecasts are necessary to provide estimates of future needs. These future needs are determined by a sequence of interlocking forecasts. Economic activity and population forecasts set the general scale of future growth, which can, in turn, be translated into future demand for land use and travel. These future demands can then be scaled against the existing supply of land and transportation system capacity and plans formulated to meet any deficiencies. The necessary economic activity, population, land use, and travel demand forecasts were all prepared under the initial regional land use-transportation planning effort. Under the jurisdictional highway planning study, it remained only to utilize these forecasts in the application of the jurisdictional criteria (see Figure 3). This required analyses of the lengths and volumes of trips to be served by each link in the total arterial street and highway system, an identification of the land use areas to be served by each jurisdictional facility type, and an investigation of the operational characteristics of the arterial facilities themselves. Essential to these analyses was the availability of the battery of traffic simulation models formulated and maintained by the Regional Planning Commission.

Plan Design

Plan design forms the heart of the planning process. The outputs of each of the previously described planning operations become inputs to the design problem of plan development. No substitute for intuition and professional judgment in plan design has so far been found, much less developed, to a practical level. Means do exist, however, for reducing the gap between the necessary intuitive and integrative grasp of the problem and its magnitude, and these were fully applied in the Racine County jurisdictional highway planning study. They center primarily on the application of systems engineering techniques to the quantitative test of the jurisdictional highway system plans evolved from the functional highway network through the application of intuition and professional judgment. These quantitative tests assure the technical adequacy of the plan design but are of limited usefulness in actual plan development. Consequently, it was still necessary to develop the jurisdictional highway subsystem plans by traditional graphic and analytical "cut and try" methods, then to test quantitatively the resulting design by application of the simulation model techniques, and to make necessary adjustments in the design until a workable plan was evolved.

In order to overcome the limitations of individual intuitive grasp of the design problem, maximum resort was made to team effort in the actual plan development; and the knowledge and experience of federal, state, and local highway engineers familiar with the geographic and functional areas concerned were applied to the plan synthesis process through careful Technical and Intergovernmental Coordinating and Advisory Committee review, interagency staff assignments, and interagency staff conferences. Final determination with respect to the inclusion or exclusion of any facilities in a jurisdictional subsystem which met only marginally the criteria established for that subsystem was made by the Committee. The plan design procedure thus provided for careful review of the application of the criteria by local, county, regional, state, and federal technical staffs and thereby provided a practical jurisdictional highway system delineation, as well as a practical estimate of plan implementation costs and feasible proposals for plan implementation.

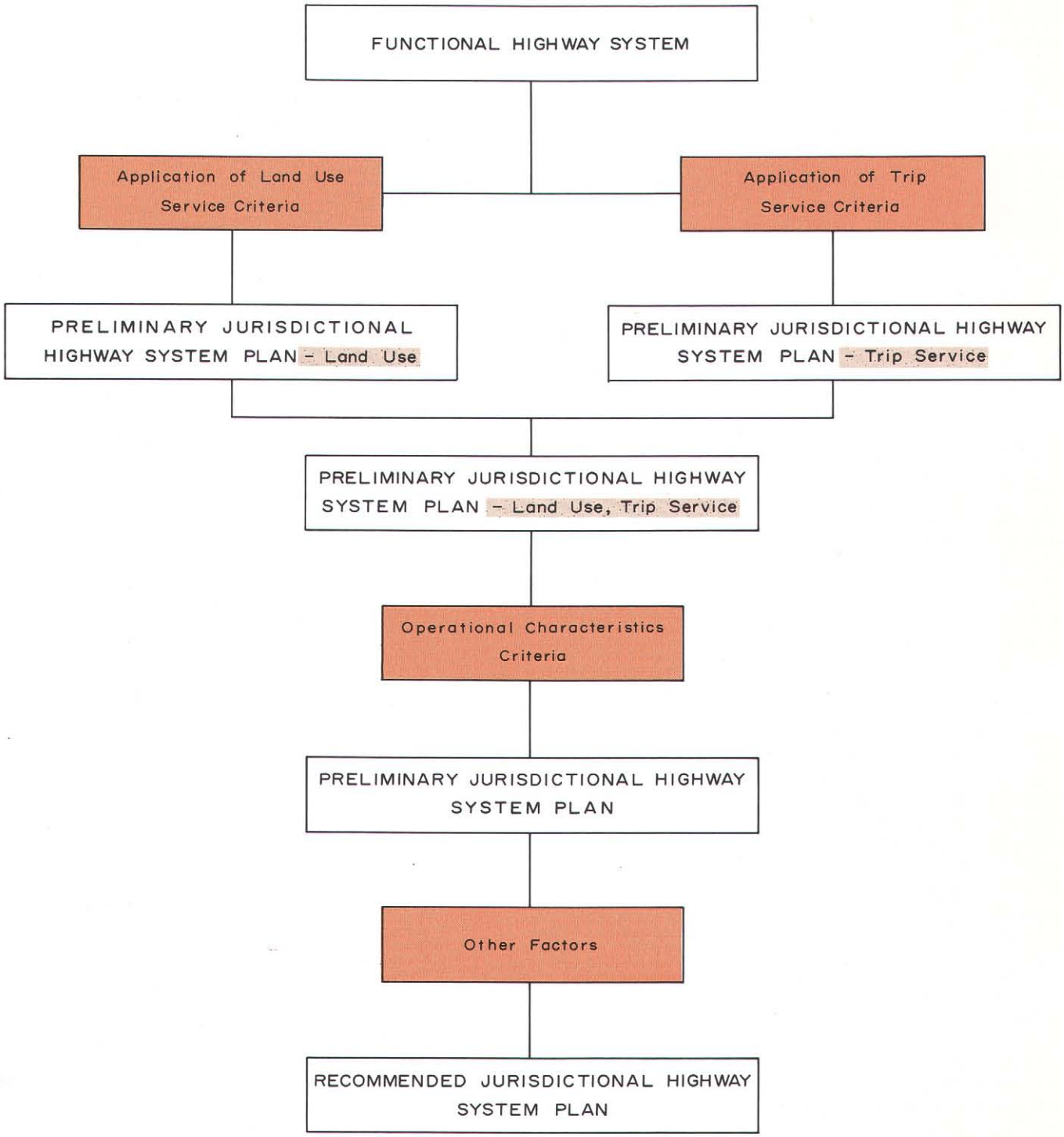
Plan Test and Evaluation

If the plans developed in the design stage of the planning process are to be realized in terms of actual transportation system development, some measures must be applied to quantitatively and qualitatively test the plans in advance of their adoption and implementation. The plan test and evaluation process must ascertain whether or not the plans are realistic in scope; consistent with the desirable advancement of the public interest; technically, legally, and financially feasible; and readily comprehensible by knowledgeable elected public officials, engineers, and technicians who will be ultimately charged with implementation.

As already noted, simulation procedures were used to test and verify the technical workability and efficiency of the proposed total arterial highway network. Satisfaction of objectives could be ascertained through application of the jurisdictional criteria in concert with the simulation techniques. These simulation techniques also permitted the determination of future link capacity and accompanying right-of-way and curb-to-curb pavement widths and improvement requirements. A total plan implementation

Figure 3

PROCEDURE FOR THE APPLICATION OF CRITERIA
IN THE DEVELOPMENT OF A JURISDICTIONAL HIGHWAY SYSTEM PLAN



Source: SEWRPC.

cost could then be assigned to the resulting system configuration by the application of unit construction and maintenance costs. From a composite summary of all existing highway aids and revenues prepared under the planning study, a forecast of the public financial resources available for arterial highway improvements could be provided. By comparing the forecast revenues with the forecast needs, the financial feasibility of the proposed plan could be determined and evaluated.

Plan Adoption

In a practical sense, any plan is not complete until the steps required for its implementation—that is, the steps necessary to convert the plan into action policies and programs—are specified. Plan implementation must begin with plan adoption by the responsible implementing agencies, including particularly the Racine County Board of Supervisors, the Highway Commission of the Wisconsin Department of Transportation, and the Federal Highway Administration. All other implementation recommendations, including the schedule for realignment of jurisdictional responsibilities, proposals for capacity protection and right-of-way reservation, staged construction, and capital improvements programming, must follow and flow from such plan adoption. The continuing phase function of the plan implementation is provided for in the maintenance of the Technical and Intergovernmental Coordinating and Advisory Committee for annual plan implementation review.

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Chapter III

HISTORICAL DEVELOPMENT AND PRESENT STATE OF THE JURISDICTIONAL HIGHWAY SYSTEMS

HISTORICAL DEVELOPMENT

The earliest European settlers in southeastern Wisconsin traveled "highways" consisting of a network of Indian trails and rivers which connected the many Indian villages in the territory. It was near these Indian villages, at strategic points along the trails and rivers, that trading posts were established by the settlers. Many of the present cities and villages within the Region were built on or near the sites of these trading posts and nearby Indian villages. As settlement became more widespread, several forts were constructed for frontier defense against hostile Indians within the territory of which southeastern Wisconsin was then a part. In order to facilitate the transportation of troops and supplies between these forts, the U.S. Army developed and constructed a system of military roads. Map 2 depicts the two military roads that traversed Racine County. The north-south route comprised part of the road from Fort Dearborn, at what is now Chicago, to Fort Howard, at what is now Green Bay. The portion of this road in Racine County was located on the present alignment of STH 31 and STH 32 for much of its length. The east-west route comprised part of the military road between Sinipee on the Mississippi River and Racine via Janesville. Parts of this road were located on the alignments of STH 20, CTH D, and Honey Lake Road. Thus, the earliest roads within the Region were federal roads, roads which are still in use today.

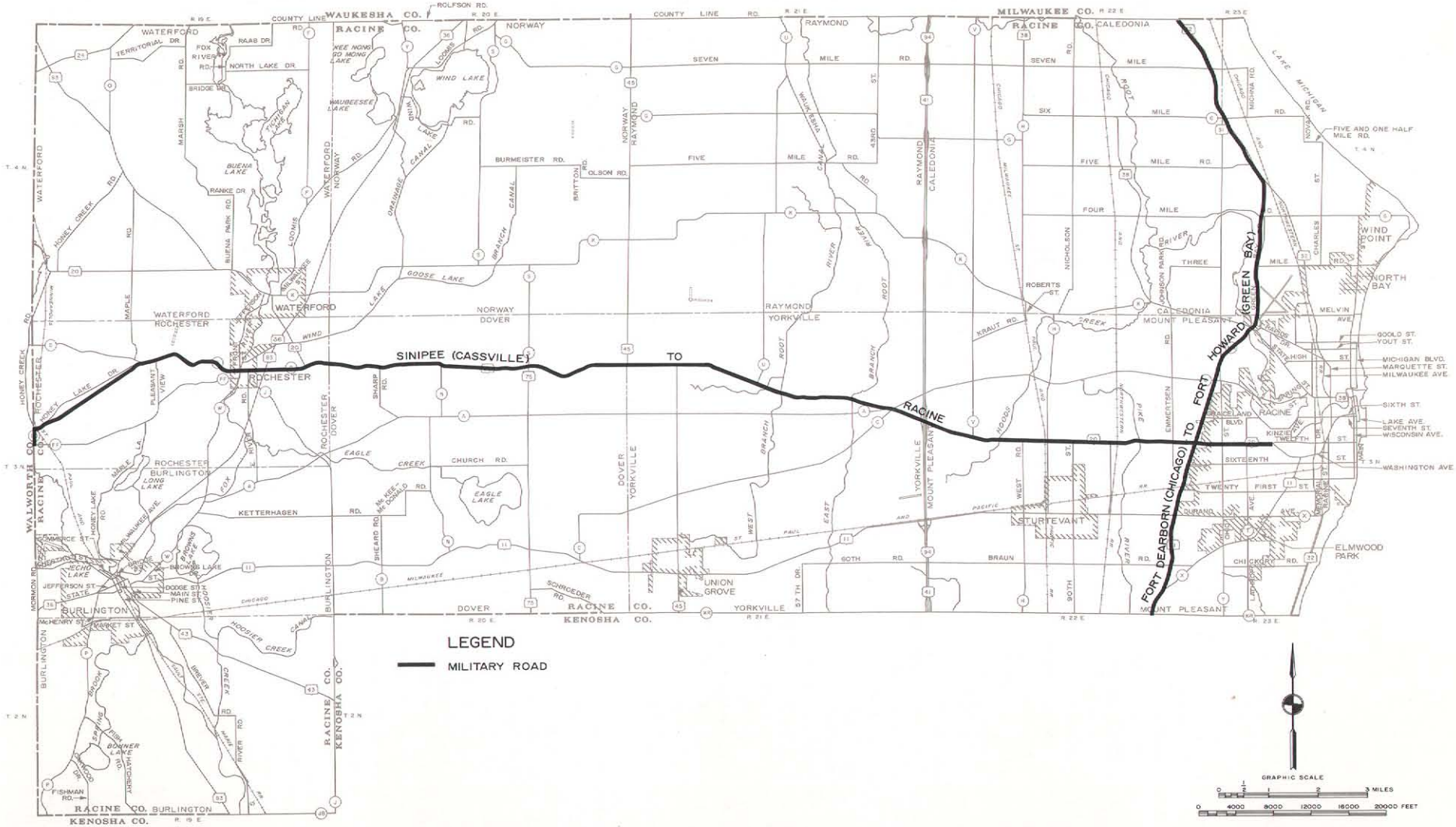
In 1836 the Territorial Legislature established a system of territorial roads. Although these roads were surveyed and located by commissions appointed by the Legislature, construction costs were assumed by the towns or by local private interests. A road tax was levied on real estate to finance construction of these territorial roads. Map 3 depicts the seven territorial roads that traversed Racine County. The first of these roads, opened in 1839, was the Prairieville (Waukesha)-Fort Dearborn (Chicago) Road. It was located in part on the present alignments of STH 83, CTH W, East River Road, Loomis Road, and Becker Road. Another of these early roads, opened in 1839, was the Rochester-Madison Road, which followed the alignment of present CTH D in Racine County. The Burlington-Milwaukee Road, which was opened in 1840, followed in part the present alignment of Loomis Road, CTH W, CTH A, and East River Road. Opened in 1841, the Prairieville (Waukesha)-Racine Road followed the present alignments of CTH U, Waukesha Road, and CTH K, and STH 38 (Northwestern Avenue), State Street, Marquette Street, and Sixth Street in the City of Racine. The Burlington-Racine Road, which in part followed the present alignments of STH 20, 105th Street, Sorenson Road, and STH 11, was opened in 1846. The Beloit-Milwaukee Road, which was primarily located, together with the Burlington-Milwaukee Road, along the present alignment of Loomis Road, was completed by 1847. The last of the territorial roads to be built in the county was the Waterford-Southport (Kenosha) Road, which followed in part the present alignment of CTH N.

Since many of the territorial roads were poorly constructed and did not provide the transportation service required, demand soon developed for the construction of plank roads. About the time Wisconsin attained statehood in 1848, a number of plank roads were chartered by the territorial and state governments. These roads were to be constructed with private capital as toll roads. The receipts from the tolls were expected to recover the capital investment in construction, keep the roads in repair, and pay a profit to the road-building company. Map 4 depicts the three plank roads constructed in Racine County. One of these roads, the Raymond-Racine Road, followed in part the present alignment of CTH K and STH 38, and Rapids Drive and Douglas Avenue in the City of Racine. The second road, the Racine and Rock River Plank Road, was completed from Racine to Delavan via Elkhorn, with a branch in the road to Burlington. Its route followed in part the present alignment of Honey Lake Road, CTH D, CTH J, CTH A, and STH 20, and Washington Avenue in the City of Racine. The third road, the Waterford to Muskego Center Road, was a branch of the Milwaukee to Janesville Plank Road which was completed to Mukwonago. The route of this road followed in part the present alignment of Loomis Road in the Town of Waterford. A combination of high maintenance costs, low profits, and competition from railroads caused the eventual abandonment of the plank roads within the Region. In 1869 the State Legislature authorized and directed town supervisors to declare the remaining plank roads public highways.

After Wisconsin became a state in 1848, all public roads laid out and opened by authorization of the State Legislature were designated as state roads. Commissions were appointed by the State Legislature to establish such roads and were authorized, in addition to opening new roads, to adopt any part of previously established town, county, or territorial roads as state roads. Map 3 depicts the single state road located within Racine County. Built in 1855, this road connected East Troy in Walworth County with Burlington. State roads so laid out and opened were a direct charge to the towns through which the roads traversed because of the constitutional provision prohibiting the state government from participating in works of internal improvement. The State Statutes required that the right-of-way for all state roads be established at a width of four rods (66 feet). Later legislation also required all county roads to be laid out with a right-of-way width of not less than four rods. Town roads could be laid out with right-of-way widths of three rods (49.5 feet). The maintenance of state, county, and town roads was made the responsibility of the towns. The success of the steam railroad in the late 1800s caused highway transportation to be neglected. Private road-building companies passed out of existence and, since the state could not directly participate in road construction, very little progress in highway improvement was realized.

Map 2

MILITARY ROADS IN RACINE COUNTY: 1835-1870

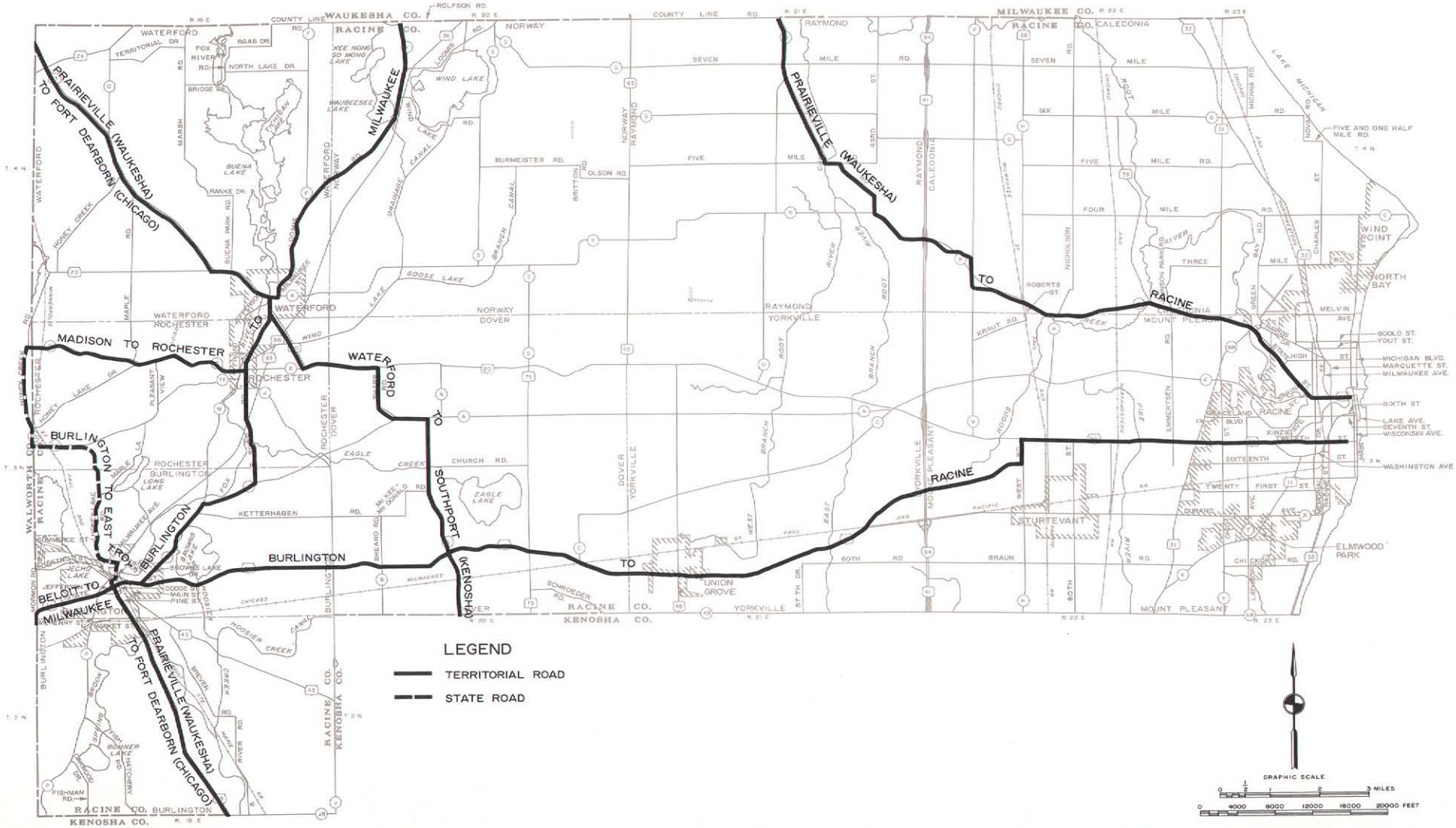


A system of military roads was built by the federal government in territorial Wisconsin to make the transportation of troops and supplies easier between forts established to guard the developing frontier. Two of these military roads traversed Racine County. One connected Fort Dearborn (Chicago) to Fort Howard (Green Bay), and followed in part the present alignments of STH 31 and STH 32. The other one connected Sinipee (Cassville) on the Mississippi River to Racine via Janesville, and followed in part the present alignments of STH 20, CTH D, and Honey Lake Road.

Source: SEWRPC.

Map 3

STATE AND TERRITORIAL ROADS IN RACINE COUNTY: 1839-1855

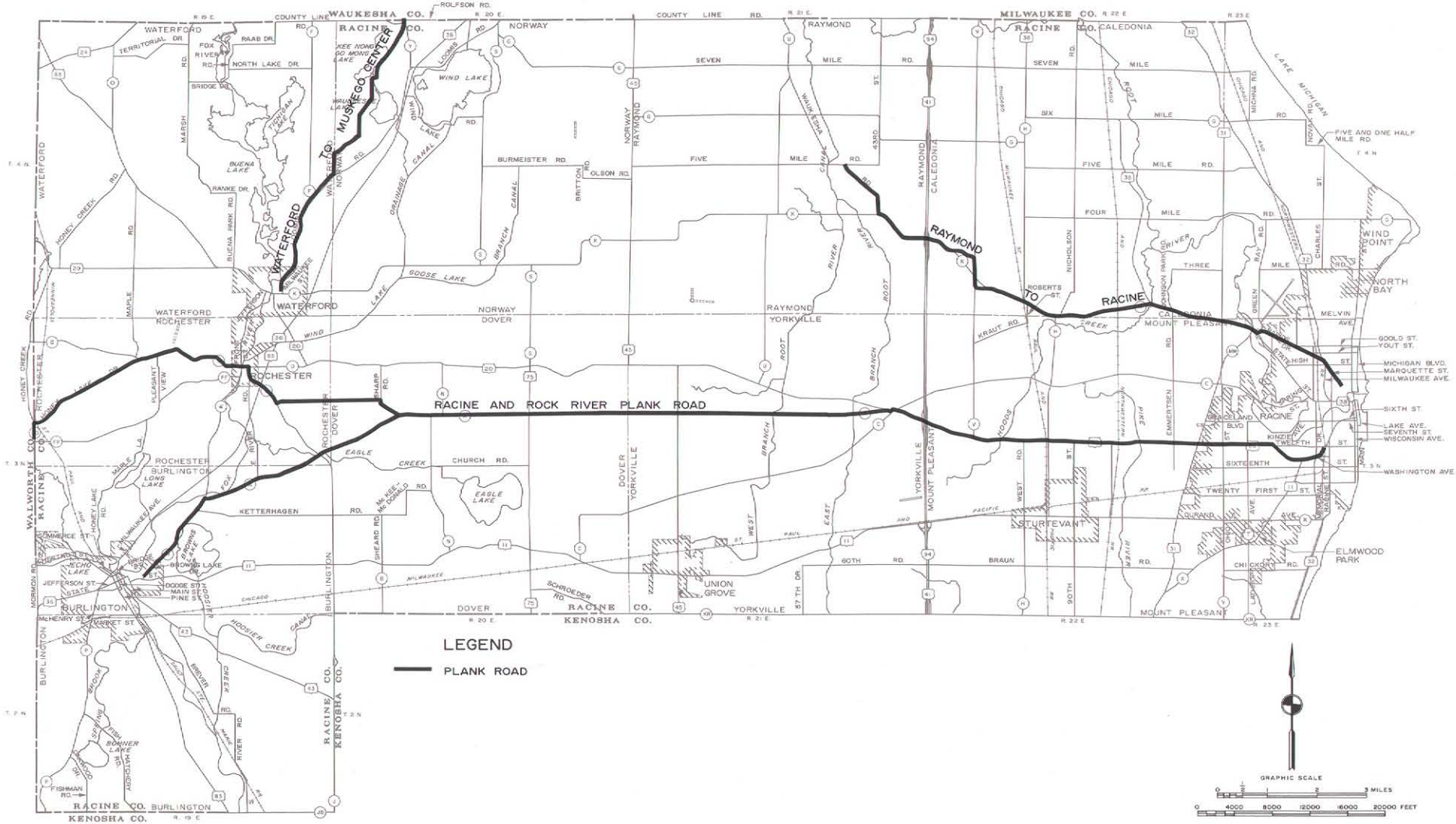


In 1836, the Territorial Legislature established a system of territorial roads to connect important settlements within the territory. Seven such roads traversed Racine County. The Prairieville (Waukesha)-Fort Dearborn (Chicago) Road was located in part along the present alignments of STH 83, CTH W, East River Road, Loomis Road, and Becker Road. The Madison-Rochester Road followed the present alignment of CTH D. The Burlington-Milwaukee Road generally followed the present alignments of Loomis Road, CTH W, CTH A, and East River Road. The Prairieville (Waukesha)-Racine Road followed the present alignments of CTH U, Waukesha Road, and CTH K, and STH 38 (Northwestern Avenue), State Street, Marquette Street, and Sixth Street in the City of Racine. The Burlington-Racine Road followed in part the present alignments of STH 20, 105th Street, Sorenson Road, and STH 11. The Beloit-Milwaukee Road and the Burlington-Milwaukee Road followed in part the present alignment of Loomis Road. The Waterford-Southport (Kenosha) Road followed in part the present alignment of CTH N. The single state road in Racine County was built in 1855, and connected East Troy in Walworth County with Burlington.

Source: SEWRPC.

Map 4

PLANK ROADS IN RACINE COUNTY: 1846-1854



Due to the poor construction of many of the territorial and state roads, demand soon developed for the construction of plank roads. Three plank roads were constructed in Racine County. One linked Raymond and Racine, following the present alignment of CTH K and STH 38, and Rapids Drive and Douglas Avenue in the City of Racine. The second linked Racine and Delavan via Elkhorn, with a branch to Burlington, and followed in part the present alignment of Honey Lake Road, CTH D, CTH J, CTH A, and STH 20, and Washington Avenue in the City of Racine. The third linked Waterford and Milwaukee, following in part the present alignment of Loomis Road.

Source: SEWRPC.

About the turn of the century, the motor vehicle became a practical means of transportation and revived the demand for improved highways to connect and serve the growing population centers. As a result, the Legislature in 1907 enacted the first county aid highway laws. These county aid highway laws provided that any town could, by appropriating money from town funds, secure matching funds from the county for highway improvements; the county was to select a system of highways on which improvements utilizing town and county funds were to take place; and the county was to elect a county highway commissioner to administer the improvement of the system of highways selected by the county.

In the general election of 1908, the people of the state approved a constitutional amendment which provided:

> ...that the state may appropriate money in the treasury or to be thereafter raised by taxation for the construction or improvement of public highways...

In the period between 1907, when the county aid highway laws were enacted, and 1911, when the first state aid highway law was passed, it became increasingly apparent that local units of government alone would not be able to construct and maintain the highway facilities which were needed and being demanded. In addition, public opinion was becoming crystallized in favor not only of a much higher level of highway improvement, but also of a more centralized regulation and financing of highway construction and maintenance.

Under Chapter 52, Laws of Wisconsin 1911, the State Legislature created the State Highway Commission, which was given authority over all matters pertaining to the expenditure of the state highway fund for the improvement of public highways and bridges in the state. The Highway Commission, in turn, organized a State Highway Department to provide the engineering staff necessary for the proper performance of its duties and functions. A chief engineer, designated the State Highway Engineer, was appointed, and within two years several division offices were established throughout the state.

In 1916 the United States Congress, realizing the necessity of a national system of highways for interstate transportation and national economic development, passed the first federal aid highway law. The benefits accruing to Wisconsin under this law made it possible for the State Highway Commission, already a well-established agency, to proceed with the development of an integrated system of state highways, a vast improvement over the aggregation of discontinuous, and often illogical, county highway systems then existing. One requirement of the federal aid highway law was that the state assent to the provisions of the federal act and provide for the maintenance of the highways improved with state and federal aid.

The State Legislature of 1917 directed the State Highway Commission to establish a state trunk highway system not to exceed 5,000 miles, which would interconnect every county seat and every city with a population of 5,000 or more. The system was laid out after due investigation and public hearings by the Highway Commission. The new law also provided for the proper marking and signing of the system by the Highway Commission, and for the publication and sale of maps to guide travelers. Maintenance of this system was assigned to the counties under the general supervision of the State Highway Commission. Map 5 depicts the location and numbering of the original state trunk highway system as established statewide in 1918, totaling about 4,999 miles of facilities. Map 6 depicts this system as established in Racine County in 1918, totaling about 66 miles of facilities.

The 1921 Federal Aid Highway Act provided that the states could designate a system of highways, comprising not more than 7 percent of the total road mileage of the state at that time, which would be eligible for federal aid. Wisconsin acted to designate a federal aid system in 1921. This system consisted of a total of 5,516 route-miles of facilities. The Federal Aid Highway Act of 1921 provided that this total mileage be divided into two classes of routes—primary, or interstate, highways, and secondary, or intercounty, highways. The former were not to exceed three-sevenths of the total federal aid route mileage designated within the state, and the latter the remaining four-sevenths of that mileage. The primary routes were selected by the State Highway Commission as an integrated system of major intercity traffic carriers totaling 2,364 route-miles of facilities. The secondary system was selected by the State Highway Commission in cooperation with local officials, and consisted of, in addition to farm-to-market roads, rural mail routes, rural public school routes, and county trunk highways, and totaled 3,152 route-miles of facilities. The total original designation of 5,516 route-miles of federal aid primary and secondary highways under the 1921 Federal Aid Highway Act basically comprises the federal aid primary system within Wisconsin today.

Between 1918 and 1924, in addition to the state trunk highway system which the counties were required by law to maintain under the supervision of the Highway Commission, each county voluntarily assumed responsibility for the improvement and maintenance of an additional number of miles of highways. This was done through the broad statutory general powers of the counties to construct and improve any highway within the county boundaries. The facilities so established were called county trunk highways. The 1925 Legislature validated and confirmed as county trunk highways those highways previously selected by the county boards. These highways were to be marked, maintained, and signed by the counties. The county trunk highway systems were also required to join and be continuous between counties. A map of the selected county system was to be filed with the county clerk and copies forwarded to the State Highway Commission for review and approval. After this initial system was approved, the system could be altered only by the county board through its highway committee, with the approval of the State Highway Commission. Allotments were also to be set aside for the improvement of the county trunk highway system, including construction, repair, and maintenance of highways and bridges

Map 5

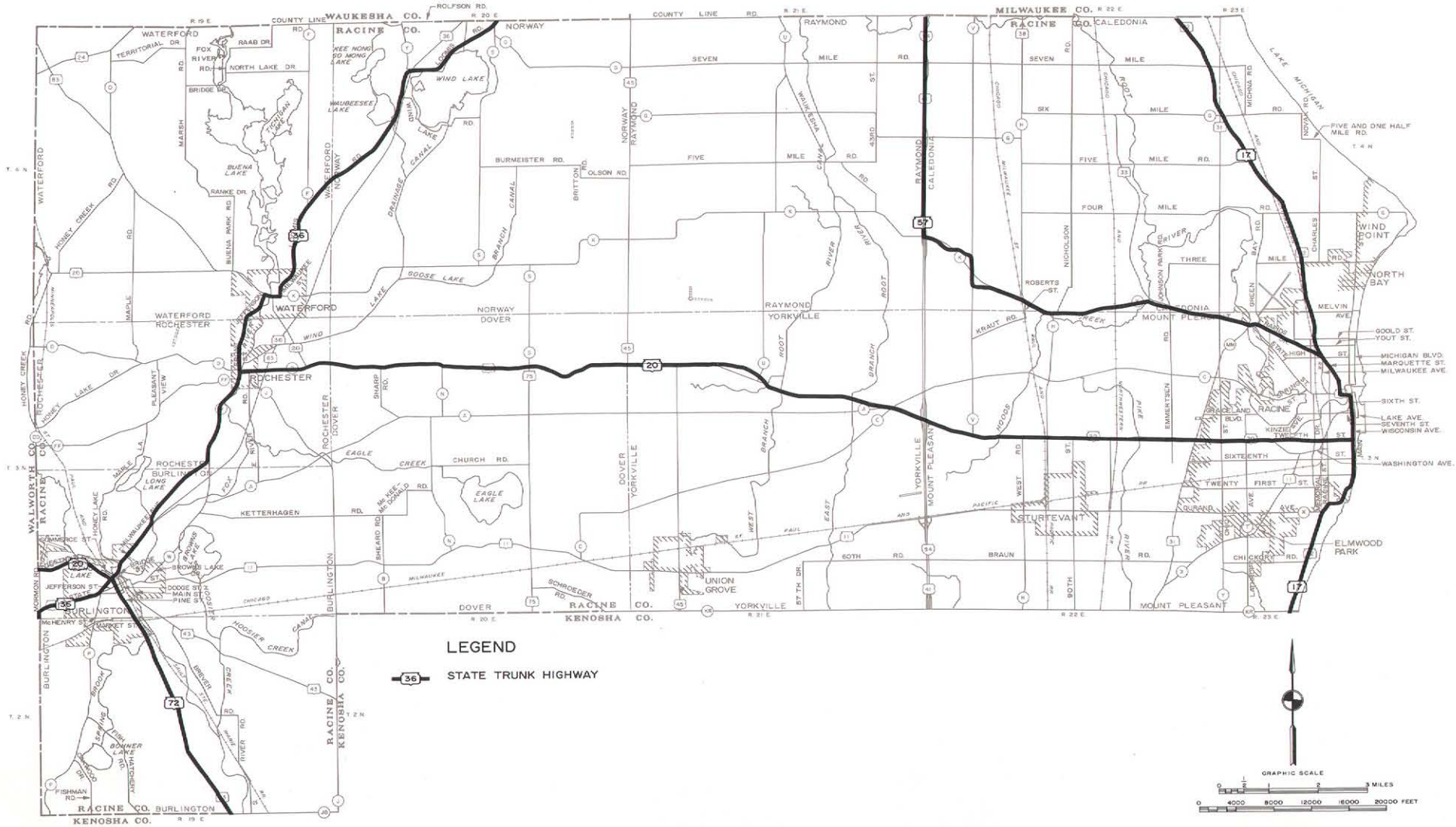
ORIGINAL STATE TRUNK HIGHWAY SYSTEM IN WISCONSIN: 1918

The original state trunk highway system in Wisconsin, as established in 1918, totaled 5,000 miles, and interconnected every county seat and every city in the state with a population of 5,000 persons or more. Initially, this was the only system of streets and highways for which federal aid in partial support of improvements was available. The system of designating state trunk highways by number and of marking the numbers on signs along the routes and on maps developed in Wisconsin. The installation of thousands of signs providing information on distance and direction to motorists was completed in 1918.

Source: SEWRPC.

Map 6

ORIGINAL STATE TRUNK HIGHWAY SYSTEM IN RACINE COUNTY: 1918



The original system of state trunk highways in Racine County consisted of about 66 route-miles of facilities. The location of these early state trunk highways illustrates the permanence of highways as a feature of the landscape, with portions of the original state trunk highways being located along present IH 94, STH 11, STH 20, STH 32, STH 36, STH 38, and STH 83.

Source: Wisconsin Department of Transportation.

under supervision of the county highway committee. Map 7 depicts the system of county trunk highways in Racine County which was validated by the Legislature in 1925, totaling about 93 miles of facilities.

With the establishment of the county trunk highway system in 1925, the original jurisdictional classification of highways in Racine County was completed. The state trunk highway system, which by 1923 had been increased to 10,000 miles statewide and to approximately 120 miles within the county, became the primary system of highways; the county trunk highway system, which then totaled approximately 93 miles within the county, the secondary system; and other roads, more local in nature, the tertiary system.

Beginning in 1933, federal aids were made available for the ad hoc improvement of farm-to-market roads not on any federal aid system. The Federal Aid Highway Act of 1944, recognizing the need to improve farm-to-market roads and to integrate them into a system of secondary highways, provided for the creation of a new federal aid secondary system. This system in Wisconsin was subsequently delineated by the State Highway Commission in cooperation with local officials, and consisted of approximately 14,000 miles of secondary state trunk highways and major county trunk highways. These 14,000 miles were designated, in addition to the original federal aid highways which now became the federal aid primary system, as the federal aid secondary system. The 1944 Federal Aid Highway Act also provided for the establishment of a third system of highways, known as the federal aid urban system. This system was not a true continuous highway system but, rather, consisted of the extensions of federal aid primary and federal aid secondary routes into urban areas having populations of 5,000 or more.

The Wisconsin Statutes specified that the state trunk highway system was to exclude streets or highways in all incorporated areas having a population of 2,500 or more by the last federal census. However, those portions of streets or highways along which houses were spaced at an average distance of more than 200 feet could be included in the state trunk highway system at the option of the State Highway Commission. This provision of the Wisconsin Statutes permitted the projection of the state trunk highway system into the more sparsely developed areas of cities of over 2,500 population to points known as the "construction limits." The streets over which the state trunk highway system was routed between the construction limits were designated "connecting streets" and were not legally a part of the state trunk highway system. The cities and villages were assigned the maintenance responsibility for the connecting streets. The same maintenance allotment was provided to the cities and villages for the connecting streets as was provided the counties for state trunk highways. In 1943 the Legislature changed the definition of the construction limits to those points on the state trunk highways where development had assumed "a predominantly urban characteristic."

From these beginnings the highway network in Wisconsin and Racine County developed, with minor additions and revisions, to the present state and county trunk systems. Table 1 sets forth highway and street mileages in Racine County at various periods from 1918 to 1973. The state trunk highway mileage shown in the table includes connecting streets. Figure 4 indicates that the mileage of each of these three jurisdictional systems has steadily increased to accommodate the growth in motor vehicle registrations and vehicle-miles of travel within the county.

Table 1

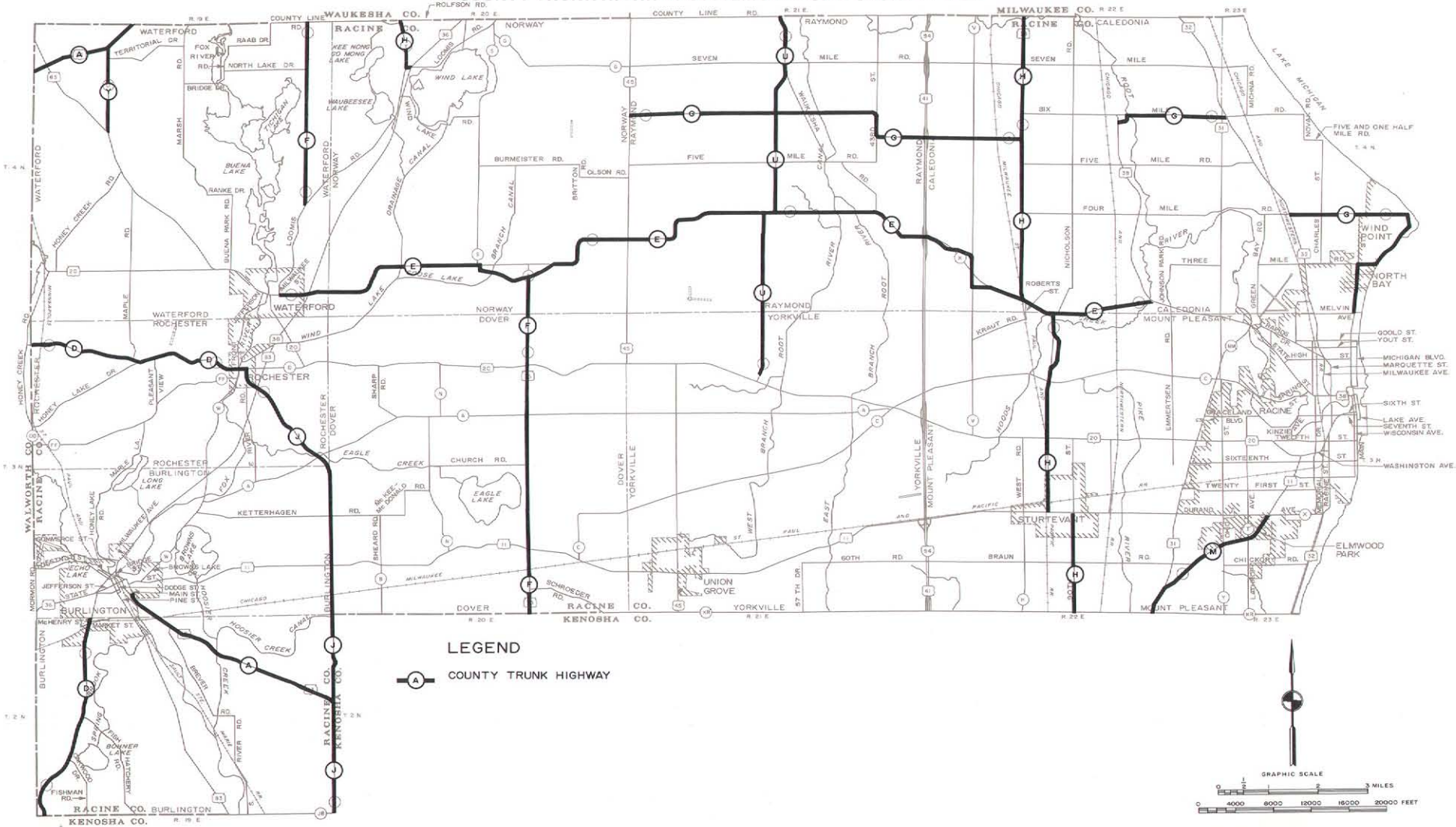
STREET AND HIGHWAY MILEAGE IN RACINE COUNTY
SELECTED YEARS 1918-1973

Year	State Trunk Highways (Includes Connecting Streets)		County Trunk Highways		Local Streets		Total Miles
	Number of Miles	Percent of Total	Number of Miles	Percent of Total	Number of Miles	Percent of Total	
1918	66	--	70	--	--	--	--
1925	120	--	93	--	--	--	--
1930	137	--	109	--	--	--	--
1935	137	16.7	125	15.3	556	68.0	818
1940	141	16.9	135	16.1	561	67.0	837
1945	141	16.6	142	16.7	568	66.7	851
1950	159	18.4	143	16.6	560	65.0	862
1955	160	17.7	142	15.7	601	66.6	903
1960	154	16.2	142	14.9	657	68.9	953
1965	159	15.9	150	15.0	690	69.1	999
1970	157	14.8	153	14.4	752	70.8	1,062
1973	156	14.5	153	14.2	765	71.3	1,074

Source: Wisconsin Department of Transportation and SEWRPC.

Map 7

COUNTY TRUNK HIGHWAY SYSTEM IN RACINE COUNTY: 1925

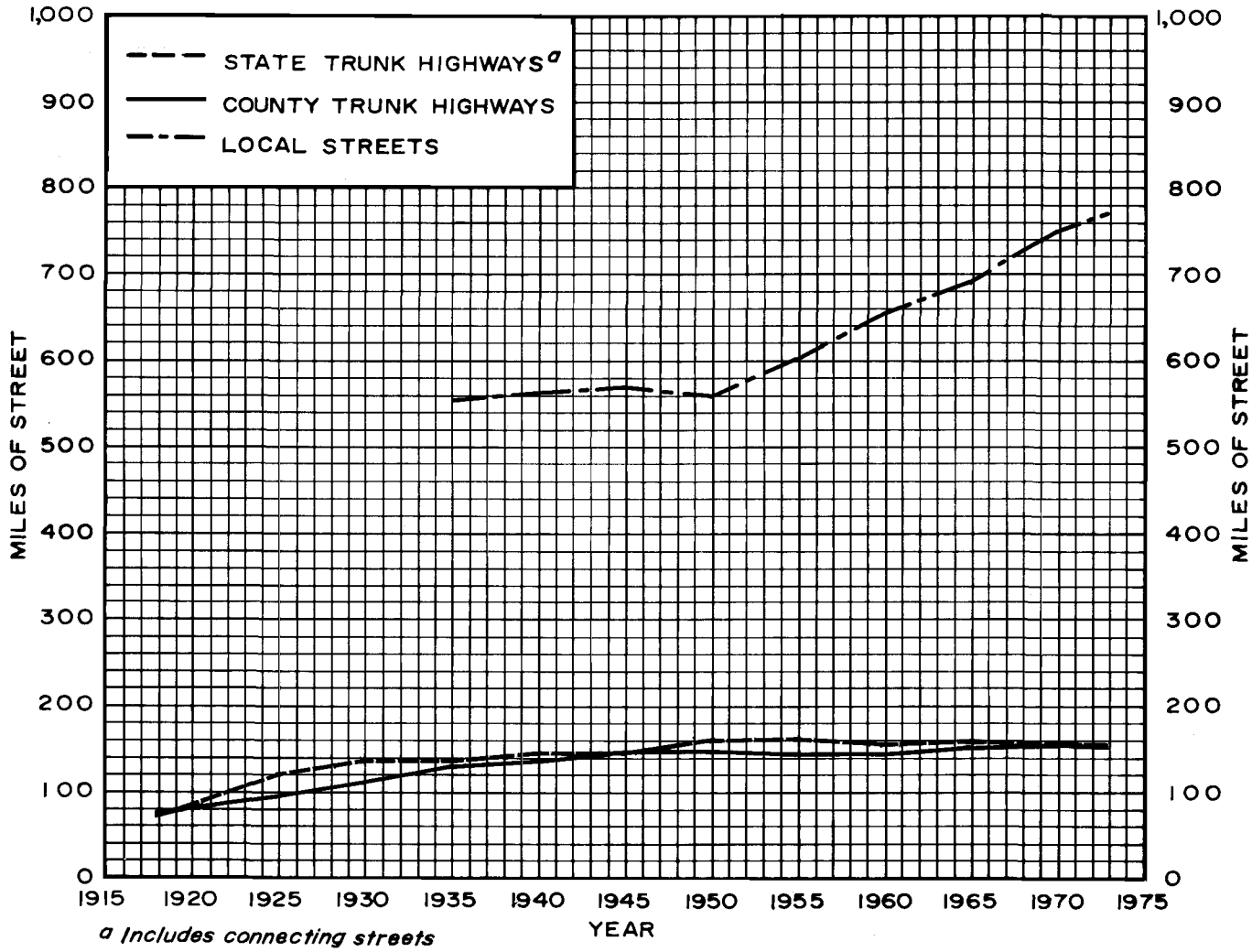


The original county trunk highway system in Racine County, established by the County Board and the Wisconsin Legislature in 1925, totaled about 93 route-miles of facilities to be marked, maintained, and signed by the county. With the establishment of this system, the original jurisdictional classification of highways in Racine County was completed. Portions of the original county trunk system remain on the present county trunk highway system, including segments on present alignments of CTH D, CTH F, CTH G, CTH H, CTH J, CTH K, CTH O, CTH P, CTH S, CTH U, CTH X, and CTH Y.

Source: Racine County Highway and Park Commission and SEWRPC.

Figure 4

TOTAL STREET AND HIGHWAY MILEAGE IN RACINE COUNTY: 1918-1973



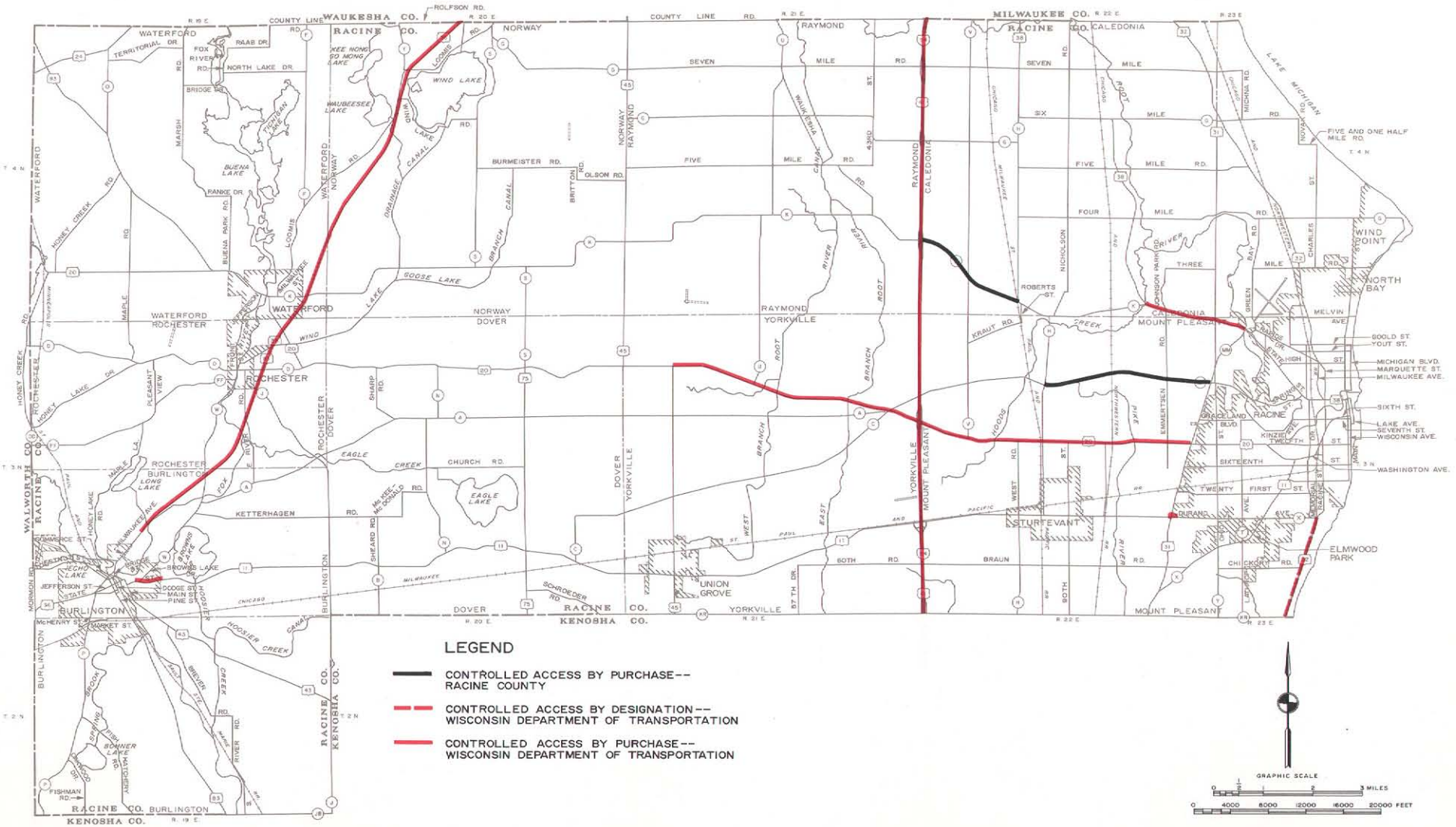
Source: Wisconsin Department of Transportation and SEWRPC.

After World War II, the large increase in motor vehicle utilization brought about a public demand for further improvements in highway system development. To improve the safety and level of service on heavily traveled routes, the State Legislature in 1949 authorized the Highway Commission to designate, as controlled-access highways, rural portions of the state trunk highway system on which the average traffic potential was found to be in excess of 2,000 vehicles per day. Once a highway had been so designated, the Highway Commission could, in the public interest, limit the number of driveways and other access points to abutting land. The total statewide controlled-access highway mileage was limited by State Statute to 1,500 miles. To date (January 1, 1973), 371 miles have been so designated, of which 2.12 miles, comprised of portions of STH 32, are within Racine County (see Map 8). The state has also acquired access rights by purchase of 37.82 miles, comprised of IH 94, and portions of STH 11, STH 20, STH 31, STH 36, and STH 38, as shown in Map 8.

In 1955 the State Legislature provided, in Section 84.025 of the Wisconsin Statutes, for the creation of the state arterial system as an integrated, statewide, interregional, and intercommunity network of highways. The purpose of the State Statute was to facilitate the improvement of the most important portions of the total state trunk highway system. The Statute specifically designated the arterial system by route description and limited it to 2,200 miles. There are to date (January 1, 1973) 12.02 miles of such state arterial highways in Racine County (see Map 9). Aside from the requirements of public hearings for changes, no differences significant to jurisdictional highway system planning or plan implementation exist

Map 8

CONTROLLED-ACCESS HIGHWAYS IN RACINE COUNTY: 1973

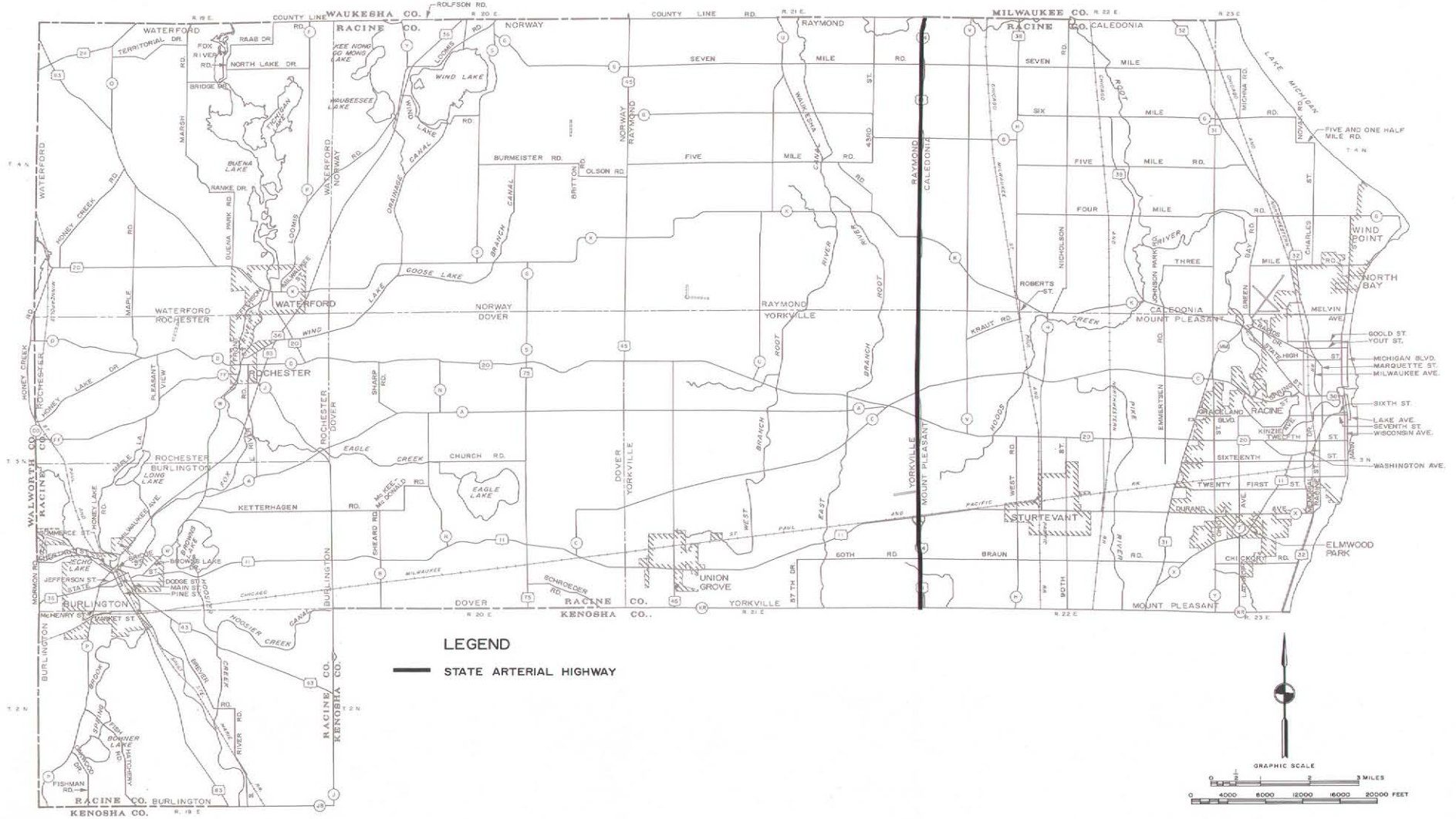


In order to improve safety and to provide a higher level of service on heavily traveled arterial highways, the Wisconsin Department of Transportation, Division of Highways, has acquired access rights along 38 route-miles of state trunk highways in Racine County. In addition, the State Highway Commission has formally designated two miles of controlled-access highway in the county. The Racine County Highway and Park Commission, in a related effort, has purchased access control along six route-miles of county trunk highway facilities.

Source: Wisconsin Department of Transportation and Racine County Highway and Park Commission.

Map 9

DESIGNATED STATE ARTERIAL HIGHWAY SYSTEM IN RACINE COUNTY: 1973



In 1955 the Wisconsin Legislature provided for the creation of the state arterial highway system to facilitate improvement of the most important portions of the total state trunk highway system. Within Racine County this system includes about 12 route-miles of facilities exclusively along IH 94.

Source: Wisconsin Department of Transportation and SEWRPC.

between ordinary state trunk highways and state arterial highways, and throughout the remainder of this report, state arterial highways will be treated as integral and ordinary parts of the total state trunk highway system.

In 1961 the Legislature authorized the designation of 300 miles of state trunk highways as freeways or expressways. In 1972 this mileage limitation was repealed by the Legislature. Those highway segments carrying sufficient traffic to warrant ultimate construction of four or more moving lanes could be so designated. To date (January 1, 1973) no highways have been designated in Racine County as freeways or expressways.

Subject to certain statutory limitations, changes to the state trunk highway system may be made by the State Highway Commission if the Commission deems that the public interest is best served by the changes. Procedures for making changes to the state trunk highway system are specified in Section 84.02(3) of the Wisconsin Statutes, The requirements vary, depending upon the mileage involved, whether or not federal aid systems are involved, and whether the proposed changes are on the state trunk highway system or the state arterial system. Table 2 summarizes these requirements.

The county board is authorized, under Section 83.027 of the Wisconsin Statutes, to designate as controlled-access highways those rural portions of the county trunk highway system having an average traffic potential of 2,000 vehicles per day. By cooperative agreement with city or village governing bodies, this authority may be extended into incorporated areas. The total mileage of such designated controlled-access highways in any county is limited to 10 percent of the county trunk mileage. The Racine County Board has not chosen to designate any portions of the county trunk highway system as controlled-access facilities. The Board has, however, acquired control of access along segments of the county trunk highway system through a program of access right acquisition conducted in the normal course of right-of-way purchase for new construction and reconstruction of the system. Map 8 identifies the 5.79 miles of county trunk highway within Racine County for which access rights have been purchased to date.

Streets within corporate areas not on the state trunk or county trunk highway systems are under local jurisdiction for planning, design, construction, maintenance, and operation. Responsibility for administration of the municipal programs generally is assigned to the city or village engineer or to an engineering consultant acting in this capacity. Those streets and highways within unincorporated areas of the county which are not on the state trunk or county trunk highway system are under the jurisdiction of the towns, who either contract with the county or a consultant for planning, design, construction, maintenance, and operation.

CURRENT STATUS

Current Jurisdictional Highway Mileage

As of January 1, 1973, there were 11,914 miles of state trunk highways in Wisconsin, of which 456 miles consisted of interstate highways and 524 miles consisted of connecting streets. In Racine County there were 156 miles of state trunk highways, of which 12 miles consisted of interstate highways. In addition, there were 19 miles of connecting streets over which state trunk highways were routed (see Map 10), and there were, as of January 1, 1973, 153 miles of county trunk highways (see Map 11).

Table 2

LEGAL CONSTRAINTS GOVERNING CHANGES TO THE STATE TRUNK HIGHWAY (STH) AND STATE ARTERIAL HIGHWAY SYSTEMS

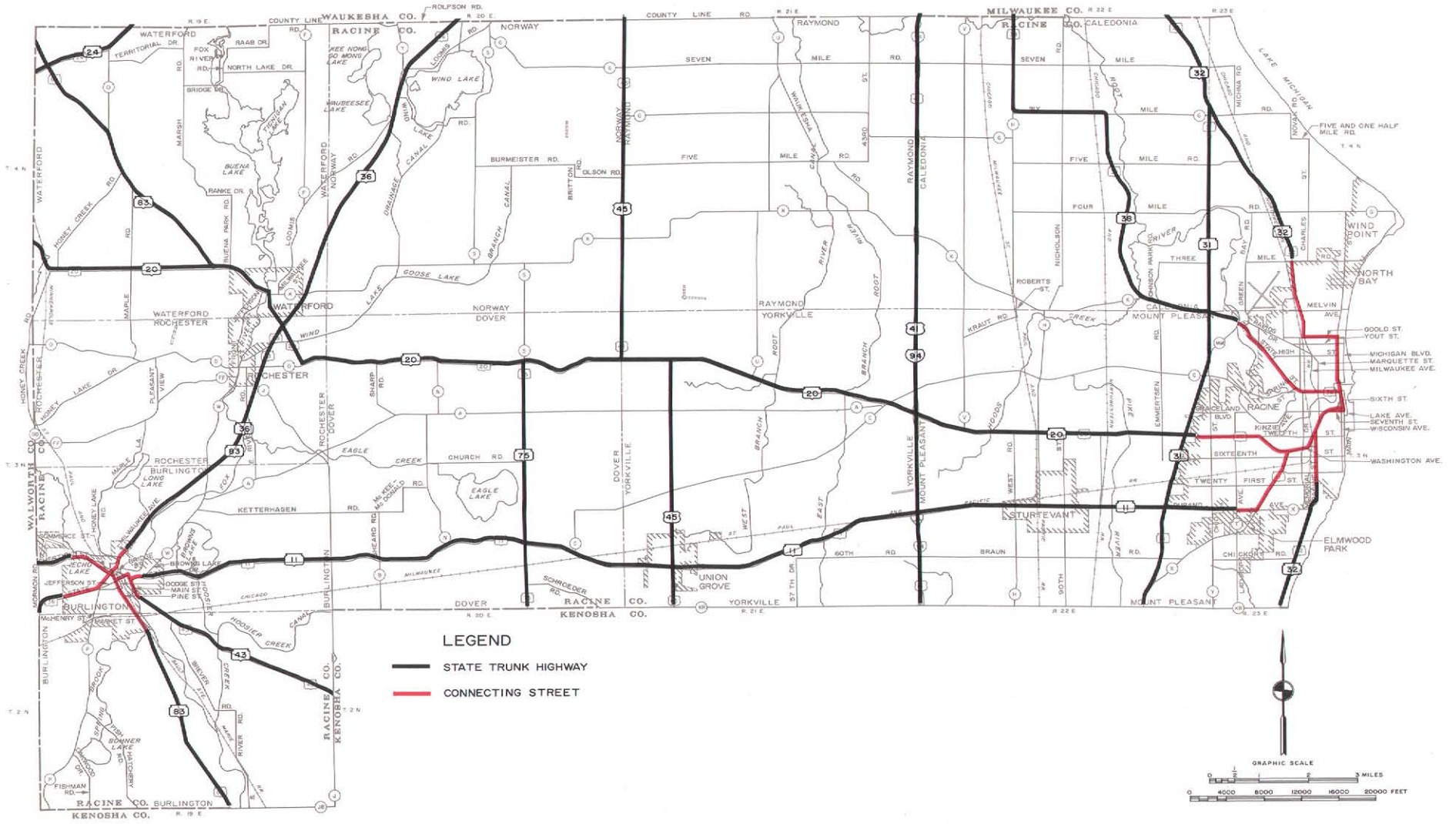
Highway System	Statutory Reference[a]	Length Constraint	Public Hearing Required	County Board Approval Required
STH	84.02(3)(a)	Less than 2½ miles	No	No
STH	84.02(3)(a)	2½ miles or more	Yes	Yes
STH & State Arterial	84.02(3)(a)	More than 5 miles	Yes	Yes
State Arterial	84.025(3)	Less than 5 miles	No	No
State Arterial	84.025(3)	More than 5 miles but no removal from state trunk highway system	Yes	No
State Arterial	84.025(3)	More than 5 miles and any removal from state trunk highway system	Yes	Yes

[a] *All references are to the 1973 Wisconsin Statutes*

Source: Wisconsin Department of Transportation and SEWRPC.

Map 10

STATE TRUNK HIGHWAY AND CONNECTING STREET SYSTEM IN RACINE COUNTY: 1973

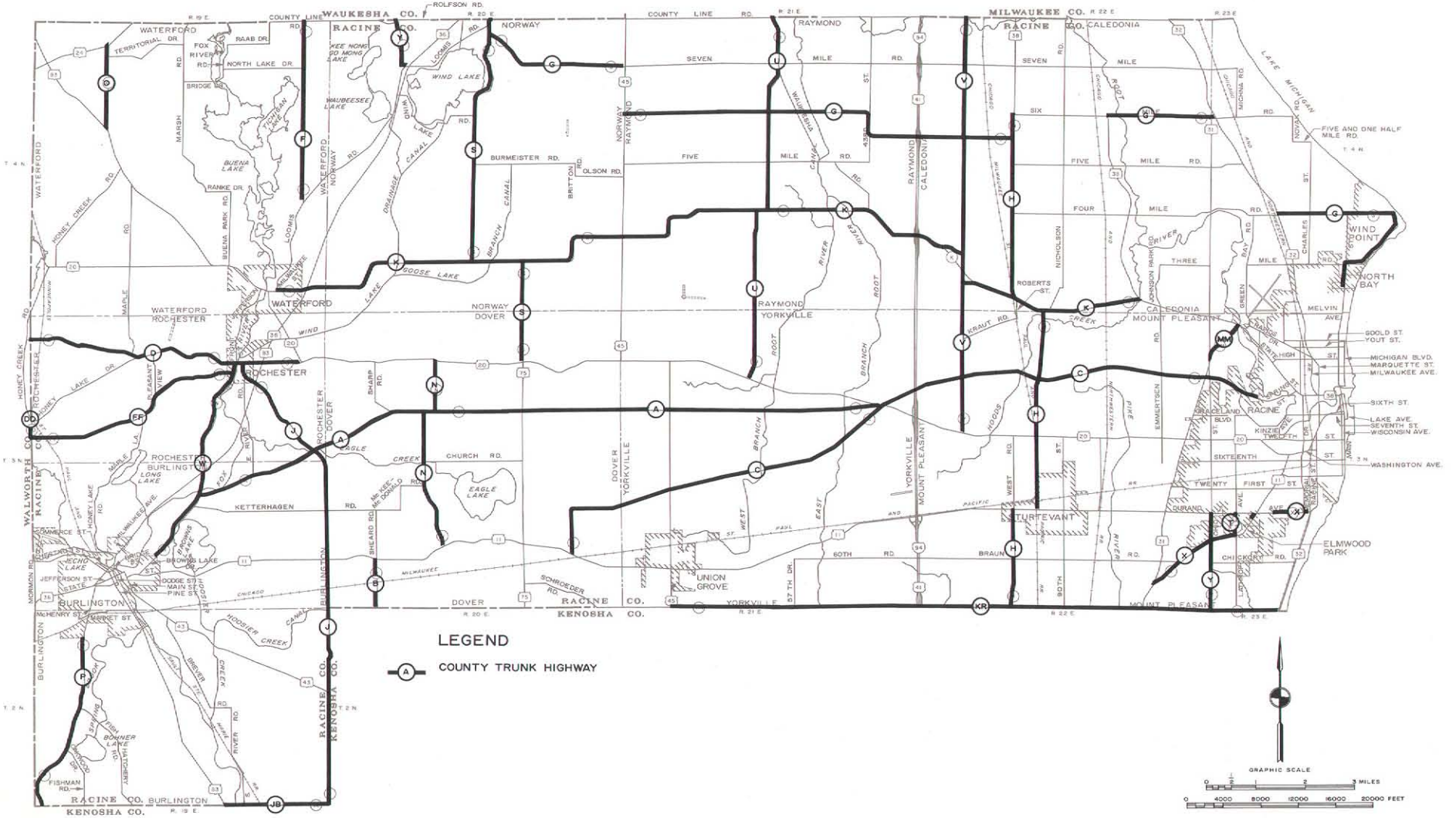


In Racine County, the existing system of state trunk highways and connecting streets totals about 156 route-miles. Of this total, 19 miles are connecting streets which are located in the Cities of Burlington and Racine and the Village of Union Grove, and which provide for system continuity. These connecting streets are maintained at the expense of the municipality in which they are located, with nominal reimbursement for such expense from the state at the rate of $500 per mile per year.

Source: Wisconsin Department of Transportation.

Map 11

COUNTY TRUNK HIGHWAY SYSTEM IN RACINE COUNTY: 1973



Within Racine County there are presently a total of about 153 miles of county trunk highways, 134 miles of which are on the existing arterial street and highway system. The county trunk highways are discontinuous through urban areas within the county, and therefore do not form an integrated system.

Source: Wisconsin Department of Transportation.

There were, as of January 1, 1973, a total of 1,074 miles of streets and highways open to traffic in Racine County. Of this total, 348 miles, or 32 percent, were determined to comprise the functional arterial street and highway network and were jurisdictionally categorized as shown in Table 3. The configuration of the arterial system within Racine County is shown on Map 12. Table 4 summarizes existing mileages by municipality.

Current Federal Aid Mileages

As of January 1, 1973, there were a total of 298 miles of federal aid routes designated within Racine County. Of this total, 12 miles were located on the federal aid interstate system, 100 miles were located on the federal aid primary system, 179 miles were located on the federal aid secondary system, and 7 miles were located on the federal aid urban system. In addition, 38 miles were located on the TOPICS system. The total federal aid system mileage

Table 3

PERCENTAGE DISTRIBUTION OF EXISTING ARTERIAL STREET AND HIGHWAY MILEAGE IN RACINE COUNTY BY JURISDICTIONAL CATEGORY JANUARY 1973

Jurisdictional Category	Number of Miles	Percent of Total
State Trunk Highways	137.75	39.6
Connecting Streets	18.57	5.3
County Trunk Highways	134.16	38.5
Local Arterial Streets and Highways	57.65	16.6
Total	348.13	100.0

Source: SEWRPC.

Table 4

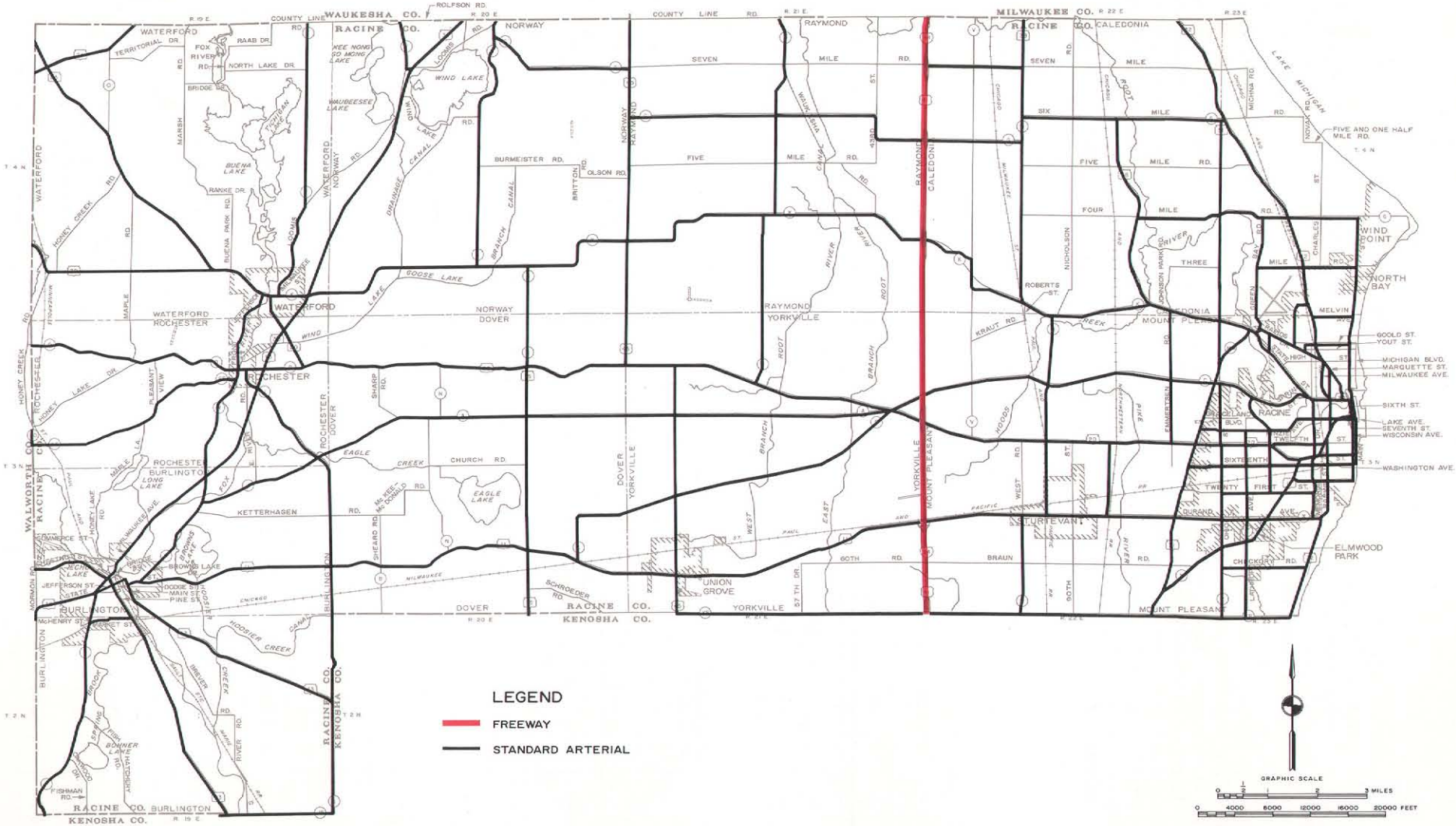
EXISTING JURISDICTIONAL HIGHWAY SYSTEM MILEAGE IN RACINE COUNTY BY CIVIL DIVISION JANUARY 1973

Civil Division	Existing Arterials (Miles)						Existing Nonarterials (Miles)			Total
	State Trunk Highway		Connecting Street	County Trunk Highway	Local Trunk Highway	Subtotal	County Trunk Highway	Local Trunk Highway	Subtotal	
	Freeway	Nonfreeway								
CITIES										
Burlington	--	1.09	4.59	0.07	2.69	8.44	--	25.91	25.91	34.35
Racine	--	1.47	13.24	2.15	33.80	50.66	0.20	187.08	187.28	237.94
Subtotal	--	2.56	17.83	2.22	36.49	59.10	0.20	212.99	213.19	272.29
VILLAGES										
Elmwood Park	--	--	--	0.35	0.38	0.73	--	1.43	1.43	2.16
North Bay	--	--	--	0.21	--	0.21	--	1.30	1.30	1.51
Rochester	--	--	--	1.16	0.33	1.49	0.48	2.10	2.58	4.07
Sturtevant	--	1.67	--	1.00	--	2.67	--	10.28	10.28	12.95
Union Grove	--	0.97	0.74	--	--	1.71	--	9.28	9.28	10.99
Waterford	--	1.78	--	0.68	1.88	4.34	--	6.90	6.90	11.24
Wind Point	--	--	--	--	0.50	0.50	2.34	7.79	10.13	10.63
Subtotal	--	4.42	0.74	3.40	3.09	11.65	2.82	39.08	41.90	53.55
TOWNS										
Burlington	--	15.88	--	12.98	--	28.86	--	56.46	56.46	85.32
Caledonia	3.20	18.90	--	15.55	9.04	46.69	4.56	99.56	104.12	150.81
Dover	--	17.87	--	10.53	--	28.40	4.88	34.85	39.73	68.13
Mt. Pleasant	3.01	19.31	--	20.58	7.42	50.32	2.49	64.91	67.40	117.72
Norway	--	8.08	--	15.69	0.13	23.90	1.31	44.98	46.29	70.19
Raymond	2.80	3.18	--	19.12	--	25.10	--	52.05	52.05	77.15
Rochester	--	5.06	--	14.48	0.09	19.63	0.03	11.20	11.23	30.86
Waterford	--	14.34	--	3.78	1.39	19.51	2.21	49.71	51.92	71.43
Yorkville	3.01	16.13	--	15.83	--	34.97	--	41.19	41.19	76.16
Subtotal	12.02	118.75	--	128.54	18.07	277.38	15.48	454.91	470.39	747.77
Total	12.02	125.73	18.57	134.16	57.65	348.13	18.50	706.98	725.48	1,073.61

Source: Wisconsin Department of Transportation and SEWRPC.

Map 12

ARTERIAL STREET AND HIGHWAY SYSTEM IN RACINE COUNTY: 1973



The 348 miles of streets and highways shown on this map comprise the existing arterial street and highway system in Racine County. Of this total, 156 miles are state trunk highways or connecting streets, 134 miles are county trunk highways, and 58 miles are local streets and highways. Because of the nature of the local streets and highways, and the piecemeal additions and deletions which have been made in the county trunk highway system over time, only the state trunk highway system represents a truly integrated arterial street and highway system.

Source: SEWRPC.

open to traffic as of January 1, 1973, was 291 miles. Of this mileage, 93 miles consisted of federal aid primary system mileage and 179 miles consisted of federal aid secondary system mileage. The difference between the designated mileage on the federal aid systems and the miles open to travel is accounted for by new routes which have been officially designated as being on federal aid systems and which are in various stages of planning preliminary design, or construction but are not yet open to traffic. The configurations of these federal aid systems within Racine County are shown on Map 13, with the sections on the federal aid systems which are not open to traffic being indicated by broken lines. Table 5 sets forth the designated federal aid system mileages by municipality.

SUMMARY

As of January 1, 1973, there were a total of 1,074 miles of streets and highways open to traffic within Racine County. Of this total, 348 miles, or 32 percent, comprised the functional arterial street and highway system. The responsibility for the design, construction, operation, and maintenance of this arterial street and highway network rests with three levels of government: the state, the county, and local municipalities. Approximately 156 miles, or 45 percent of the arterial street and highway system, were under state jurisdiction, being comprised of state trunk highways and connecting streets. About 134 miles, or an additional 38 percent,

Table 5

**FEDERAL AID ROUTE MILEAGE IN RACINE COUNTY BY CIVIL DIVISION
JANUARY 1973**

Civil Division	Federal Aid Interstate Route Mileage	Federal Aid Primary Route Mileage						
		State Trunk Highway						
			Open to Traffic					
	Open to Traffic	Officially Designated	Freeway	Nonfreeway	Connecting Street	County Trunk Highway	Local Street	Subtotal
CITIES								
Burlington	--	--	--	1.01	2.84	--	--	3.85
Racine	--	--	--	0.95	12.91	--	1.96	15.82
Subtotal	--	--	--	1.96	15.75	--	1.96	19.67
VILLAGES								
Elmwood Park	--	--	--	--	--	--	--	--
North Bay	--	--	--	--	--	--	--	--
Rochester	--	--	--	--	--	--	--	--
Sturtevant	--	--	--	1.67	--	--	--	1.67
Union Grove	--	--	--	0.97	0.74	--	--	1.71
Waterford	--	--	--	0.45	--	--	--	0.45
Wind Point	--	--	--	--	--	--	--	--
Subtotal	--	--	--	3.09	0.74	--	--	3.83
TOWNS								
Burlington	--	--	--	7.17	--	--	--	7.17
Caledonia	3.20	--	--	14.69	--	--	--	14.69
Dover	--	--	--	6.75	--	--	--	6.75
Mt. Pleasant	3.01	--	--	13.58	--	0.38	--	13.96
Norway	--	--	--	8.08	--	--	--	8.08
Raymond	2.80	5.71	--	3.18	--	--	--	8.89
Rochester	--	--	--	3.45	--	--	--	3.45
Waterford	--	--	--	1.49	--	--	--	1.49
Yorkville	3.01	1.04	--	10.95	--	--	--	11.99
Subtotal	12.02	6.75	--	69.34	--	0.38	--	76.47
Total	12.02	6.75	--	74.39	16.49	0.38	1.96	99.97

were under county jurisdiction, being comprised of county trunk highways and about 58 miles, or 17 percent, were under city, village, or town jurisdiction, being comprised of local arterial streets and highways.

Superimposed on the state, county, and local trunk highways and arterial streets were 291 miles of federal aid routes, of which 12 miles, or 4 percent, consisted of federal aid interstate routes; 93 miles, or 32 percent, consisted of federal aid primary routes; 179 miles, or 62 percent, consisted of federal aid secondary routes; and 7 miles, or 2 percent, consisted of federal aid urban routes. In addition, 38 miles were located on the TOPICS system.

The location and configuration of these jurisdictional highway systems and supporting aid routes were the result of a long evolutionary process influenced by many complex political, administrative, financial, and engineering considerations and constraints. The state trunk and county trunk highway networks were originally conceived by the State Legislature as integrated highway systems and were originally so delineated and mapped. The state trunk highway network, however, was last studied and revised as an integrated system by the State Legislature in 1923, and the county trunk highway system was last studied and revised by the State Highway Commission of Wisconsin and the Racine County Board in 1925. Many piecemeal additions and deletions have been made to these two jurisdictional highway networks since 1923 and 1925. Consequently, these two important networks no longer represent fully integrated and continuous arterial highway systems capable of serving, in the most efficient manner possible, the areawide land use and traffic service functions originally intended. Moreover, since the federal aid highway networks are intended to assist in implementing the state and county trunk high-

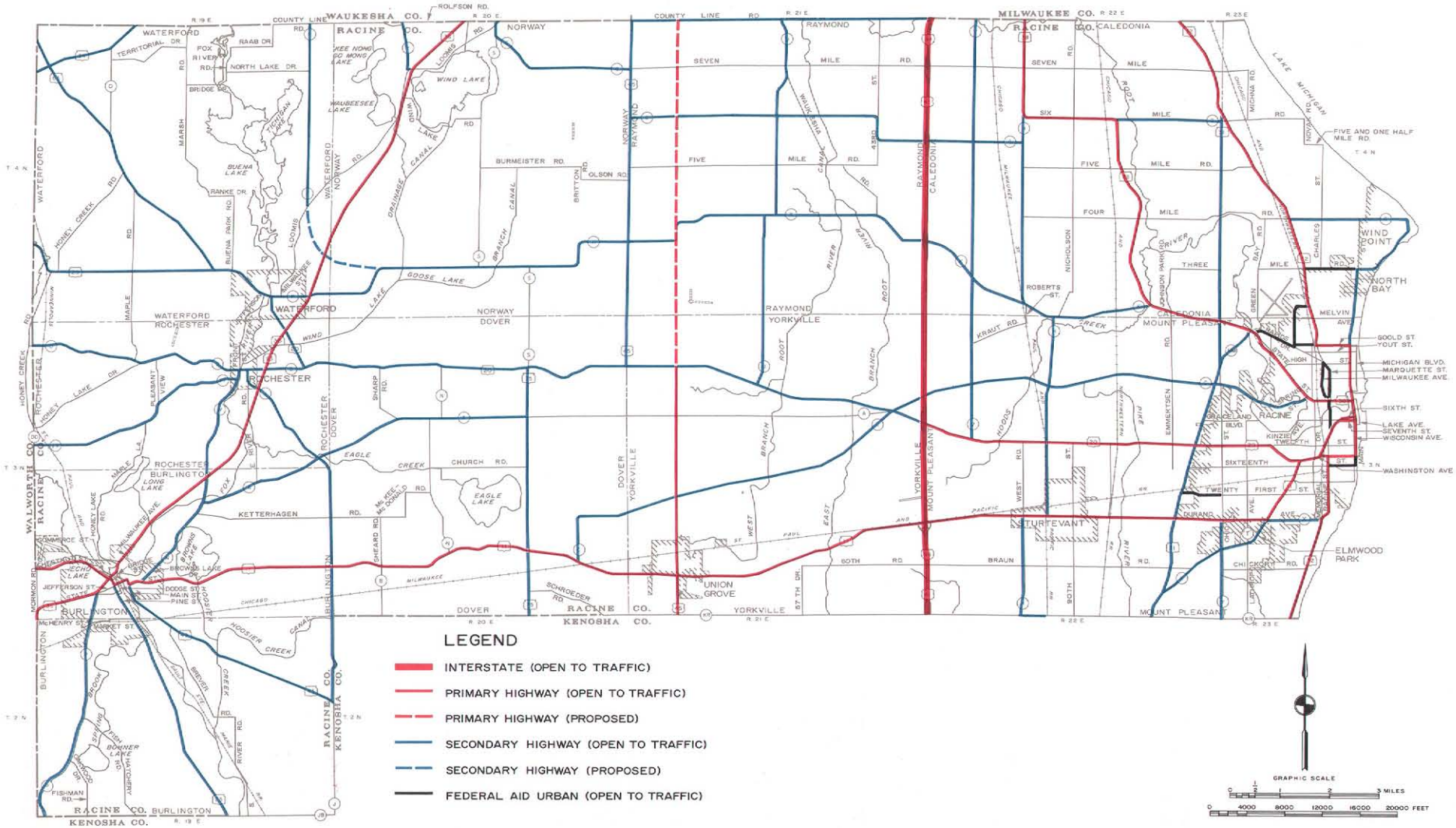
Table 5 (continued)

Civil Division	Federal Aid Secondary Route Mileage						Federal Aid Urban	TOPICS Route Mileage	Total
	State Trunk Highway		Connecting Street	County Trunk Highway	Local Street	Subtotal			
	Officially Designated	Open to Traffic					Open to Traffic	Open to Traffic	
CITIES									
Burlington	--	0.08	1.44	0.07	1.50	3.09	--	--	6.94
Racine	--	0.52	--	1.45	1.74	3.71	6.60	38.41	64.54
Subtotal	--	0.60	1.44	1.52	3.24	6.80	6.60	38.41	71.48
VILLAGES									
Elmwood Park	--	--	--	0.05	0.35	0.40	--	--	0.40
North Bay	--	--	--	0.21	--	0.21	--	--	0.21
Rochester	--	--	--	1.64	--	1.64	--	--	1.64
Sturtevant	--	--	--	1.00	--	1.00	--	--	2.67
Union Grove	--	--	--	--	--	--	--	--	1.71
Waterford	--	1.33	--	0.68	--	2.01	--	--	2.46
Wind Point	--	--	--	2.34	--	2.34	--	--	2.34
Subtotal	--	1.33	--	5.92	0.35	7.60	--	--	11.43
TOWNS									
Burlington	--	8.71	--	10.71	--	19.42	--	--	26.59
Caledonia	--	4.21	--	19.47	--	23.68	--	--	41.57
Dover	--	11.12	--	7.46	--	18.58	--	--	25.33
Mt. Pleasant	--	5.73	--	18.89	--	24.62	--	--	41.59
Norway	--	--	--	10.83	--	10.83	--	--	18.91
Raymond	--	--	--	19.12	2.42	21.54	--	--	33.23
Rochester	--	1.61	--	14.34	--	15.95	--	--	19.40
Waterford	--	12.85	--	4.25	--	17.10	--	--	18.59
Yorkville	--	5.18	--	8.00	--	13.18	--	--	28.18
Subtotal	--	49.41	--	113.07	2.42	164.90	--	--	253.39
Total	--	51.34	1.44	120.51	6.01	179.30	6.60	38.41	336.30

Source: U. S. Department of Transportation, Federal Highway Administration; Wisconsin Department of Transportation, and SEWRPC.

Map 13

FEDERAL AID HIGHWAY SYSTEMS IN RACINE COUNTY: JANUARY 1973



Highways designated as part of the federal aid highway systems are eligible for federal aid in partial support of improvements. There are presently 291 miles of federal aid routes open to traffic or officially designated within Racine County, including 12 miles on the federal aid interstate system, 93 miles on the federal aid primary system, 179 miles on the federal aid secondary system, and 7 miles on the federal aid urban system. The interstate system consists of IH 94. The primary system includes USH 45, STH 11, STH 20, STH 32, STH 36, and STH 38. The secondary system includes parts of USH 45 and STH 20, as well as STH 24, STH 31, STH 43, STH 75, STH 83, and several significant county trunk highways.

Source: Wisconsin Department of Transportation and SEWRPC.

way systems and, therefore, reflect the pattern of these systems, these federal aid networks are also in need of revision. The Federal Aid Highway Act of 1973, as an amendment to Title 23, Section 103 of the U.S. Code, directs the review and realignment of these federal aid systems by no later than June 30, 1976.

It is, therefore, appropriate at this time to study and analyze the jurisdictional highway systems within Racine County and, guided by the functional transportation system plan prepared by the Southeastern Wisconsin Regional Planning Commission and adopted by the State Highway Commission of Wisconsin and the Racine County Board, to recommend changes necessary to reclassify and regroup these networks into complete, fully coordinated, and continuous systems able to meet the present and expected future arterial highway traffic demands within Racine County.

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Chapter IV

FUNCTIONAL CRITERIA FOR JURISDICTIONAL CLASSIFICATION

INTRODUCTION

A total street and highway system must serve several important functions. It must provide for the safe and efficient movement of traffic throughout the area served, provide for the access of this traffic to the various land uses to be served, provide integral parts of the storm water drainage system, provide rights-of-way for various utility facilities, and provide space for the admittance of light and air to individual building sites. Because the two most important of these functions—safe and efficient traffic movement and land access—are basically conflicting, street and highway systems are, for planning purposes, divided into functional subsystems according to the primary character of service which the individual facilities comprising the subsystems are expected to provide. This functional subdivision of street and highway systems is done on an areawide basis without regard to governmental jurisdiction or fiscal responsibility. Such a functional grouping or classification is essential to sound transportation planning, not only because it identifies the primary function which any particular facility should serve, but also because it provides a means for defining travel paths for the flow of trips through the total system. The definition of such paths is essential to any traffic assignment made to determine the ability of the system to carry existing and probable future traffic loads.

Three functional groups of street and highway facilities are normally recognized in functional classification for planning purposes: arterial, collector, and local (land access). Only the first of these groups is of direct concern in areawide planning. The primary function of the arterial facilities is to expedite the movement of vehicular traffic. Access to abutting property is a secondary function of some types of arterials and should always be subordinate to the primary function of traffic movement. Arterial streets and highways include freeways, expressways, and certain parkways as well as those facilities commonly termed "standard" arterials. Together, the individual arterial facilities must form an integrated, areawide system, the geographic configuration and capacity of which are adequate to carry the traffic loads generated by the existing and probable future land use pattern to be served.

Arterial street and highway facilities must form an integrated system over relatively large areas comprised of many local units of government. The degree of areawide importance of the individual facilities comprising the total system varies, with several levels as well as many units of government having interests in, and responsibilities for, the planning, construction, maintenance, and operation of the total arterial street and highway system. Consequently, it becomes necessary to assign jurisdictional responsibility for the various existing and proposed facilities comprising the total system to the various levels and units of government involved.

Just as the functional classification of highway facilities is essential to transportation plan preparation, the jurisdictional classification of such facilities is essential to plan implementation. In addition, the assignment of jurisdictional responsibility for the various portions of the total arterial street and highway system is essential to achieving the important objectives already set forth in Chapter I of this report.

As previously noted, the preparation of an areawide plan for the physical development of the total transportation system must necessarily precede any assignment of jurisdictional responsibility. A plan for the physical improvement of the transportation system is required to identify the existing arterial street and highway system, determine its existing deficiencies, and recommend specific additions and improvements required to serve existing and forecast traffic demands. Such a transportation plan having been prepared, it then becomes necessary, as the first step toward plan implementation, to specify the governmental level and unit which should have responsibility for acquiring, constructing, maintaining, and operating each of the existing and proposed facilities which comprise the total physical system. That is, the functional highway plan must be converted to a jurisdictional plan if plan implementation is to be achieved. It therefore becomes necessary to develop a set of criteria which may be used as a basis for the assignment of jurisdictional responsibility for the various facilities comprising the total arterial street and highway system. Functional variations within the total arterial system provide a logical basis for the establishment of such criteria.

PURPOSE AND OBJECTIVE OF THE CRITERIA

The purpose of the jurisdictional classification criteria is to provide an objective and rational basis for the assignment of jurisdictional responsibility for the various segments of an existing and proposed arterial street and highway system to the various levels of government concerned. The system is represented by an adopted functional arterial street and highway system plan. The objective of the recommended criteria is to identify subsystems within the total arterial street and highway system which are integral parts of the overall system, and which are within themselves continuous, or are continuous in conjunction with other "higher" subsystems but which vary with respect to the degree of traffic mobility provided, the types of land use areas served, and the types of trips served. The arterial street and highway network maps prepared by the Southeastern Wisconsin Regional Planning Commission under the regional land use-transportation study completed in 1966 were reviewed and updated to represent the necessary definition of the total arterial street and highway system within Racine County to which the jurisdictional criteria were to be applied.

ARTERIAL SUBCLASSIFICATION

Three levels of government—state, county, and local (municipal)—have direct jurisdictional responsibility for the planning, design, construction, operation, and maintenance of highway facilities within Racine County. It is, therefore, proposed that all segments of the total (existing and proposed) arterial street and highway system be classified into one of three categories: Type I, state trunk; Type II, county trunk; and Type III, local trunk. Two of these three categories—Type I and Type II—were, in turn, given two subcategories: rural and urban. The third category—Type III—was given one subcategory: urban. Urban arterials were defined as those arterial streets and highways located within the present corporate limits of existing cities or villages or within the recommended areas of future urban development within the county, as shown on the adopted regional land use plan, whichever encompasses the greater area. All other arterials were defined as rural.

1. Type I (State Trunk) Arterials—Urban and Rural

   Type I arterials shall include all those routes within the urban or rural areas of the county which are intended to provide, within each respective area, the highest level of traffic mobility, that is, the highest speeds and lowest degree of traffic congestion, the minimum degree of land access service, and which must have regional or interregional system continuity. Ideally, these Type I arterials, because of their function and statewide and regionwide importance, should comprise the state trunk highway system.

2. Type II (County Trunk) Arterials—Urban and Rural

   Type II arterials shall include all those routes within the urban or rural areas of the county which are intended to provide, within each respective area, an intermediate level of traffic mobility and an intermediate level of land access service, and which must have intercommunity system continuity. Ideally, these Type II arterials, because of their function and subregional importance, should comprise the county trunk highway system of an area.

3. Type III (Local Trunk) Arterials—Urban

   Type III arterials shall include all those routes within the urban areas of the county which are intended to provide the lowest level of arterial traffic mobility and the highest degree of arterial land access service, and which must possess intracommunity system continuity. These Type III arterials are intended to comprise the local arterial system of an area.

A rural subcategory for the Type III arterials was not provided. Analysis of the average trip length occurring on the arterial highway facilities in the rural areas of Racine County indicated that the "break point" for a third category of rural arterial highway facilities, should such a category be used, would occur at an average trip length of about seven miles (see Figure 5) and would have an average trip length range of from one to seven miles. This fact, together with the fact that an analysis of origin-destination data for Racine County indicated that 81 percent of the vehicle trips originating in rural areas of the county have one trip end located in a rural community (town) and the other trip end in a small urban community (city or village), indicates that rural travel within Racine County is primarily of an intercommunity nature. The findings reflect the socioeconomic relationships that exist between farms which are economic enterprises, residences, and small urban communities which act as farm market and service centers.

The Technical and Intergovernmental Coordinating and Advisory Committee, moreover, was of the opinion that the township governments within the county were not staffed and equipped to carry out the planning, design, construction, operation, and maintenance of arterial highways nor should they be required to be so staffed and equipped. Consequently, the Committee concluded that the jurisdictional responsibility for all rural arterial highway facilities within Racine County should be assigned to either the Type I (state trunk) or the Type II (county trunk) arterial street and highway subsystems.

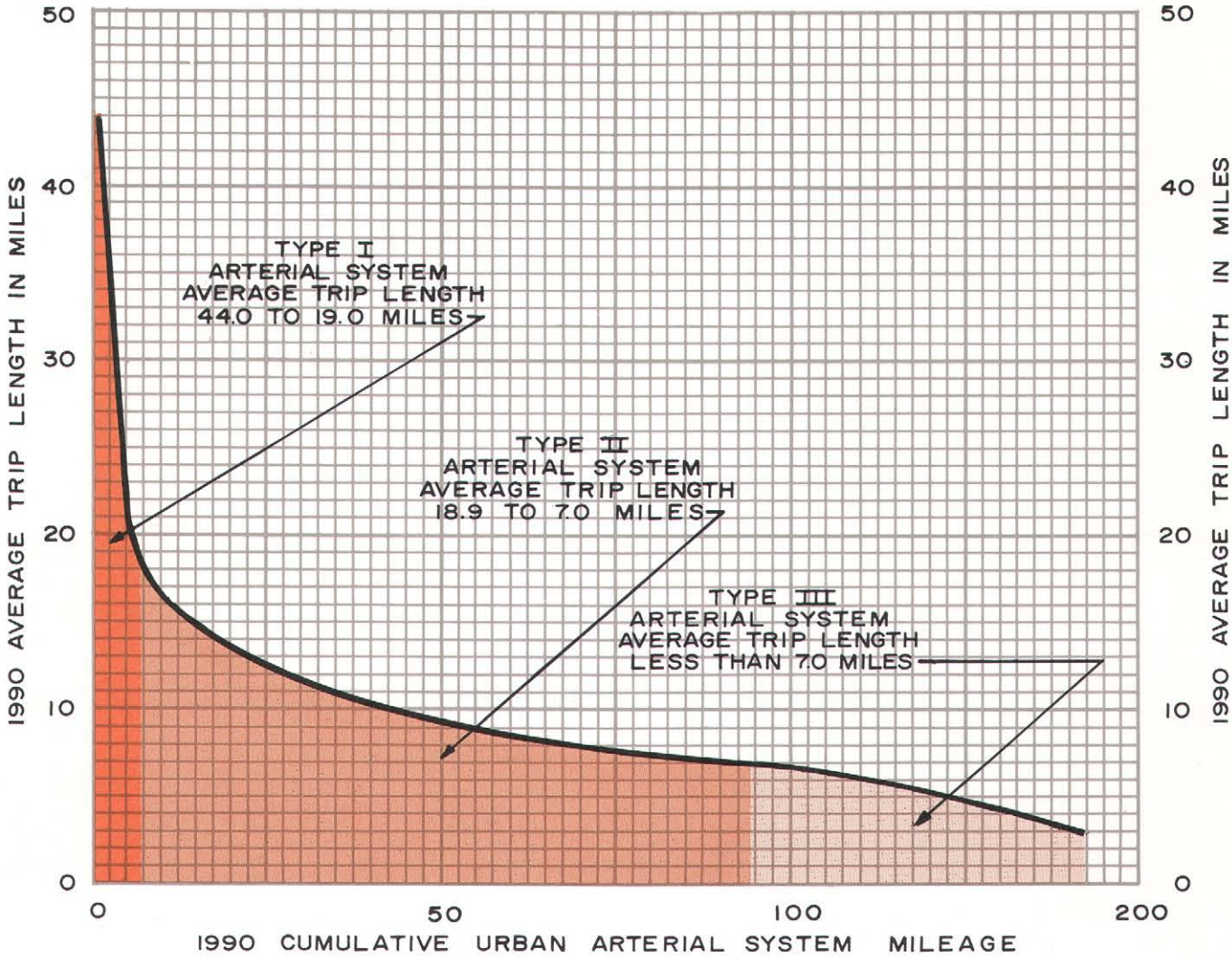
The urban and rural arterial subclassification types are generally intended to correspond with jurisdictional responsibility by the state, county, and local levels of government. It should not be assumed, however, that the intended correspondence can be rigidly applied in all cases, since certain factors, including legal constraints, boundary line facility coordination, financial resource capabilities, and system mileage limitations may influence the assignment of jurisdictional responsibility for certain arterials regardless of the type of classification determined solely by strict application of the criteria.

CRITERIA

Criteria for the functional subclassification of the total arterial street and highway system can be developed from three basic characteristics of the arterial facilities: 1) the trips served, 2) the areas served, and 3) the operational characteristics of the facilities themselves. In light of the differences between urban and rural land use development, the differences in the characteristics of the traffic generated by these two types of land use development, and the differences between rural and urban highway facility development, separate jurisdictional classification criteria must be developed for rural and urban areas. Generally, the different kinds of urban land uses are not only more intensely developed, but areas devoted to different kinds of land uses are located much closer together in urban, rather than in rural, areas. Moreover, economically productive rural land uses such as extractive and agricultural operations, which by their very nature require large land areas and a relatively small labor force and, therefore, generate less concentrated traffic

Figure 5

RELATIONSHIP BETWEEN AVERAGE TRIP LENGTH AND CUMULATIVE URBAN ARTERIAL MILEAGE
RACINE COUNTY ARTERIAL STREET AND HIGHWAY SYSTEM: 1990



Source: SEWRPC.

with relatively long trip lengths and low traffic volumes, nevertheless require good arterial highway facilities to remain economically productive and competitive.

In Racine County the situation is further complicated by the fact that travel on urban arterial facilities in the western two-thirds of the county is, to a great extent, comprised of travel between the relatively small urban communities located in this part of the county, the surrounding rural areas, and the eastern one-third of the county encompassing the Racine Urban Planning District. Consequently, the average trip lengths on these urban arterials are more characteristic of rural, rather than urban, travel. In addition, the traffic volumes on these urban facilities are substantially lower than traffic volumes on urban facilities in the eastern one-third of the county due to differences in the amount and intensity of urban land use development and activities served.

Therefore, the area service and operational criteria for system continuity, spacing, traffic mobility, and land access developed for jurisdictional classification of the arterial streets and highways were separately developed for, and applied to, the urban and rural arterials as previously defined herein. The trip service and operational characteristics criteria, or more specifically, the average trip length and traffic volume, respectively, were separately developed for and applied to all arterials in the eastern one-third of the county and to all arterials in the western two-thirds of the county. It is impor-

tant to note, then, that the definitions of the terms "urban" and "rural" as applied to arterial highway facilities with respect to these two criteria related to two arbitrarily defined geographic areas of the county and are, therefore, different than the definitions otherwise used herein, which relate to existing and probable future land use development.

Trip Service Criteria

Trip service criteria for a functional subclassification of arterials could include specific criteria concerning trip length, trip purpose, and trip peaking. Trip length was selected for use as being the most significant of these three. It is, moreover, believed that trip purpose and trip peaking are reflected in the other criteria adopted and should, therefore, not be explicitly considered under criteria relating to trip service. The average trip length ranges adopted as criteria for arterial subclassification are presented in Table 6.

The following procedure was used to develop the recommended values for the trip service criteria. An interzonal trip table of trip distance volumes[1] (TDV) was produced by multiplying the number of trips expected to be made between pairs of traffic analysis zones,[2] as contained in the regional land use-transportation study 1990 interzonal trip table,[3] by the respective over-the-road distances as measured along the least-time-paths between the zones of origin and destination. The resulting TDV table was assigned to the 1990 arterial network on a least-time-path basis. The assigned TDV for each link[4] was then divided by previously assigned link volumes to obtain average trip lengths. A curve was plotted to provide a graphical representation of the relationship existing between the link average trip lengths and cumulative arterial system mileage for both urban and rural areas (see Figures 5 and 6). Break points were identified on these curves and used to select trip length ranges representative of each jurisdictional classification type. The break points identified the trip length ranges which should be served by each facility type and did so because they marked the points beyond which a relatively high increase in facility type mileage would accommodate only a relatively small increase in trip length range.

Table 6

AVERAGE TRIP LENGTH CRITERIA FOR ARTERIAL SUBCLASSIFICATION

Arterial Type	Average Trip Length (Miles)	
	Urban	Rural
I (State Trunk) . . .	19.00 or More	30.00 or More
II (County Trunk) . .	7.00 to 18.99	Less than 30.00
III (Local Trunk) . . .	Less than 7.00	--

Source: SEWRPC.

Area Service Criteria

Area service criteria for a functional subclassification of arterials should relate to the land use activities to be connected and served by the various arterial subclassifications. For the purpose of such criteria, the term "connect and serve" was defined as follows for each of the three arterial types:

Type I Arterials—Urban and Rural

A Type I urban arterial facility shall be considered to "connect and serve" given land uses when direct access from the facility to roads serving the land use area is available within a maximum over-the-road distance of one mile of the main vehicular entrance to the land use to be served.

A Type I rural arterial facility shall be considered to "connect and serve" given land uses when direct access from the facility to roads serving the land use area is available within a maximum over-the-road distance of two miles from the main vehicular entrance to the land use to be served.

Type II Arterials—Urban and Rural

A Type II urban arterial facility shall be considered to "connect and serve" given land uses when direct access from the facility to roads serving the land use area is available within a maximum over-the-road distance of one-half mile of the main vehicular entrance to the land use to be served.

A Type II rural arterial facility shall be considered to "connect and serve" given land uses when direct access from the facility to roads serving the land use area is available within a maximum over-the-road distance of one mile of the main vehicular entrance to the land use to be served.

[1] *The term "trip distance volume," as used herein, is synonymous with the term "volume trip length index," as used by the U. S. Department of Transportation, Federal Highway Administration, in its manual entitled 1968 National Highway Functional Classification Study Manual.*

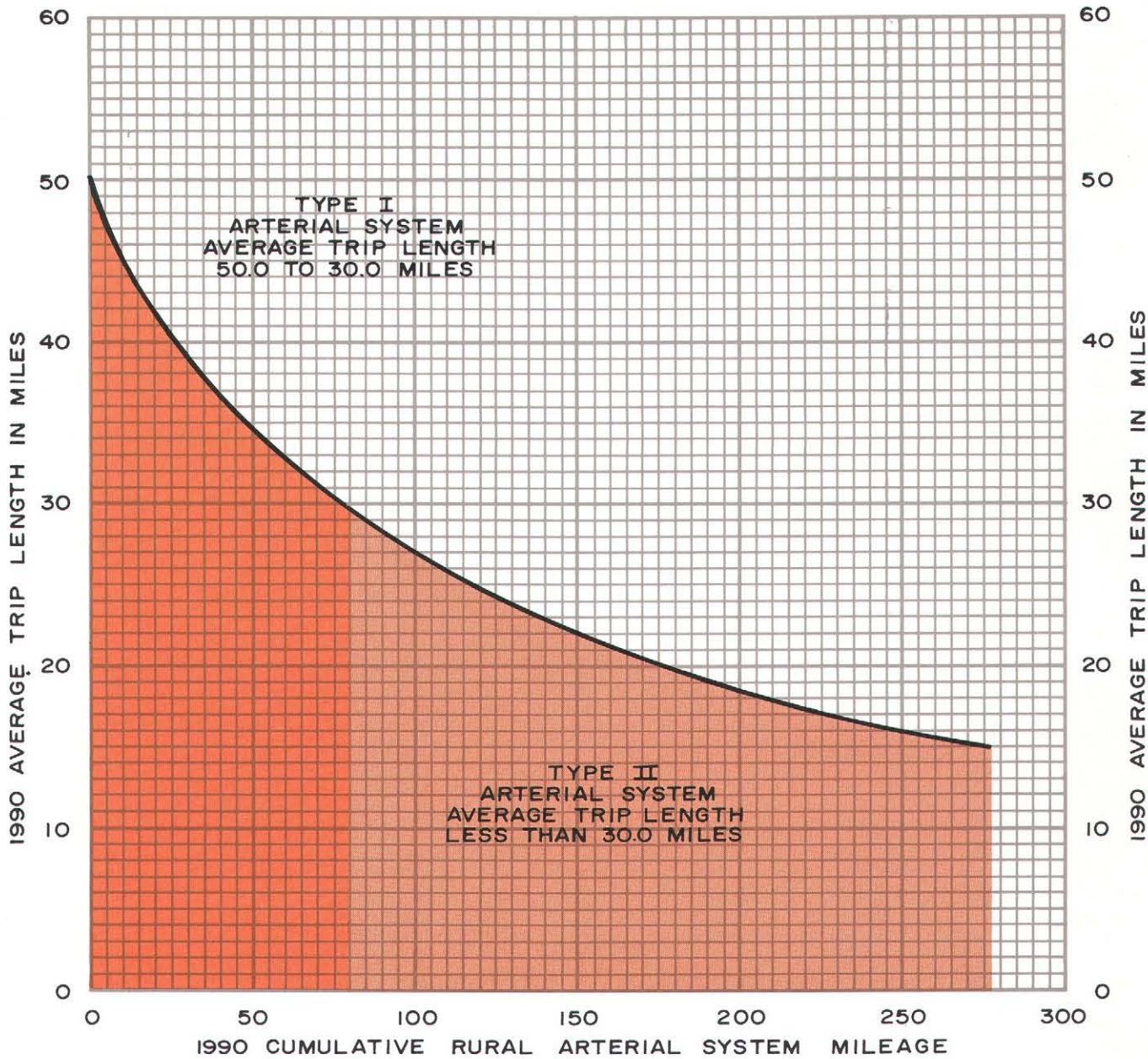
[2] *A traffic analysis zone consists of a homogeneous grouping of trip generation activities, such as a residential neighborhood unit, a regional shopping center, or a contiguous industrial area. Such a zone is shown on the arterial network diagram by a centroid representing the point where trips generated within the zone are assumed to enter and leave the arterial network.*

[3] *The 1990 interzonal trip table is a table of the zone-to-zone trip movements showing the quantity of 1990 trips by direction between each pair of zones.*

[4] *A link consists of a section of the arterial street and highway network, defined at each end by a node point located at the intersection of two arterials. A link is the smallest arterial segment used to describe the total arterial system in the mathematical model used to simulate traffic flows on the arterial street and highway network.*

Figure 6

RELATIONSHIP BETWEEN AVERAGE TRIP LENGTH AND CUMULATIVE RURAL ARTERIAL MILEAGE
RACINE COUNTY ARTERIAL STREET AND HIGHWAY SYSTEM: 1990



Source: SEWRPC.

Type III Arterials—Urban

A Type III urban arterial facility shall be considered to "connect and serve" given land uses when direct access from the facility to roads serving the land use area is available within a maximum over-the-road distance of one-quarter mile of the main vehicular entrance to the land use to be served.

The land use activities to be considered as properly influencing jurisdictional classification to arterial highway systems should be those which, either through their individual or aggregate effects, interact strongly with the need for transportation facilities and which, by their nature, are normally grouped into concentrations which form major traffic generators. These include major transportation terminals, major recreational facilities, regional commercial centers, major industrial centers, certain types of institutional uses, and urban areas. The following criteria, with respect to each of these land use classifications, were adopted for the Racine County jurisdictional highway planning study.

1. Transportation Terminals[5]

Type I Arterials—Urban and Rural
Type I arterial facilities shall connect and serve interregional rail, bus, and major truck terminals;[6] air-carrier airports;[7] and seaports.

Type II Arterials—Urban and Rural
Type II arterial facilities shall connect and serve freeway interchanges, general-aviation airports,[8] pipeline terminals, major intraregional truck terminals,[9] and rapid transit and modified rapid transit system loading and unloading points not served by Type I arterials.

Type III Arterials—Urban
Type III arterial facilities shall connect and serve truck terminals generating 250 or more truck trips per average weekday and off-street parking facilities having a minimum of 500 parking spaces not served by Type I and Type II arterials.

2. Recreational Facilities

Type I Arterials—Urban and Rural
Type I arterial facilities shall connect and serve all state parks having a gross area of 500 acres or more.

Type II Arterials—Urban and Rural
Type II arterial facilities shall connect and serve regional parks[10] and special recreational use areas of countywide significance, such as zoological and botanical gardens, arenas and stadia seating a minimum of 10,000 persons not served by Type I arterials, and public recreational areas providing onsite parking for a minimum of 250 vehicles.

Type III Arterials—Urban
Type III arterial facilities shall connect and serve community parks[11] not served by Type I and Type II arterials.

3. Commercial Centers

Type I Arterials—Urban and Rural
Type I arterial facilities shall connect and serve major retail and service (regional shopping) centers.[12]

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[5]*A transportation terminal shall be defined as a complex of contiguous, concentrated land uses, the purpose of which is to effect a change of transportation mode or a trans-shipment of goods.*

[6]*A major interregional truck terminal shall be defined as a complex of contiguous, concentrated land uses generating 500 or more interregional truck trips per average weekday.*

[7]*An air-carrier airport shall be defined as a public airport intended to serve primarily commercial local service and trunk-line air-carrier aircraft providing service to the general public on a regularly scheduled basis between major cities of the country.*

[8]*A general-aviation airport shall be defined as an airport, either publicly or privately owned, open to public use and intended to serve smaller training, business, charter, agricultural, recreation, and air-taxi aircraft.*

[9]*A major intraregional truck terminal shall be defined as a complex of contiguous, concentrated land uses generating 250 or more intraregional truck trips per average weekday.*

[10]*A regional park shall be defined as an outdoor recreation area having a broad range of recreational facilities on one site having a minimum gross size of 250 acres serving a multicommunity population.*

[11]*A community park shall be defined as an outdoor recreation area having a broad range of recreational facilities on one site having a gross size ranging from 30 to 250 acres, and which is intended to meet the basic outdoor recreation needs of the population within a community of 10,000 to 25,000 population, consisting of two to five residential neighborhoods.*

A residential neighborhood shall be defined as a physically self-contained area which provides housing for the population served by one elementary school and one neighborhood park; an internal street system which discourages penetration of the unit by through traffic; and all of the community and commercial facilities necessary to meet the day-to-day living requirements of the family within the immediate vicinity of its dwelling unit. (See SEWRPC Planning Report No. 7, Volume 2, Page 15.)

[12]*A major retail and service center shall be defined as an existing or officially designated concentration of retail and service uses having a minimum gross site area of 60 acres, intended to serve areawide retail and service needs for a multicommunity population ranging from 75,000 to 150,000 persons located within a 10-mile radius. The term "officially designated," as applied to concentration of various land uses, shall be defined as an area shown on adopted regional or local land use plans or recognized in local zoning district maps.*

Type II Arterials—Urban and Rural
Type II arterial facilities shall connect and serve community retail and service centers[13] not served by Type I arterials.

Type III Arterials—Urban
Type III arterial facilities shall connect and serve neighborhood retail and service commercial centers[14] not served by Type I and Type II arterials.

4. Industrial Centers

Type I Arterials—Urban and Rural
Type I arterial facilities shall connect and serve major regional industrial centers.[15]

Type II Arterials—Urban and Rural
Type II arterial facilities shall connect and serve major community industrial centers[16] not served by Type I arterials.

Type III Arterials—Urban
Type III arterial facilities shall connect and serve minor community industrial centers[17] not served by Type I and Type II arterials.

5. Institutional

Type I Arterials—Urban and Rural
Type I arterial facilities shall connect and serve universities, county seats, major medical centers,[18] and state institutions.

Type II Arterials—Urban and Rural
Type II arterial facilities shall connect and serve county institutions; accredited, degree-granting colleges; public vocational schools; and community hospitals not served by Type I arterials.

Type III Arterials—Urban
Type III arterial facilities shall connect and serve city and village halls and high schools not served by Type I and Type II arterials.

6. Urban Areas

Type I Arterials—Rural
Type I rural arterial facilities shall connect and serve urban areas of 5,000 or more population.

Type II Arterials—Rural
Type II rural arterial facilities shall connect and serve developed areas of 500 or more population.

Criteria Relating to Operational Characteristics
Criteria for a functional subclassification of arterials relating to operational characteristics include consideration of system continuity, facility spacing, traffic volume, traffic mobility, and land access.

1. System Continuity

The various arterial subsystems shall form integrated systems within themselves or in conjunction with the other subsystems. The individual facilities comprising any given subsystem shall be directly routed between facility termini so as to provide the shortest travel paths practicable through the arterial network. The following criteria, with respect to system continuity, were adopted for the Racine County jurisdictional highway planning study:

Type I Arterials—Urban and Rural
Type I arterial facilities shall have interregional or regional continuity comprising total systems at the regional and state level.

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[13] *A community retail and service center shall be defined as an existing or officially designated concentration of retail and service uses having a gross site area ranging in size from 20 to 60 acres, intended to serve the retail and service use needs of a community of 10,000 to 25,000 population consisting of a group of two to five residential neighborhoods.*

[14] *A neighborhood retail and service commercial center shall be defined as an existing or officially designated concentration of retail and service uses having a gross site area ranging in size from 5 to 20 acres, intended to serve the retail and service needs of the population of one residential neighborhood.*

[15] *A major regional industrial center shall be defined as an existing or officially designated concentration of manufacturing, wholesaling, and related use establishments having a minimum gross site area of 320 acres or providing employment for over 5,000 persons.*

[16] *A major community industrial center shall be defined as an existing or officially designated concentration of manufacturing, wholesaling, and related-use establishments having a gross site area ranging in size from 100 to 320 acres or providing employment for 1,500 to 5,000 persons.*

[17] *A minor community industrial center shall be defined as an existing or designated concentration of manufacturing, wholesaling, and related-use establishments ranging in size from 20 to 100 acres or providing employment for 300 to 1,500 persons.*

[18] *A major medical center shall be defined as an existing or officially designated complex of buildings and services for provision of the highest level of health services within a region, including one or more in-patient facilities, one or more out-patient facilities, or specialized services such as mental health, long-term care and rehabilitation, educational facilities, clinical research facilities, laboratory research facilities, and living quarters.*

Type II Arterials—Urban and Rural
Type II arterial facilities shall have intermunicipality and intercounty continuity comprising integrated systems at the county level.

Type III Arterials—Urban
Type III arterial facilities shall have intracommunity continuity comprising an integrated system at the city or village level.

2. Spacing

The location and geometric configuration of highway systems must be properly related to the land uses to be served and should be determined from areawide traffic analyses which consider both existing and probable future traffic loadings derived from existing and proposed land use patterns. Nevertheless, some general criteria may be established with respect to the minimum spacing of various types of facilities based upon good land use planning principles, as well as operational characteristics and engineering constraints. The following criteria with respect to minimum spacing were adopted for the Racine County jurisdictional highway planning study.

Type I Arterials—Urban and Rural
Type I arterial facilities shall generally be located no closer than two miles to, and approximately parallel with, another Type I facility.

Type II Arterials—Urban and Rural
Type II arterial facilities shall generally be located no closer than one mile to, and approximately parallel with, a Type I facility or another Type II facility.

Type III Arterials—Urban
Type III arterial facilities shall generally be located no closer than one-half mile to, and approximately parallel with, a Type I, Type II, or another Type III facility.

3. Volume

Although traffic volume alone provides little indication of the function of an arterial facility, it can, in conjunction with other criteria, become an important jurisdictional criterion. It is important, when considering volume as a criterion for a jurisdictional subclassification of arterials, to recognize that both existing and probable future traffic volumes must be considered, with the latter being given the most weight in the classification process. Table 7 summarizes the criteria, with respect to future (1990) traffic volume, expressed as vehicles per average weekday, adopted for the Racine County jurisdictional highway planning study.

Table 7

TRAFFIC VOLUME CRITERIA FOR ARTERIAL SUBCLASSIFICATION

Arterial Type	Average Weekday Traffic Volume (Vehicles)	
	Urban	Rural
I (State Trunk) . . .	10,000 or More	6,500 or More
II (County Trunk) . .	3,500 to 9,999	Less than 6,500
III (Local Trunk) . . .	Less than 3,500	--

Source: SEWRPC.

Future potential traffic volumes shall be derived from a system traffic assignment based on an areawide land use plan or projection. Such a traffic assignment exists for Racine County as a part of the southeastern Wisconsin regional transportation plan and reflects anticipated 1990 average weekday traffic volumes.

The following procedure was used to develop the recommended values for the traffic volume criteria. The regional land use-transportation study traffic assignment link volumes for 1990 were first arrayed in descending rank order, and a cumulative sum of link length computed for each link place in the descending rank order for both urban and rural areas. From these data, curves were plotted to provide a graphical representation of the relationship existing between traffic volume and cumulative arterial system mileage (see Figures 7 and 8). Break points were identified on these curves and used to select traffic volume ranges representative of each jurisdictional classification type. The break points identified on the traffic volume curves tended to substantiate, in terms of cumulative jurisdictional subsystem mileage, the trip length criteria previously established.

4. Traffic Mobility

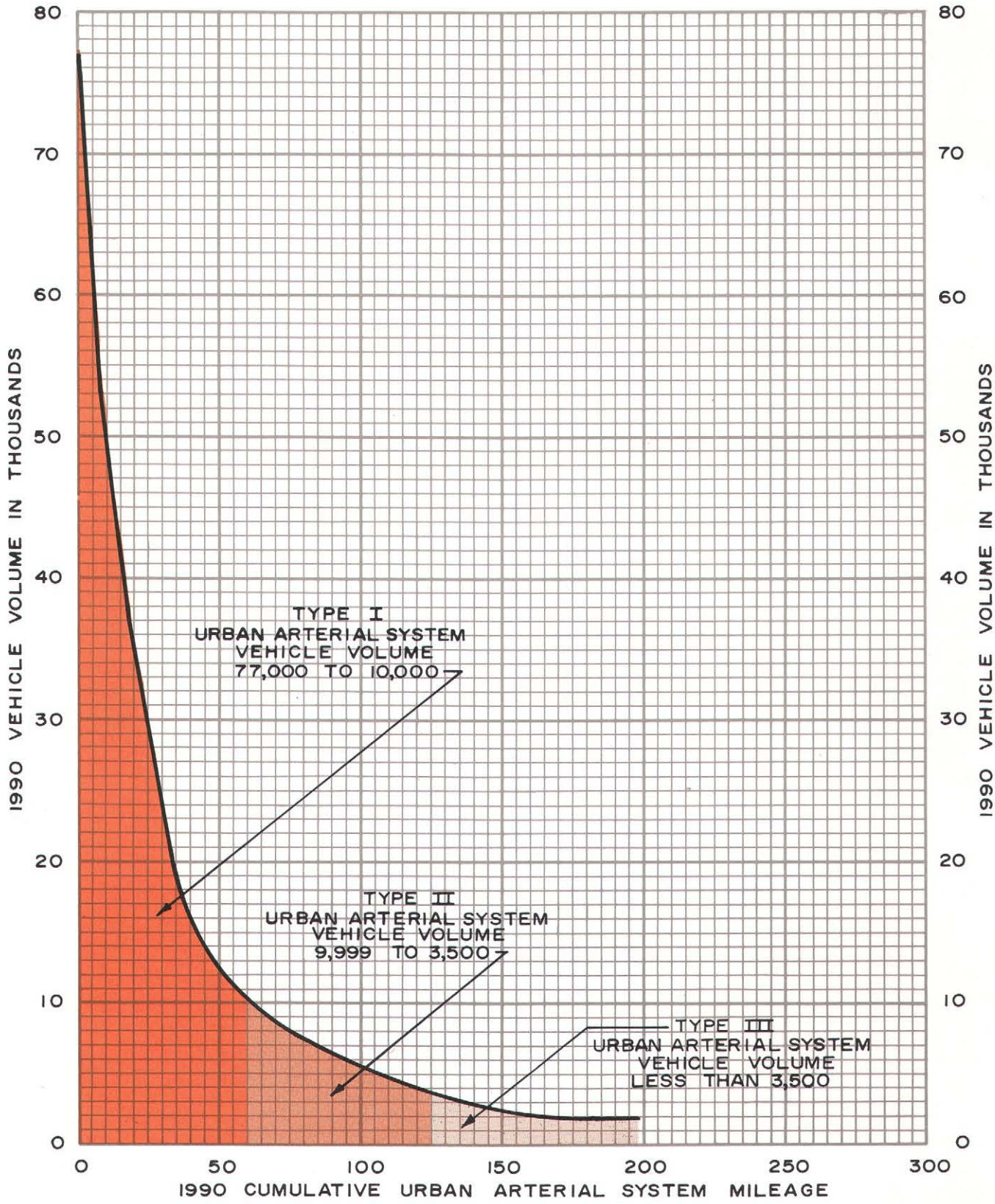
Traffic mobility criteria for a functional subclassification of arterials could be established in terms of speed, volume-to-capacity ratios, or other measures of traffic density. In recognition of the fact that the longer the trip the more critical the time of travel, however, it is an accepted practice to provide higher speeds on the routes of highest arterial function. As a result, the following criteria shown in Table 8 with respect to traffic mobility were adopted for the Racine jurisdictional highway planning study.

5. Land Access

It has already been noted that two of the basic functions performed by street systems—namely, traffic mobility and land access—are basically con-

Figure 7

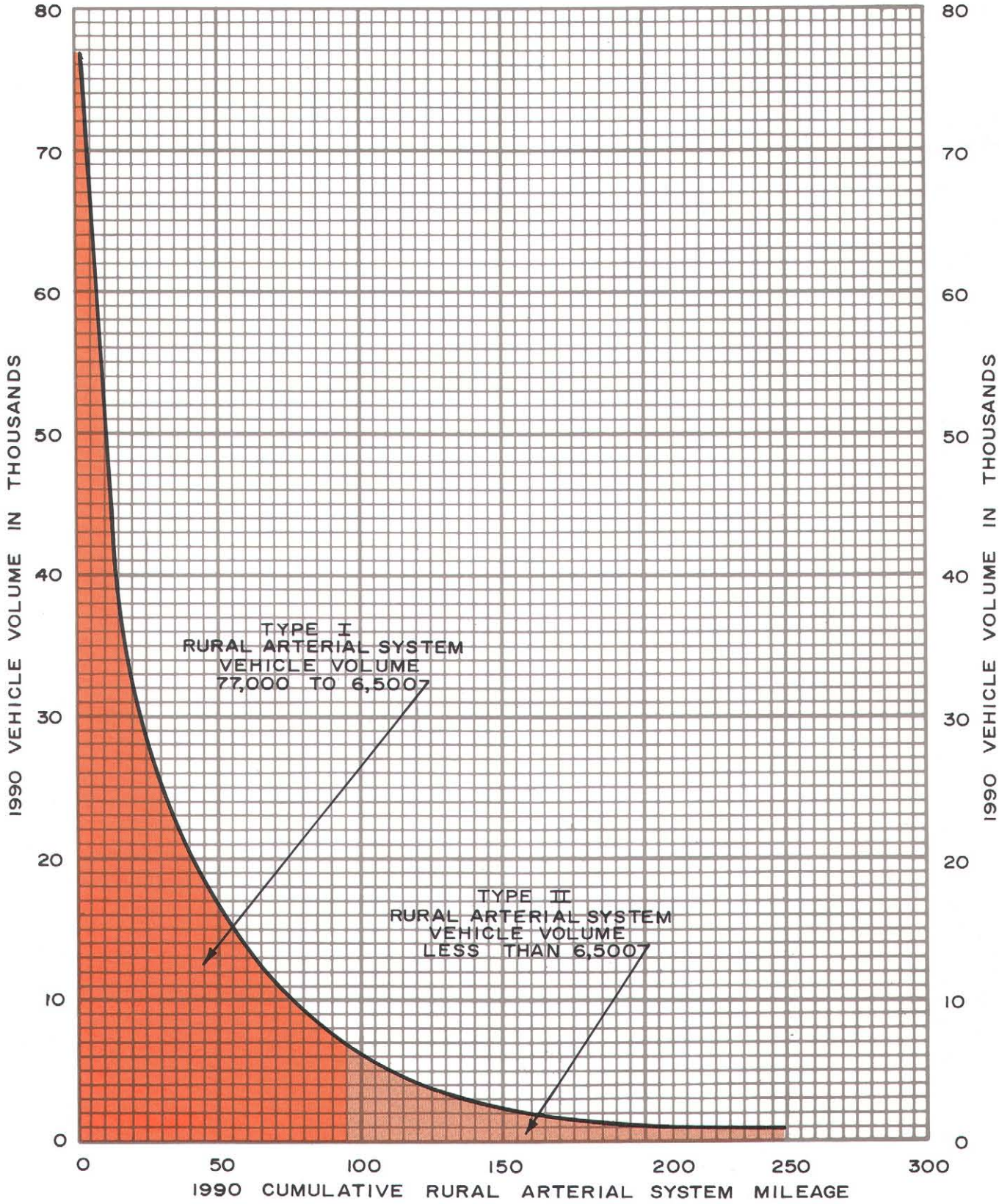
RELATIONSHIP BETWEEN AVERAGE WEEKDAY VEHICLE VOLUME AND CUMULATIVE URBAN ARTERIAL MILEAGE
RACINE COUNTY ARTERIAL STREET AND HIGHWAY SYSTEM: 1990



Source: SEWRPC.

Figure 8

RELATIONSHIP BETWEEN AVERAGE WEEKDAY VEHICLE VOLUME AND CUMULATIVE RURAL ARTERIAL MILEAGE
RACINE COUNTY ARTERIAL STREET AND HIGHWAY SYSTEM: 1990



Source: SEWRPC.

Table 8

TRAFFIC MOBILITY CRITERIA FOR ARTERIAL SUBCLASSIFICATION

Arterial Type	Average Overall Travel Speed (Miles per Hour)[a]	
	Urban Area	Rural Area
I (State Trunk) . .	30 to 70	40 to 70
II (County Trunk) . .	25 to 50	30 to 60
III (Local Trunk) . . .	20 to 40	--[b]

[a]Average overall travel speed is the total of the distances traveled by all vehicles using a given section of highway during an average weekday, divided by the total of the actual travel times, including traffic delays. Average overall travel speeds have the following approximate relationships to average operating speeds:

Equivalent Average Operating Speed	*Average Overall Travel Speed*
20 MPH	*10 MPH*
30 MPH	*21 MPH*
40 MPH	*32 MPH*
50 MPH	*43 MPH*
60 MPH	*54 MPH*
70 MPH	*65 MPH*

[b]A rural subcategory for Type III arterials is not provided.

Source: SEWRPC.

flicting, and that the land access function of arterial facilities must be subordinate to the traffic mobility function. Therefore, a degree of access control which is related to the subclassification of the arterial facility should be exercised over arterials by means of some restriction of direct access. The following criteria with respect to land access control were adopted for the Racine County jurisdictional highway planning study:

Type I Arterials—Urban and Rural
All Type I arterials shall have full or partial control of access.[19]

Type II Arterials—Urban and Rural
All Type II arterials shall have at least partial control of access.[20]

Type III Arterials—Urban
All Type III arterials shall have at least minimum control of access.[21]

Table 9 summarizes the functional criteria used for the jurisdictional classification of arterial highways in Racine County.

OTHER FACTORS

In the application of the foregoing criteria to the delineation of a jurisdictional highway system, several other factors must be considered, particularly legal and financial constraints. Federal, state, county, and local legislative and financial resource limitations limit the mileage allotment available for state trunk, county trunk, and related federal aid routes and must, therefore, be considered as important constraints on any jurisdictional classification scheme. Evaluation of these legal and financial constraints may show that the jurisdiction for certain facility types must be assumed by a different level of government than might otherwise be indicated by type classification alone. It must also be recognized that certain intergovernmental coordination requirements necessitated by road location along or across civil division boundaries may require, as practical plan implementation measures, the assumption of jurisdictional responsibility for certain facilities by a higher level of government than might otherwise be indicated by type classification alone.

SUMMARY

For planning purposes, street and highway systems are divided into functional subsystems according to the primary type of service individual facilities within the subsystems provide. Such a classification is essential to sound transportation planning because it identifies the primary function which a particular facility should serve, as well as providing a means for defining travel paths for trip flow through the total system. Jurisdictional classification criteria are intended to provide an objective and rational

[19]*Full control of access shall be defined as the exercise of eminent domain or police power to control access so as to give preference to the movement of through traffic by providing access connections only at selected public roads via grade-separated interchanges.*

[20]*Partial control of access shall be defined as the exercise of eminent domain or police power to control access so as to give preference to the movement of through traffic to a degree that, in addition to access connections at selected public roads, there may be some direct access to abutting land uses, with generally one point of reasonably direct access to each parcel of abutting land as these parcels existed at the time of an official declaration that partial control of access shall be exercised.*

[21]*Minimum control of access shall be defined as the exercise of eminent domain or police power to regulate the placement and geometrics of direct access roadway connections as necessary for safety.*

Table 9

SUMMARY OF FUNCTIONAL CRITERIA FOR JURISDICTIONAL CLASSIFICATION OF ARTERIAL HIGHWAYS IN RACINE COUNTY

	Criteria	Arterial Type		
		I (State Trunk)	II (County Trunk)	III (Local Trunk)[a]
TRIP SERVICE	Average Trip Length (Miles)	Urban More than 19 Rural 30 or more	Urban 7 to 19 Rural Less than 30	Urban Less than 7 --
LAND USE SERVICE	Transportation Terminals	Urban[b] and Rural[c] Connect and serve inter-regional rail, bus, and major truck terminals; and air-carrier airports.	Urban[b] and Rural[c] Connect and serve freeway interchanges, general aviation airports, pipeline terminals, major intraregional truck terminals, and rapid transit and modified rapid transit system loading and unloading points not served by Type I arterials.	Urban[b] Connect and serve truck terminals generating 250 or more truck trips per average weekday, and off-street parking facilities having a minimum of 500 parking spaces not served by Type I and II arterials.
	Recreational Facilities	Urban and Rural Connect and serve all state parks having a gross area of 500 acres or more.	Urban and Rural Connect and serve regional parks and special recreational use areas of county-wide significance.	Urban Connect and serve community parks not served by Type I and II arterials.
	Commercial Centers	Urban and Rural Connect and serve major retail and service centers.	Urban and Rural Connect and serve community retail and service centers not served by Type I arterials.	Urban Connect and serve neighborhood retail and service commercial centers not served by Type I and II arterials.
	Industrial Centers	Urban and Rural Connect and serve major regional industrial centers.	Urban and Rural Connect and serve major community industrial centers not served by Type I arterials.	Urban Connect and serve minor community industrial centers not served by Type I and II arterials.
	Institutional	Urban and Rural Connect and serve universities, county seats, and state institutions.	Urban and Rural Connect and serve county institutions; accredited, degree-granting colleges; public vocational schools; and community hospitals not served by Type I arterials.	Urban Connect and serve city and village halls and high schools not served by Type I and II arterials.
	Urban Areas	Rural Connect and serve urban areas of 2,500 or more population.	Rural Connect and serve developed areas of 500 or more population.	--

Table 9 (continued)

	Criteria	Arterial Type		
		I (State Trunk)	II (County Trunk)	III (Local Trunk)
OPERATIONAL CHARACTERISTICS	System Continuity	Urban and Rural Interregional or regional continuity comprising total systems at the regional and state level.	Urban and Rural Intermunicipality and intercounty continuity comprising integrated systems at the county level.	Urban Intracommunity continuity comprising an integrated system at the city or village level.
	Spacing	Urban and Rural Minimum 2 miles.	Urban and Rural Minimum 1 mile.	Urban Minimum 0.5 mile.
	Volume	Urban Minimum 10,000 vehicles per average weekday (1990 forecast). Rural Minimum 6,500 vehicles per average weekday (1990 forecast).	Urban 3,500 to 10,000 vehicles per average weekday (1990 forecast). Rural Maximum 6,500 vehicles per average weekday (1990 forecast).	Urban Less than 3,500 vehicles per average weekday (1990 forecast). --
	Traffic Mobility	Urban Average overall travel speed[d] 30 to 70 miles per hour. Rural Average overall travel speed 40 to 70 miles per hour.	Urban Average overall travel speed[d] 25 to 50 miles per hour. Rural Average overall travel speed 30 to 60 miles per hour.	Urban Average overall travel speed[d] 20 to 40 miles per hour. --
	Land Access Control	Full or partial control of access.[e,f]	Partial control of access.[f]	Minimum control of access.[g]

[a] *A rural subcategory for Type III arterials is not provided.*

[b] *Urban arterial facilities are considered to "connect and serve" given land uses when direct access from the facility to roads serving the land use area is available within the following maximum over-the-road distances from the main vehicular entrance to the land use to be served: Type I arterial facility, 1 mile; Type II arterial facility, 0.5 mile; Type III arterial facility, 0.25 mile.*

[c] *Rural arterial facilities are considered to "connect and serve" given land uses when direct access from the facility to roads serving the land use area is available within the following maximum over-the-road distances from the main vehicular entrance to the land use to be served: Type I arterial facility, 2 miles; Type II arterial facility, 1 mile.*

[d] *Average overall travel speed is defined as the sum of the distances traveled by all vehicles using a given section of highway during an average weekday divided by the sum of the actual travel times, including traffic delays.*

[e] *Full control of access is defined as the exercise of eminent domain or police power to control access so as to give preference to movement of through traffic by providing access connections only at selected public roads via grade-separated interchanges.*

[f] *Partial control of access is defined as the exercise of eminent domain or police power to control access so as to give preference to the movement of through traffic to a degree that, in addition to access connections at selected public roads, there may be some direct access to abutting land uses with generally one point of reasonably direct access to each parcel of abutting land as these parcels existed at the time of an official declaration that partial control of access shall be exercised.*

[g] *Minimum control of access is defined as the exercise of eminent domain or police power to regulate the placement and geometrics of direct access roadway connections as necessary for safety.*

Source: SEWRPC.

basis for the assignment of jurisdictional responsibility for various segments of an existing and proposed arterial street and highway system to the various government levels concerned. The state, county, and local levels of government have direct jurisdictional responsibility for the planning, design, construction, operation, and maintenance of highway facilities in Racine County.

It is proposed that all segments of the total (existing and proposed) arterial street and highway system in Racine County be classified into one of three categories: Type I, state trunk; Type II, county trunk; and Type III, local trunk. The Type I and Type II categories include urban and rural subcategories; the Type III category was given one subcategory, that of urban. Based on data which indicated that rural travel within Racine County is primarily of an intercommunity nature, the Technical and Intergovernmental Coordinating and Advisory Committee was of the opinion that town governments in Racine County were not staffed and equipped to carry out the planning, design, construction, operation, and maintenance of arterial highways to serve such travel, nor should they be required to do so.

Because of the differences in the characteristics of traffic generated by urban and rural land use development and highway facility development, separate jurisdictional classification criteria were developed for these two areas. Generally, urban land use areas are more intensely developed and located closer together than rural land use areas. The economically productive rural land uses such as extractive and agricultural operations also, by their nature, require large land areas and a relatively small labor force, therefore generating less concentrated traffic. In addition, in Racine County, travel on urban arterial facilities in the western two-thirds of the county includes travel between the relatively small urban communities in this part of the county, and the surrounding rural areas. Traffic volumes on these urban facilities are substantially lower than traffic volumes on urban facilities in the eastern one-third of the county, due to differences in the amount and intensity of urban land use development and activities served.

The criteria developed were based on the trips served, the areas served, and the operational characteristics of the facilities themselves. Trip length ranges which should be served by each facility type were delineated under the trip service criteria. Area service criteria should relate to land use activities to be connected and served by the various arterial subclassifications. These include major transportation terminals, major recreational facilities, regional commercial centers, major industrial centers, certain types of institutional uses, and urban areas. Criteria relating to operational characteristics include consideration of system continuity, facility spacing, traffic volume, traffic mobility, and land access. Other factors, such as legal and financial constraints, were also considered.

Chapter V

APPLICATION OF FUNCTIONAL CRITERIA TO DEVELOP JURISDICTIONAL SYSTEMS

INTRODUCTION

In Chapter II of this report, it was indicated that the preparation of a jurisdictional highway system plan for Racine County involved a seven-step planning process. The fourth step in this process consisted of the application of functional criteria specifically developed for this purpose in order to separate the total functional arterial street and highway system into rational jurisdictional subsystems. The criteria were applied to the total arterial street and highway system for Racine County as proposed in the adopted regional transportation plan, and refined through a careful review of the arterial system conducted as a part of the planning process by experienced public works engineers responsible for the design, construction, operation, and maintenance of arterial highway facilities within the county. The total functional system of arterial street and highway facilities to which the classification criteria were applied is shown on Map 14.

The application of the functional criteria for jurisdictional highway classification, as set forth in Chapter IV of this report, required an analysis of the trip lengths and traffic volumes to be served by each link in the total arterial system, an inventory of the existing and proposed land uses to be served by each of the jurisdictional subsystems, and an investigation of the operational characteristics of the arterial facilities themselves. The procedure developed to establish the jurisdictional classification of each arterial street and highway facility in Racine County involved three major steps.

In the first step, each arterial facility was classified in terms of the trip service criteria previously established. Three trip service subsystems were thus identified, each related to a jurisdictional classification. In the second step, each arterial facility was classified in terms of the land use criteria previously established. Three land use service subsystems were thus identified, each related to a jurisdictional classification. Finally, these two sets of jurisdictional subsystems were combined and refined through the application of system continuity and facility spacing criteria to produce a preliminary jurisdictional highway system plan. The preliminary jurisdictional classification of the arterial facilities was thus further refined by staff and Committee consideration and evaluation of the administrative, financial, and legal factors concerned. This entire classification process is illustrated in Figure 3.

TRIP SERVICE JURISDICTIONAL SUBSYSTEMS

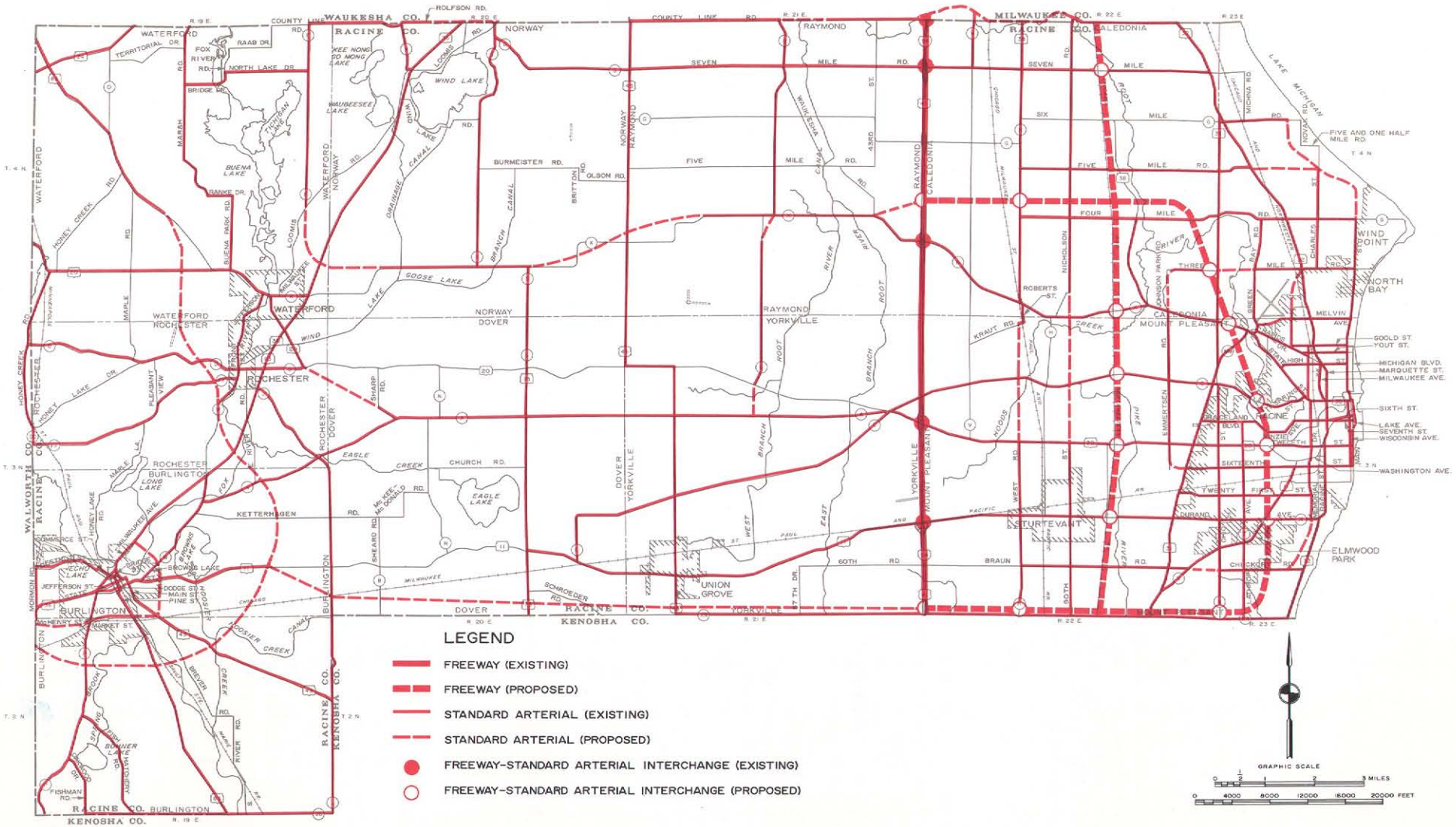
It was stated earlier that the functional arterial street and highway system proposed in the adopted regional transportation plan was refined and updated in order both to incorporate the effects of any changes in land use and highway system development which had occurred within Racine County since the adoption of the functional plan, and to incorporate certain changes in the functional plan indicated to be desirable since its adoption. For this reason it was necessary to modify the computer description of that portion of the regional arterial network affected by these changes before average trip lengths could be determined for each link in the functional system. Both the structure and the operational characteristics of the arterial network description were analyzed by plotting and checking the minimum time travel paths connecting selected major trip generators located both inside and outside Racine County with all traffic analysis zone centroids affected by the network modification. Once this network editing was completed and the computer description of the system deemed satisfactory, the effect of the forecast 1990 travel demand on the network was simulated by a computer traffic assignment of the 1990 interzonal trip table, developed in the regional land use-transportation study, to the 1990 interzonal least-time-travel paths through the arterial network. The accumulated forecast 1990 volumes on each section of the arterial system resulting from the traffic assignment were then analyzed on a link-by-link basis for reasonableness by comparison with existing traffic volumes and previous assignments of forecast traffic volumes.

In the development of the trip service subsystems, the average trip length which could be expected to occur on each link was calculated in the manner previously described in Chapter IV of this report. Using the calculated trip length data, each link was classified as a Type I, Type II, or Type III arterial facility, in accordance with the previously established trip service criteria. The resulting subsystems are shown on Map 15, the jurisdictional classification for each link being indicated by color code. Continuous segments of lengths of the same color tended to focus attention to routes of similar function which could be combined to form jurisdictional subsystems.

The subsystems delineated by the application of the trip service criteria were found generally to parallel the stratification of the total arterial system into subsystems by relative levels of service. For example, the arterial facilities providing the highest level of service, characterized by free flow traffic conditions—that is, the freeways—exhibited the longest average trip lengths, ranging from 19 miles up to 50 miles, and were, therefore, classified into the highest trip service facility type. Similarly, the facilities providing the lowest level of service—that is, the at-grade arterials in areas with high land use intensities—exhibited the shortest average trip lengths, less than seven miles, and were, therefore, classified into the lowest trip service facility type.

Map 14

ARTERIAL STREET AND HIGHWAY SYSTEM IN RACINE COUNTY: 1990

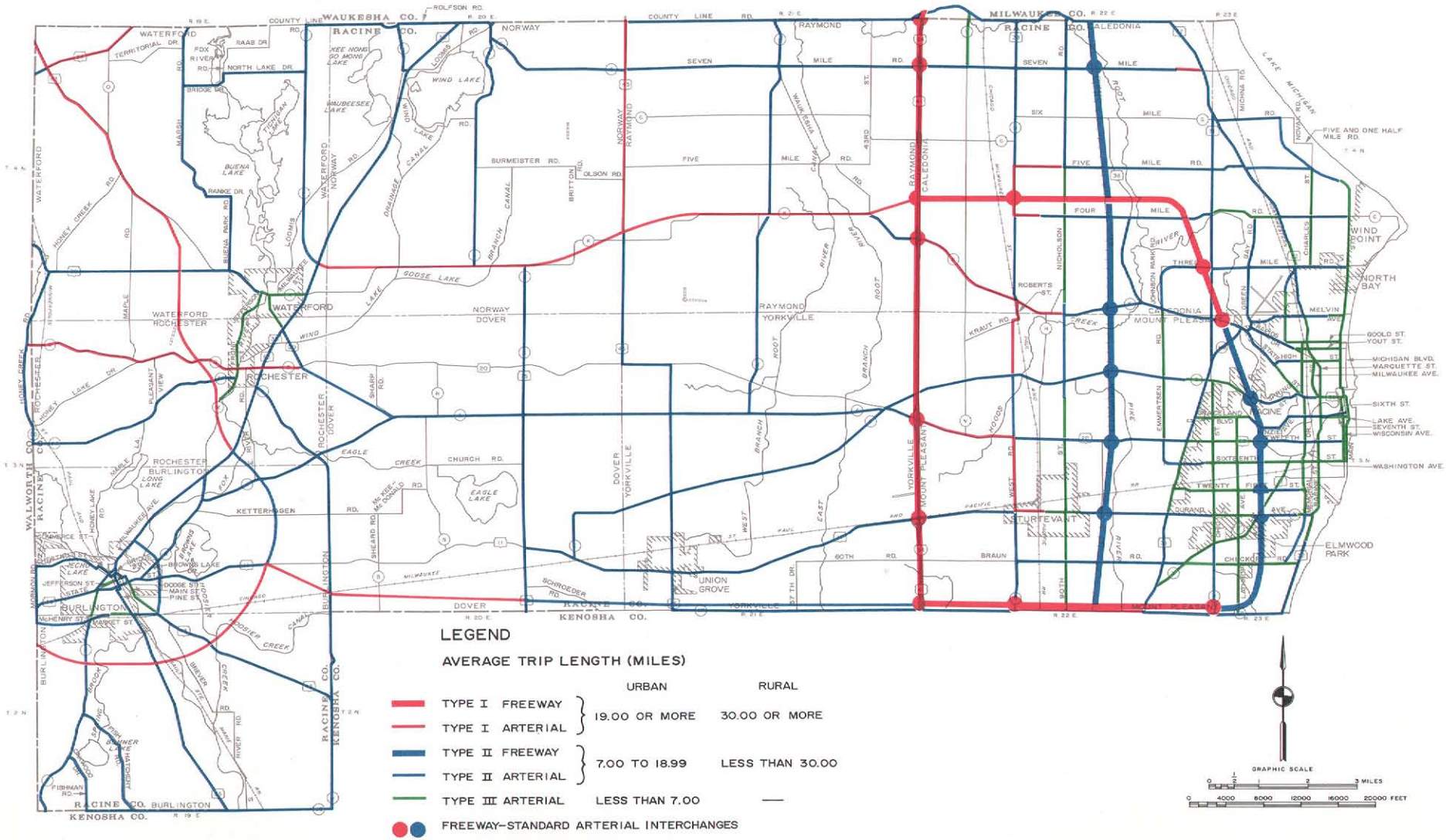


A 446-mile arterial street and highway system is proposed to serve existing and probable future travel demand in Racine County to the year 1990. This total arterial system forms the basic network to which criteria for the assignment of jurisdictional responsibilities for each link in the system were applied. The total represents a refinement of the arterial street and highway system for Racine County as included in the adopted regional transportation plan, and will provide the county with a high level of highway transportation service through 1990, meeting the anticipated increases in travel demand efficiently and effectively.

Source: SEWRPC.

Map 15

JURISDICTIONAL CLASSIFICATION OF THE ARTERIAL STREET AND HIGHWAY SYSTEM IN RACINE COUNTY BASED ON AVERAGE TRIP LENGTH: 1990



Application of the trip length criteria alone resulted in the classification of the total arterial street and highway system into the three jurisdictional subsystems shown on this map. The average trip length for the Type I arterial facility is 19 miles or more in urban areas, and 30 miles or more in rural areas; for the Type II arterial facility, 7 to 18.99 miles in urban areas and less than 30 miles in rural areas; and for the Type III arterial facility, less than 7 miles in urban areas.

Source: SEWRPC.

LAND USE SERVICE JURISDICTIONAL SUBSYSTEMS

In preparation for the development of the land use service jurisdictional subsystems, the existing and proposed Type I, Type II, and Type III land use areas, as defined in the previously established criteria, were delineated on a county base map. The existing transportation terminals, recreational facilities, commercial centers, industrial centers, and institutional land uses were identified from existing land use inventories and categorized, through application of the criteria, by the study staff and then reviewed by knowledgeable local planners and engineers. Future land uses were identified from the adopted regional land use plan, adopted community land use plans and zoning ordinances, and current planning data provided by local planners and engineers and similarly categorized by application of the criteria. The land use areas for Type I, Type II, and Type III jurisdictional categories, as delineated for the study, are shown on Map 16.

Utilizing the resulting land use patterns and the land use service criteria previously developed, the total arterial street and highway system was classified into three land use service subsystems. This was accomplished through a series of system classifications. First, those arterial facilities which best connected and served each of the Type I land use areas were carefully determined and delineated to form a continuous Type I subsystem. A second arterial subsystem was then established to interconnect with the Type I land use service subsystem and to provide the service required by the established criteria for all Type II land use areas not already served by the Type I arterial highway system. The remaining arterial facilities were classified into a third subsystem to serve the Type III land uses. The resulting jurisdictional subsystems are also shown on Map 16.

DEVELOPMENT OF THE JURISDICTIONAL HIGHWAY SYSTEM PLAN

Through the procedures previously described, two separate groups of Type I, Type II, and Type III subsystems were established—one group developed by application of the trip service criteria and the other by application of the land use service criteria. Generally, the same individual facilities were found to be included within each of the corresponding subsystems. Further refinement of the jurisdictional classification of the total arterial street and highway system was necessary, however, to establish a recommended jurisdictional highway system plan. This refinement was accomplished through the application of the previously established criteria relating to the operational characteristics of each facility, including system continuity, facility spacing, traffic volume, traffic mobility, and land access, to the two groups of subsystems. Other factors considered in this synthesis were legal and financial constraints and intergovernmental coordination requirements.

In order to facilitate the application of the traffic volume criteria, a third group of subsystems, shown on Map 17, was identified by application of the traffic volume criteria previously established. This third group of subsystems, based only upon traffic volume considerations, together with the system continuity and facility spacing criteria, was found to be most useful in the refinement of the application of the trip service and land use service criteria necessary to develop the final classification of the entire arterial system into recommended jurisdictional systems.

By comparing the three separate groups of subsystems—trip service, land use service, and volume—most of the arterial facilities were found to fall clearly into one of the three jurisdictional type categories—Type I, state trunk; Type II, county trunk; and Type III, local trunk—by virtue of meeting all of these criteria for a majority of the route length. Some judgment, however, had to be exercised in the case of a limited number of marginal facilities which did not fall clearly into one category or another because not all of the criteria were met for the majority of the route length.

As shown on Map 18, the total arterial street and highway system was thus objectively and rationally classified into Type I, state trunk; Type II, county trunk; and Type III, local trunk, subsystems, which are integral parts of the overall system and which are within themselves continuous but which vary with respect to the types of trip lengths served, the types of land use areas served, and the degree of traffic mobility provided.

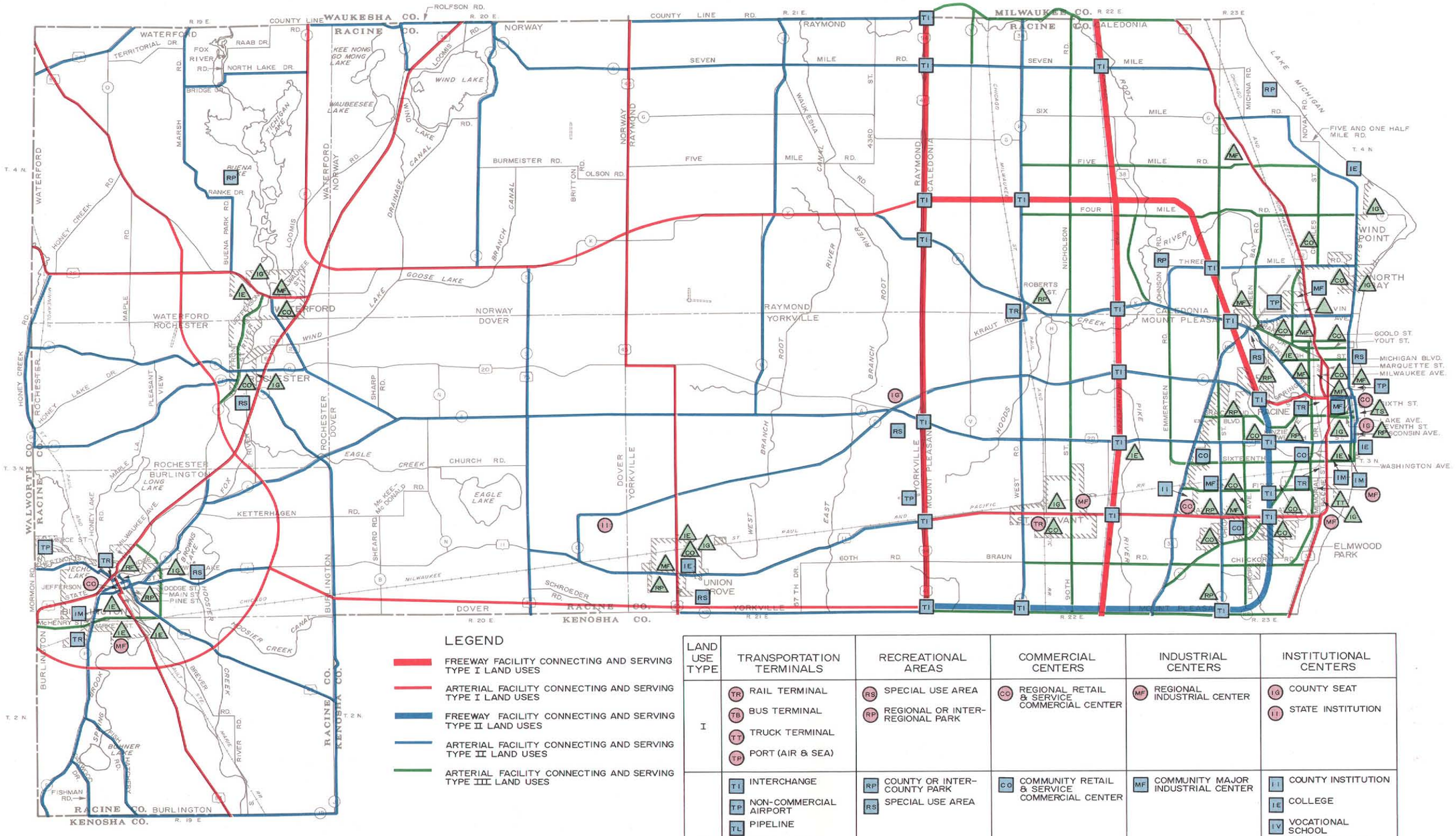
SUMMARY

The application of functional criteria for jurisdictional highway classification required analysis of the trip lengths and traffic volumes to be served by each link in the total arterial street and highway system, an inventory of existing and proposed land uses to be served by each of the jurisdictional subsystems, and investigation of the operational characteristics of the arterial facilities. This procedure involved three major steps: classification of each arterial facility in terms of the trip service criteria previously established; classification of each arterial facility in terms of the land use criteria previously established; and the combining and refinement of these two sets of jurisdictional subsystems through the application of system continuity and facility spacing criteria.

By comparing trip service, land use service, and volume, it was found that most of the arterial facilities fell into one of the three jurisdictional type categories: Type I, state trunk; Type II, county trunk; and Type III, local trunk. Some judgment was exercised in the case of a limited number of marginal facilities which did not clearly fall into one category or another because not all of the criteria were met for the majority of the route length.

Map 16

JURISDICTIONAL CLASSIFICATION OF THE ARTERIAL STREET AND HIGHWAY SYSTEM IN RACINE COUNTY BASED ON LAND USE: 1990



LEGEND

- FREEWAY FACILITY CONNECTING AND SERVING TYPE I LAND USES
- ARTERIAL FACILITY CONNECTING AND SERVING TYPE I LAND USES
- FREEWAY FACILITY CONNECTING AND SERVING TYPE II LAND USES
- ARTERIAL FACILITY CONNECTING AND SERVING TYPE II LAND USES
- ARTERIAL FACILITY CONNECTING AND SERVING TYPE III LAND USES

LAND USE TYPE	TRANSPORTATION TERMINALS	RECREATIONAL AREAS	COMMERCIAL CENTERS	INDUSTRIAL CENTERS	INSTITUTIONAL CENTERS
I	TR RAIL TERMINAL TB BUS TERMINAL TT TRUCK TERMINAL TP PORT (AIR & SEA)	RS SPECIAL USE AREA RP REGIONAL OR INTER-REGIONAL PARK	CO REGIONAL RETAIL & SERVICE COMMERCIAL CENTER	MF REGIONAL INDUSTRIAL CENTER	IG COUNTY SEAT II STATE INSTITUTION
II	TI INTERCHANGE TP NON-COMMERCIAL AIRPORT TL PIPELINE TT TRUCK TERMINAL TB RAPID TRANSIT LOADING TR RAIL TERMINAL	RP COUNTY OR INTER-COUNTY PARK RS SPECIAL USE AREA	CO COMMUNITY RETAIL & SERVICE COMMERCIAL CENTER	MF COMMUNITY MAJOR INDUSTRIAL CENTER	II COUNTY INSTITUTION IE COLLEGE IV VOCATIONAL SCHOOL IEM MULTI-COMMUNITY HIGH SCHOOL
III	TT TRUCK TERMINAL TS OFF-STREET PARKING	RP COMMUNITY PARK	CO NEIGHBORHOOD RETAIL & SERVICE COMMERCIAL CENTER	MF COMMUNITY MINOR INDUSTRIAL CENTER	IE HIGH SCHOOL IG CITY OR VILLAGE HALL

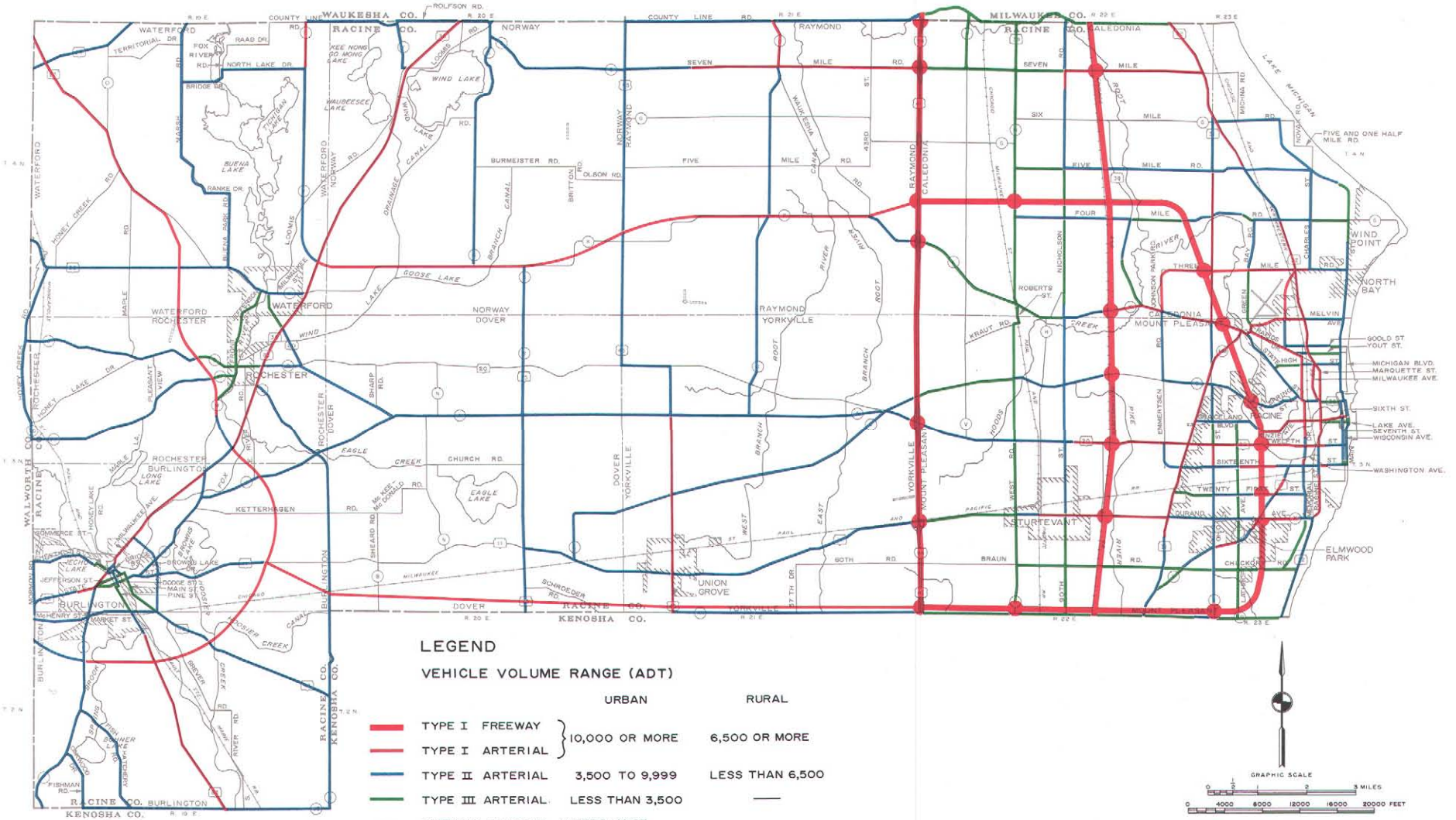
Application of the land use service criteria alone resulted in the classification of the total arterial street and highway system into the three jurisdictional subsystems shown on this map. The pattern shown emphasizes the close relationship which exists between land use development and arterial highway needs. The land uses which are shown include transportation terminals; recreational areas; and commercial, industrial, and institutional centers.

Source: SEWRPC.

GRAPHIC SCALE
0 1/2 1 2 3 MILES
0 4000 8000 12000 16000 20000 FEET

Map 17

JURISDICTIONAL CLASSIFICATION OF THE ARTERIAL STREET AND HIGHWAY SYSTEM IN RACINE COUNTY BASED ON VEHICLE VOLUME: 1990

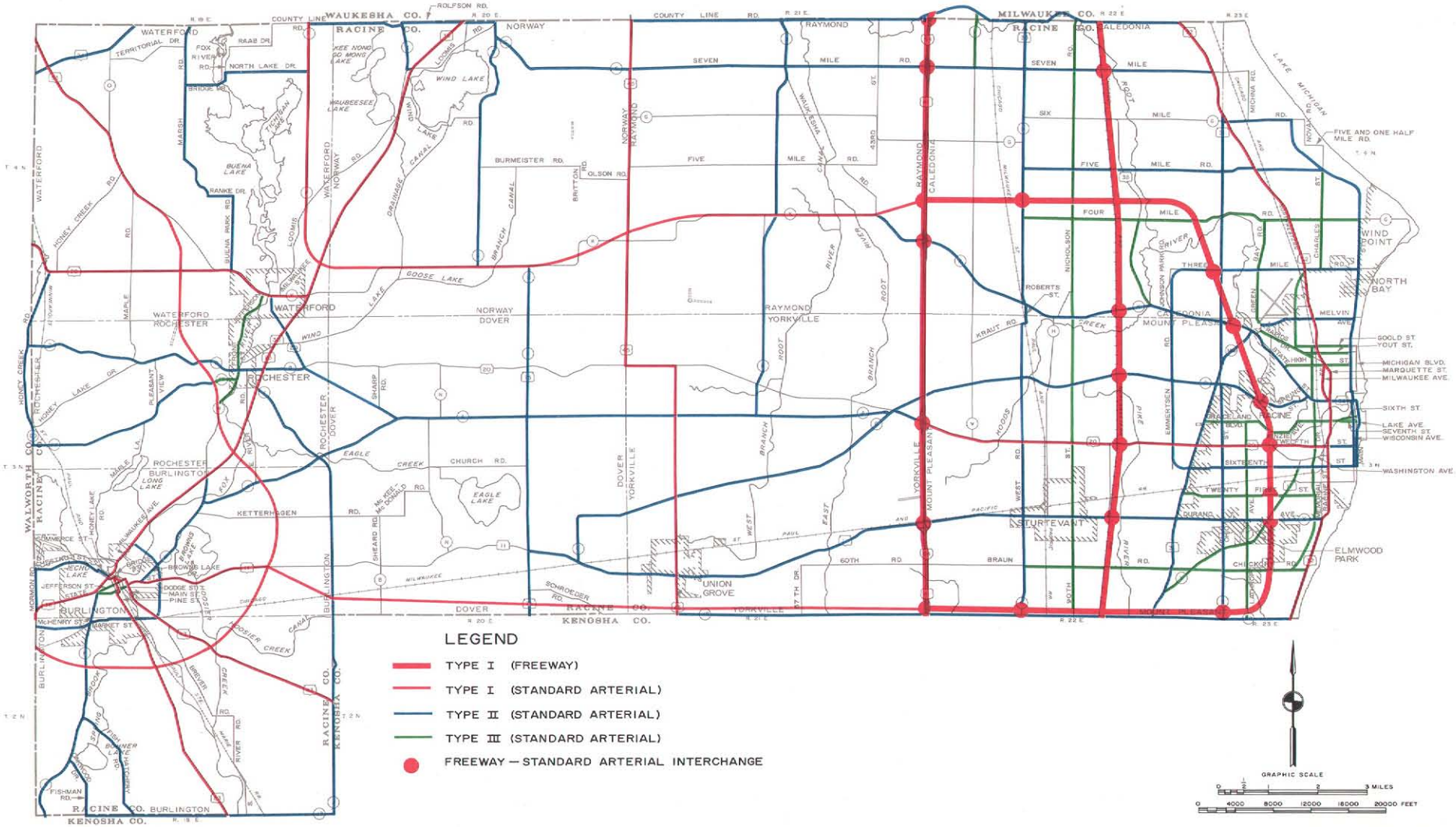


Application of the vehicle volume criteria alone resulted in the classification of the total arterial street and highway system into the three jurisdictional subsystems shown on this map. The configuration of the system again indicates the importance of freeways in serving the highest traffic volume. This third group of subsystems, based only on traffic volume considerations, together with the system continuity and facility spacing criteria, was found to be most useful in the refinement of the application of trip service and land use service criteria necessary to develop the final classification of the entire arterial system into recommended jurisdictional subsystems.

Source: SEWRPC.

Map 18

PROPOSED JURISDICTIONAL CLASSIFICATION OF THE ARTERIAL STREET AND HIGHWAY SYSTEM IN RACINE COUNTY: 1990



The proposed jurisdictional street and highway system shown on this map represents a synthesis of the trip length, land use, and vehicle volume jurisdictional subsystems shown on Maps 15, 16, and 17 into three individual but integrated, continuous jurisdictional highway systems. These systems consist of the Type I (state trunk), the Type II (county trunk), and the Type III (local trunk) highway subsystems. The Type I highway system carries the greatest traffic volumes, serves the longest trips, and connects the most significant land uses both within Racine County and within adjacent counties. The Type II highway system serves primarily intracounty trips, while the Type III highway system serves primarily intracommunity trips.

Source: SEWRPC.

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Chapter VI

THE RECOMMENDED JURISDICTIONAL HIGHWAY SYSTEM PLAN

INTRODUCTION

Previous chapters of this report have described the jurisdictional highway planning process, the criteria developed for this process, and the application of these criteria to develop a jurisdictional highway system plan for Racine County. This chapter describes the resulting recommended jurisdictional highway systems—Type I, state trunk; Type II, county trunk; and Type III, local trunk—which together comprise the total arterial street and highway system required to serve the growing travel demands within Racine County and its constituent cities, villages, and towns through the plan design year 1990. The recommended jurisdictional highway system plan recommends an alignment of governmental responsibility for each of the various facilities comprising the total arterial street and highway system in the plan design year, including an alignment of the federal aid highway systems. The recommended plan also constitutes a refinement of the functional arterial street and highway system plan prepared by the Southeastern Wisconsin Regional Planning Commission under the initial regional land use-transportation study and, as such, is intended upon its adoption to constitute a functional, as well as a jurisdictional, arterial street and highway system plan for Racine County to the plan design year 1990.

Because certain major arterial street and highway facilities proposed in the functional arterial street and highway system plan will not be constructed and operative until some time beyond the year in which the plan may be expected to be adopted and its implementation initiated, the jurisdictional plan has been staged to the plan design year 1990 through the interim years of 1975 and 1980. The effect of this staging has been to retain temporarily on the proposed Type I (state trunk) arterial system certain routes ultimately proposed as Type II (county trunk) routes by 1990.

Two of these routes—STH 31 and STH 38—generally parallel proposed freeways. To avoid duplication of facilities and service, it is proposed that these state trunk highway facilities revert to the Type II, Type III, or local road systems at such time as the recommended paralleling freeways have been completed and are open to traffic. Similarily, it is proposed that the present STH 11 be retained on the proposed Type I arterial system until such time as the construction of the proposed Racine Loop Freeway and its standard arterial extension to the City of Burlington is completed, at which time existing STH 11 is proposed to revert to the Type II or the local road systems. One other existing state trunk highway, STH 20 between IH 94 and Waterford, is proposed to be retained on the proposed Type I arterial system until such time as construction of the proposed standard arterial extensions of the proposed Racine Loop Freeway from IH 94 to Burlington and Waterford is completed, at which time it is proposed to revert to the town road system of collector and local roads.

The staging of the Type II arterial street and highway system anticipates such facilities as County Line Drive (Towns of Norway and Waterford), Emmertsen Road (Town of Mt. Pleasant), Lake Avenue and Main Street (City of Racine), Market Street (City of Burlington), Melvin Avenue (City of Racine), Tabor Road (Town of Caledonia), Union Church Drive-West County Line Road (Towns of Caledonia and Raymond), West Road (Town of Mt. Pleasant), Three Mile Road (City of Racine and Town of Caledonia), and Five Mile Road (Town of Caledonia) being retained on the local road system as nonarterial facilities until such time as the construction of links integrating these facilities into the remainder of the arterial highway system is imminent. At that time the jurisdiction of these facilities would be changed from the nonarterial local road classification to the Type II arterial classification and the improvements and extensions effected. This staging is intended to provide the best possible trip service, land use service, and system continuity during the interim period required to fully implement the highway system plan as well as to assign the responsibility for the arterial improvements required to the appropriate level of government.

The jurisdictional highway systems within Racine County as these systems are anticipated to exist by 1975, 1980, and 1990, are shown on Maps 20, 21, and 18, respectively. The configurations of the three jurisdictional highway systems, as recommended for the years 1975, 1980, and 1990, are such that in each case the proposed Type I (state trunk) arterial system forms a complete and continuous arterial subsystem in and of itself, the proposed Type II (county trunk) arterial system complements the proposed Type I arterial system and with that system forms a continuous arterial subsystem, while the proposed Type III (local trunk) arterial system comprises the remainder of the total arterial street and highway system. Map 18 indicates this hierarchy of system and subsystem continuity.

THE RECOMMENDED TYPE I (STATE TRUNK) ARTERIAL HIGHWAY SYSTEM

The arterial street and highway system recommended to serve the arterial traffic demand in Racine County through the plan design year 1990 totals 446 route-miles of facilities, or about 31 percent of the estimated 1,456 route-miles of facilities expected to comprise the total street and highway system within the county in 1990.

Of this total arterial system, 165 route-miles, or about 37 percent, are proposed to comprise the Type I (state trunk) arterial highway system. This represents an increase of approximately nine miles over the existing state trunk highway and connecting street mileage within Racine County. The recommended Type I system includes 120 miles of standard arterial facilities, as well as all of the 45 miles of existing and proposed freeways serving Racine County through the plan design year 1990 (see Table 10).

Table 10

FUNCTIONAL COMPOSITION OF RECOMMENDED TYPE I (STATE TRUNK) ARTERIAL HIGHWAY SYSTEM IN RACINE COUNTY: 1990

Functional Facility Type	Number of Miles	Percent of Total
Freeways		
Existing	12.0	7.2
Proposed	32.7	19.8
Subtotal	44.7	27.0
Standard Surface Arterials		
Existing	85.7	52.0
Proposed	34.5	21.0
Subtotal	120.2	63.0
Total	164.9	100.0

Source: Wisconsin Department of Transportation and SEWRPC.

The proposed Type I (state trunk) arterial system for 1990 is shown on Map B-1, contained in Appendix B to this report. The recommended Type I arterial system includes the following standard arterials, in addition to IH 94 and the proposed Lake and Racine Loop Freeways:

1. USH 45 over its present alignment from the Milwaukee County line and over Main Street (Village of Union Grove) to the Kenosha County line.

2. STH 11 from its proposed alignment at the Walworth County line, bypassing the City of Burlington, to its present alignment east of the City of Burlington; and then over a new alignment south of present STH 11 to IH 94 at the proposed interchange with the proposed Racine Loop Freeway.

3. STH 20 over its present alignment from the Walworth County line and over Main Street (Village of Waterford) to its intersection with CTH K, then over present CTH K to present STH 36, then over present STH 36 to the proposed extension of present CTH K, then over a reconstructed alignment of present and proposed CTH K to IH 94 at the proposed interchange with the proposed Racine Loop Freeway, then over IH 94 to the interchange with its present alignment, then over present STH 20 and over Washington Avenue to its intersection with West Boulevard, and then over 12th Street to Racine Street (all in the City of Racine).

4. STH 32 over its present alignment from the Milwaukee County line to Goold Street, then over Douglas Avenue to High Street, then in one-way pair operation over Milwaukee Avenue and Douglas Avenue-Marquette Street to State Street, then over Marquette Street to Washington Avenue, then over Washington Avenue to Racine Street, and then over Racine Street to 14th Street (all in the City of Racine), rejoining its present alignment to the Kenosha County line.

5. STH 36 over its present alignment from the Waukesha County line to its proposed intersection with STH 83, then over a new alignment south and east of Brown's Lake joining the proposed STH 11 Burlington bypass to the Walworth County line.

6. STH 43 over its present alignment from State Street in the City of Burlington to the Kenosha County line.

7. STH 83 over its present alignment from the Walworth County line to Hill Valley Road, then over a new alignment west of the Villages of Rochester and Waterford to present STH 36, then over its present alignment on Milwaukee Avenue and Chestnut Street to Dodge Street, then over Dodge Street to Adams Street, and then over Adams Street to Pine Street (all in the City of Burlington), where it is again on its present alignment to the Kenosha County line.

8. A state trunk highway facility incorporating those portions of present STH 11 and STH 36 from the proposed Burlington bypass over State Street, Main Street, Bridge Street, and Jefferson Street and Milwaukee Avenue to the Walworth County line.

9. A new state trunk highway facility over present CTH F from the Waukesha County line to its intersection with old STH 36 (Loomis Road), and then over a proposed new alignment to STH 36 at the proposed extension of present CTH K.

A total of 17 of 18 municipalities within Racine County would be connected and served by the proposed Type I arterial system, as the term "connect and serve" was defined in Chapter IV of this report, although not all such municipalities would necessarily have Type I facilities actually located within their corporate limits. The recommended mileages in the total Type I arterial system within each municipality for the years 1975, 1980, and 1990 are indicated in Table 11.

The recommended Type I arterial system is intended to provide the basic framework of the total arterial street and highway system required to serve the existing and

Table 11

RECOMMENDED DISTRIBUTION OF TYPE I (STATE TRUNK) ARTERIAL SYSTEM MILEAGE IN RACINE COUNTY BY CIVIL DIVISION: 1975, 1980, and 1990

Civil Division	1975 Number of Miles			1980 Number of Miles			1990 Number of Miles		
	Freeway	Standard Arterial	Total	Freeway	Standard Arterial	Total	Freeway	Standard Arterial	Total
CITIES									
Burlington	--	5.69	5.69	--	6.59	6.59	--	8.15	8.15
Racine	--	14.57	14.57	--	27.81	27.81	13.41	16.56	29.97
Subtotal	--	20.26	20.26	--	34.40	34.40	13.41	24.71	38.12
VILLAGES									
Elmwood Park	--	--	--	--	--	--	0.39	--	0.39
North Bay	--	--	--	--	--	--	--	--	--
Rochester	--	--	--	--	0.10	0.10	--	0.10	0.10
Sturtevant	--	1.67	1.67	--	1.67	1.67	--	--	--
Union Grove	--	1.71	1.71	--	2.73	2.73	--	1.81	1.81
Waterford	--	1.78	1.78	--	2.41	2.41	--	2.47	2.47
Wind Point	--	--	--	--	--	--	--	--	--
Subtotal	--	5.16	5.16	--	6.91	6.91	0.39	4.38	4.77
TOWNS									
Burlington	--	15.87	15.87	--	22.01	22.01	--	20.78	20.78
Caledonia	3.20	18.90	22.10	3.20	15.68	18.88	13.30	2.12	15.42
Dover	--	17.87	17.87	--	12.87	12.87	--	6.41	6.41
Mt. Pleasant	3.01	19.31	22.32	3.01	8.60	11.61	11.78	3.47	15.25
Norway	--	8.08	8.08	--	8.08	8.08	--	14.42	14.42
Raymond	2.80	3.18	5.98	2.80	3.18	5.98	2.80	9.01	11.81
Rochester	--	5.06	5.06	--	7.92	7.92	--	6.44	6.44
Waterford	--	19.23	19.23	--	17.54	17.54	--	17.74	17.74
Yorkville	3.01	16.13	19.14	3.01	15.11	18.12	3.01	10.71	13.72
Subtotal	12.02	123.63	135.65	12.02	110.99	123.01	30.89	91.10	121.99
Total	12.02	149.05	161.07	12.02	152.30	164.32	44.69	120.19	164.88

Source: Wisconsin Department of Transportation and SEWRPC.

probable future traffic demand within Racine County to the plan design year of 1990. The relative degree of efficiency with which each link in the proposed Type I arterial system accomplishes its intended function will, therefore, significantly affect the total operation of the entire arterial street and highway system. Code numbers indicating typical roadway cross sections having right-of-way and pavement widths adequate to serve the forecast 1990 traffic demand for each segment of facility in the recommended Type I arterial system are shown on the plan map contained in Appendix B of this report. The cross sections related to each code number are set forth in Figure B-1 of Appendix B and contain, in addition to the recommended typical dimensions, estimated representative unit construction and maintenance costs and service volume ranges at various levels of service.

The typical cross sections recommended in the plan are based upon analyses of land use impacts, as well as upon analyses of forecast traffic volumes, desirable levels of service, and an assessment of the probable development cost, including cost of right-of-way acquisition. As such, the suggested cross sections will provide traffic capacities required to meet the forecast travel demand at the level of service indicated in the cross-sectional code shown on the plan map. The Type I arterial facilities constructed to such cross sections will thus form a workable subsystem able to carry satisfactorily the existing and probable future traffic demand, and will be properly related to the other arterial subsystems and to existing and probable future land use development within the county and within the Region of which the county is a part. Further consideration and refinement of the suggested typical

cross sections, in light of changing geometric and structural design standards, as well as of changing traffic and land use patterns, will be required as each segment of the system is considered for actual improvement.

THE RECOMMENDED TYPE II (COUNTY TRUNK) ARTERIAL HIGHWAY SYSTEM

The proposed Type II (county trunk) arterial highway system includes 219 route-miles of facilities, or about 49 percent of the total arterial mileage proposed to serve Racine County in the plan design year 1990. The proposed Type II arterial system is comprised entirely of standard arterials, since all freeways are included in the proposed Type I arterial system. The proposed 219 route-miles of county trunk highway represent an increase of 66 miles over the existing county trunk mileage. The proposed system is shown on Map B-1, and the distribution of the system mileage by municipality for the years 1975, 1980, and 1990 is indicated in Table 12.

Table 12

RECOMMENDED DISTRIBUTION OF TYPE II (COUNTY TRUNK) ARTERIAL SYSTEM MILEAGE IN RACINE COUNTY BY CIVIL DIVISION: 1975, 1980, and 1990

Civil Division	Standard Arterial (Miles)		
	1975	1980	1990
CITIES			
Burlington	0.07	3.75	8.51
Racine	3.08	20.00	56.72
Subtotal	3.15	23.75	65.23
VILLAGES			
Elmwood Park	0.35	0.35	--
North Bay	0.21	0.21	0.21
Rochester	1.16	0.62	0.62
Sturtevant	1.00	1.00	2.35
Union Grove	--	--	1.66
Waterford	0.68	0.72	0.91
Wind Point	0.50	0.50	0.50
Subtotal	3.90	3.40	6.25
TOWNS			
Burlington	12.98	12.75	17.31
Caledonia	15.71	16.43	18.59
Dover	10.53	15.53	19.14
Mt. Pleasant	20.52	14.04	16.60
Norway	16.87	16.87	12.40
Raymond	19.20	19.20	16.58
Rochester	14.48	12.25	13.77
Waterford	0.24	3.46	11.83
Yorkville	15.83	16.53	21.72
Subtotal	126.36	127.06	147.94
Total	133.41	154.21	219.42

Source: Wisconsin Department of Transportation and SEWRPC.

As shown on Map B-1, all but one of the standard arterials connecting to the freeway interchanges are included in either the Type I or Type II arterial systems. The adequate improvement, maintenance, and operation of these routes connecting to freeway interchanges is essential to the proper operation of the freeway system. These routes include the following existing and proposed Type I arterial facility: STH 20; and the following existing and proposed Type II arterial facilities: present STH 11 and STH 38 which are proposed to revert to the Type II arterial system, CTH C, CTH H, CTH K, CTH Y, Three Mile Road, and Seven Mile Road, the latter two facilities being existing town roads.

In addition, certain roads of countywide significance, including both roads formerly designated as state trunk highways and existing local roads, are recommended for inclusion in the proposed Type II system. Facilities in the former category include existing STH 11 from the Walworth County line over Chestnut Street and Commerce Street to STH 36 (City of Burlington) and from existing STH 75 through the Village of Union Grove over Racine Avenue (Village of Sturtevant), and over Durand Avenue to Taylor Avenue (City of Racine); existing STH 20 from its intersection with CTH K over First and X Streets (Village of Waterford) to CTH D and from CTH C to IH 94; existing STH 24 from the Walworth County line to the Waukesha County line; existing STH 31 from CTH G over Green Bay Road to the Kenosha County line; existing STH 32 from 7th Street over Main Street to Goold Street and along Goold Street between Main Street and Douglas Avenue (City of Racine); existing STH 38 from the Milwaukee County line to CTH H and from CTH K over Northwestern Avenue and State Street to STH 32 (City of Racine); and existing STH 75 from existing STH 20 to the Kenosha County line. Facilities in the latter category include Bridge Drive (Town of Waterford), Brown's Lake Drive (City of Burlington), Buena Park Road (Town of Waterford), County Line Road (Town of Burlington), County Line Drive (Towns of Norway and Waterford), Emmertsen Road (Town of Mt. Pleasant), Fishman Road (Town of Burlington), Fish Hatchery Road (Town of Burlington), Honey Creek Road (Town of Waterford), Johnson Park Road (Town of Caledonia), Lake Avenue and Main Street (City of Racine), Market Street (City of Burlington), Marsh Road (Town of Waterford), McHenry Street (City of Burlington), Melvin Avenue (City of Racine), Morman Road (Town of Burlington), North Lake Drive (Town of Waterford), North Main Street (City of Racine), Oakwood Drive (Town of Burlington), Ohio Street (City of Racine), Ranke Drive (Town of Waterford), Union Church Drive-West County Line Road (Towns of Caledonia and Raymond), West Road (Town of Mt. Pleasant), Whitewater Street (Town of Caledonia), Wisconsin Avenue (City of Racine), 2nd Street (City of Racine), 16th Street (City of Racine), Three Mile Road (Town of Caledonia and City of Racine), Five Mile Road (Town of Caledonia), Six Mile Road (Town of Caledonia), and Seven Mile Road (Towns of Caledonia and Norway).

The recommended Type II arterial system complements the recommended Type I system and is intended, together with the latter system, to include all major arterials within

Racine County having areawide significance. In addition, the recommended Type II arterial system is, in the rural areas of the county, intended to serve all of the arterial travel demand which is not served by the Type I arterial system.

Code numbers indicating typical roadway cross sections with right-of-way and pavement widths adequate to serve the forecast 1990 traffic demand for each segment of facility in the recommended Type II arterial system are shown on the plan map contained in Appendix B to this report. The typical cross sections related to each code number are set forth in Figure B-1, Appendix B, and contain, in addition to the recommended typical dimensions, estimated representative construction and maintenance unit costs and service volume ranges at various levels of service. The typical cross sections recommended in the plan are based upon analyses of land use impacts, as well as upon analyses of forecast traffic volumes, desirable levels of service, and an assessment of the probable development cost, including cost of right-of-way acquisition. As such, the suggested cross sections will provide the traffic capacities required to meet the forecast travel demand at the level of service indicated in the cross-section code shown on the plan map. The Type II arterial facilities constructed to such cross sections will thus form a workable subsystem able to carry satisfactorily the existing and probable future travel demand and will be properly related to the other arterial subsystems and to existing and probable future land use development within the county and within the Region of which the county is a part. Reconsideration and refinement of the suggested typical cross sections will be required in light of changing geometric and structural design standards, as well as changing land use and traffic patterns, as each segment of facility in the system is considered for actual improvement.

THE RECOMMENDED TYPE III (LOCAL TRUNK) ARTERIAL HIGHWAY SYSTEM

The proposed Type III (local trunk) arterial highway system includes 62 route-miles of facilities, or about 14 percent of the total arterial mileage proposed to serve Racine County in the plan design year 1990. The proposed system is shown on Map B-1, Appendix B; and the distribution by municipality for the years 1975, 1980, and 1990 is indicated in Table 13. The proposed Type III arterial system is intended to serve the lowest level of arterial traffic demand within the urban areas of Racine County and, as such, to complement the proposed Type I and Type II subsystems. Even though the Type III system is intended to serve primarily local arterial street and highway needs, this subsystem must, nevertheless, perform efficiently as an integral part of the total arterial street and highway system if that total system is to properly serve the growing traffic demand within the county. The location and configuration of the recommended Type III system, when considered in conjunction with the recommended Type I and Type II systems, are such as to generally permit sound urban land use development to proceed in the form of planned residential development units without penetration of the units by arterial streets and highways.

Table 13

RECOMMENDED DISTRIBUTION OF TYPE III (LOCAL TRUNK) ARTERIAL SYSTEM MILEAGE IN RACINE COUNTY BY CIVIL DIVISION: 1975, 1980, and 1990

Civil Division	Standard Arterials (Miles)		
	1975	1980	1990
CITIES			
Burlington	3.11	1.96	1.32
Racine	36.20	35.74	39.67
Subtotal	39.31	37.70	40.99
VILLAGES			
Elmwood Park	0.38	0.38	0.73
North Bay	--	--	--
Rochester	0.33	0.95	0.95
Sturtevant	1.49	1.49	1.49
Union Grove	--	--	--
Waterford	1.24	1.39	1.39
Wind Point	--	--	--
Subtotal	3.44	4.21	4.56
TOWNS			
Burlington	--	--	--
Caledonia	12.91	7.63	9.17
Dover	--	--	--
Mt. Pleasant	9.86	3.14	6.52
Norway	--	--	--
Raymond	--	--	--
Rochester	0.09	0.78	0.78
Waterford	0.06	--	--
Yorkville	--	--	--
Subtotal	22.92	11.55	16.47
Total	65.67	53.46	62.02

Source: Wisconsin Department of Transportation and SEWRPC.

Code numbers indicating typical cross sections with right-of-way and pavement widths adequate to serve the forecast 1990 traffic demand for each link in the recommended Type III arterial system are shown on the plan map contained in Appendix B to this report. The typical cross sections related to each code number are set forth in Figure B-1, Appendix B, and contain, in addition to recommended typical dimensions, estimated representative construction and maintenance unit costs and service volume ranges at various levels of service. The typical cross sections suggested in the plan are based upon analyses of land use impacts, as well as analyses of forecast traffic volume, desirable levels of service, and preliminary assessment of the probable development cost,

including cost of right-of-way acquisition. As such, the suggested cross sections will provide the traffic capacity required to meet the forecast travel demand at the level of service indicated in the cross-section code shown on the plan map. The Type III arterial facilities constructed to such cross sections will thus provide a workable subsystem able to carry satisfactorily the existing and probable future traffic demand and will be properly related to the other arterial subsystems and to existing and probable future land use development within the county and the Region of which the county is a part. Further consideration and refinement of the suggested typical cross sections, in light of changing geometric and structural design standards, as well as of changing traffic and land use patterns, will be required as each segment of facility in the system is considered for improvement.

RELATIONSHIP OF RECOMMENDED PLAN TO OTHER COUNTY JURISDICTIONAL HIGHWAY SYSTEM PLANS

One of the important considerations in the preparation of the Racine County jurisdictional highway system plan was the intercounty continuity of the arterial street and highway system and the jurisdictional subsystems. In the plan preparation, certain facilities of countywide and local significance within Racine County were found to be required to perform arterial service by the plan design year of 1990. These facilities, because of their relatively short lengths in adjoining Walworth County, were not included in the prior preparation of the jurisdictional highway system plan for Walworth County. These facilities are Mormon Road on the Racine/Walworth County line, which should be designated as a Type II facility between STH 36 and existing STH 11; and STH 83, which should be designated a Type I facility from the eastern to the northern boundaries of Walworth County. In addition, existing STH 11 in Walworth County should be changed from a Type I to a Type II facility between the Racine/Walworth County line and the proposed alignment of CTH DD. Although these disparities between Racine and Walworth Counties are of a minor nature, it is recommended that the Advisory Committee for Walworth County meet to recommend modifications to its jurisdictional plan so that it is consistent with that of Racine County.

SCENIC DRIVES AND RUSTIC ROADS

One of the most popular outdoor recreational activities within Racine County and within the Region of which Racine County is a part is pleasure driving, as evidenced by the estimated 29,000 average seasonal Sunday participants in such pleasure driving within Racine County in 1970. Forecasts, moreover, indicate that a substantial increase in the demand for this recreational pursuit may be expected, with the average seasonal Sunday participation within the county increasing to over 52,000 participants by 1990. To provide facilities for this activity, the marking and signing of a system of scenic drives and rustic roads routed over existing roadways within the county is herein recommended. The terms "scenic drive" and "rustic road" as used herein were defined in Chapter II of this report.

The scenic drives and rustic roads recommended to be marked and signed within Racine County are shown on Map 19. The total recommended scenic drive system consists of 160 route-miles. Of this total, about 40 have been recommended for rustic road status. All but 13 miles of the proposed scenic drive system consists of existing street and highway facilities. The 13 miles of proposed new facility consist primarily of the proposed Root River Parkway Drive and a proposed parkway drive connecting the Root River Parkway with Cliffside Park on Lake Michigan. Of the total of 160 miles of proposed scenic drives, 60 miles, or about 38 percent, would normally perform arterial street and highway functions; and the remaining 100 miles, or about 62 percent, would normally perform collector and land access functions during weekdays through the plan design year 1990. All 40 miles of proposed rustic roads would perform collector and land access functions through the plan design year.

The recommended scenic drive system is comprised of various existing streets and highways and proposed drives, including the proposed Fox River Scenic Drive and the proposed Root River Parkway Drive, so as to provide a continuous route for pleasure driving throughout Racine County. The system includes three basic drives: the proposed Fox River Scenic Drive paralleling the Fox River through Racine County while passing through the communities of Waterford, Rochester, and Burlington; the proposed Root River Parkway Drive traversing the proposed linear park along the Root River from the City of Racine to the Milwaukee County line and connecting to the Milwaukee County parkway system; and a circumferential drive linking the highly urbanized eastern portion of the county with the recreational and natural areas of western Racine County while encompassing portions of the previous two drives. In addition, branches are proposed to provide access to the lake area of western Racine County.

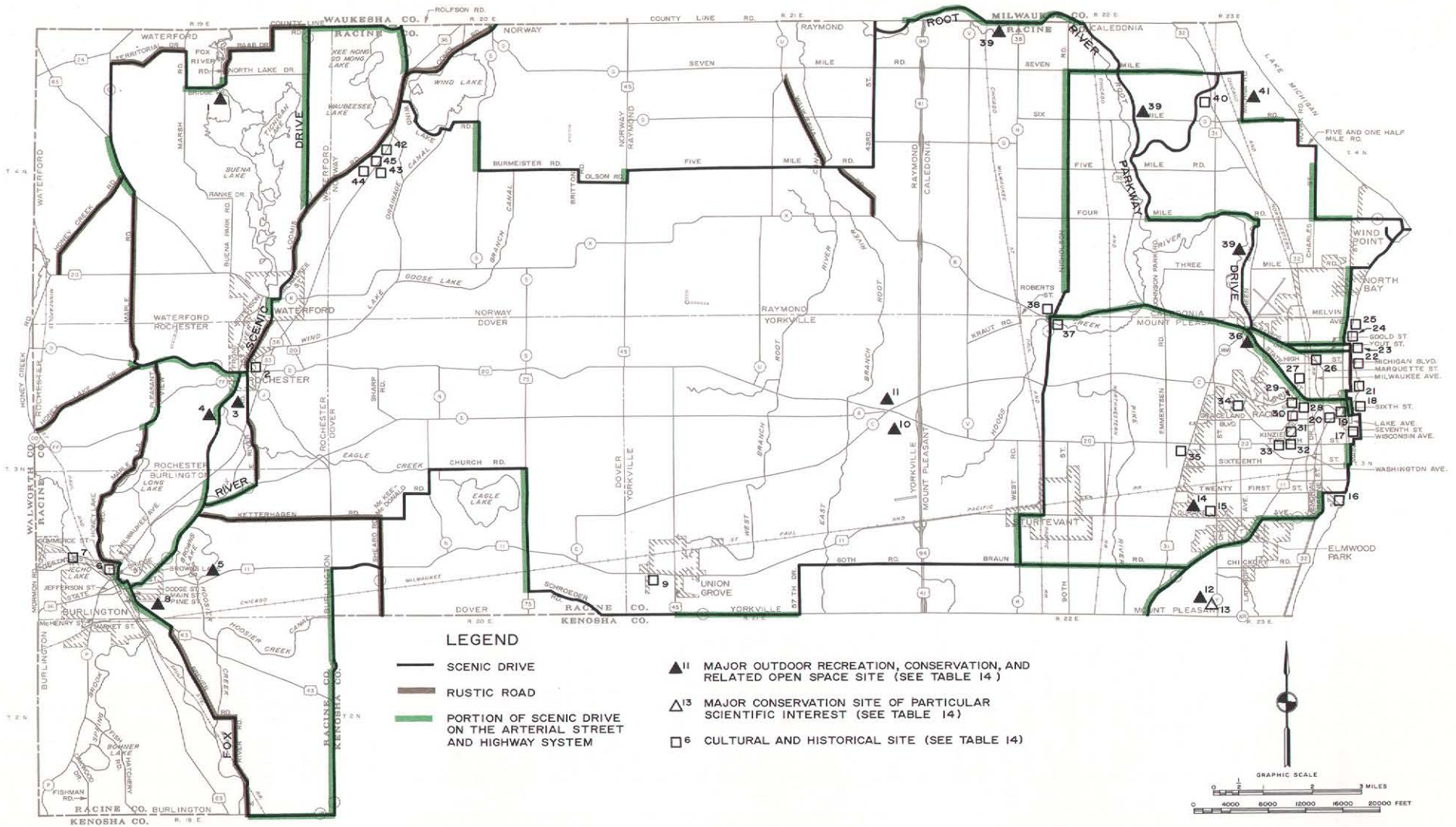
The proposed system is located within one mile of all 18 municipalities in Racine County, thus providing good accessibility for the populous areas of the county. The location and configuration of the proposed system within the county was based upon analyses of the recreational and natural resource base of the Region and the county carried out by the Regional Planning Commission and, as shown on Map 19, would connect nearly all existing county and state parks within Racine County, as well as nearly all of the 45 sites of cultural, historical, recreational, and scientific interest within the county. Each of the 45 sites, as well as publicly owned outdoor recreation, conservation, and open space sites, are identified in Table 14.

The rustic road elements of the proposed system are comprised of segments of existing nonarterial streets and highways located primarily in the western portion of Racine County as shown on Map 19. These serve to traverse and to provide access to the many natural and scientific areas of the lake area in western Racine County.

In order to attain the necessary intercommunity and intercounty continuity in the scenic drives; to assure the proper relationship of the rustic roads to the natural

Map 19

RECOMMENDED SCENIC DRIVE AND RUSTIC ROAD SYSTEM IN RACINE COUNTY: 1990



The scenic drive and rustic road system recommended for marking and signing within Racine County consists of about 160 miles of existing or proposed arterial, collector, and land access streets. The system consists of the proposed Fox River Scenic Drive and the proposed Root River Parkway Drive, with additional interconnecting scenic drive links to provide access to the cultural, historical, recreational, and scientific sites located throughout Racine County, as well as segments of existing nonarterial streets and highways designated as rustic roads to provide access to the natural and scientific areas of the lake area in western Racine County.

Source: SEWRPC.

Table 14

CULTURAL, HISTORICAL, SCIENTIFIC, AND MAJOR OUTDOOR RECREATIONAL SITES IN RACINE COUNTY: 1973

Code Number[a]	Cultural, Historical, Scientific, or Major Outdoor Recreational Site	
1	Tichigan Conservation Area	State of Wisconsin
2	Richard Emerson Ela Marker	Village of Rochester
3	Ela Park	Racine Highway and Park Commission
4	Honey Creek Wildlife Area	State of Wisconsin
5	Fisher Park	Racine Highway and Park Commission
6	Pioneer Log Cabin and Mill Site	City of Burlington
7	Aaron Smith Marker	Daughters of American Revolution
8	Bushnell Park	Racine Highway and Park Commission
9	Old Settlers Society Marker	Unknown
10	Ives Grove Park	Racine Highway and Park Commission
11	Evans Park	Racine Highway and Park Commission
12	Sanders Park	Racine Highway and Park Commission
13	Sanders Park Hardwoods	Wisconsin Department of Natural Resources
14	Pritchard Park	Racine Highway and Park Commission
15	Carhart Marker (The Spark)	State of Wisconsin
16	Franklin D. Roosevelt Marker	AFL and CIO of Racine
17	Mary Todd and Abraham Lincoln Statute	Mrs. Pena Rosewall and Monument Committee
18	Memorial Hall	Daughters of the American Revolution
19	Paul Harris Plaque	Rotary International
20	Monument Square	Local residents
21	Visit of the First White Man Marker	Daughters of Colonial Wars
22	Gilbert Knapp Monument	Herman Menge
23	World War I Marker	Unknown
24	World War II Marker	Unknown
25	Jacob Stoffel Jr. Memorial Tablet	Unknown
26	Carl Jonas Monument	Unknown
27	Lincoln Monument	9th Ward Booster's Club
28	Paul Harris Marker	Unknown
29	Island Park (Horlick Park) Marker	Unknown
30	William Lewis Marker	Unknown
31	1st W. W. Cannon - Voiture #497,40 Hommes and 8 Charveaux	Unknown
32	Marker Elm for Two World War I Soldiers	Racine Women's Club
33	Washington, Pulaski, and Kosciuszko Monument	Unknown
34	Doughboy Monument	William Horlick
35	Maggatt's Corners Church (Mt. Pleasant Lutheran Church)	Daughters of the American Revolution
36	Quarry Lake Park	Racine Highway and Park Commission
37	Skunk Grove	Racine County Historical Society and Franksville Businessmen's Association
38	Caledonia-Mt. Pleasant Living Memorial	Racine County Citizens
39	Root River Parkway	Racine Highway and Park Commission
40	32nd Division Memorial Marker	Unknown
41	Cliffside Park	Racine Highway and Park Commission
42	Norwegian Lutheran Church and Old Muskego	State of Wisconsin
43	Pioneer Cabin	Racine Highway and Park Commission
44	Home of the Rev. and Mrs. Ellaing Eielson	Racine Highway and Park Commission
45	Col. Heg Statue	Racine Highway and Park Commission

[a] *See Map 19.*

Source: Racine County Historical Society; Racine County Highway and Park Commission; City of Racine, Department of Parks and Recreation; and SEWRPC.

resource base; and to assure uniformity in the marking and signing of the scenic drive and rustic road system, the functional classification categories established under the study were expanded to include, as a special category, scenic drives and rustic roads.

EVALUATION OF THE PROPOSED JURISDICTIONAL HIGHWAY SYSTEMS

One of the most important objectives of the jurisdictional highway planning process is to attain the most effective use of the total public resources in the provision of highway transportation by focusing the appropriate resources and capabilities on corresponding areas of need. That the recommended jurisdictional highway system plan accomplishes this objective is indicated by the fact that the proposed Type I arterial system may be expected to carry approximately 2.78 million of the 4.04 million arterial miles of travel anticipated to occur daily within Racine County by the year 1990. Thus, approximately 37 percent of the total arterial street and highway mileage within the county may be expected to carry approximately 69 percent of the total arterial travel demand. The proposed Type II arterial may be expected to carry an additional 0.96 million arterial vehicle miles of travel. Thus, an additional 49 percent of the total arterial street and highway mileage may be expected to carry an additional 24 percent of the total arterial travel demand. The remaining 0.30 million arterial vehicle miles of travel, or 7 percent of the total demand, would be carried on the proposed Type III arterial system. Thus, the proposed Type I and Type II systems combined may be expected to carry approximately 93 percent of the total arterial vehicle miles of travel expected to take place within the county by the year 1990, leaving only 7 percent to be carried by Type III arterials. This concentration of travel demand on the various arterial subsystems is indicated in Figure 9.

The total vehicle miles of travel which may be expected to occur daily on all streets and highways within Racine County by the year 1990 are similarly estimated at 4.30 million vehicle miles. The proportionate share of this total load which each of the recommended jurisdictional subsystems may be expected to carry by 1990 is summarized in Table 15 and in Figure 10. The proposed jurisdictional systems thus clearly focus the available resources on the areas of greater need, and their adoption and improvement should serve to relieve the local units of government of much of the cost attendant to the movement of heavy volumes of fast, through traffic of area-wide importance within the county.

STAGING OF THE PROPOSED JURISDICTIONAL HIGHWAY SYSTEMS

As indicated earlier, not all of the arterial facilities comprising the functional system considered in the jurisdictional classification will be open to traffic by 1975. In order to accommodate traffic demand in corridors to be served by freeways proposed for construction after 1975, it is recommended that certain arterial facilities

Table 15

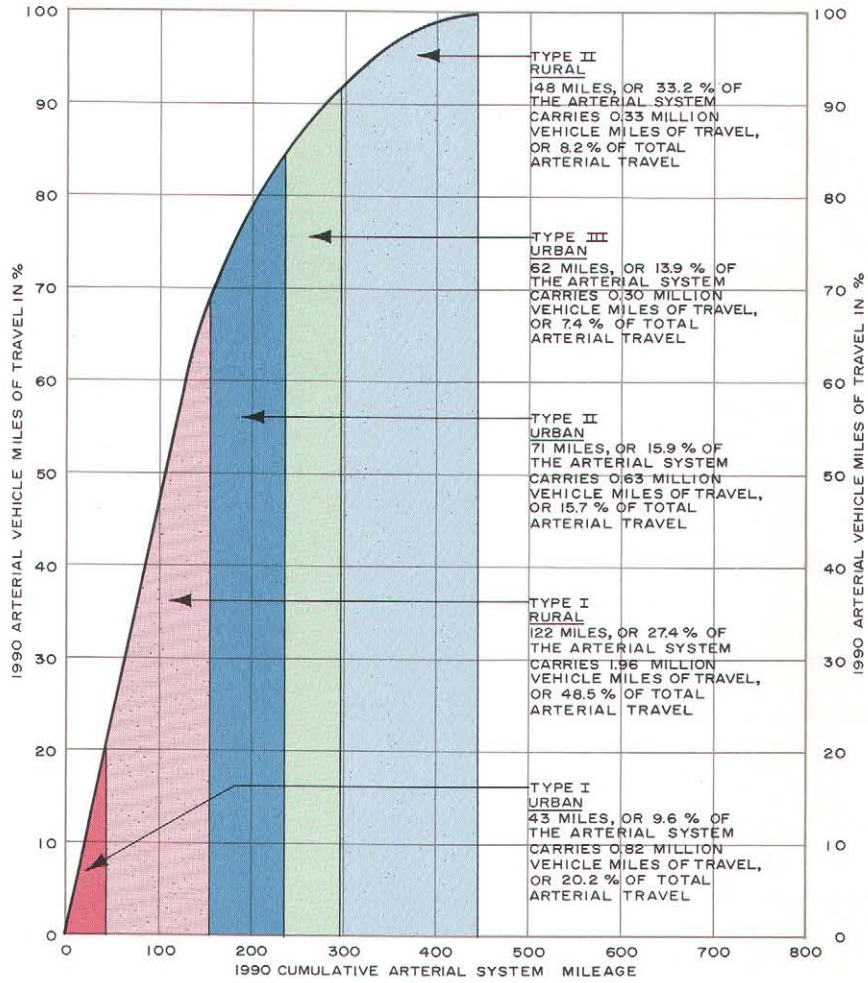
ANTICIPATED DISTRIBUTION OF TRAVEL ON THE TOTAL STREET AND HIGHWAY SYSTEM IN RACINE COUNTY: 1990

Type of Street or Highway	Miles		Travel Demand Served	
	Number	Percent of Total	Millions of Vehicle Miles Per Day	Percent of Total
Arterial				
Rural				
Type I (State Trunk)	122	8.4	1.96	45.6
Type II (County Trunk)	148	10.2	0.33	7.7
Subtotal	270	18.6	2.29	53.3
Urban				
Type I (State Trunk)	43	3.0	0.82	19.1
Type II (County Trunk)	71	4.9	0.63	14.7
Type III (Local Trunk)	62	4.3	0.30	6.9
Subtotal	176	12.2	1.75	40.7
Arterial Total	446	30.8	4.04	94.0
Nonarterial				
Existing and Proposed Collector and Minor Streets	1,010	69.2	0.26	6.0
Total	1,456	100.0	4.30	100.0

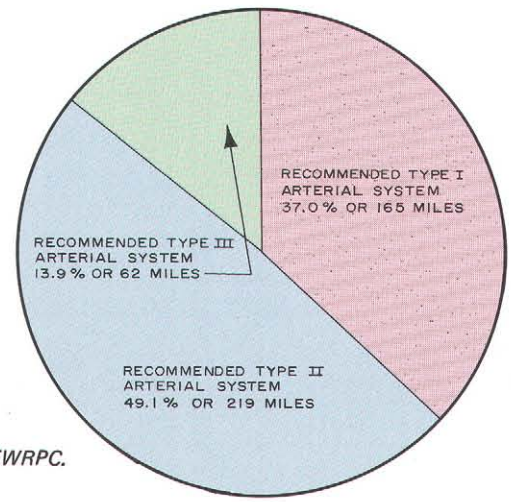
Source: SEWRPC.

Figure 9

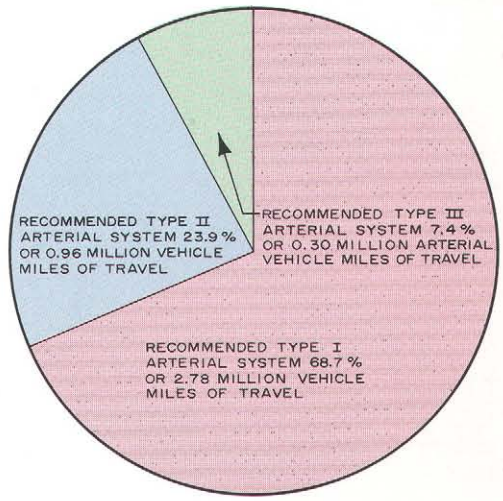
RELATIONSHIP BETWEEN PERCENT OF ARTERIAL VEHICLE MILES OF TRAVEL AND CUMULATIVE ARTERIAL MILEAGE
RECOMMENDED RACINE COUNTY JURISDICTIONAL HIGHWAY SYSTEM: 1990



DISTRIBUTION OF MILEAGE ON THE TYPE I, TYPE II, AND TYPE III ARTERIAL SYSTEMS 1990



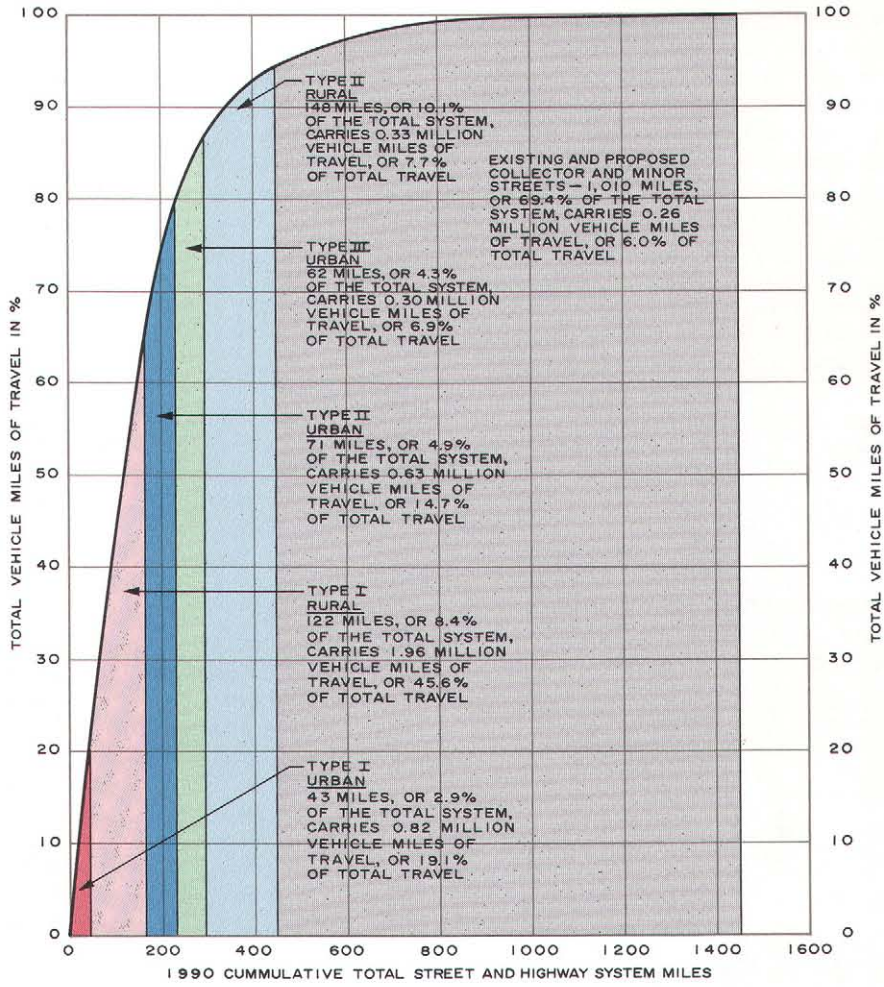
DISTRIBUTION OF ARTERIAL VEHICLE MILES OF TRAVEL ON THE TYPE I, TYPE II, AND TYPE III ARTERIAL SYSTEMS 1990



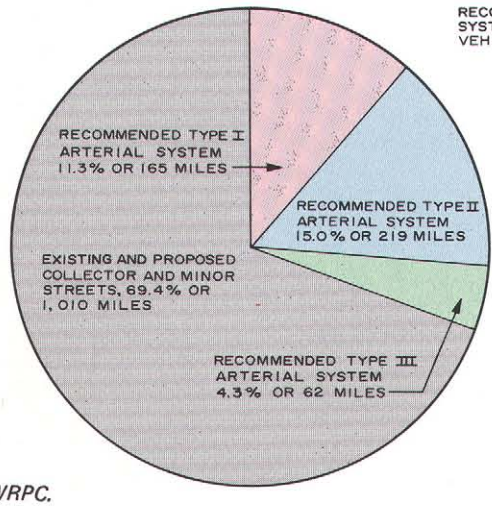
Source: SEWRPC.

Figure 10

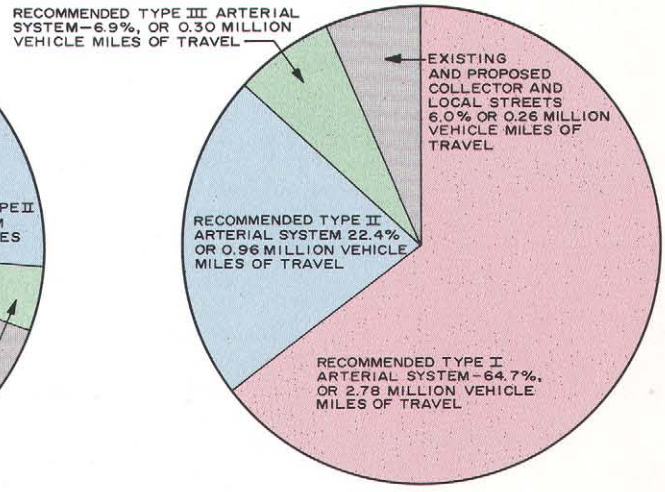
RELATIONSHIP BETWEEN PERCENT OF TOTAL VEHICLE MILES OF TRAVEL AND CUMULATIVE TOTAL MILEAGE
RECOMMENDED RACINE COUNTY JURISDICTIONAL HIGHWAY SYSTEM: 1990



DISTRIBUTION OF MILEAGE
ON THE TOTAL STREET AND HIGHWAY SYSTEM
1990



DISTRIBUTION OF VEHICLE MILES OF TRAVEL
ON THE TOTAL STREET AND HIGHWAY SYSTEM
1990



Source: SEWRPC.

which should ultimately be designated as Type II routes be maintained as Type I routes until such time as the paralleling freeways intended to serve the corridors are constructed. Upon completion of these freeways, the interim Type I facilities would revert to Type II facilities. This staged development, in addition to providing improved traffic service, would facilitate system continuity and arterial route marking during the interim plan implementation period. A summary of the proposed freeway construction as set forth in the adopted regional transportation plan is presented in Table 16, together with a listing of the corresponding surface arterials required to fulfill the Type I needs in the corridor on an interim basis.

The jurisdictional highway system within Racine County as this system is anticipated to exist in 1975 is shown on Map 20. This 1975 staging reflects the completion of proposed CTH F from Loomis Road to STH 36 with its concomitant change in jurisdictional classification to Type I (state trunk) in the Town of Waterford, and the completion of a new Type II facility from STH 36 to CTH K. As indicated on the map, CTH MM (Rapids Drive) from STH 38 to Golf Avenue in the City of Racine is the only facility proposed to revert to the local highway system by 1975. In addition, there are several highway facilities proposed to be retained on the county trunk highway system through 1975 as nonarterial facilities. These facilities constitute 16 miles of existing county trunk highways whose reversion to the local road system would effect financial hardship to the rural townships of Racine County. The single nonarterial county trunk highway facility proposed to revert to the local road system by 1975 is CTH G from the intersection of Three Mile Road and North Main Street to the intersection of Four Mile Road and North Main Street in the Village of Wind Point.

The proposed configuration of the jurisdictional highway system within Racine County as anticipated to exist by 1980 is shown on Map 21. The 1980 stage reflects the completion of the proposed Burlington bypass, and the rerouting of STH 32 in the City of Racine between Goold Street and Washington Avenue. The 1980 stage also reflects the concomitant changes in jurisdictional classification shown in Tables 17, 18, 19, 20, and 21.

The proposed configuration of the jurisdictional highway system within Racine County as anticipated to exist by 1990 is shown on Map B-1. The 1990 stage reflects the proposed completion of the Lake Freeway from the Milwaukee County line to the Kenosha County line; the completion of the Racine Loop Freeway from IH 94 near existing CTH K to IH 94 near existing CTH KR; the relocation of STH 20 from the Village of Waterford over STH 36 and portions of present CTH K to IH 94; the relocation of STH 11 from IH 94 near CTH KR to the intersection of present STH 11 and the proposed Burlington bypass; the rerouting of STH 83 in the City of Burlington over Bridge and Chestnut Streets; the construction of the Burlington loop; and the construction of a new county trunk highway facility from the intersection of CTH D and present STH 20 (Town of Rochester) to CTH A (Town of Dover). The 1990 stage also reflects the concomitant changes in the jurisdictional classification shown in Tables 22, 23, 24, and 25.

Table 16

PROPOSED FREEWAYS AND TEMPORARY ALTERNATE ROUTING OVER STATE TRUNK HIGHWAYS IN RACINE COUNTY: 1973-1990

Proposed Freeway	Temporary Alternate Routing
Proposed Lake Freeway from Milwaukee County line to Kenosha County line	Over present STH 31 from STH 32 to the Kenosha County line
Racine Loop Freeway from IH 94 near CTH K to IH 94 near CTH KR	Over present STH 11 from Taylor Avenue to IH 94

Source: Wisconsin Department of Transportation and SEWRPC.

Table 17

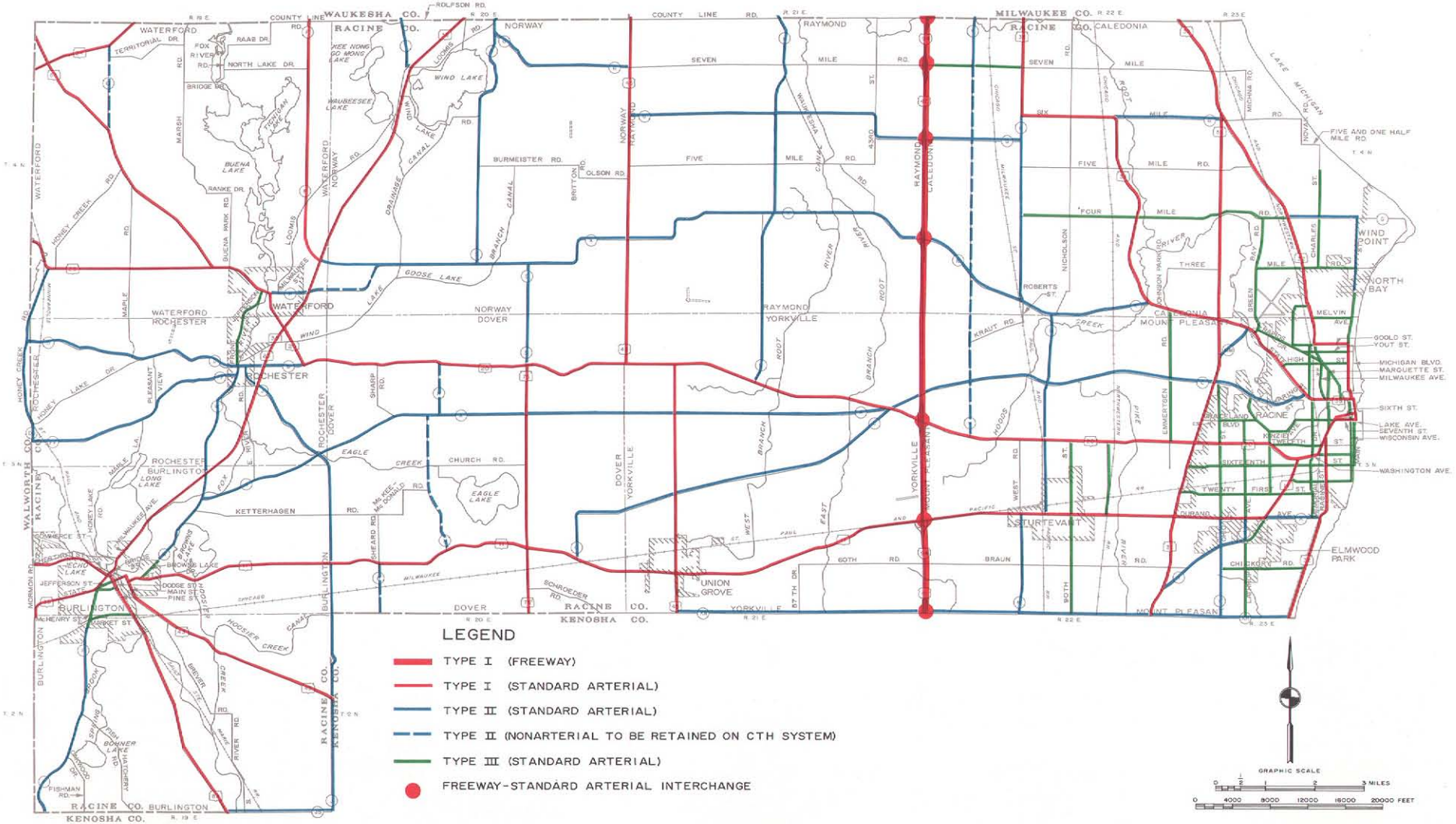
STATE TRUNK HIGHWAYS PROPOSED TO BE RETAINED THROUGH 1975 AND TO REVERT TO THE COUNTY TRUNK HIGHWAY SYSTEM BY 1980

Route	Limits	Municipality
STH 11	Origen Street to the Walworth County line	City and Town of Burlington
STH 24	Waukesha County line to the Walworth County line	Town of Waterford
STH 32 (Main Street)	Goold Street to Second Street	City of Racine
STH 38 (State Street)	Wisconsin Street to Marquette Street	City of Racine
STH 75	STH 20 to the Kenosha County line	Town of Dover

Source: SEWRPC.

Map 20

RECOMMENDED JURISDICTIONAL HIGHWAY SYSTEM PLAN FOR RACINE COUNTY: 1975 STAGE

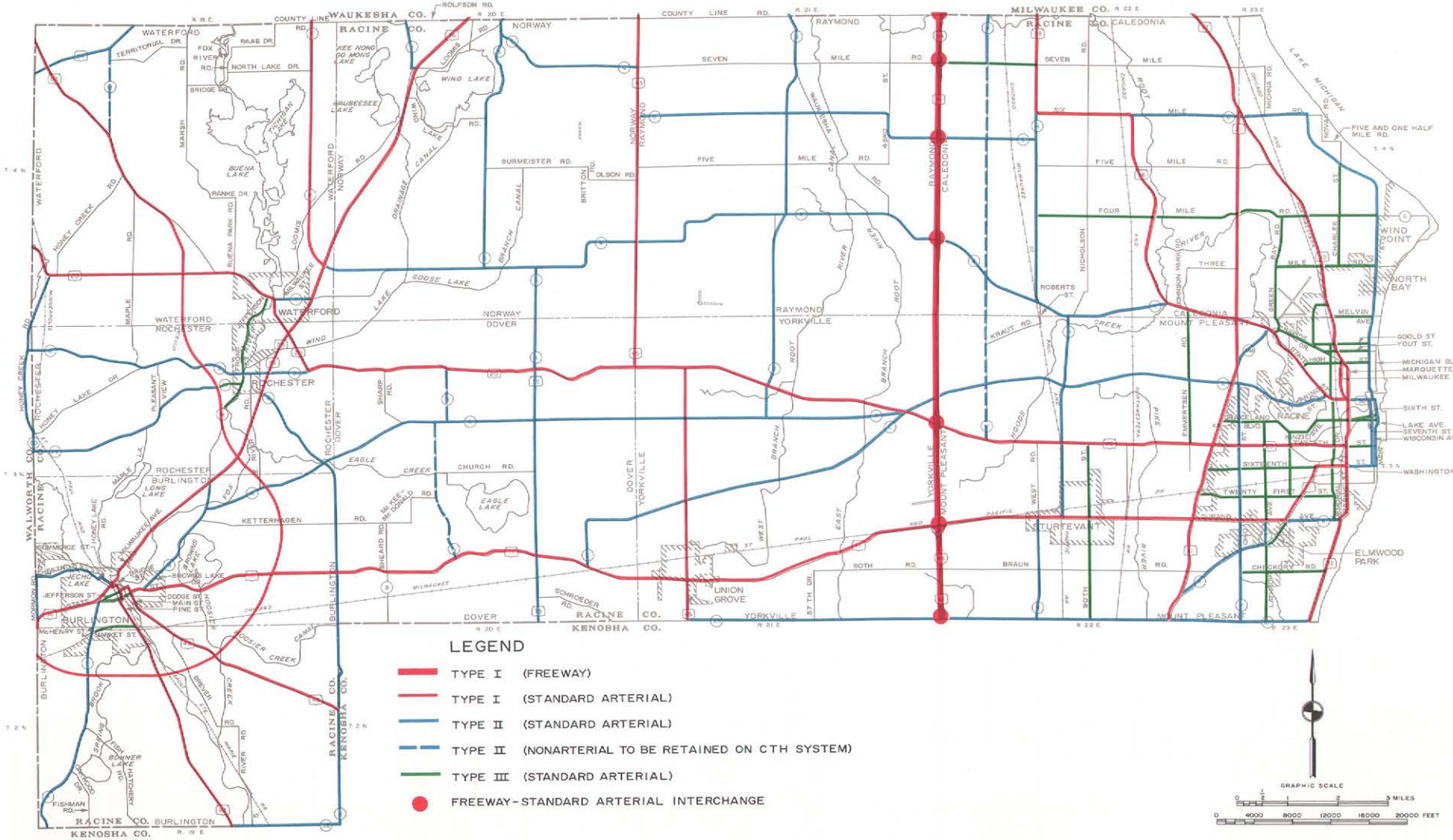


The 1975 stage of the recommended jurisdictional highway system plan for Racine County, representing the first stage in the implementation of the 1990 plan, includes a freeway system consisting of IH 94. Recommended changes in jurisdiction by 1975 include the addition of CTH F from the Racine-Waukesha County line to STH 36 to the state trunk system, and the reversion of CTH MM (Rapids Drive) from STH 38 to Golf Avenue in the City of Racine to the local trunk highway system.

Source: SEWRPC.

Map 21

RECOMMENDED JURISDICTIONAL HIGHWAY SYSTEM PLAN FOR RACINE COUNTY: 1980 STAGE



The proposed 1980 stage of the recommended Racine County jurisdictional highway system plan anticipates the completion of the proposed Burlington bypass, and the rerouting of STH 32 in the City of Racine over Douglas Avenue in a one-way pair operation over Milwaukee Avenue and Marquette Street, over Marquette Street to its present routing over Washington Avenue. The 1980 stage also reflects the concomitant changes in jurisdictional classification shown in Tables 17, 18, 19, 20, and 21.

Source: SEWRPC.

Table 18

STATE TRUNK HIGHWAYS PROPOSED TO BE RETAINED THROUGH 1975 AND TO REVERT TO THE LOCAL ROAD SYSTEM BY 1980

Route	Limits	Municipality
STH 11 (Jefferson Street)	Pine Street to Dodge Street	City of Burlington
STH 11 (Chestnut Street)	Origen Street to STH 36	City of Burlington
STH 11 (Fourteenth Street)	Washington Avenue to Racine Street	City of Racine
STH 11 (Taylor Avenue)	Washington Avenue to Sixteenth Street	City of Racine
STH 20	Sixth and Seventh Street one-way pair from Grand Avenue to Main Street	City of Racine
STH 20 (Washington Avenue)	Grand Avenue to Marquette Street, and Racine Street to West Boulevard	City of Racine
STH 32 (Main Street)	Second Street to Seventh Street	City of Racine
STH 32 (Goold Street)	Main Street to Douglas Avenue	City of Racine
STH 38 (State Street)	Main Street to Wisconsin Street	City of Racine
STH 83	Hill Valley Road to STH 20	Town of Waterford
STH 83 (Pine Street)	Chestnut Street to Adams Street	City of Burlington

Source: SEWRPC.

Table 19

COUNTY TRUNK HIGHWAYS PROPOSED TO BE RETAINED THROUGH 1975 AND TO REVERT TO THE LOCAL ROAD SYSTEM BY 1980

Route	Limits	Municipality
CTH B	STH 11 to the Kenosha County line	Town of Dover
CTH G	STH 32 to the west corporate limits of the Village of Wind Point	City of Racine and Town of Caledonia
CTH J	CTH D to STH 36-83	Village and Town of Rochester
CTH K	STH 36 to the intersection of the proposed Type II facility and present CTH K	Towns of Waterford and Norway
CTH W	CTH D to STH 36	Village of Rochester and Towns of Rochester and Burlington
CTH FF	CTH W to the proposed Burlington bypass	Village and Town of Rochester

Source: SEWRPC.

Table 20

LOCAL ROADS PROPOSED TO BE RETAINED THROUGH 1975 AND TO BE ADDED TO THE STATE TRUNK HIGHWAY SYSTEM BY 1980

Route	Limits	Municipality
Adams Street	Dodge Street to Pine Street	City of Burlington
Chestnut Street	Dodge Street to Pine Street	City of Burlington
Dodge Street	Adams Street to Chestnut Street	City of Burlington
Douglas Avenue	Marquette Street to Goold Street	City of Racine
Marquette Street	Douglas Avenue to Washington Avenue	City of Racine
Milwaukee Avenue	Douglas Avenue to State Street	City of Racine
Sixteenth Street	Taylor Avenue to Racine Avenue	City of Racine
Twelfth Street	West Boulevard to Racine Street	City of Racine

Source: SEWRPC.

Table 21

LOCAL ROADS PROPOSED TO BE RETAINED THROUGH 1975 AND TO BE ADDED TO THE COUNTY TRUNK HIGHWAY SYSTEM BY 1980

Route	Limits	Municipality
Browns Lake Drive	STH 11 to CTH W	City of Burlington
Commerce Street	STH 11 to STH 36-83	City of Burlington
Lake Avenue	Second Street to Eighth Street	City of Racine
Main Street	Ninth Street to Sixteenth Street	City of Racine
McHenry Street	STH 36 to CTH P	City of Burlington
Morman Road	STH 11 to STH 36	Town of Burlington
N. Main Street	Goold Street to the south corporate limits of the Village of North Bay	City of Racine
Ohio Street	STH 11 to CTH C	City of Racine
Second Street	Wisconsin Street to Lake Avenue	City of Racine
Six Mile Road	STH 32 to Surry Street	Town of Caledonia
Sixteenth Street	Main Street to Racine Avenue	City of Racine
Wisconsin Avenue	Sixteenth Street to Second Street	City of Racine

Source: SEWRPC.

Approximately 24 miles of town roads are recommended to be added to the Type II arterial system at such time as segments of new arterial facilities have been constructed providing continuity in the existing roadway system. These town roads and the new construction required prior to their addition to the Type II system consist of the following facilities:

1. County Line Drive (Towns of Norway and Waterford) from CTH F (Town of Waterford) to Rolfson Road (Town of Norway) with construction of a new facility linking Rolfson Road (Town of Norway) to CTH G (Town of Norway).

2. Emmertsen Road (Town of Mt. Pleasant) from Johnson Park Road (Town of Caledonia) to its present terminus with 16th Street (Town of

Mt. Pleasant), with the construction of a new facility linking Emmertsen Road to 16th Street in preparation for the Racine Innerloop.

3. Lake Avenue (City of Racine) from 2nd Street to 8th Street, and Main Street (City of Racine) from 9th Street to 16th Street, with the construction of a new facility from 8th Street to 9th Street.

4. Market Street (City of Burlington) from STH 83 (Pine Street in the City of Burlington) to Sheldon Street (City of Burlington), with the construction of a new facility from Sheldon Street to STH 36 and from STH 83 (Pine Street) to STH 36 and STH 83 (Milwaukee Avenue).

Table 22

STATE TRUNK HIGHWAYS PROPOSED TO BE RETAINED THROUGH 1980 AND TO REVERT TO THE COUNTY TRUNK HIGHWAY SYSTEM BY 1990

Route	Limits	Municipality
USH 41	IH 94 to Milwaukee County line	Towns of Raymond and Caledonia
STH 11	STH 75 to Taylor Avenue	City of Racine, Villages of Sturtevant and Union Grove, and Towns of Dover, Mt. Pleasant, and Yorkville
STH 20	CTH K to CTH D, and CTH C to IH 94	Towns of Rochester and Yorkville, and Village of Waterford
STH 31	STH 32 to the Kenosha County line	City of Racine and Towns of Caledonia and Mt. Pleasant
STH 38	Milwaukee County line to CTH H, and from CTH K to Marquette Street	City of Racine and Town of Caledonia
Sixteenth Street	Taylor Avenue to Racine Avenue	City of Racine

Source: SEWRPC.

Table 23

STATE TRUNK HIGHWAYS PROPOSED TO BE RETAINED THROUGH 1980 AND TO REVERT TO THE LOCAL ROAD SYSTEM BY 1990

Route	Limits	Municipality
STH 11	Proposed Burlington bypass to former STH 75	Towns of Burlington and Dover
STH 11 (Jefferson Street)	Dodge Street to Bridge Street	City of Burlington
STH 20	CTH D to CTH C	Towns of Rochester, Dover, and Yorkville
STH 38	CTH H to CTH K	Town of Caledonia
STH 11 (Taylor Avenue)	Durand Avenue to Sixteenth Street	City of Racine

Source: SEWRPC.

5. Melvin Avenue (City of Racine) from N. Main Street (City of Racine) to Diana Avenue (City of Racine), with the construction of a new facility from its present terminus at Diana Avenue to a new intersection with Rapids Drive (City of Racine) and Green Bay Road (Town of Caledonia).

6. Union Church Drive-West County Line Road (Towns of Caledonia and Raymond) from USH 45 (Town of Raymond) to CTH U (Town of Raymond), 60th Street (Town of Raymond) to approximately IH 94, and Nicholson Road (Town of Caledonia) to STH 32 (Town of Caledonia), with the construction of new facilities between 76th Street and 60th Street, and IH 94 to Nicholson Road.

7. West Road (Town of Mt. Pleasant) from STH 11 to STH 20, and from Kraut Road near its intersection with Borgardt Road, across the railroad tracks to Roberts Road (Town of Caledonia), over Roberts Road to CTH K, with the construction of a new facility from STH 20 to Kraut Road.

8. Three Mile Road (Town of Caledonia and City of Racine) from STH 32 (City of Racine) to Green Bay Road (Town of Caledonia), and STH 31 (Town of Caledonia) to Johnson Park Drive (Town of Caledonia), with the construction of a new facility from Green Bay Road to STH 31.

9. Five Mile Road (Town of Caledonia) from CTH H (Town of Caledonia) to Middle Road (Town of Caledonia), and Five Mile Road East (Town of Caledonia) from its present terminus to approxi-

Table 24

COUNTY TRUNK HIGHWAYS PROPOSED TO BE RETAINED THROUGH 1980 AND TO REVERT TO THE LOCAL ROAD SYSTEM BY 1990

Route	Limits	Municipality
CTH G	USH 45 to CTH H and STH 38 to STH 31	Towns of Raymond and Caledonia
CTH H	STH 11 to CTH K	Village of Sturtevant and Town of Mt. Pleasant
CTH K	From a point 0.60 mile east of the intersection of CTH S and CTH K to 96th Street	Towns of Raymond and Norway
CTH N	STH 11 to STH 20	Town of Dover
CTH O	STH 24 to STH 83	Town of Waterford
CTH T	CTH X to STH 11	City of Racine and Village of Elmwood Park
CTH V	STH 20 to the Milwaukee County line	Towns of Mt. Pleasant and Caledonia
CTH X	STH 31 to CTH T	Village of Elmwood Park and Town of Mt. Pleasant
CTH KR.	USH 45 to CTH H	Towns of Mt. Pleasant and Yorkville

Source: SEWRPC.

mately Charles Street (Town of Caledonia), with the construction of a new facility from Middle Road to the present terminus of Five Mile Road East.

10. Six Mile Road (Town of Caledonia) from STH 31 to Whitewater Street (Town of Caledonia), with the construction of a new facility from the present terminus of Whitewater Street to the intersection of present CTH G and North Main Street (Village of Wind Point).

The proposed Type I system is recommended to include 161 route-miles of facilities in 1975, and the proposed Type II system, 133 route-miles. Thus, the total mileage for the combined Type I and Type II systems in 1975 is 294 miles, somewhat less than the proposed 1980 and 1990 equivalent mileages, as shown in Tables 11 and 12. In 1980 the proposed Type I system is recommended to include 164 route-miles of facilities, complemented by a proposed Type II system comprised of 154 route-miles of standard arterials. With the completion of the freeway system by 1990, the proposed Type I system is recommended to include 165 route-miles of facilities, and the proposed Type II system is recommended to include 219 route-miles of facilities.

SUMMARY

This chapter has described the recommended jurisdictional highway plan developed for Racine County. The plan provides for three jurisdictional highway systems—Type I, state trunk; Type II, county trunk; and Type III, local trunk—which together comprise the total arterial street and highway system required to serve the growing travel demands in Racine County and its constituent cities, villages, and towns to the plan design year 1990. The recommended plan also constitutes a refinement of the functional arterial street and highway system plan prepared by the Southeastern Wisconsin Regional Plan-

Table 25

LOCAL ROADS PROPOSED TO BE RETAINED THROUGH 1980 AND TO BE ADDED TO THE COUNTY TRUNK HIGHWAY SYSTEM BY 1990

Route	Limits	Municipality
Beloit Street	Sunset Drive to McHenry Street	City of Burlington
Bridge Drive	Marsh Road to N. Lake Drive	Town of Waterford
Buena Park Road	STH 20-83 to Ranke Drive	Town of Waterford
County Line Road	STH 32 to Nicholson Road	Town of Caledonia
County Line Road	USH 45 to IH 94	Town of Raymond
County Line Road	STH 83 to CTH JB	Town of Burlington
County Line Drive	CTH Y to CTH F	Towns of Norway and Waterford
Emmertsen Road	STH 38 to approximately Sixteenth Street	Towns of Caledonia and Mt. Pleasant
Fish Hatchery Road	CTH P to County Line Road	Town of Burlington
Fishman Road	CTH P to County Line Road	Town of Burlington
Five Mile Road	CTH H to proposed Type II facility at Charles Street	Town of Caledonia
Johnson Park Road	Three Mile Road to STH 38	Town of Caledonia
Kraut Road	Approximately 0.12 mile west of Roberts Road to Roberts Road	Town of Mt. Pleasant
Marsh Road	Ranke Road to Waukesha County line	Town of Waterford
Market Street	Emerson Street to STH 83	City of Burlington
Melvin Avenue	N. Main Street to Mt. Pleasant Street	City of Racine
N. Lake Drive	Bridge Drive to CTH F	Town of Waterford
Ranke Road	Buena Park Road to Marsh Road	Town of Waterford
Roberts Road	Kraut Road to CTH K	Towns of Mt. Pleasant and Caledonia
Rolfson Road	County Line Drive to Kelsey Drive	Town of Norway
Seven Mile Road	USH 45 to STH 32	Towns of Raymond and Caledonia
Sharp Road	CTH A to Rowntree Road	Town of Dover
Sixteenth Street	Taylor Avenue to proposed extension of Emerson Street	City of Racine and Town of Mt. Pleasant
Three Mile Road	Green Bay Road to N. Main Street and STH 31 to Johnson Park Road	City of Racine and Town of Caledonia
Twelfth Street	Racine Avenue to Main Street	City of Racine
West Road	STH 11 to STH 20	Town of Mt. Pleasant and Village of Sturtevant

Source: SEWRPC.

ning Commission under the initial regional land use-transportation study and, as such, is intended upon its adoption to constitute a functional, as well as a jurisdictional, arterial street and highway system plan for Racine County to the plan design year 1990.

The arterial street and highway system recommended to serve the traffic demand within Racine County through the plan design year 1990 totals 446 route-miles of facilities, or about 30 percent of the estimated 1,456 route-miles of facilities expected to comprise the total street and highway system within the county in 1990. Of this total arterial system, 165 route-miles, or about 37 percent, are proposed to comprise the Type I (state trunk) highway system, an increase of nine route-miles over the present system. This Type I system is anticipated to carry approximately 69 percent of the arterial travel demand and approximately 65 percent of the total travel demand expected to be generated in the county by 1990. The Type I system is recommended to include all of the existing, committed, and proposed freeway facilities within Racine County, as well as certain important standard arterials and, as such, to comprise the basic framework of the total highway transportation system for the county.

The recommended plan further proposes a Type II (county trunk) highway system, consisting of 219 route-miles of arterial facilities, or an additional 49 percent of the total arterial mileage required to serve Racine County in the plan design year 1990. This Type II system represents an increase of 66 route-miles over the present system; would serve to complement the recommended Type I, or state trunk, system; is intended to include all major arterial facilities having areawide significance; and is intended to provide for all arterial travel demand generated within the rural areas of the county not served by the Type I system. The Type II system could be expected to carry an additional 24 percent of the arterial travel demand and an additional 22 percent of the total travel demand expected to be generated within Racine County by the year 1990.

The Type III (local trunk) highway system recommended in the plan consists of the remaining 62 route-miles of arterial facilities, or about 14 percent of the total arterial mileage proposed to serve Racine County in the plan design year 1990. This Type III system is intended to primarily serve the local arterial street and highway needs of the urbanized areas of Racine County, while comprising an integral part of the total arterial street and highway system.

Finally, the plan recommends the marking and signing of a system of scenic drives and rustic roads within the county. This system consists of 160 route-miles of streets and highways, of which 40 miles comprise the rustic road system. Of the 160 miles that are proposed to make up the scenic drive system, 147 miles are comprised of existing arterial, collector, and land access facilities, while the remaining 13 miles consist primarily of the proposed Root River Parkway Drive. Of the total of 160 miles of proposed scenic drives, 60 miles would perform arterial street and highway functions, and the remaining 100 miles of scenic drives, including all proposed rustic roads, would perform collector and land access functions through the plan design year. The scenic drive and rustic road system would accommodate the anticipated 52,000 average seasonal Sunday participants in pleasure driving forecast for 1990 in Racine County. The recommended scenic drive and rustic road system would consist of three basic drives—the proposed Fox River Scenic Drive, the proposed Root River Parkway Drive, and a circumferential drive encompassing portions of the previous two drives—with additional interconnecting links to provide access to the scenic, cultural, historical, natural, scientific, and recreational sites located throughout Racine County.

Adoption and implementation of the jurisdictional highway system plan recommended in this report would serve to concentrate appropriate resources and capabilities on corresponding areas of need, assuring a more effective use of the total public resources in the provision of highway transportation, and to provide a sound basis for the establishment of long-range fiscal policies and for the systematic programming of arterial street and highway improvements within Racine County. It would also provide a basis for the more efficient planning and design of the total arterial street and highway system by combining into subsystems those facilities which should, because of the type and extent of service provided, have similar standards for design, construction, operation, and maintenance. The adoption and implementation of the jurisdictional highway system plan recommended in this report should provide a more sound basis for the efficient multijurisdictional management of the total arterial street and highway system and for the attainment of intergovernmental coordination necessary to the cooperative development of this system. Finally, it should, as demonstrated in a following chapter of this report, provide a more equitable distribution of highway improvement, maintenance, and operating costs among the various levels and agencies of government concerned.

Chapter VII

FINANCIAL EVALUATION

INTRODUCTION

In order to assure practicality and acceptability, any plan must be evaluated on the basis of financial feasibility. Such an evaluation may show that attainment of the objectives expressed through one or more of the criteria used to prepare the plan are beyond the financial reach of implementing agencies. Under such circumstances it would be necessary to either revise the criteria on which the plan is based and thereby revise the plan, or seek new means of financing plan implementation.

To this end, a careful evaluation was made of the financial feasibility of the jurisdictional highway system plan as produced by application of the planning criteria set forth in this report. Total plan construction and maintenance costs were estimated and compared to anticipated revenues over an approximately 20-year plan implementation period. As a necessary part of this analysis of financial feasibility, the existing structure of highway revenues and expenditures was examined and construction and maintenance formulae and policies were analyzed.

HISTORICAL AND EXISTING HIGHWAY AID STRUCTURE

Federal Aids for Highways

Federal aids for highway construction are derived from federal highway user excise taxes and the federal motor fuel tax, presently established at four cents per gallon, and are administered by the U. S. Department of Transportation, Federal Highway Administration, as a segregated fund which can be used only for highway, highway-related and, effective in 1974, for mass transit purposes. Federal aids are provided for approved construction projects on the interstate system, the federal aid primary and secondary systems, and the federal aid urban system. The first two categories of federal aid systems—primary and secondary—together with the extensions of these two systems through urban areas, were commonly called the "ABC" systems. Under the provisions of the 1973 Federal Aid Highway Act the federal aid secondary routes can no longer be extended through urban areas.

Federal aid interstate funds are apportioned to the states on the basis of the following formula:

> For the fiscal years 1960 through 1966, funds were apportioned in the ratio which the estimated cost of completing the Interstate System in such State ... bears to the sum of the estimated cost of completing the interstate system in all of the States. For the fiscal years 1967 to the present, funds were apportioned in the ratio which the Federal share of the estimated cost of completing the Interstate System in such State ... bears to the sum of the estimated cost of the Federal share completing the Interstate System in all of the States.[1]

Federal aid primary funds, or "A" funds, are apportioned to the states on the basis of the following formula:

> One-third in the ratio which the area of each State bears to the total area of all the States; one-third in the ratio which the population of rural areas of each State bears to the total population of rural areas of all the States as shown by the latest available Federal census; one-third in the ratio which the mileage of rural delivery routes and intercity mail routes where service is performed by motor vehicles in each State bears to the total mileage of such routes in all the States at the close of the next preceding calendar year, as shown by a certificate of the Postmaster General, which he is directed to make and furnish annually to the Secretary. No state shall receive less than one-half of 1 per centum of each year's apportionment.[2]

Federal aid secondary funds, or "B" funds, are apportioned to the states on the basis of the following formula:

> One-third in the ratio which the area of each State bears to the total area of all the States; one-third in the ratio which the population of rural areas of each State bears to the total population of rural areas of all the States as shown by the latest available Federal census; and one-third in the ratio which the mileage of rural delivery and intercity mail routes where service is performed by motor vehicles, certified as above provided, in each State bears to the total mileage of rural delivery and intercity mail routes where service is provided by motor vehicles, in all the States. No State shall receive less than one-half of 1 per centum of each year's apportionment.

Federal aid funds for improvements on extensions of the federal aid primary system into urban areas, or "C" funds, are apportioned to the states on the basis of the following formula:

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[1] *Title 23, United States Code, 104.*

[2] *Ibid.*

> In the ratio which the population in municipalities and other urban places of five thousand or more in each State bears to the total population in municipalities and other urban places of five thousand or more in all the States, as shown by the latest available Federal census.

In addition to the aforementioned federal aid systems, the Congress in 1967 authorized the U. S. Department of Transportation, Federal Highway Administration, to initiate a program known as TOPICS, utilizing then available highway funds to provide additional federal aid to urban areas having a population of 5,000 or more persons. TOPICS is an acronym for "Traffic Operations Program to Increase Capacity and Safety." Federal aid funds authorized by Congress for TOPICS were apportioned to the states on the same basis as federal aid funds for improvements on extensions of the federal aid primary and secondary systems into urban areas, or "C" funds. The Federal Aid Highway Act of 1973 abolished the separate appropriation for TOPICS improvements. Such improvements, however, were made eligible for federal funds if located on the federal aid urban system.

As a counterpart of the newly established, urban-oriented TOPICS program, the Congress in 1967 authorized the U. S. Department of Transportation, Federal Highway Administration, to initiate a special rural aid program utilizing presently available highway funds. Federal aid funds for this special rural aid program are apportioned to the states on the same basis as regular federal aid primary and secondary funds, and must be expended for projects on the federal aid primary and secondary systems, exclusive of these systems' extensions into urban areas.

The Federal Aid Highway Act of 1970 provided for the establishment of an entirely new system of federal aid routes within the urbanized areas of the United States. This system, designated the "M" system, was intended to supplement the existing federal aid highway systems within urbanizing areas, which, until the 1970 Act, consisted only of the extensions of the federal aid primary and secondary systems into such urbanizing areas. Under the 1970 Act the urban aid system was intended to include those arterial streets and highways not on the interstate system or on urban extensions of the federal aid primary and secondary systems. The federal aid urban funds are apportioned to the states on the basis of the following formula:

> In the ratio which the population in urban areas, or parts thereof, in each State bears to the total population in such urban areas, or parts thereof, in all the States as shown by the latest available Federal census.

The Federal Aid Highway Act of 1973 provides for the realignment of the federal aid highway systems into three federal aid systems: a primary system consisting of rural arterial routes and their urban extensions, including interstate highway routes and their urban extensions, to be designated by each state through its state highway department in accordance with comprehensive, areawide transportation plans; a secondary system consisting of rural "major collector" routes designated by the state highway department and concerned local officials; and an expanded urban system consisting of urban arterials designated by local officials with concurrence of the state highway department and in accordance with comprehensive, areawide transportation plans. The 1973 Act greatly expanded the concept of the urban system, making it possible for urban systems to be established in urban areas of over 5,000 population. The federal share of projects on these various systems will be 90 percent for interstate facilities and 70 percent for all other facilities.

Revenues from Federal Aids for Highways: Federal aid funds are received from the Federal Highway Administration by the Wisconsin Department of Transportation, Division of Highways, as reimbursements for the previously expended funds on approved federal aid projects. Federal aid may be used for preliminary engineering surveys, design, right-of-way acquisition, and construction. Federal funds may not be used for maintenance or administration. Table 26 indicates federal aid apportionments to Wisconsin during the 10 years from fiscal year 1963 through fiscal year 1972.

Disbursements of Federal Aids for Highways: The federal aids received into the State Highway Fund are administered by the State Department of Transportation, Division of Highways. Federal aid interstate funds received by Wisconsin are distributed throughout the state on the basis of the interstate highway construction schedule established by the State Highway Commission. The construction of these interstate highways is accomplished with 90 percent of the costs being paid for with federal interstate funds and the remaining 10 percent paid for with state funds. Table 27 sets forth the annual amounts of federal aid interstate funds expended in Racine County during the fiscal years 1963 through 1972.

Federal aid primary funds, including rural primary funds, received by Wisconsin are distributed on the basis of statewide highway construction needs as determined by the State Highway Commission. Since construction is scheduled on a statewide basis and varies annually on a county basis, Racine County has received varying annual amounts of such aids. Table 27 sets forth the annual amounts of federal aid primary funds expended in Racine County during fiscal years 1963 through 1972.

The distribution of federal aid secondary funds, including the rural secondary funds, received by Wisconsin has been made to the 72 counties on the basis of the following formula: 60 percent on the basis of the rural federal aid secondary miles in the county compared with the total statewide rural federal aid secondary mileage, and 40 percent on the basis of the number of motor vehicles registered within the county compared with the total number of motor vehicles registered within the state. Based on this formula, Racine County has received about $127,000 annually, or more than 2 percent of the total federal aid secondary funds received annually by the state. If

Table 26

FEDERAL HIGHWAY AID APPORTIONMENTS TO WISCONSIN BY AID CATEGORY FISCAL YEARS 1963-1972

Fiscal Year	Aid Category					
	Interstate		Primary		Secondary	
	Apportionment	Percent of Total	Apportionment	Percent of Total	Apportionment	Percent of Total
1963	$ 21,164,100	51.4	$ 9,109,799	22.1	$ 6,431,738	15.6
1964	22,927,775	52.5	9,484,657	21.7	6,690,955	15.3
1965	23,689,058	53.0	9,592,323	21.4	6,770,585	15.1
1966	24,691,450	52.6	10,230,422	21.8	7,207,143	15.3
1967	24,733,350	52.3	10,390,974	22.0	7,313,176	15.5
1968	28,144,962	55.3	10,491,840	20.6	7,381,920	14.5
1969	31,408,425	58.1	10,436,973	19.3	7,344,879	13.6
1970	34,435,600	52.1	13,176,715	19.9	9,273,485	14.0
1971	34,260,800	52.1	13,135,078	19.9	9,243,153	14.0
1972	35,828,800	53.5	13,080,267	19.6	9,441,046	14.0
Total	$281,284,320	--	$109,129,048	--	$77,098,080	--
10-Year Average	$ 28,128,432	--	$ 10,912,905	--	$ 7,709,808	--

Fiscal Year	Aid Category						Total Apportionments
	Urban		TOPICS[a]		Urban (M System)		
	Apportionment	Percent of Total	Apportionment	Percent of Total	Apportionment	Percent of Total	
1963	$ 4,471,619	10.9	$ --	--	$ --	--	$ 41,177,256
1964	4,588,651	10.5	--	--	--	--	43,692,038
1965	4,685,560	10.5	--	--	--	--	44,737,526
1966	4,849,228	10.3	--	--	--	--	46,978,243
1967	4,836,951	10.2	--	--	--	--	47,274,451
1968	4,856,594	9.6	--	--	--	--	50,875,316
1969	4,849,228	9.0	--	--	--	--	54,039,505
1970	5,320,646	8.1	3,869,561	5.9	--	--	66,076,007
1971	5,295,638	8.1	3,849,918	5.9	--	--	65,784,587
1972	5,133,355	7.7	1,866,674	2.7	1,694,387	2.5	67,044,529
Total	$48,887,470	--	$9,586,153	--	$1,694,387	--	$527,679,458
10-Year Average	$ 4,888,747	--	$3,195,384	--	$1,694,387	--	$ 56,529,663

[a] *TOPICS, an acronym for "Traffic Operations Program to Increase Capacity and Safety," was first funded under the Federal Aid Highway Act of 1968.*

Source: Wisconsin Department of Transportation.

a county did not utilize its federal aid secondary apportionment, the funds would revert to the State Highway Commission to be reapportioned to other counties which applied for such funds, or would be used by the State Highway Commission at its discretion anywhere in the state on the federal aid secondary system. Racine County along with other populous counties in the state has received such reverted funds. The annual amounts of federal aid secondary funds expended in Racine County during the fiscal years 1963 through 1972 are shown in Table 27.

Beginning with fiscal year 1973, federal aid secondary funds are to be apportioned by the State of Wisconsin to the counties by means of a new formula. The apportionment of funds to the counties is to be based on a ranked priority list of numerical ratings developed from previous annual apportionments and the requested amounts submitted by each county for the present year. The funds are then apportioned to counties by means of their ratings until the total sum cost of the selected counties' projects approximately equals the amount of federal aid secondary funds available.

Table 27

FEDERAL HIGHWAY AID ALLOTTED TO RACINE COUNTY BY AID CATEGORY FISCAL YEARS 1963-1972

Fiscal Year	Aid Category					
	Interstate		Primary		Secondary	
	Allotment	Percent of Total	Allotment	Percent of Total	Allotment	Percent of Total
1963	$ --	--	$ 649,000	89.4	$ 76,949	10.6
1964	--	--	--	--	81,000	100.0
1965	--	--	346,000	82.3	74,400	17.7
1966	--	--	309,000	57.3	230,000	42.7
1967	--	--	290,000	63.3	167,900	36.7
1968	--	--	--	--	262,699	100.0
1969	--	--	--	--	--	--
1970	1,052,000	64.6	--	--	575,792	35.4
1971	3,968,000	97.7	--	--	--	--
1972	--	--	--	--	--	--
Total	$5,020,000	--	$1,594,000	--	$1,468,740	--
10-Year Average	$ 502,000	55.6	$ 159,400	17.6	$ 146,874	16.3

Fiscal Year	Urban		TOPICS		Total Allotments	Federal Highway Aid Apportioned to Wisconsin	
	Allotment	Percent of Total	Allotment	Percent of Total		Total	Percent Received by Racine County
1963	$ --	--	$ --	--	$ 725,949	$ 41,177,256	1.8
1964	--	--	--	--	81,000	43,692,038	0.2
1965	--	--	--	--	420,400	44,737,526	0.9
1966	--	--	--	--	539,000	46,978,243	1.1
1967	--	--	--	--	457,900	47,274,451	1.0
1968	--	--	--	--	262,699	50,875,316	0.5
1969	--	--	--	--	--	54,039,505	0.0
1970	--	--	--	--	1,627,792	66,076,007	2.5
1971	--	--	95,000	2.3	4,063,000	65,784,587	6.2
1972	--	--	52,700	--	52,700	67,044,529	0.1
Total	$ --	--	$147,700	--	$8,230,440	$527,679,458	--
10-Year Average	$ --	--	$ 49,233	10.5	$ 857,507	$ 52,767,946	1.6

Source: Wisconsin Department of Transportation.

Federal aid funds to be used on the extensions of federal aid primary routes within urban areas ("C" funds) are distributed throughout the state on the basis of need, as determined by the State Highway Commission. During the fiscal years 1963 through 1972 Racine County received no such federal aid funds.

Federal aid funds for TOPICS received by Wisconsin were apportioned by the State Highway Commission to cities and villages with a population of 5,000 or more on the basis of population. For eligibility in the program, a city or village must have had a population of 5,000 persons or more and must have prepared a plan documenting the operational improvements required to improve the safety and capacity of the existing arterial street and highway system. The Cities of Burlington and Racine within Racine County were eligible for TOPICS aid, but only the City of Racine has availed itself of such aid. Table 28 indicates the amounts of such aid which were available annually had these cities chosen to participate in the program.

Table 28

FEDERAL HIGHWAY AID APPORTIONED TO URBAN AREAS IN RACINE COUNTY FOR TOPICS PROGRAM FISCAL YEARS 1970-1973[a]

Fiscal Year	Municipality		Total
	City of Burlington	City of Racine	
1970	$ 8,700	$132,800	$141,500
1971	8,700	132,800	141,500
1972	5,300	43,100	48,400
1973	5,300	66,600	71,900
Total	$28,000	$375,300	$403,300

[a] *Under provisions of the Federal Aid Highway Act of 1973, separate appropriation of TOPICS improvements has been abolished. Such improvements, however, were made eligible for federal funds if located on the federal aid urban system.*

Source: Wisconsin Department of Transportation.

The federal aid urban system, as provided for in the Federal Aid Highway Act of 1970, was not designated in Racine County until May of 1972, and no apportionments were made in the county during the fiscal years 1963-1972. The Federal Aid Highway Act of 1973 provided for the realignment of the federal aid urban system. This redefinition of the urban system is being undertaken by the appropriate local officials with the concurrence of the State Highway Commission, subject to the approval of the Federal Highway Administration. The expansion of the federal aid urban system to be accomplished by June 30, 1976 is to supplant the existing federal aid secondary system and TOPICS system in urban areas while complementing the federal aid primary and interstate systems.

State Aids for Highways

State highway aids for construction, operation, and maintenance are derived from the state motor vehicle fuel taxes, motor vehicle registration and driver licensing fees, and motor carrier fees. These funds are administered by the Wisconsin Department of Transportation, Division of Highways, as a segregated fund which can be used only for highway and highway-related purposes.

Revenues from State Aids for Highways: The state motor fuel tax, accounting for almost two-thirds of total motor vehicle tax revenues, was initiated in 1925 at two cents per gallon. It increased to four cents in 1931, six cents in 1955, and to seven cents per gallon in 1966. The second largest source of motor vehicle tax revenues are the fees collected for motor vehicle registration and operator licensing, which contribute almost all of the remaining one-third of the revenues. Motor carrier fees imposed on owners of trucks and buses for regulatory purposes amount to less than 1 percent of the state motor vehicle revenues. Table 29 indicates the state motor vehicle revenues collected in Wisconsin during the fiscal years 1963 through 1972.

Disbursement of State Aids for Highways: The total annual net motor vehicle revenues, a result of deducting the annual collection and enforcement expenses from the total annual gross motor vehicle revenues, are distributed by the Wisconsin Department of Transportation, Division of Highways, in accordance with the provisions of Section 20.395 and Chapters 83, 84, and 86 of the Wisconsin Statutes. Table 30 indicates the statewide distribution of net motor vehicle revenues for the fiscal years 1963 through 1972. It may be noted from this table that for the fiscal year 1972, about 48 percent of the net motor vehicle revenues were allocated to state trunk highways; about 43 percent were returned to local units of government, including counties, cities, villages, and towns; and about 9 percent were utilized for miscellaneous purposes.

Of the approximately 43 percent returned to local units of government, about 12 percent was distributed to the counties within the state. Annually on June 30, a fixed sum of $3,500,000 is apportioned among the counties, 60 percent on the basis of the proportion which the total highway mileage within the county, exclusive of city and village streets, comprises of the total of such mileage within the state;[3] and 40 percent on the basis of the proportion which the motor vehicles registered within the county comprise of the total motor vehicles registered with the state. In addition, each county receives an annual allotment of $65 per mile of county trunk highway. Finally, at the close of each fiscal year, supplemental aids consisting of 15 percent of the revenue raised by the two-cent-a-gallon increase effected in 1955 and 18 percent of the net motor carrier fees and original four-cent-a-gallon motor fuel tax which remain after the payment of previously committed allotments are apportioned among the counties on the basis of the annual county trunk allotment.

Of the 43 percent of the motor fuel revenues returned to local units of government, approximately 31 percent of the total state highway aids were returned to local municipalities on the following basis: about 13 percent to towns, about 3 percent to villages, and about 15 percent to cities. This return comprises the local road and street allotment and supplemental aids. The basic local road and street allotment, made annually on March 10 to the towns, villages, and cities, is apportioned on the basis of a fixed rate per mile for the number of miles of local roads and streets—exclusive of state trunk highways, county trunk highways, and connecting streets—which are open and used for travel. Table 31 shows the rate per mile at which the towns, villages, and cities are paid their respective local road and street allotments. The

[3] *Counties having a population of 500,000 or more may include 25 percent of the city and village street mileage within the county in computing the total highway mileage within the county for the purpose of apportioning the $2,100,000 allotment.*

Table 29

WISCONSIN MOTOR VEHICLE REVENUES
FISCAL YEARS 1963-1972

Fiscal Year	Revenue Source			Adjustments[a]	Total Gross Revenues	Collection Expenses and First Charges of Other Agencies[b]	Total Net Revenues to be Distributed
	License Fees	Fuel Taxes	Carrier Fees				
1963	$ 47,955,404	$ 78,527,005	$ 594,285	$ 11,886	$ 127,088,580	$ 9,771,451	$ 117,317,129
1964	48,714,763	81,009,598	571,404	79,118	130,374,883	10,651,603	119,723,280
1965	51,697,661	84,934,763	600,815	20,490	137,253,729	11,421,211	125,832,518
1966	54,762,427	90,054,602	580,363	288	145,397,680	11,139,515	134,258,165
1967	60,304,239	108,385,059	622,716	--	169,312,014	15,992,722	153,319,292
1968	64,111,550	115,395,320	641,279	428	180,148,577	16,443,408	163,705,169
1969	67,062,072	122,142,203	635,072	642	189,839,989	18,948,360	170,891,629
1970	71,083,902	130,512,312	661,238	39,685	202,297,137	26,281,057	176,016,080
1971	72,723,706	137,062,521	653,717	1,360	210,441,304	25,162,359	185,278,945
1972	75,860,075	145,928,763	660,117	1,459	222,450,414	28,829,987	193,620,427
Total	$614,275,799	$1,093,952,146	$6,221,006	$155,356	$1,714,604,307	$174,641,673	$1,539,962,634
10-Year Average	$ 61,427,580	$ 109,395,215	$ 622,100	$ 15,535	$ 171,460,430	$ 17,464,167	$ 153,996,263

[a] *Adjustments include surplus funds and aids withheld pursuant to Section 84.01(25)(D) of the Wisconsin Statutes.*

[b] *Collection expenses and first charges of other agencies include charges for the following: The administration and collection costs of the Motor Vehicle Department, the Department of Taxation motor fuel tax, and the Public Service Commission; Legislative Council Highway Studies; Department of Public Instruction, Driver Education; Conservation Fund advertising of Wisconsin recreational facilities; the Aeronautics Commission; legislative awards for claims; and the Executive Department.*

Source: Wisconsin Department of Transportation.

supplemental aids consist of 35 percent of the revenues raised by the two-cent-a-gallon gas tax increase effected in 1955, and 42 percent of the net motor carrier fees and original four-cent-a-gallon motor fuel tax which remain after the payment of all previously committed allotments. Both the former and latter amounts are distributed as follows: 43 percent to towns, 21 percent to villages and cities with a population of 10,000 or less, and 36 percent to cities with a population over 10,000. The supplemental aids are apportioned on the basis of the amount of the local road and street allotments to the towns and cities with a population over 10,000. Supplemental aids to villages and cities with a population of 10,000 or less are apportioned on the basis of local road mileage.

Finally, on December 15 of each year there is allotted to each town, village, and city in the state an amount equal to 11 percent of the net registration fees collected from commercial vehicles and 20 percent of the net registration fees from all other motor vehicles customarily kept in such towns, villages, or cities. This allotment, known as the highway privilege tax allotment, is supplemented by an additional 40 cents per registered vehicle which resulted from the $2.00 increase in fees effected in 1966, and is apportioned on the basis of motor vehicle registrations. The Wisconsin Legislature enacted Chapter 125 of the Wisconsin Laws of 1971 which modified Sections 86.35(1) and 20.395(2)(wd) of the Wisconsin Statutes relating to the privilege highway tax allotment and its supplement, respectively, such that the revenues associated with these two sections of the Statutes are no longer paid directly to the respective cities, villages, and towns, but are placed in the municipal and county shared tax account for distribution essentially on a per capita basis pursuant to Chapter 79 of the Wisconsin Statutes. The last allotments in accordance with Sections 86.35(1) and 20.395(2)(wd) were made on December 15, 1972, with the shared tax distribution to begin subsequent to that date.

State Trunk Highway Improvement and Maintenance Funding

Revenues: Revenues for the construction and maintenance of state trunk highways and the construction of connecting streets are derived from two principal sources: federal aids and state sources. State sources can further be divided into two categories: apportionments made directly from the net motor vehicle revenues, and bonds issued for construction. Table 32 indicates the combined state and federal aid funds allocated to Racine County for the calendar years 1963 through 1972 for the construction and maintenance of state trunk highways and connecting streets.

Table 30

PERCENTAGE DISTRIBUTION OF NET MOTOR VEHICLE REVENUES BY THE STATE OF WISCONSIN
FISCAL YEARS 1963-1972

Net Motor Vehicle Revenue Distribution	Annual Percent Distributed									1972 Distribution	
	1963	1964	1965	1966	1967	1968	1969	1970	1971	Amount	Percent
Allotted and Apportioned to Local Units of Government											
Counties	14.2	14.1	14.1	14.1	12.5	12.4	12.4	12.3	12.2	$ 22,838,365	11.8
Cities	16.8	17.0	17.1	17.2	15.6	15.5	15.6	15.4	15.3	29,033,233	15.0
Villages	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.1	3.0	5,842,609	3.0
Towns	15.1	15.1	15.1	15.1	13.6	13.5	13.7	13.4	13.3	25,086,805	13.0
Flood Damage Aid	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0
Subtotal	49.4	49.4	49.5	49.6	44.7	44.4	44.7	44.2	43.8	$ 82,817,537[a]	42.8
Allotted and Apportioned for State Trunk Highways											
Construction	19.3	20.4	19.5	20.1	25.3	31.1	28.1	25.4	24.7	$ 45,546,260	23.5
Urban Street Improvement	3.2	3.2	3.0	2.8	2.5	2.3	2.2	2.1	2.0	3,800,000	2.0
Bond Retirement and Improvement	6.9	6.7	6.4	6.0	5.2	4.9	4.7	4.6	4.4	8,052,915	4.1
Maintenance, Traffic Service	11.6	11.3	11.2	11.1	10.7	10.1	10.6	11.7	10.9	24,742,392	12.8
Snow Removal	4.5	3.5	4.6	3.7	4.7	--	2.6	4.4	5.5	8,297,808	4.3
Safety Improvement	0.0	0.0	0.0	0.9	1.4	1.4	1.4	1.4	1.4	2,655,215	1.4
Subtotal	45.5	45.1	44.7	44.6	49.8	49.8	49.6	49.6	48.9	$ 93,094,590	48.1
Miscellaneous Allotments[b]	5.1	5.5	5.8	5.8	5.5	5.8	5.7	6.2	7.3	$ 17,708,300	9.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	$193,620,427	100.0

[a] *Total exceeds distribution by $16,525, which represents supplemental privilege tax allotment to be distributed later.*

[b] *Miscellaneous allotments include appropriations for administrative expenses of the Division of Highways; topographic maps; institution roads; bridge maintenance and operation; special bridges not on the state trunk highway system; state park, forest, and access roads; roadside improvements; and railroad grade crossing protection.*

Source: Wisconsin Department of Transportation and SEWRPC.

Table 31

LOCAL ROAD AND STREET ALLOTMENTS TO TOWNS, VILLAGES, AND CITIES IN RACINE COUNTY[a]

Level of Government	Rate Per Mile
Towns	$ 65
Villages	65
Cities with Population of:	
0 - 10,000	130
10,001 - 35,000	260
35,001 - 150,000	390
150,001 or More	520

[a] *The local road and street allotment is made on March 10 to towns, villages, and cities pursuant to Section 20.395(2)(wb), Section 86.31 of the 1971 Wisconsin Statutes.*

Source: 1971 Wisconsin Statutes.

Expenditures: In rural areas, construction expenditures on state trunk highways which are not on the federal aid systems are funded entirely from state revenues. Construction expenditures on federal aid systems are funded on a 70 percent-30 percent matching revenue basis on federal aid primary and secondary routes.

In urban areas, construction expenditures on state trunk highways and connecting streets which are not on the federal aid systems are usually funded with 85 percent state and 15 percent city or village monies. Such expenditures on state trunk highways and connecting streets, which are also on the federal aid primary or secondary systems, are usually funded with 70 percent federal, 15 percent state, and 15 percent city or village monies. In either instance, the amount of the local contribution is determined as 15 percent of the "participating" construction costs, which costs are, in turn, determined for each individual project on the basis of the cost of the participating or eligible items, as negotiated and agreed upon between the Wisconsin Department of Transporta-

tion, Division of Highways, and the local unit of government. The participating items usually, but not always, include right-of-way acquisition; grading; construction of the pavement base and surface, culverts and bridges, curb and gutter, and inlets for surface water drainage with connections to storm sewers; and engineering services. The Wisconsin Department of Transportation, Division of Highways will, in addition, place and maintain signs and markers for approved detours and maintain such detours during the construction period. The city or village must bear the cost of all utility relocation and storm sewer construction costs not required for purely highway drainage purposes. Therefore, the total contribution by the city or village to a state trunk highway or connecting street improvement project, whether on a federal aid system or not, may actually vary from less than 15 percent to more than 50 percent of the total project cost, depending on the relative costs of the various items on the project and the agreement arrived at between the state and local units of government concerning the definition of participating items.

Maintenance expenditures on the state trunk highway system have increased steadily over the past 10 years and now exceed 15 percent of the net motor vehicle revenues. Maintenance costs for state trunk highways are borne entirely by the state, although most of the maintenance work is actually performed by the county forces under contract to the state. For facilities on the connecting street system, the state partially reimburses the local municipality which is responsible for performing such maintenance. This reimbursement is made at the rate of $500 per mile per year, an amount substantially less than the actual cost of maintenance.

Table 32 summarizes state expenditures in Racine County for the construction and operation and maintenance of the state trunk highway and connecting street systems for the calendar years 1963 through 1972.

County Trunk Highway Funding

Revenues: Counties in Wisconsin receive highway revenues from three principal sources: federal aids, state aids, and county property taxes. In addition, counties are authorized by Section 67.04 of the Wisconsin Statutes to issue general obligation bonds for highway construction purposes. Racine County, however, has not to date utilized bonding for highway purposes. Local property taxes for highway purposes may not exceed two mills (0.002 cent) per dollar of assessed valuation and are paid into the county road and bridge fund. Although the proportion of county highway revenues derived from federal aids, state aids, and local sources varies greatly from county to county and from year to year, an average county within Wisconsin received about 10 percent of its total highway revenues from federal aid, about 36 percent from state

Table 32

STATE OF WISCONSIN EXPENDITURES AND REVENUES FOR STATE TRUNK HIGHWAYS AND CONNECTING STREETS IN RACINE COUNTY CALENDAR YEARS 1963-1972

Calendar Year	Expenditures[a]			Revenues[a]		
	Maintenance	Construction	Total	State Funds[b]	Federal Aids	Total
1963	$ 236,779	$ 2,502,000	$ 2,738,779	$ 2,089,779	$ 649,000	$ 2,738,779
1964	250,328	99,000	349,328	268,328	81,000	349,328
1965	275,204	978,000	1,253,204	907,204	346,000	1,253,204
1966	286,425	838,000	1,124,425	815,425	309,000	1,124,425
1967	337,078	1,827,000	2,164,078	1,874,078	290,000	2,164,078
1968	351,941	971,000	1,322,941	1,322,941	--	1,322,941
1969	410,843	1,103,000	1,513,843	1,513,843	--	1,513,843
1970	411,737	1,667,000	2,078,737	1,026,737	1,052,000	2,078,737
1971	420,887	4,953,000	5,373,887	1,405,887	3,968,000	5,373,887
1972	458,031	705,000	1,163,031	1,163,031	--	1,163,031
Total	$3,439,253	$15,643,000	$19,082,253	$12,387,253	$6,695,000	$19,082,253
10-Year Average	$ 343,925	$ 1,564,300	$ 1,908,225	$ 1,238,725	$ 669,500	$ 1,908,225

[a] *The accounting procedure used in the jurisdictional highway system planning program assumed that total revenues were equal to total expenditures.*

[b] *Due to the accounting of state monies on a statewide basis, state funds in Racine County were set equal to the difference between total revenues and federal aids.*

Source: Wisconsin Department of Transportation and Racine County Highways and Parks Commission.

aid, and about 54 percent from local sources. Table 33 indicates the revenues received by Racine County for highway purposes for the fiscal years 1963 through 1972.

Expenditures: Construction expenditures on the county trunk highway system consist of direct expenditures of county funds by the respective counties, administered through the county highway committees of the county boards; and federal aid funds matched by county funds, administered by the State Highway Commission on those county trunk highways which are also on the federal aid system. Construction expenditures on county trunk highways which are also federal aid routes are usually financed with 70 percent federal funds and 30 percent county funds. The amount of the county contribution is determined as 30 percent of the construction costs, which costs are, in turn, determined by the cost of the participating or eligible items. These participating items are set by federal policy and generally include right-of-way acquisition; grading; construction of the pavement base and surface, culverts and bridges, curb and gutter, outlets for surface drainage, and storm sewer mains adequate for drainage of the pavement surfaces and right-of-way; replacement of walks and private driveways; repair of damages to other roads by reason of their use in hauling materials needed for the improvement; and engineering services. Construction expenditures for county trunk highways which are not on the federal aid system are usually financed entirely with county funds.

The minimum cost to the county for construction of county trunk highways through cities and villages is determined on the basis of the width of the proposed construction, the county being responsible for the full cost of 18 feet of the width plus a portion of the cost of the balance of the width, to be determined by dividing the cost of the width exceeding 18 feet by the total width of the improvement and multiplying by 18, as provided for in Section 83.05(2) of the Wisconsin Statutes. In practice, Racine County has historically participated in the cost of improving the total roadway width required.

Maintenance and operation costs for the county trunk highway system are paid for by the county, and maintenance is performed by county forces. Table 33 indicates the county highway funds expended by Racine County for highway construction and maintenance and operation during the fiscal years 1963 through 1972.

Local Street and Highway Funding

Revenues: Like counties, local units of government receive highway revenues from three principal sources: federal aids, state aids, and local revenues. Although the proportion of highway revenues received from each source will vary from municipality to municipality and from year to year, the average city, village, or town in Wisconsin receives about 17 percent of its total highway revenues from federal aids, about 43 percent from state aids, and about 40 percent from local revenues. The local

Table 33

RACINE COUNTY EXPENDITURES AND REVENUES FOR COUNTY TRUNK HIGHWAYS FISCAL YEARS 1963-1972

Fiscal Year[a]	Expenditures[b]			Revenues[b]			
	Maintenance	Construction	Total	Local Funds[c]	State Aids	Federal Aids	Total
1963	$ 300,897	$ 309,464	$ 610,361	$ 269,835	$ 263,577	$ 76,949	$ 610,361
1964	264,563	174,463	439,026	169,341	269,685	--	439,026
1965	329,831	844,851	1,174,682	612,375	288,507	273,800[d]	1,174,682
1966	343,537	547,901	891,438	351,553	309,885	230,000	891,438
1967	367,826	840,551	1,208,377	722,003	318,474	167,900	1,208,377
1968	379,909	904,080	1,283,989	685,076	336,214	262,699	1,283,989
1969	437,753	660,432	1,098,185	746,985	351,200	--	1,098,185
1970	448,054	1,480,376	1,928,430	995,669	356,969	575,792	1,928,430
1971	450,133	634,460	1,084,593	709,472	375,121	--	1,084,593
1972	529,789	547,687	1,077,476	696,259	381,217	--	1,077,476
Total	$3,852,292	$6,944,265	$10,796,557	$5,958,568	$3,250,849	$1,587,140	$10,796,557
10-Year Average	$ 385,229	$ 694,427	$ 1,079,656	$ 595,857	$ 325,085	$ 158,714	$ 1,079,656

[a] *The county fiscal year 1963 extends from January 1, 1963 through December 31, 1963.*

[b] *The accounting procedure used in the jurisdictional highway system planning program assumed that total revenues were equal to total expenditures.*

[c] *Due to the accounting methods utilized by the county, local funds were assumed to equal the difference between total revenues and the sum of state and federal aids.*

[d] *Federal aid primary funds.*

Source: Racine County Highway Department and SEWRPC.

revenues are derived from local tax receipts, which account for approximately 77 percent and include special assessments, property taxes from the general fund, and miscellaneous sources; and bonding, which accounts for about 23 percent. Tables 34, 35, and 36 indicate the highway and highway-related revenues for cities, villages, and towns, respectively, in Racine County for the fiscal years 1963 through 1972.

Expenditures: Construction costs for streets and highways under the jurisdiction of a city, village, or town are paid for entirely by the respective unit of government unless the local street is on a federal aid route. Maintenance and operation costs for all city and village streets and town roads, regardless of federal aid designation, are also paid for by the respective unit of government, with the unit of government involved generally performing its own maintenance work. Tables 34, 35, and 36 summarize the expenditures for construction, operation, and maintenance by all cities, villages, and towns, respectively, in Racine County for fiscal years 1963 through 1972.

Concluding Remark—Highway Improvement and Maintenance Funding

Table 37 provides a summary of all expenditures for highway construction, operation, and maintenance in Racine County for the calendar years 1963 through 1972. The present participation of the various levels of government in highway construction and maintenance costs is summarized in Table 38. It should be noted that, as explained above, the actual local share of the construction costs of state trunk highways and connecting streets, although nominally set at 15 percent of the cost, may vary considerably depending on the definition of participating or eligible work items. Local participation in past construction projects within Racine County has varied from zero to 50 percent of the total cost.

PLAN RECOMMENDATIONS AFFECTING HIGHWAY FINANCING

Analysis of the existing highway aid policies and formulae indicates that two major revisions in these policies and formulae would be desirable in order to meet certain basic objectives of the jurisdictional highway planning effort, namely abolition of the connecting street concept and establishment of uniform construction aid formulae and policies. These revisions would affect any financial analysis of a jurisdictional highway system plan and, therefore, are considered here.

Proposed Abolition of Connecting Streets

If each of the jurisdictional highway systems is to function as an integrated subsystem, then the responsibility for the operation and maintenance of each of the individual facilities comprising the subsystem, as well as the design

Table 34

CITY EXPENDITURES AND REVENUES FOR CITY STREETS IN RACINE COUNTY FISCAL YEARS 1963-1972

Fiscal Year[a]	Expenditures[b]			Revenues[b]			
	Maintenance	Construction	Total	Local Funds[c]	State Aids	Federal Aids	Total
1963	$ 611,723	$ 617,002	$ 1,228,725	$ 534,226	$ 694,499	$ --	$ 1,228,725
1964	484,047	633,512	1,117,559	408,600	708,959	--	1,117,559
1965	548,365	997,016	1,545,381	812,642	732,739	--	1,545,381
1966	1,033,574	1,209,119	2,242,693	1,448,858	793,835	--	2,242,693
1967	1,095,453	1,116,262	2,211,715	1,403,959	807,756	--	2,211,715
1968	994,080	694,602	1,688,682	869,772	818,910	--	1,688,682
1969	1,196,506	1,063,296	2,259,802	1,348,360	911,442	--	2,259,802
1970	1,181,683	141,056	1,322,739	405,479	907,260	10,000	1,322,739
1971	1,231,990	771,729	2,003,719	944,546	899,673	159,500	2,003,719
1972	1,548,039	593,079	2,141,118	1,387,729	700,689	52,700	2,141,118
Total	$9,925,460	$7,836,673	$17,762,133	$9,564,171	$7,975,762	$222,200	$17,762,133
10-Year Average	$ 992,546	$ 783,667	$ 1,776,213	$ 956,417	$ 797,576	$ 22,220	$ 1,776,213

[a] *The city fiscal year 1963 extends from January 1, 1963 through December 31, 1963.*

[b] *The accounting procedure used in the jurisdictional highway system planning program assumed that total revenues were equal to total expenditures.*

[c] *Due to the accounting methods utilized by individual municipalities, local funds were assumed to equal the difference between total revenues and state aids.*

Source: Wisconsin Department of Administration and SEWRPC.

Table 35

VILLAGE EXPENDITURES AND REVENUES FOR VILLAGE STREETS IN RACINE COUNTY
FISCAL YEARS 1963-1972

Fiscal Year[a]	Expenditures[b]			Revenues[b]		
	Maintenance	Construction	Total	Local Funds[c]	State Aids	Total
1963	$ 73,718	$ 7,223	$ 80,941	$ 27,041	$ 53,900	$ 80,941
1964	91,672	77,074	168,746	114,340	54,406	168,746
1965	96,922	33,705	130,627	72,946	57,681	130,627
1966	91,791	85,520	177,311	111,329	65,982	177,311
1967	114,970	47,224	162,194	88,923	73,271	162,194
1968	117,196	130,936	248,132	171,947	76,185	248,132
1969	130,526	42,968	173,494	80,038	93,456	173,494
1970	161,180	49,393	210,573	116,048	94,525	210,573
1971	170,724	179,149	349,873	252,067	97,806	349,873
1972	188,627	32,278	220,905	143,613	77,292	220,905
Total	$1,237,326	$685,470	$1,922,796	$1,178,292	$744,504	$1,922,796
10-Year Average	$ 123,733	$ 68,547	$ 192,280	$ 117,829	$ 74,450	$ 192,280

[a] *The village fiscal year 1963 extends from January 1, 1963 through December 31, 1963.*

[b] *The accounting procedure used in the jurisdictional highway system planning program assumed that total revenues were equal to total expenditures.*

[c] *Due to the accounting methods utilized by individual municipalities, local funds were assumed to equal the difference between total revenues and state aids.*

Source: Wisconsin Department of Administration and SEWRPC.

Table 36

TOWN EXPENDITURES AND REVENUES FOR TOWN ROADS IN RACINE COUNTY
FISCAL YEARS 1963-1972

Fiscal Year[a]	Expenditures[b]			Revenues[b]			
	Maintenance	Construction	Total	Local Funds[c]	County Aids	State Aids	Total
1963	$ 538,393	$ 80,761	$ 619,154	$ 414,628	$ 18,264	$ 186,262	$ 619,154
1964	618,516	25,540	644,056	452,274	1,640	190,142	644,056
1965	634,030	53,253	687,283	460,753	10,947	215,583	687,283
1966	924,543	49,292	973,835	738,800	39,800	195,235	973,835
1967	857,613	54,836	912,449	656,081	25,237	231,131	912,449
1968	1,016,236	100,907	1,117,143	816,153	61,813	239,177	1,117,143
1969	966,380	29,363	995,743	718,531	20,984	256,228	995,743
1970	870,183	25,500	895,683	593,073	25,500	277,110	895,683
1971	1,000,947	30,805	1,031,752	745,393	7,502	278,857	1,031,752
1972	989,600	43,260	1,030,860	693,318	2,285	337,257	1,030,860
Total	$8,416,441	$493,517	$8,909,958	$6,289,004	$213,972	$2,406,982	$8,909,958
10-Year Average	$ 841,644	$ 49,352	$ 890,996	$ 628,900	$ 21,397	$ 240,698	$ 890,996

[a] *The town fiscal year 1963 extends from April 1, 1962 through March 31, 1963.*

[b] *The accounting procedure used in the jurisdictional highway system planning program assumed that total revenues were equal to total expenditures.*

[c] *Due to the accounting methods utilized by individual municipalities, local funds were assumed to equal the difference between total revenues and state aids.*

Source: Wisconsin Department of Administration and SEWRPC.

Table 37

EXPENDITURES BY FEDERAL, STATE, COUNTY, AND LOCAL GOVERNMENTS FOR HIGHWAY CONSTRUCTION, OPERATION, AND MAINTENANCE IN RACINE COUNTY 1963-1972

Calendar Year	Level of Government					
	Federal			State		
	Construction[a]	Operation and Maintenance[b]	Total	Construction[a]	Operation and Maintenance[b]	Total
1963	$ 725,949	$ --	$ 725,949	$1,853,000	$ 236,779	$ 2,089,779
1964	81,000	--	81,000	18,000	250,328	268,328
1965	619,800	--	619,800	632,000	275,204	907,204
1966	539,000	--	539,000	529,000	286,425	815,425
1967	457,900	--	457,900	1,537,000	337,078	1,874,078
1968	262,699	--	262,699	971,000	351,941	1,322,941
1969	--	--	--	1,103,000	410,843	1,513,843
1970	1,637,792	--	1,637,792	615,000	411,737	1,026,737
1971	4,127,500	--	4,127,500	985,000	420,887	1,405,887
1972	52,700	--	52,700	705,000	458,031	1,163,031
Total	$8,504,340	$ --	$8,504,340	$8,948,000	$ 3,439,253	$12,387,253
10-Year Average	$ 850,434	$ --	$ 850,434	$ 894,800	$ 343,925	$ 1,238,725

Calendar Year	Level of Government					
	County			Local		
	Construction[a]	Operation and Maintenance[b]	Total	Construction[a]	Operation and Maintenance[b]	Total
1963	$ 238,311	$ 300,897	$ 539,208	$ 657,774	$ 1,283,926	$ 1,941,700
1964	183,083	264,563	447,646	748,291	1,205,871	1,954,162
1965	603,638	329,831	933,469	1,048,417	1,497,202	2,595,619
1966	346,779	343,537	690,316	1,319,211	1,999,711	3,318,922
1967	725,320	367,826	1,093,146	1,200,207	2,187,003	3,387,210
1968	672,572	379,909	1,052,481	841,596	2,090,120	2,931,716
1969	684,803	437,753	1,122,556	1,108,359	2,221,264	3,329,623
1970	916,586	448,054	1,364,640	197,926	2,311,119	2,509,045
1971	638,049	450,133	1,088,182	827,935	2,395,151	3,223,086
1972	569,084	529,789	1,098,873	597,371	2,599,471	3,196,842
Total	$5,578,225	$3,852,292	$9,430,517	$8,547,087	$19,790,838	$28,337,925
10-Year Average	$ 557,823	$ 385,229	$ 943,052	$ 854,709	$ 1,979,084	$ 2,833,793

[a] *Construction includes such items as expenditures for engineering costs, right-of-way acquisition, curb and gutter, sidewalks, storm sewers, interest on bond proceeds used for construction purposes, and outlays for roads and streets and bridges and culverts.*

[b] *The operation and maintenance category includes such items as expenditures for road and street expense; bridge and culvert expense; street cleaning, oiling, and sprinkling; snow and ice removal; street machinery; general administration; signs and guide boards; and traffic control and regulation devices.*

Source: Wisconsin Department of Administration, Wisconsin Department of Transportation, and SEWRPC.

and construction of these facilities, must ultimately rest with the level and agency of government having the greatest basic interest in these facilities. It was, therefore, considered essential that the state and county trunk highway systems each be made continuous throughout the county and its incorporated municipalities. The attainment of this subsystem continuity and the attendant unification of operation and maintenance, as well as design and construction responsibilities, dictated the need for abandoning the connecting street concept. In addition to introducing undesirable discontinuities into the state trunk highway system and thereby violating the principles of sound system management, the connecting street concept creates inequities in the distribution of maintenance costs. These inequities result in a shift from the state to the local units of government of nearly the full burden of maintaining facilities designed to serve heavy volumes of fast, through traffic.

The concept of a connecting street dates back to 1917, when a special committee of the State Legislature was appointed by the Governor to establish a state trunk highway system. At this time, the law required "the system to be laid out exclusive of any street and road in a municipality having a population of 2,500 or more by the last federal census, except that portion of any such street or highway along which the houses averaged more than 200 feet apart." Through this provision, the state trunk highway system was made continuous through cities and villages with a population of less than 2,500 but not through cities and villages having a population greater than 2,500, extending into such cities and villages only to the point where residential structures existed at an average spacing of less than 200 feet. Thus these arterial streets, while being marked and signed as routes for state trunk highways and carrying heavy volumes of primarily through traffic, are not a part of the state trunk

Table 38

RELATIONSHIP BETWEEN JURISDICTIONAL HIGHWAY CLASSIFICATION AND AID FORMULAE FOR CONSTRUCTION AND MAINTENANCE IN RACINE COUNTY: 1973

Jurisdictional Classification	Number of Miles (1973)	Percent of Total Miles	Participation in Construction Costs	Participation in Maintenance Costs
State Trunk Highways (Excludes connecting streets)	137.75	13	Freeways and rural highways - 100 percent state Urban Highways - 85 percent state and 15 percent city or village	100 percent state under contract with the county. County is reimbursed on basis of actual machine rental, labor, and material costs incurred
Connecting Streets (Portions of the state trunk system in urban municipalities)	18.57	2	85 percent state, 15 percent city or village	State aid at the rate of $500 per mile to the maintaining municipality, with satisfactory documentation of maintenance and balance of cost borne by municipality
County Trunk Highways	152.66	14	Rural Highways - 100 percent county Urban Highways - 100 percent of 18 feet plus a share of any additional width required by the city or village through which such construction takes place by county, with remainder by city or village	Rural Highways - State aid consisting of basic $65 per mile, annual apportionment of $3,500,000 on basis of motor vehicle registrations and noncity, nonvillage, mileage; and supplemental aids apportioned on the basis of aforementioned aids, with county funds providing the balance of costs Urban Highways - State aids as noted above, with city or village maintaining width in excess of that which exists on highway outside of corporate limits
Local Streets and Roads	764.63	71	100 percent municipal funds	State aid provided at variable rate based on size and class of municipality
Total	1,073.61	100	--	--

Table 38 (continued)

Federal Aid Classification	Number of Miles (1973)	Percent of Total Miles	Participation in Construction Costs	Participation in Maintenance Costs[a]
Interstate	12.02	4	90 percent federal, 10 percent state	100 percent nonfederal
Primary System (Includes 58 percent of state trunk highway mileage, 1 percent of the county trunk highway mileage, and 1 percent of the local street and road mileage)	93.22	28	70 percent federal, 30 percent nonfederal[b]	100 percent nonfederal
Secondary System (Includes 34 percent of the state trunk highway mileage, 79 percent of the county trunk highway mileage, and 1 percent of the local street and road mileage)	179.30	54	70 percent federal, 30 percent nonfederal[b]	100 percent nonfederal
TOPICS	38.41	12	70 percent federal, 30 percent city or village	100 percent nonfederal
Federal Aid Urban System (Includes 1 percent of the county trunk highway mileage, and 1 percent of the local street and road mileage)	6.60	2	70 percent federal, 30 percent city or village	100 percent nonfederal
Total	329.55	100	--	--

[a] *Federal aids are not available for maintenance purposes. Participation in maintenance for routes on the federal aid systems is based on the jurisdictional classification of those routes.*

[b] *Participation in construction costs is based on the jurisdictional classification of the route, with the federal share being applied to the participation of the unit of government under whose jurisdiction the facility lies.*

Source: Wisconsin Department of Transportation and SEWRPC.

highway system within the more densely populated portions of such cities in Racine County as Burlington and Racine and such a village as Union Grove.

Those streets which form the connections between state trunk highways through cities and villages are entitled to receive certain allotments from the net motor vehicle revenues. These allotments were originally intended as a reimbursement to cities and villages for the expenses incurred in maintaining the connecting streets. In 1929, the amount of the allotment for the maintenance of connecting streets was established by the State Legislature at $500 per mile for any portion of a connecting street on the original 1921 federal aid primary system, $400 per mile for any portion of a connecting street on the original 1921 federal aid secondary system, and $300 per mile for all other connecting streets. In 1943, the Legislature established the present allotment rate of $500 per mile for all connecting streets regardless of classification. While the cost of maintaining connecting streets within Racine County has increased on an average to more than 10 times the $500 allotment over the past 30 years, the maintenance allotment rate per mile has remained the same. Thus, a major portion of the burden of maintaining facilities of areawide importance has been shifted to the local units of government.

Two of the cities—Burlington and Racine—and one of the villages—Union Grove—within Racine County have connecting street mileage. Of the nine cities and villages, five have state trunk highway mileage, with the Villages of Elmwood Park, North Bay, Rochester, and Wind Point

having no state trunk highway or connecting street mileage. Table 4 indicates the present distribution of state trunk highway and connecting street mileage within Racine County by municipality. State trunk highways within Racine County are maintained by the county under a maintenance contract with the state, and all maintenance costs actually incurred are reimbursed by the state. All connecting streets within Racine County are maintained by the local municipality, and as already noted, an allotment of $500 per mile is paid to the municipality by the state upon submittal of proper evidence of maintenance expenditures.

In the previous chapter, the establishment within Racine County of a Type I arterial highway system totaling 165 route-miles was recommended. Of this total, approximately 45 miles would consist of freeways and the remaining 120 miles of standard arterials. It is proposed that all Type I arterials which are also freeways be classified as state trunk highways and, therefore, be maintained by Racine County for the Wisconsin Department of Transportation, Division of Highways. The remaining proposed Type I arterials should be constructed and maintained so that adequate capacity, desirable operating conditions, and responsible control of access are provided and preserved on a regionwide or statewide basis. Toward this end and in order to ensure a continuous, uniformly desirable cross section and operating conditions along Type I arterials, it is recommended that the ultimate responsibility for the maintenance and operation of the Type I arterials rest with the Wisconsin Department of Transportation, Division of Highways. All operations or actions that will have a long-term effect on the traffic capacity and level of service should be encompassed within this responsibility.

It is, therefore, recommended that the state trunk highway system be made continuous through all incorporated areas within the county and that the connecting street concept be abandoned. Under this proposal the State Highway Commission would continue to contract with the county for maintenance of Type I facilities, with the added option of contracting directly with the cities and villages concerned for Type I nonfreeway facility maintenance. It is recommended that the state in all cases contract for maintenance with those cities and villages which have a demonstrated capability and desire to perform the maintenance function and which continue to meet the state established standards for such maintenance. It is further recommended that the state reimburse the county, city, or village on a contractual basis for the cost of the following "eligible" maintenance items on the Type I highway facilities:

1. Physical maintenance of the roadway pavement surfaces and structures, including crack sealing, patching, resurfacing, sweeping, and curb and gutter repair.

2. Physical maintenance of storm sewers located within the highway right-of-way, including cleaning.

3. Snow plowing and ice control between curbs, including removal of snow at bus stops, intersections, and at other locations as required to maintain traffic service.

4. Physical maintenance of traffic control devices, including signs, signals, safety lights, and pavement markings. The cost of maintaining safety lighting shall be determined by a proration of costs based upon the proportion of fixtures installed for traffic service at intersections of two Type I facilities or at intersections of Type I and Type II facilities to the total fixtures along the Type I route.

5. Physical maintenance of existing trees located within the highway right-of-way, and mowing grass on medians and shoulders.

The state would not participate in the maintenance of sidewalks or driveways, the care of new trees planted under permit, the care of ornamental flowers and shrubs, or in the maintenance of sprinkler systems or attendant water service.

It is also recommended that the state assume or continue direct administration of the following operational control devices on Type I highway facilities.

1. Issuance of driveway permits.

2. Control of advertising signs.

3. Maintenance of route signs.

4. Establishment of speed zoning.

5. Issuance of special permits.

6. Prohibition of parking, as required, to provide necessary traffic capacity.

7. Installation of traffic control signals.

The state may, at its option, delegate the administration of these operational controls to the local municipalities concerned. Such delegation shall parallel contracting for maintenance service.

Implementation of these recommendations would not only provide for a more equitable distribution of the burden of maintaining arterial facilities of areawide importance, but would also place the operational control of these facilities in the level and agency of government that has the greatest interest in, and the resources available for, these facilities. In all cases, the decision to delegate operational and maintenance responsibilities and authority on the Type I arterial system should rest with the State Highway Commission.

Because of the close parallel which exists between the function of the Type I and Type II arterial systems, it is recommended that county trunk highways also be made

continuous through all incorporated areas. The county would continue to maintain the Type II facilities, with the option of contracting with the cities and villages concerned for such maintenance on a full-cost reimbursement basis. It is recommended that the county in all cases contract for maintenance with those cities and villages which have a demonstrated capability and desire to perform the maintenance function and which continue to meet the county established standards for such maintenance. Eligible maintenance items and operational control devices would be identical to those set forth above for the Type I arterials, with the decision to delegate responsibilities and authority on the Type II arterial system resting with the County Highway Committee.

Proposed Revision of Construction Aid Formulae and Policies

Analysis of the existing aid policies and formulae also revealed certain inconsistencies and inequities in the financing of state and county trunk highway construction projects. As noted previously, these inconsistencies and inequities relate to the definition of construction items eligible for federal and state aids and, in effect, serve to create varying local cost participation rates for identical facility-type construction projects. It is, therefore, considered desirable to modify existing construction aid policies in order to obtain a uniform and more equitable cost sharing between the various levels and units of government concerned.

Recognizing that urban municipalities, due to the character of urban land use development, generally realize certain nontransportation-related benefits from the construction or reconstruction of Type I or Type II highway facilities located within their boundaries, and recognizing that a greater proportion of the travel on such urban facilities will be of an intracommunity nature than in rural areas, it is considered equitable to require the cities and villages to participate in the cost of both state and county trunk highway improvements. Conversely, because rural municipalities, due to the character of rural land use development, generally do not realize the same nontransportation-related benefits from Type I and Type II highway facilities located within their boundaries, and because a greater proportion of the travel on such rural facilities is of an intercommunity nature, it is not considered necessarily equitable to require such communities to participate in the cost of state aid county trunk highway improvements.

It is further considered desirable, in the interest of equity and sound management practices, to establish the local participation rate within the cities and villages of Racine County at the same fixed percentage level for both state trunk nonfreeway and county trunk facility construction and to determine eligible work items on a uniform basis throughout the county. These modifications would not only result in a more equitable distribution of construction costs, but would also serve to simplify programming, scheduling, and financing of improvements, and would assist city and village units of government in budgeting for major highway improvements.

Thus, after careful consideration of alternatives, it is recommended that a uniform policy of construction aid be adopted for both the Type I and Type II highway facilities within cities and villages. This policy should provide for a fixed city or village contribution of 15 percent of the cost of all state and county trunk highway construction projects, with the cost of the construction project being determined on the basis of the following participating work items:

1. Right-of-way acquisition.
2. Grading.
3. Construction of pavement base and surface, curb and gutter, retaining walls, and culverts and bridges.
4. Construction of inlets for surface water drainage, together with connection to storm sewer mains.
5. Construction of storm sewer mains necessary for pavement and right-of-way drainage.
6. Engineering services.
7. Pedestrian walkways and bikeways, as described in Section 217 of Title 23, United States Code.

Furthermore, it is recommended that the cost of construction of the Type I and Type II highway facilities in unincorporated areas be borne entirely by the state and county, respectively.

These recommendations are based, however, on the assumption that all state and county trunk highways in cities and villages will be constructed or improved utilizing urban cross sections, while all such highways in towns will be constructed or improved utilizing rural cross sections. Any departure from this assumption will require an adjustment in the recommended policy concerning local contribution, that is, cities and villages would not be required to contribute to the cost of the construction of state and county trunk highways having rural cross sections within their corporate limits. Conversely, the construction of state and county trunk highways with urban cross sections within a town, wherein the town, because of the character of the abutting development, requests an urban section, would require that the town contribute 15 percent of the participating cost of the improvement.

FINANCIAL ANALYSIS AND FEASIBILITY

Financial Analysis

Having determined that two basic changes in highway aid policies and formulae were necessary to achieve the basic objectives of the jurisdictional highway planning effort, a detailed financial analysis of the recommended jurisdictional highway system plan was made based upon the assumption that these changes would be effected. The analysis included consideration of the effects of the

proposed plan on highway aids and allotments to the municipalities comprising Racine County, as well as consideration of the costs of plan implementation and the total revenues which may be expected to become available over the plan implementation period.

The Wisconsin Statutes provide for the payment of certain basic aids and allotments to counties and municipalities for street and highway purposes. These are apportioned on the basis of formulae involving the type of incorporated area, population, jurisdictional and total street and highway mileage, and motor vehicle registration. The proposed realignment of the jurisdictional highway systems in Racine County will affect the mileage of state trunk and county trunk facilities within each municipality in Racine County, and will consequently result in changes in the basic aids and allotments for street and highway purposes paid to each municipality and to the county itself.

The effect of the proposed realignment of the jurisdictional highway system within Racine County on highway aids and allotments is summarized in Table 39. This table indicates the recommended change in jurisdictional highway mileage within each municipality within the county, the corresponding changes in basic aids and allotments, and the changes resulting from the proposed abandonment of the connecting street concept. It should be noted that the table provides comparative data for the existing 1973 situation and for the existing street and highway system as the implementation of the jurisdictional highway system plan would have affected the distribution of state aids in 1973. The table also shows comparative figures for the final (1990) stage in the implementation of the recommended jurisdictional highway system plan, and includes estimates of the probable effects of anticipated increases in local street mileage resulting from new land use development within the county and of anticipated increases in motor vehicle registrations.

Table 39

HIGHWAY AND HIGHWAY-RELATED AIDS AND ALLOTMENTS RETURNED TO MUNICIPALITIES IN RACINE COUNTY 1973, 1975, and 1990

Current Jurisdictional Highway System - 1973

Civil Division	Number of Miles					Local Street Aids And Allotments	Privilege Highway Tax[a]	Connecting Street Allotments	State Trunk Highway Maintenance
	State Trunk		Connecting Street	County Trunk	Local Street				
	Freeway	Nonfreeway							
CITIES									
Burlington	--	1.09	4.59	0.07	28.60	$ 57,813	$ 775	$2,295	$ --
Racine	--	1.47	13.24	2.35	220.88	664,671	8,693	6,620	--
Subtotal	--	2.56	17.83	2.42	249.48	$ 722,484	$ 9,468	$8,915	$ --
VILLAGES									
Elmwood Park	--	--	--	0.35	1.81	$ 3,542	$ 40	$ --	$ --
North Bay	--	--	--	0.21	1.30	2,544	35	--	--
Rochester	--	--	--	1.64	2.43	4,754	50	--	--
Sturtevant	--	1.67	--	1.00	10.28	20,112	363	--	--
Union Grove	--	0.97	0.74	--	9.28	18,155	329	370	--
Waterford	--	1.78	--	0.68	8.78	17,178	283	--	--
Wind Point	--	--	--	2.34	8.29	16,219	133	--	--
Subtotal	--	4.42	0.74	6.22	42.17	$ 82,504	$ 1,233	$ 370	$ --
TOWNS									
Burlington	--	15.88	--	12.98	56.46	$ 22,807	$ 477	$ --	$ --
Caledonia	3.20	18.90	--	20.11	108.60	43,868	1,362	--	--
Dover	--	17.87	--	15.41	34.85	14,077	256	--	--
Mt. Pleasant	3.01	19.31	--	23.07	72.33	29,216	1,213	--	--
Norway	--	8.08	--	17.00	45.11	18,222	457	--	--
Raymond	2.80	3.18	--	19.12	52.05	21,025	315	--	--
Rochester	--	5.06	--	14.51	11.29	4,560	115	--	--
Waterford	--	14.34	--	5.99	51.10	20,461	295	--	--
Yorkville	3.01	16.13	--	15.83	41.19	16,637	250	--	--
Subtotal	12.02	118.75	--	144.02	472.98	$ 190,873	$ 4,740	$ --	$ --
Racine County	--	--	--	--	--	$ 410,650	$ --	$ --	$407,286
Total	12.02	125.73	18.57	152.66	764.63	$1,406,511	$15,441	$9,285	$407,286

Table 39 (continued)

Initial Jurisdictional Realignment - 1975

Civil Division	Number of Miles					Local Street Aids And Allotments	Privilege Highway Tax	Connecting Street Allotments	State Trunk Highway Maintenance
	State Trunk		Connecting Street	County Trunk	Local Street				
	Freeway	Nonfreeway							
CITIES									
Burlington	--	5.69	--	0.07	28.60	$ 57,424	$ --	$ --	$ 22,950
Racine	--	14.57	--	3.08	220.43	659,165	--	--	66,200
Subtotal	--	20.26	--	3.15	249.03	$ 716,589	$ --	$ --	$ 89,150
VILLAGES									
Elmwood Park	--	--	--	0.35	1.81	$ 3,517	$ --	$ --	$ --
North Bay	--	--	--	0.21	1.30	2,526	--	--	--
Rochester	--	--	--	1.64	2.43	4,721	--	--	--
Sturtevant	--	1.67	--	1.00	10.41	20,227	--	--	--
Union Grove	--	1.71	--	--	9.28	18,031	--	--	3,700
Waterford	--	1.78	--	0.68	8.78	17,060	--	--	--
Wind Point	--	--	--	0.50	10.13	19,683	--	--	--
Subtotal	--	5.16	--	4.38	44.14	$ 85,765	$ --	$ --	$ 3,700
TOWNS									
Burlington	--	15.87	--	12.98	56.46	$ 22,640	$ --	$ --	$ --
Caledonia	3.20	18.90	--	20.78	109.16	43,773	--	--	--
Dover	--	17.87	--	15.41	34.85	13,975	--	--	--
Mt. Pleasant	3.01	19.31	--	23.01	72.26	28,976	--	--	--
Norway	--	8.08	--	18.18	44.98	18,037	--	--	--
Raymond	2.80	3.18	--	19.20	52.55	21,072	--	--	--
Rochester	--	5.06	--	14.51	11.29	4,527	--	--	--
Waterford	--	19.23	--	2.45	51.10	20,491	--	--	--
Yorkville	3.01	16.13	--	15.83	41.19	16,517	--	--	--
Subtotal	12.02	123.63	--	142.35	473.84	$ 190,008	$ --	$ --	$ --
Racine County	--	--	--	--	--	$ 405,215	$ --	$ --	$407,286
Total	12.02	149.05	--	149.88	767.01	$1,397,577	$ --	$ --	$500,136

Table 39 indicates that, as a result of the recommended jurisdictional realignment for 1974 as the initial step toward the 1975 stage of the plan, a decrease in the local street aids and allotments paid to units of government in Racine County of approximately $8,934 per year could be expected. This slight decrease in aids and allotments is due to a 1.52-mile increase in city and village street mileage, and an increase of 0.86 mile of town road. The proposed abolition of the connecting street system would result in the elimination of the connecting street allotment of $500 per mile, or a reduction of aids and allotments paid to the municipalities in Racine County of approximately $9,300 per year. The proposed jurisdictional realignment would thus result in a net decrease in state aids paid to municipalities of about $18,234 per year.

It should be noted, however, that the abandonment of the connecting street concept and the establishment of a continuous state trunk highway system through incorporated areas would allow the state to reimburse the maintaining agencies for the actual costs incurred in the maintenance of state trunk highways. Table 39 indicates that the increase in maintenance aids which may be expected to accrue to municipalities in Racine County as a result would be approximately $92,850 per year. Thus, implementation of the recommended jurisdictional highway system plan could be expected to result in a net increase of highway aids and allotments paid to municipalities within Racine County of approximately $74,616 per year for the year 1974.

It was recognized that policy change affecting the status of the connecting streets would be administratively feasible only on a statewide basis. It was assumed that in order for the state to reimburse the maintaining agencies for actual maintenance costs on all state trunk highways, sufficient monies for this purpose would have to be withheld prior to the allotment of supplemental aids. Figure 11 provides a graphic summary of the distribution of total motor vehicle revenues in Wisconsin as provided by the state statutes. It is evident from this diagram that,

Table 39 (continued)

Recommended Jurisdictional Highway System - 1990

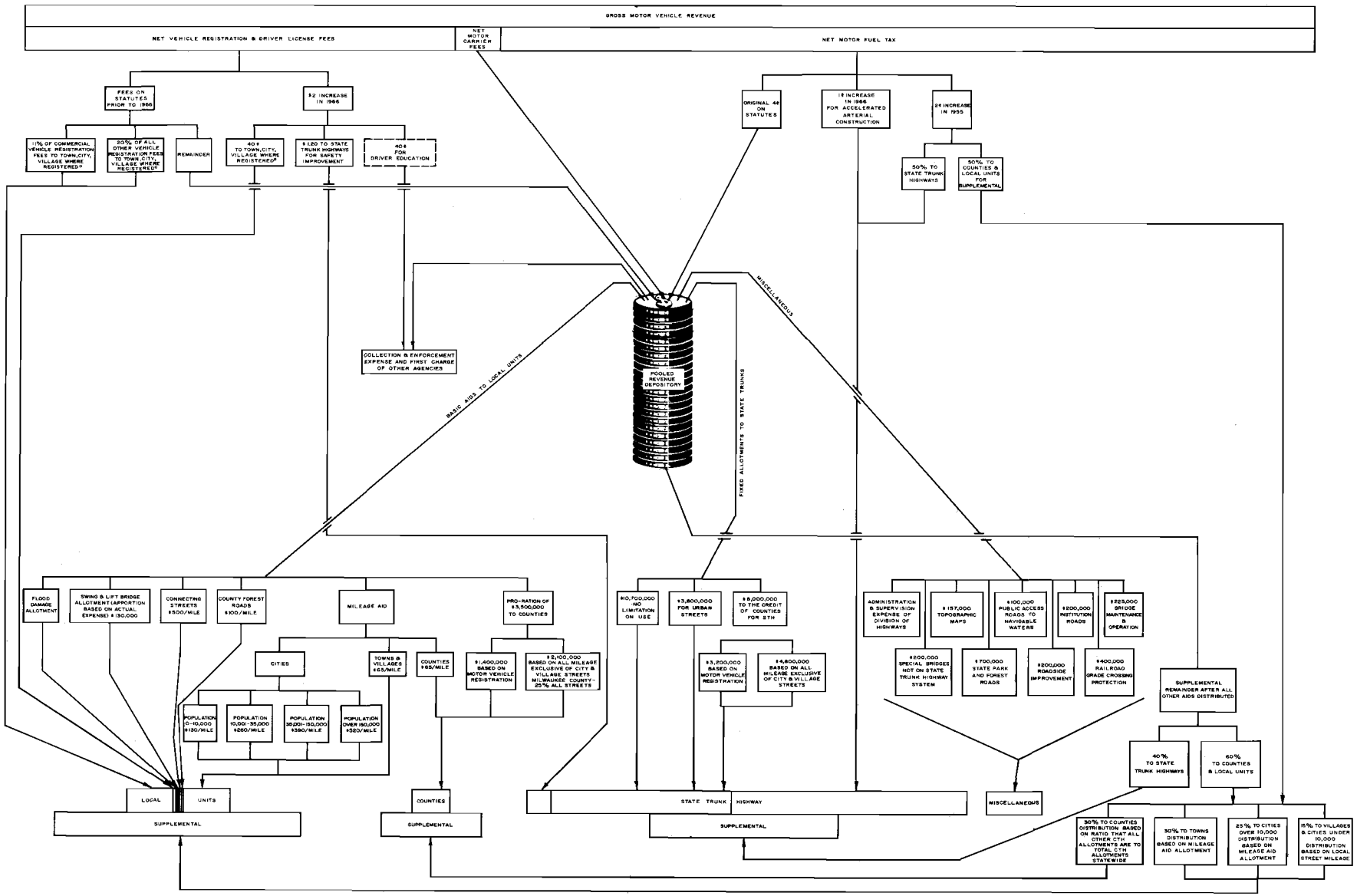
Civil Division	Number of Miles					Local Street Aids And Allotments	Privilege Highway Tax[a]	Connecting Street Allotments	State Trunk Highway Maintenance
	State Trunk		Connecting Street	County Trunk	Local Street				
	Freeway	Nonfreeway							
CITIES									
Burlington	--	8.15	--	8.51	43.77	$ 139,626	$ --	$ --	$ 20,900
Racine	13.41	16.56	--	56.72	578.77	2,678,547	--	--	95,200
Subtotal	13.41	24.71	--	65.23	622.54	$2,818,173	$ --	$ --	$116,100
VILLAGES									
Elmwood Park	0.39	--	--	--	2.39	$ 7,317	$ --	$ --	$ --
North Bay	--	--	--	0.21	1.70	5,204	--	--	--
Rochester	--	0.10	--	0.62	4.02	12,305	--	--	--
Sturtevant	--	--	--	2.35	16.41	50,231	--	--	--
Union Grove	--	1.81	--	1.66	18.21	55,741	--	--	6,600
Waterford	--	2.47	--	0.91	24.19	74,046	--	--	--
Wind Point	--	--	--	0.50	12.32	37,712	--	--	--
Subtotal	0.39	4.38	--	6.25	79.24	$ 242,556	$ --	$ --	$ 6,600
TOWNS									
Burlington	--	20.78	--	17.31	48.86	$ 31,270	$ --	$ --	$ --
Caledonia	13.30	2.12	--	18.59	46.14	29,530	--	--	--
Dover	--	6.41	--	19.14	49.64	31,770	--	--	--
Mt. Pleasant	11.78	3.47	--	16.60	26.48	16,947	--	--	--
Norway	--	14.42	--	12.40	47.91	30,662	--	--	--
Raymond	2.80	9.01	--	16.58	52.47	33,581	--	--	--
Rochester	--	6.44	--	13.77	12.50	8,000	--	--	--
Waterford	--	17.74	--	11.83	40.95	26,208	--	--	--
Yorkville	3.01	10.71	--	21.72	45.13	28,883	--	--	--
Subtotal	30.89	91.10	--	147.94	370.08	$ 236,851	$ --	$ --	$ --
Racine County	--	--	--	--	--	$ 620,846	$ --	$ --	$772,200
Total	44.69	120.19	--	219.42	1,071.86	$3,918,426	$ --	$ --	$892,900

[a] *Beginning in late 1972 that allotment known as the privilege highway tax was no longer returned directly to the city, village, or town in which the vehicle for which licensing fees are paid is garaged, but rather was co-mingled in the municipal and county shared tax account with other shared taxes for distribution as a shared revenue essentially on a per capita basis. It is estimated in 1973 that the net effect of this change in the method of distributing the privilege highway tax will result in a slight reduction—about 1 percent—in the amount of aid from this source received by Racine County and its constituent local units of government. This reduction is due to the fact that the distribution of population throughout the state is not identical to the distribution of motor vehicles. By 1990 it is estimated that this change in the method of distributing the privilege highway tax will result in a net loss of about 1 percent to the county and its communities. In addition, these funds will be co-mingled with other revenue sharing funds and will not, therefore, be specifically identified as the local government share of the privilege highway tax. The effect of this change in the method of distributing the privilege highway tax should not substantially affect the financial analyses relating to the Racine County jurisdictional highway system plan presented in this chapter. The amounts shown for the privilege highway tax in this table are based upon the old method of distributing this tax, and can be expected to vary slightly as the new method is implemented.*

Source: Wisconsin Department of Transportation and SEWRPC.

Figure 11

DISTRIBUTION OF TOTAL MOTOR VEHICLE REVENUE IN WISCONSIN: 1972



[a] *Beginning in 1972, those portions of the motor vehicle registration fees historically returned to local units of government known as "privilege highway taxes" were placed in the municipal and county shared tax account for distribution essentially on a per capita basis pursuant to formulas set forth in Chapter 79 of the Wisconsin Statutes.*

Source: Wisconsin Department of Transportation.

with the exception of a portion of the supplemental motor fuel tax,[4] the supplemental aids are apportioned after all other disbursements from the total highway fund have been made. Thus, the portion of the supplemental aids affected by changes in the connecting street concept actually consists of the remainder of highway revenues after all other statutory disbursements have been made and, as such, is shown as disbursements from the bottom of the pooled revenue depository. It is further evident from the diagram that, as changes in other statutory disbursements are made, the resulting remainder available for distribution will change. The effect of such changes on the aids and allotments available to municipalities in Racine County may be expected to result in a decrease of $39,350 per year in local street aids and allotments. Because this process of redistribution provides for the withholding of sufficient funds to reimburse actual maintenance costs accrued on all state trunk highways, however, the net effect of the plan recommendations on Racine County would be to increase aids by $74,616 per year, as previously stated.

It should be noted that the forecast of aids and allotments returned to municipalities as shown in Table 39 for 1990 is based upon forecast 1990 city and village corporate limits and a conservative estimate of expected increases in motor fuel taxes collected due to increased travel within the state.

Financial Feasibility

The financial feasibility of the recommended jurisdictional highway system plan was evaluated by comparing estimated plan implementation costs with anticipated highway revenues. The evaluation was based upon three assumptions: that the preceding recommendations concerning the abandonment of the connecting street concept will be adopted and implemented, that the preceding recommendations concerning the adoption of uniform construction aid formulae and policies will be adopted and implemented, and that the recommendations concerning the realignment of the federal aid systems set forth in Chapter VI of this report will be adopted and implemented.

Estimates of the cost of constructing and maintaining the total street and highway system within Racine County through the plan design year of 1990 were prepared by applying unit improvement and maintenance costs to the existing and proposed arterial, collector, and local (land access) street mileage. These cost estimates were then compared with a forecast of highway revenues which could reasonably be expected to be received over the plan implementation period. The revenue forecasts were based upon an extrapolation of historical highway expenditures within Racine County. Because the historical record of highway expenditures at the local level did not permit accurate separation of the costs attendant to the construction and maintenance of arterial facilities from those attendant to nonarterial facilities, construction and maintenance costs for nonarterial facilities were estimated and included in the total plan implementation cost.

Estimated Cost of Arterial System: As described in Chapter VI of this report, the jurisdictional highway system plan set forth in this report recommends a typical cross section for each link in the total arterial street and highway system. Representative unit construction and maintenance costs were prepared for each typical cross section used, as shown in Appendix B of this report. The jurisdictional highway system plan, by incorporating these recommended typical cross sections, reflects estimated arterial highway needs through the plan design year of 1990. The total cost of plan implementation could thus be calculated by totaling, from the coded network maps, the route mileage of each typical cross section included in the plan, multiplying this mileage by the unit construction and maintenance costs attendant to the typical cross sections, and adding special costs for major railroad or highway grade separation and river crossing structures, as shown on the jurisdictional highway system plan map.

The unit cost data for each typical cross section were developed from analyses of actual cost data provided by the District Office of the Division of Highways, and reflect recent experience in areas of development similar to Racine County. It should be noted that these unit costs, in 1973 dollars, range from 14 percent to 20 percent less than comparable units costs for construction and maintenance of comparable cross sections in Milwaukee County, as shown in Appendix B of SEWRPC Planning Report No. 11, A Jurisdictional Highway System Plan for Milwaukee County. The principal reasons for these lower unit costs in Racine County are lower traffic volumes resulting in lower maintenance costs, and lower right-of-way acquisition, utility relocation, and material costs encountered in the construction of new facilities or in the improvement of existing facilities. It should be further noted that the cost of resurfacing the minimum two-lane rural cross section (see Appendix B) has been adjusted to include minor reconstruction for spot improvement of horizontal and vertical alignment and of intersections.

The resulting total arterial plan implementation costs are summarized by jurisdictional subsystem in Table 40. The plan implementation costs are expressed in terms of 1973 unit prices and total approximately $217 million for the entire arterial system, including approximately $185 million for construction and $32 million for maintenance costs. The breakdown of these costs by level of government is set forth in Table 41.

Estimated Cost of Nonarterial System: Construction and maintenance needs for nonarterial streets and highways and collector and local (land access) streets over the plan implementation period were also estimated, utilizing unit

[4] *Section 20.420 of the Wisconsin Statutes provides that 50 percent of the net receipts of the two-cent-a-gallon supplementary motor fuel tax enacted in 1955 be apportioned to local units of government as a part of the supplemental aids.*

Table 40

PLAN IMPLEMENTATION COSTS FOR THE RACINE COUNTY JURISDICTIONAL HIGHWAY SYSTEM PLAN BY JURISDICTIONAL SUBSYSTEM: 1973-1990

Jurisdictional Subsystem	Plan Implementation Costs		
	Construction	Maintenance	Total
Arterial			
Type I (State Trunk)	$104,105,600	$14,719,780	$118,825,380
Type II (County Trunk)	61,293,100	11,467,180	72,760,280
Type III (Local Trunk)	19,636,600	5,326,690	24,963,290
Subtotal	$185,035,300	$31,513,650	$216,548,950
Nonarterial	$ 17,143,100	$42,774,190	$ 59,917,290
Total Street and Highway System	$202,178,400	$74,287,840	$276,466,240

Source: SEWRPC.

construction and maintenance cost data developed from information provided by local units of government. These unit cost data were expressed separately for the urban (cities and villages) and rural (towns) areas of the county, as shown in the typical cross sections for urban and rural nonarterials in Appendix B. The mileage of new facilities was calculated by applying the appropriate factors representing the portion of land normally devoted to collector[5] and local[6] streets under good land subdivision practice to the total land area to be converted from rural to urban use within each municipality in Racine County over the plan design period. Since there is relatively no difference between collector and local street cross sections in rural areas, the same unit costs were utilized for the aggregate of all rural nonarterial mileage. Although different collector and local street cross sections are used within the various cities and villages in Racine County, these differences were not considered significant, and the same unit costs were utilized for the aggregate of all urban nonarterial mileage.

[5]*Collector streets were assumed to occupy 2.3 percent of high-density and 1.5 percent of medium- and low-density, fully developed urban areas, and have a recommended right-of-way width of 80 feet. Accordingly, a factor of 1.5 miles per square mile was applied to anticipated new high-density development, and 1.0 mile per square mile to anticipated new medium- and low-density development to obtain corresponding collector street mileage.*

[6]*Local (land access) streets were assumed to occupy 17.8 percent of high-density, 17.0 percent of medium-density, and 14.2 percent of low-density, fully developed urban areas, and have a recommended right-of-way width of 60 feet. Accordingly, factors of 15.7 miles per square mile, 15.0 miles per square mile, and 12.5 miles per square mile were applied to anticipate new high-, medium-, and low-density development, respectively, to obtain corresponding local (land access) street mileage.*

Table 41

PLAN IMPLEMENTATION COSTS FOR THE RACINE COUNTY JURISDICTIONAL HIGHWAY SYSTEM BY LEVEL OF GOVERNMENT: 1973-1990

Level of Government	Plan Implementation Costs		
	Construction	Maintenance	Total
Arterial System			
State			
Type I (State Trunk)	$102,534,600	$14,719,780	$117,254,380
Type II (County Trunk)	19,524,200	--	19,524,200
Type III (Local Trunk)	843,100	--	843,100
Subtotal	$122,901,900	$14,719,780	$137,621,680
County			
Type II (County Trunk)	$ 37,151,600	$11,467,180	$ 48,618,780
City			
Type I (State Trunk)	$ 1,395,600	$ --	$ 1,395,600
Type II (County Trunk)	4,136,400	--	4,136,400
Type III (Local Trunk)	11,533,900	3,972,690	15,506,590
Subtotal	$ 17,065,900	$ 3,972,690	$ 21,038,590
Village			
Type I (State Trunk)	$ 175,400	$ --	$ 175,400
Type II (County Trunk)	410,200	--	410,200
Type III (Local Trunk)	2,181,100	438,930	2,620,030
Subtotal	$ 2,766,700	$ 438,930	$ 3,205,630
Town			
Type I (State Trunk)	$ --	$ --	$ --
Type II (County Trunk)	70,700	--	70,700
Type III (Local Trunk)	5,078,500	915,070	5,993,570
Subtotal	$ 5,149,200	$ 915,070	$ 6,064,270
Total	$185,035,300	$31,513,650	$216,548,950
Nonarterial System			
City	$ 10,288,300	$30,747,350	$ 41,035,650
Village	1,527,300	4,408,740	5,936,040
Town	5,327,500	7,618,100	12,945,600
Total	$ 17,143,100	$42,774,190	$ 59,917,290
Total Street and Highway System	$202,178,400	$74,287,840	$276,466,240

Source: SEWRPC.

The construction cost estimates for nonarterial streets within cities and villages were based on the following assumptions: all new nonarterial facilities would be constructed at the cost of the developer, approximately 20 percent of all existing nonarterial facilities would require reconstruction, approximately 40 percent of the existing nonarterial mileage would require resurfacing, and the remaining 40 percent would require maintenance only during the planning period.

The assumptions upon which estimates of construction costs for nonarterial streets and highways within the towns were based are as follows: all new nonarterial facilities would be constructed at the cost of the developer, approximately 10 percent of all existing nonarterial facilities would require reconstruction, approximately

40 percent of all existing nonarterial facilities would require resurfacing, and 50 percent would require only maintenance during the planning period.

The estimated construction and maintenance costs for new and existing nonarterial facilities through the plan design year of 1990 are summarized in Table 40. Expressed in terms of 1973 prices, costs total approximately $60 million, of which $17 million is for construction and $43 million is for maintenance. The breakdown of these costs by level of government is shown in Table 41.

Thus, the total cost of full plan implementation over the 20-year plan implementation period was estimated at $276 million based on 1973 prices, of which $202 million was for construction and $74 million for maintenance.

Estimated Revenues: Anticipated revenues available for highway purposes within Racine County over the plan implementation period were estimated from an analysis of the rate of expenditure for highway and highway-related purposes within Racine County from 1963 through 1972. A summary of the 10-year expenditures for highway construction and maintenance within Racine County was presented in Table 37 of this report. An estimate of anticipated revenues was prepared by projecting the current rate of expenditure, as developed for local sources on a per capita basis, over the plan implementation period. Assuming that no new revenue sources would become available for highway purposes, it was estimated that $300 million could be expected to become available for highway purposes over the plan implementation period, or an amount greater than the total costs of implementing the street and highway plan, estimated to be $276 million. It was concluded, therefore, that the plan was financially feasible.

It should be noted, however, that with the recommended transfer of local trunk arterial street and highway system mileage to the county and state trunk highway systems, thereby reducing the local responsibility for highway facility design, construction, operation, and maintenance, a concomitant adjustment of highway revenue distribution will be required.

It should also be noted that neither appreciated plan implementation costs nor appreciated revenues were used in the comparison, a valid procedure since any inflation of implementation costs may be expected to be offset by a corresponding inflation in revenues. The amount of monies available for highway expenditures may be expected to increase, not only because of the effects of inflation but also because of increasing motor vehicle registrations and motor vehicle utilization.

SUMMARY

This chapter has explored the financial feasibility of the recommended jurisdictional highway plan for Racine County. This exploration has required a description of the existing highway aid structure and the two major revisions in this structure being recommended in order to meet the basic objectives of the jurisdictional highway planning effort; namely, the abandonment of the connecting street concept and the adoption of uniform construction aid formulae and policies for state and county trunk highways. The analysis indicated that the recommended plan is financially feasible without new sources of highway revenues for the county as a whole.

Total plan implementation costs, including construction and maintenance of collector and minor land access as well as arterial facilities, was estimated at $276 million over the 20-year plan implementation period. Anticipated revenues for highway purposes over this same period based upon current rates of expenditure were estimated at $300 million, or substantially more than the amount required to fully implement the plan.

It should be further noted in this respect that it is extremely difficult to forecast revenues which may become available for highway purposes over the 20-year plan implementation period. This difficulty is due not only to the length of the forecast period involved and the unpredictable changes which may occur during this period in such important factors affecting highway revenues as the general level of economic activity, a shifting of priorities in the expenditures of public funds to such items as housing and mass transit, and major changes in the structure of highway aid formulae which will come about upon expiration of the massive interstate highway construction program; but also the changing of corporate limits and concomitant changes of responsibilities for those existing town roads which would fall within the new city or village corporate limits. Because of these difficulties, the historical trend of expenditures for highway purposes within Racine County had to be used to forecast future revenues. On this basis, the historical participation at the federal level in construction aids for secondary and primary federal aid routes was incorporated in the forecasts.

It should be noted that while the financial analysis of the plan is feasible for the county as a whole, some disparity in the distribution of resources may exist initially between the county and local levels of government relating to the transfer of local trunk facilities to the county trunk system, and relating primarily to the nonarterial streets and highways within the municipality and the level of service required by its populace.

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Chapter VIII

PLAN IMPLEMENTATION

INTRODUCTION

Implementation of the recommended jurisdictional highway system plan described in the preceding chapters of this report would provide Racine County with integrated state, county, and local trunk highway systems able to effectively meet existing and anticipated future travel demands at an adequate level of service. It would, in addition, assist in achieving a more efficient design, construction, maintenance, and operation of the total arterial street and highway system; a more equitable distribution of highway improvement and maintenance costs; and the intergovernmental coordination necessary to the efficient and effective provision of highway transportation facilities and services within Racine County.

In a practical sense, the recommended plan is not complete until the steps required for its implementation are specified. This chapter, therefore, is presented as a guide for use in the implementation of the recommended jurisdictional highway system plan. Basically, it outlines the actions which must be taken by the various levels and agencies of government concerned if the recommended jurisdictional highway system plan is to be fully carried out. Those units and agencies of government which have plan adoption and plan implementation powers applicable to the recommended plan are identified, necessary formal plan adoption actions are specified, and specific implementation actions are recommended with respect to development of the jurisdictional subsystems comprising the total arterial street and highway system within Racine County.

The plan implementation recommendations are, to the maximum extent possible, based upon and related to existing governmental programs and predicated upon existing state enabling legislation. Certain changes in the state enabling legislation, however, are recommended as deemed necessary to fully implement the recommended plan. Because of the ever-present possibility of unforeseen changes in economic conditions, state and federal enabling legislation, and governmental and fiscal policies, it is not possible to declare once and for all time exactly how a process as complex as highway plan implementation should be administered and financed. It will, therefore, be necessary to update periodically not only the recommended jurisdictional highway system plan itself but the recommendations contained herein for implementation of this plan.

BASIC PRINCIPLES AND CONCEPTS

It is important to recognize that plan implementation measures must grow out of adopted plans. Thus, action policies and programs must be preceded by plan adoption and should emphasize the most important and essential elements of the plan and those areas of action which will have the greatest impact on achieving the objectives expressed in the plan. With respect to the recommended jurisdictional highway system plan, primary attention in plan implementation should accordingly be focused upon coordinated development of the Type I (state trunk) and Type II (county trunk) highway networks. These two arterial subsystems together provide the basic framework for the provision of essential highway transportation services within Racine County, not only satisfying almost 87 percent of the total traffic demand within the county, but also providing the highest level of highway transportation service and accommodating the longest trips. Plan implementation, therefore, should focus primarily on these two subsystems, particularly with respect to the attainment of the recommended location, capacity, and timing of improvements, leaving implementation of the Type III (local trunk) system to the local units of government. This is not to be interpreted, however, to mean that improvement of the Type III (local trunk) facilities need not be fully coordinated with development of the Type I (state trunk) and Type II (county trunk) highway systems, but only that primary attention in plan implementation should be focused on facilities of areawide importance—the state and county trunk highways—leaving greater flexibility for the improvement of facilities of primarily local importance.

PLAN IMPLEMENTATION ORGANIZATIONS

Full implementation of the recommended jurisdictional highway system plan will be dependent upon coordinated action by 21 agencies of government: the U. S. Department of Transportation, Federal Highway Administration; the Wisconsin Department of Transportation; the Racine County Board; and the governing bodies of the 18 cities, villages, and towns located within Racine County. Substantial implementation of the recommended plan, however, in the form of integrated state and county trunk highway system development will involve only three agencies of government: the U. S. Department of Transportation, Federal Highway Administration; the Wisconsin Department of Transportation; and the Racine County Board. A brief discussion of the duties and functions of these three agencies as they relate to the jurisdictional highway system plan implementation follows. Although

the three agencies are, for convenience, discussed separately, the interdependence between the various levels of government represented and the need for close interagency cooperation cannot be overemphasized.

U. S. Department of Transportation, Federal Highway Administration

The U. S. Department of Transportation, Federal Highway Administration, administers all federal highway aid programs, working through the Wisconsin Department of Transportation, Division of Highways. The Federal Highway Administration must approve all changes in the federal aid systems and will, in this respect, have an important role in implementation of the recommended jurisdictional highway system plan for Racine County.

Wisconsin Department of Transportation

The Highway Commission of the Wisconsin Department of Transportation, Division of Highways, is broadly empowered to provide the state with a highway transportation system. The State Highway Commission is charged with responsibility for administering all state and federal aids for highway improvements; for the planning, design, construction, and maintenance of all state trunk highways; and for planning, laying out, revising, constructing, reconstructing, and maintaining the national system of interstate and defense highways, the federal aid primary system, the federal aid secondary system, the federal aid urban system, and the formally independently funded TOPICS systems, the latter five functions all being subject to federal review and regulation. The State Highway Commission is also responsible for reviewing county trunk highway routes in order to assure that these routes form an integrated system of county trunk highways between adjoining counties. The State Highway Commission is authorized to enter into cooperative agreements with the governing bodies of any county, city, village, or town, or with the federal government, respecting the financing, planning, establishment, improvement, maintenance, use, regulation, or vacation of highways within their respective jurisdiction.

Specifically, three sections of the Wisconsin Statutes, when considered together, provide the basis for what might be considered a master plan for the state trunk highway system. One of these sections directs the preparation of county maps showing the official layout of the state trunk highway system. The second permits marked and traveled locations to differ from the official locations and thereby allows the official layout maps to function in some instances as plans. Indeed, it appears that these official layout maps were originally regarded as master plans for the state trunk highway system. Special legislative committees, whose function was to periodically study and revise the entire state trunk highway system, apparently functioned in 1917, 1919, 1923, and for the last time in 1934, and their work is reflected on the official layout maps. Since 1934 all consideration of changes in the system has been on a piecemeal, ad hoc basis by the State Highway Commission, acting pursuant to the provisions of Chapter 84 of the Wisconsin Statutes, or by the State Legislature itself, as provided by Chapter 518, Laws of 1947; Chapter 475, Laws of 1949; Chapter 75, Laws of 1953; Chapters 369 and 371, Laws of 1955; Chapters 596, 597, and 598, Laws of 1961; and Chapter 348, Laws of 1971. The third permits the State Highway Commission to establish locations and right-of-way widths for future freeways or expressways and to protect the rights-of-way for these facilities from development. It is also apparent that the various federal aid systems in and of themselves constitute long-range plans insofar as they tend to coordinate the expenditure of federal highway aid monies.

The planning and programming procedure developed by the State Highway Commission within this legislative framework determines when and where the various improvement projects will be accomplished on the existing state trunk highway system and establishes standards for such determination. The procedure provides an orderly and effective device whereby the many complex and highly interrelated tasks involved in the final accomplishment of modern highway improvement projects—tasks such as route location, including necessary mapping and preliminary engineering; implementation of legal changes in the state trunk highway routes, including necessary public hearings, detailed design and final engineering, acquisition of right-of-way, preparation of construction plans, specifications, and cost estimates, and letting of contracts; and actual construction, including layout, inspection, and final surveys—can be carried out, and as such, the procedure constitutes an effective current planning program.

The State Highway Commission is also empowered to review and regulate subdivision plats along state trunk highways outside the corporate limits of the City of Milwaukee and, as previously noted, is empowered to prepare official maps of future freeway and expressway routes. The Wisconsin Division of Highways, through its administration of federal and state highway aids to local units of government and through its highway design and engineering functions, exerts a powerful influence on street and highway system planning and development within Wisconsin and is probably the single most important agency to highway system plan implementation.

Racine County Board

At the county level of government within Wisconsin, county highway committees, operating under the aegis of the county boards, are made responsible for the administration and expenditure of all county funds for highway construction and maintenance and are empowered to establish and change the county trunk highway system, subject to the approval of the State Highway Commission; to cooperate with the State Highway Commission in the selection of a system of federal aid secondary roads; and to acquire land for county highway purposes by purchase or condemnation.

PLAN ADOPTION

Adoption or endorsement of the recommended jurisdictional highway system plan by the three major plan implementation agencies is essential, not only to assure a common understanding between the several govern-

mental agencies and to enable their staffs to program the necessary implementation work, but also to meet certain statutory requirements. In addition to adoption or endorsement of the jurisdictional highway system plan by the implementing agencies, plan adoption by the Southeastern Wisconsin Regional Planning Commission, in accordance with Section 66.945(10) of the Wisconsin Statutes, will be essential in order to continue to qualify the implementing agencies for federal grants in partial support of highway improvement projects with Racine County.

It is extremely important to understand that adoption or endorsement of the recommended jurisdictional highway system plan by any unit or agency of government pertains only to the statutory duties and functions of the adopting or endorsing agency, and such adoption or endorsement does not and cannot in any way preempt action by another unit or agency of government within its jurisdiction. Thus, adoption or endorsement of the jurisdictional highway system plan by the state and county would make the plan applicable as a guide to state and county highway system development and not to local trunk highway system development. To make the plan applicable as a guide to local highway system development would require its adoption by the municipalities concerned.

The following specific plan adoption actions are hereby recommended:

1. That the Racine County Board, upon recommendation of the Racine County Highway Committee, formally adopt the recommended jurisdictional highway system plan as a guide to future highway facility development within Racine County, as authorized by Section 66.945(12) of the Wisconsin Statutes.

2. That upon approval of the recommended jurisdictional highway system plan by the Racine County Board, the State Highway Commission formally act to endorse and integrate the recommended jurisdictional highway system plan, including the recommendations for the staged construction thereof, into the state long-range highway system plans, as authorized by Sections 84.01, 84.02, 84.025, 84.29, and 84.295 of the Wisconsin Statutes, as a guide to highway system development within Racine County.

3. That the U. S. Department of Transportation, Federal Highway Administration, through the Wisconsin Division of Highways, formally acknowledge the recommended jurisdictional highway system plan as a guide to the review of requests for realignment of the various federal aid systems and to the administration and granting of federal aids for highway improvement within Racine County.

4. That the Southeastern Wisconsin Regional Planning Commission, in accordance with Sections 66.945(9) and (10) of the Wisconsin Statutes, act to formally adopt the recommended jurisdictional highway system plan as an integral part of the master plan for the Region, constituting an amendment to the regional transportation plan adopted by the Commission on December 1, 1966.

To supplement the aforementioned recommended federal, state, regional, and county actions, it is suggested that the two city common councils, seven village boards, and nine towns within Racine County act to adopt the recommended jurisdictional highway system plan as authorized by Section 66.945(12) of the Wisconsin Statutes as a guide to highway system development within their area of jurisdiction. A model resolution for adoption of the Racine County Jurisdictional Highway system plan is set forth in Appendix C. It is also suggested that the respective local planning agencies by resolution adopt and integrate the recommended jurisdictional highway system plan, as this plan affects their area of jurisdiction, into the local master plans, pursuant to Section 62.23(3)(b) of the Wisconsin Statutes, and certify such adoption to their local governing body.

Subsequent Adjustment of the Plan

No long-range plan can be permanent in all of its aspects or precise in all of its elements. Amendments to the recommended jurisdictional highway system plan will be forthcoming, not only from the work of the Southeastern Wisconsin Regional Planning Commission under its continuing areawide transportation planning responsibilities, but also from the state, county, and local agencies as these agencies adjust and refine the plan during implementation and as new highway improvement programs are created or existing programs expanded or curtailed. Any such adjustment, however, will require on a continuing basis the same close cooperation between the local, areawide, state, and federal agencies concerned as has been evidenced in the preparation of the jurisdictional highway system plan itself. To achieve this necessary coordination between local, state, and federal programs and thereby assure the timely adjustment of the recommended plan, it is recommended that the Technical and Intergovernmental Coordinating and Advisory Committee on Jurisdictional Highway Planning for Racine County, created for the jurisdictional highway planning study, be retained, and that all agencies having highway planning and plan implementation powers advise and transmit from time to time any subsequent proposed changes in the plan to the Committee for review and possible integration into an amended jurisdictional highway system plan. In order to achieve full intergovernmental coordination in highway system development within Racine County, it is further recommended that the Committee annually review and comment on highway construction project priorities and other major plan implementation actions as proposed by the various implementing agencies.

PLAN IMPLEMENTATION

Implementation of the recommended jurisdictional highway system plan may be considered under four distinct but interrelated areas of action by the three major implementing agencies concerned: 1) realignment of state and county jurisdictional responsibilities, 2) realignment of the federal aid systems, 3) realignment of state and county operational responsibilities, and 4) right-of-way reservation and acquisition and facility construction. Major implementation efforts of a system-wide nature will be necessary in the first three areas to bring the existing jurisdictional systems, federal aid routes, and operational responsibilities into alignment with the 1975 staging of the recommended plan. Subsequent actions in these three areas can be on an individual route basis, as developing events dictate, to reach the 1990 staging of the recommended plan. All implementation efforts in the fourth area can be part of the normal construction programming efforts of two of the major implementing agencies.

Realignment of Jurisdictional Responsibilities

In Wisconsin, realignment of the state trunk highway system is made a joint state-county function, pursuant to Sections 84.02(3) and 84.025(3) of the Wisconsin Statutes. It is accordingly recommended that, upon adoption of the recommended jurisdictional highway system plan by the Racine County Board and endorsement by the State Highway Commission, the State Highway Commission act in cooperation with the Racine County Board to effect the realignment of the state trunk highway system within Racine County.

It is recommended that the initial action include all of the specific additions to, and deletions from, the state trunk highway system set forth in Table 42, in order to achieve the first (1975) stage of plan implementation. Subsequent actions should effect the specific additions to, and deletions from, the state trunk highway system set forth in Tables 43 and 44 for 1980 and the design year (1990) of the recommended plan. It is recommended that all of the initial changes in the state trunk highway system be effected by one inclusive action of the State Highway Commission of Wisconsin supported by the Racine County Board. Such action may require public hearing prior to action, as specified by Sections 84.02(3) and 84.025(3) of the Wisconsin Statutes. Subsequent realignments can be effected on a route-by-route basis, as dictated by developing circumstances.

In Wisconsin, realignment of the county trunk highway system, like realignment of the state trunk highway system, is made a joint state-county function pursuant to Section 83.025 of the Wisconsin Statutes. It is accordingly recommended that, upon adoption of the recommended jurisdictional highway system plan by the Racine County Board and endorsement by the State Highway Commission, the Racine County Board act in cooperation with the Highway Commission to effect the realignment of the county trunk highway system within Racine County.

It is recommended that the initial action include all of the specific additions to, and deletions from, the county trunk highway system set forth in Table 45, in order to achieve the first (1975) stage of plan implementation. Subsequent actions should effect the specific additions to, and deletions from, the county trunk highway system set forth in Tables 46 and 47 for 1980 and the design year (1990) of the recommended plan. It is recommended that all of the initial changes in the county trunk highway system be effected by one inclusive action of the Racine County Board supported by the State Highway Commission. Subsequent realignments can be effected on a route-by-route basis, as dictated by developing circumstances.

Table 42

ADDITIONS TO AND DELETION FROM THE RECOMMENDED TYPE I (STATE TRUNK) ARTERIAL HIGHWAY SYSTEM IN RACINE COUNTY: 1975

Additions To State Trunk Highway System			
Route	Limits	Municipality	Number of Miles
CTH F	Waukesha County line to Loomis Road	Town of Waterford	3.74
New Facility (CTH F) . . .	Loomis Road to STH 36	Town of Waterford	1.15

Deletion From State Trunk Highway System			
Route	Limits	Municipality	Number of Miles
Fourteenth Street	Washington Avenue to Racine Street	City of Racine	0.14

Source: SEWRPC.

Table 43

ADDITIONS TO AND DELETIONS FROM THE RECOMMENDED TYPE I (STATE TRUNK) ARTERIAL HIGHWAY SYSTEM IN RACINE COUNTY: 1975-1980

Additions To State Trunk Highway System			
Route	Limits	Municipality	Number of Miles
CTH W	Approximately 0.43 mile south of Village of Rochester to approximately 0.92 mile north of Burlington town line	Town of Rochester	0.45
Adams Street	Dodge Street to Pine Street	City of Burlington	0.07
Chestnut Street	Dodge Street to Pine Street	City of Burlington	0.07
Dodge Street	Adams Street to Chestnut Street	City of Burlington	0.33
Douglas Avenue	Goold Street to Marquette Street	City of Racine	0.61
Marquette Street	Washington Avenue to Douglas Avenue	City of Racine	1.29
Milwaukee Avenue	State Street to Douglas Avenue	City of Racine	0.79
Sixteenth Street	Taylor Avenue to Racine Street	City of Racine	0.59
Twelfth Street	West Boulevard to Racine Street	City of Racine	1.11
New Facility (STH 83 Burlington Bypass)	Intersection of Hill Valley Road and STH 83 to CTH W, and CTH W to Walworth County line	Towns of Waterford, Rochester, and Burlington	13.64

Deletions From State Trunk Highway System			
Route	Limits	Municipality	Number of Miles
STH 11	STH 36 to the Walworth County line	City and Town of Burlington	1.67
STH 11 (Jefferson Street)	Pine Street to Dodge Street	City of Burlington	0.07
STH 11 (Pine Street)	Chestnut Street to Jefferson Street	City of Burlington	0.13
STH 11 (Taylor Avenue)	Washington Avenue to Sixteenth Street	City of Racine	0.11
STH 20 (Washington Avenue)	Grand Avenue to Marquette Street, and Racine Street to West Boulevard	City of Racine	1.69
STH 24	Walworth County line to Waukesha County line	Town of Waterford	2.28
STH 32 (Goold Street)	N. Main Street to Douglas Avenue	City of Racine	0.68
STH 32 (Main Street)	Dodge Street to Seventh Street	City of Racine	0.55
STH 32 (N. Main Street)	Dodge Street to Goold Street	City of Racine	0.98
STH 32 (Sixth Street)	Main Street to Grand Avenue	City of Racine	0.32
STH 32 (Seventh Street)	Main Street to Grand Avenue	City of Racine	0.32
STH 38 (State Street)	Marquette Street to Main Street	City of Racine	0.43
STH 75	STH 20 to Kenosha County line	Town of Dover	5.00
STH 83	Jefferson Street to Adams Street	City of Burlington	0.20
STH 83	Hill Valley Road to STH 20	Town of Waterford	1.30

Source: SEWRPC.

In order to achieve the desired continuity of the state and county trunk highway systems through incorporated municipalities, it is recommended that the Racine County Board support the enactment of legislation presently before the State Legislature which would amend Section 84.02(11) of the Wisconsin Statutes to abolish the connecting street concept, and Section 83.025(1) to prohibit the governing body of any city or village from unilaterally removing a street or highway from the county trunk system.[1] It is further recommended that the

[1] *Effective January 31, 1974, Section 83.025(1) of the Wisconsin Statutes was amended as follows: "provide that where a county has completed a functional and jurisdictional classification of highways approved by the county, by the municipalities and by the state highway commission, additions or deletions from the approved county trunk system may be made only by the county board, with the consent of the highway commission."*

Table 44

ADDITIONS TO AND DELETIONS FROM THE RECOMMENDED TYPE I (STATE TRUNK) ARTERIAL HIGHWAY SYSTEM IN RACINE COUNTY: 1980-1990

Additions To State Trunk Highway System			
Route	Limits	Municipality	Number of Miles
CTH K	From the intersection of present CTH K and Hillcrest Road to a point approximately 0.60 mile east of the intersection of present CTH K and CTH S, and from the intersection of 96th Street and CTH K to the intersection of CTH K and 43rd Street	Towns of Norway and Raymond	6.01
Bridge Street	Jefferson Street to Chestnut Street	City of Burlington	0.15
Chestnut Street	Dodge Street to Bridge Street	City of Burlington	0.03
Main Street	STH 20 to STH 36	Village and Town of Waterford	0.72
New Facility (STH 11)	Proposed Burlington bypass to IH 94 and proposed Loop Freeway	Towns of Burlington, Dover, and Yorkville	13.18
New Facility (CTH K)	STH 36 to approximately Hillcrest Road from a point approximately 0.60 mile east of CTH S to 96th Street, and from 43rd Street to the proposed Loop Freeway	Towns of Norway, Raymond, and Waterford	6.57
New Facility (Lake Freeway)	Milwaukee County line to Kenosha County line	Towns of Mt. Pleasant and Caledonia	12.07
New Facility (Racine Loop Freeway)	IH 94 and proposed state trunk facility to IH 94 and proposed STH 11	City of Racine, Village of Elmwood Park, and Towns of Mt. Pleasant and Caledonia	20.60

Deletions From State Trunk Highway System			
Route	Limits	Municipality	Number of Miles
STH 11	Proposed Burlington bypass to Racine Street	City of Racine, Villages of Sturtevant and Union Grove, and Towns of Burlington, Dover, Yorkville, and Mt. Pleasant	21.91
STH 11 (Jefferson Street)	Dodge Street to Bridge Street	City of Burlington	0.10
STH 20	CTH K to USH 45, and USH 45 to IH 94	Village of Waterford and Towns of Rochester, Dover, and Yorkville	13.44
STH 31	STH 32 to Kenosha County line	City of Racine and Towns of Mt. Pleasant and Caledonia	10.46
STH 38	Marquette Street to Milwaukee County line	City of Racine and Town of Caledonia	12.08

Source: SEWRPC.

Table 45

ADDITIONS TO AND DELETIONS FROM THE RECOMMENDED TYPE II (COUNTY TRUNK) ARTERIAL HIGHWAY SYSTEM IN RACINE COUNTY: 1975

Additions To County Trunk Highway System			
Route	Limits	Municipality	Number of Miles
Durand Avenue	Taylor Avenue to Racine Street	City of Racine	0.69
Honey Creek Road	STH 20 to Walworth County line	Town of Waterford	0.98
Loomis Road	CTH S to Waukesha County line	Town of Norway	0.07
Loomis Road	CTH Y to STH 36	Town of Norway	0.06
N. Main Street	Three Mile Road to Four Mile Road	Village of Wind Point and Town of Caledonia	1.00
Spring Street	West corporate limits of the City of Racine to State Street	City of Racine	0.78
New Facility (CTH F)	STH 36 to approximately the intersection of CTH K and Hillcrest Road	Towns of Waterford and Norway	1.25
New Facility (CTH U)	The intersection of CTH K and CTH U (eastern leg) south to a point approximately 0.53 mile north of the intersection of CTH U and Miller Flat Road	Town of Raymond	0.58
New Facility (CTH K)	Approximately 0.52 mile west of CTH V on existing CTH K to a point approximately 0.45 mile east of CTH V on existing CTH K	Town of Caledonia	1.23

Deletions From County Trunk Highway System			
Route	Limits	Municipality	Number of Miles
CTH F	Waukesha County line to Loomis Road	Town of Waterford	3.74
CTH G	Intersection of Three Mile Road and N. Main Street to the intersection of N. Main Street and Four Mile Road	City of Racine, Village of Wind Point, and Town of Caledonia	2.63
CTH K	Approximately 0.52 mile west of CTH V to a point approximately 0.45 mile east of CTH V	Town of Caledonia	0.97
CTH MM	STH 38 to Golf Avenue	City of Racine	0.25
CTH U	CTH K to a point approximately 0.53 mile north of the intersection of CTH U (western leg) and Miller Flat Road	Town of Raymond	0.50
CTH X	North corporate limits of the Village of Elmwood Park to Durand Avenue	City of Racine and Town of Mt. Pleasant	0.35

Source: SEWRPC.

State Highway Commission sponsor amendments to Section 349.13 of the Wisconsin Statutes to explicitly empower the State Highway Commission to limit or prohibit the stopping, standing, or parking of vehicles on any part of the state trunk highway system.

Aid System Adjustment

Upon realignment of the state, county, and local trunk highway systems, and pursuant to the foregoing recommendations, it will be necessary to adjust the federal aid system as established under Title 23, U. S. Code, Section 103, as amended by the Federal Aid Highway Act of 1973, to the resulting state, county, and local trunk highway systems.

In Wisconsin, the State Highway Commission is, pursuant to Section 84.01(17) of the Wisconsin Statutes, charged with the responsibility for laying out and revising the national system of interstate and defense highways and the federal aid primary system subject to federal review and approval. The State Highway Commission and the county board, acting through its highway committee, are charged with the joint responsibility of laying out and revising the federal aid secondary system, also subject to federal review and approval, pursuant to Section 83.026 of the Wisconsin Statutes.

Routes on the federal aid urban system shall be selected by the appropriate local officials so as to serve the goals and objectives of the community, with the concurrence

Table 46

ADDITIONS TO AND DELETIONS FROM THE RECOMMENDED TYPE II (COUNTY TRUNK) ARTERIAL HIGHWAY SYSTEM IN RACINE COUNTY: 1975-1980

Additions To County Trunk Highway System			
Route	Limits	Municipality	Number of Miles
STH 11	Walworth County line to Origen Street	Town of Burlington	1.40
STH 24	Walworth County line to the Waukesha County line	Town of Waterford	2.28
STH 38	Wisconsin Street to Marquette Street	City of Racine	0.40
STH 75	STH 20 to the Kenosha County line	Town of Dover	5.00
Browns Lake Drive	Corporate limit of the City of Burlington to State Street	City of Burlington	0.51
Commerce Street	STH 11 to STH 36-83 (Milwaukee Avenue)	City of Burlington	0.31
Lake Avenue	Eighth Street to Second Street	City of Racine	0.49
Main Street	Sixteenth Street to Ninth Street, and Second Street to the south corporate limits of the Village of North Bay	City of Racine	2.75
McHenry Street	STH 36 (Milwaukee Avenue) to CTH P	City of Burlington	0.99
Mormon Street	STH 11 to STH 36	Town of Burlington	0.42
Ohio Street	STH 11 (Durand Avenue) to CTH C (Spring Street)	City of Racine	2.73
Second Street	Wisconsin Avenue to Lake Avenue	City of Racine	0.09
Six Mile Road	STH 32 to Surrey Street	Town of Caledonia	1.27
Sixteenth Street	Main Street to Racine Street	City of Racine	0.55
Wisconsin Avenue	Sixteenth Street to State Street	City of Racine	1.31
New Facility	Intersection of Eighth and Lake Streets to intersection of Ninth and Main Streets	City of Racine	0.13
New Facility (CTH U)	STH 20 to CTH A	Town of Yorkville	0.70
New Facility	Six Mile Road to the intersection of N. Main Street and Four Mile Road	City of Racine and Town of Caledonia	2.85

Deletions From County Trunk Highway System			
Route	Limits	Municipality	Number of Miles
CTH B	STH 11 to Kenosha County line	Town of Dover	1.01
CTH G	STH 32 to west corporate limits of Village of Wind Point	City of Racine and Town of Caledonia	1.41
CTH J	CTH D to STH 36	Village and Town of Rochester	0.51
CTH K	STH 36 to the proposed extension of CTH K	Towns of Waterford and Norway	1.78
CTH W	CTH D to STH 36-83	Village of Rochester and Towns of Rochester and Burlington	2.45
CTH FF	CTH W to the proposed Burlington bypass	Village and Town of Rochester	0.50

Source: SEWRPC.

Table 47

ADDITIONS TO AND DELETIONS FROM THE RECOMMENDED TYPE II (COUNTY TRUNK) HIGHWAY SYSTEM FOR RACINE COUNTY: 1990

Additions To County Trunk Highway System			
Route	Limits	Municipality	Number of Miles
USH 41	Milwaukee County line to IH 94	Towns of Raymond and Caledonia	0.43
STH 11	STH 75 to Taylor Avenue	City of Racine; Villages of Union Grove and Sturtevant; and Towns of Dover, Yorkville, and Mt. Pleasant	14.87
STH 20	CTH K to CTH D	Village of Waterford and Town of Rochester	1.62
STH 20	IH 94 to CTH C	Town of Yorkville	0.68
STH 31	Kenosha County line to STH 32	City of Racine and Towns of Caledonia and Mt. Pleasant	10.46
STH 38	Milwaukee County line to intersection of STH 38, and CTH H and CTH K to Marquette Street	City of Racine and Town of Caledonia	6.16
Beloit Street	Sunset Drive to McHenry Street	City of Burlington	0.19
Bridge Drive	Marsh Road to N. Lake Drive	Town of Waterford	1.05
Buena Park Road	STH 83 to Ranke Drive	Town of Waterford	1.51
County Line Road	STH 32 to Nicholson Road	Town of Caledonia	0.98
County Line Road	Fishman Road to STH 83	Town of Burlington	1.43
County Line Road	USH 45 to IH 94	Town of Raymond	2.44
County Line Drive	CTH Y to CTH F	Towns of Norway and Waterford	1.16
Emmertsen Road	STH 38 to approximately Sixteenth Street	City of Racine and Towns of Caledonia and Mt. Pleasant	3.02
Fish Hatchery Road	Kenosha County line to CTH P	Town of Burlington	2.49
Fishman Road	Kenosha County line to CTH P	Town of Burlington	1.27
Five Mile Road	CTH H to proposed Type II facility at approximately Charles Street	Town of Caledonia	5.18
Johnson Park Drive	Three Mile Road to STH 38	Town of Caledonia	0.12
Kraut Road	Approximately 0.12 mile west of Roberts Road to Roberts Road	Towns of Mt. Pleasant and Caledonia	0.12
Market Street	Emerson Street to STH 83 (Pine Street)	City of Burlington	0.75
Marsh Road	Ranke Drive to Waukesha County line	Town of Waterford	3.85
Melvin Avenue	N. Main Street to Mt. Pleasant Street	City of Racine	1.18
N. Lake Drive	Bridge Drive to CTH F	Town of Waterford	1.68
Ranke Drive	Buena Park Road to Marsh Road	Town of Waterford	0.47
Roberts Road	Kraut Road to CTH K	Towns of Mt. Pleasant and Caledonia	0.39
Rolfson Road	County Line Drive to Kelsey Drive	Town of Norway	0.32
Seven Mile Road	STH 32 to USH 45	Towns of Caledonia and Raymond	11.80
Sharp Road	CTH A to Rowntree Road	Town of Caledonia	0.39
Sixteenth Street	Racine Street to a point 0.20 mile west of Green Bay Road	City of Racine	2.96
Three Mile Road	N. Main Street to Green Bay Road, and STH 31 to Johnson Park Road	City of Racine and Town of Caledonia	2.73
Twelfth Street	Racine Street to Main Street	City of Racine	0.57
West Road	STH 11 to STH 20	Village of Sturtevant and Town of Mt. Pleasant	1.50
New Facility	Intersection of Sharp Road and Rowntree Road to intersection of STH 20 and CTH D	Towns of Rochester and Dover	1.72
New Facility (West Road)	STH 20 to Kraut Road	Town of Mt. Pleasant	2.40

Table 47 (continued)

Additions To County Trunk Highway System			
Route	Limits	Municipality	Number of Miles
New Facility (Burlington Loop)	Walworth County line to Beloit Street, McHenry Street to Market Street, and STH 83 (Pine Street) to STH 36-83 (Milwaukee Avenue)	City and Town of Burlington	3.24
New Facility	CTH U to 43rd Street	Town of Raymond	0.50
New Facility	Intersection of CTH S and CTH K to proposed Type I facility	Town of Norway	0.10
New Facility (Five Mile Road)	STH 32 to Charles Street	Town of Caledonia	0.78
New Facility (Melvin Avenue)	Mt. Pleasant Street to Green Bay Road	City of Racine and Town of Mt. Pleasant	0.76
New Facility	CTH S to Kelsey Drive	Town of Norway	0.70
New Facility	Three Mile Road to STH 38 over portions of Johnson Park Drive	Town of Caledonia	0.91
New Facility	Green Bay Road to STH 31	Town of Caledonia	0.70
New Facility	Sixteenth Street to Emmertsen Road	City of Racine	0.19

Deletions From County Trunk Highway System			
Route	Limits	Municipality	Number of Miles
CTH G	STH 38 to STH 31	Town of Caledonia	2.22
CTH G	CTH H to USH 45	Towns of Caledonia and Raymond	8.40
CTH H	STH 11 to CTH K	Village of Sturtevant and Town of Mt. Pleasant	4.04
CTH K	43rd Street to a point 0.20 mile west of the intersection of CTH K and Hillcrest Road	Towns of Norway and Raymond	10.79
CTH N	STH 20 to STH 11	Town of Dover	3.87
CTH O	STH 24 to STH 83	Town of Waterford	1.74
CTH T	CTH X to Durand Avenue	City of Racine and Village of Elmwood Park	0.42
CTH V	STH 20 to Milwaukee County line	Towns of Mt. Pleasant and Caledonia	8.56
CTH X	STH 31 to CTH T (Lathrop Avenue)	Village of Elmwood Park and Town of Mt. Pleasant	2.02
CTH K (Main Street)	STH 20 to STH 36	Village of Waterford and Town of Waterford	0.72
New Facility (CTH K)	STH 36 to a point approximately 0.20 mile west of intersection of CTH K and Hillcrest Road	Towns of Norway and Waterford	1.35

Source: SEWRPC.

of the State Highway Department and, in urbanized areas, also in accordance with the planning process established under Title 23, U. S. Code, Section 134, pursuant to Section 84.03(1) of the Wisconsin Statutes.

It is accordingly recommended that, upon realignment of the state, county, and local trunk highway systems, the State Highway Commission act to effect the realignment of the federal aid primary system within Racine County. It is recommended that the initial action include all of the specific additions to, and deletions from, the federal aid primary system set forth in Table 48 in order to achieve the first stage (1975) of plan implementation. Subsequent actions should effect the specific additions to, and deletions from, the federal aid primary system set forth in Table 49 by the design year (1990) of the recommended plan. It is recommended that all of the initial changes in the federal aid primary system be effected by one inclusive action of the State Highway Commission supported by the Racine County Board. Subsequent realignments can be effected on a route-by-route basis as dictated by developing circumstances.

It is further recommended that, upon realignment of the state, county, and local trunk highway systems, the State Highway Commission act in cooperation with the Racine County Board to effect the realignment of the federal aid secondary system within that portion of Racine County that has not been designated by the State Highway Commission as an urban area. It is recommended that the initial action include all of the specific additions to, and deletions from, the federal aid secondary system set forth in Table 50 in order to achieve the first stage (1975) of plan implementation. Subsequent actions should effect the specific additions to, and deletions from, the federal aid secondary system set forth in Table 51 by the design year (1990) of the recommended plan. It is recommended that all of the initial changes in the federal aid secondary system be effected by one inclusive action of the State Highway Commission supported by the Racine County Board. Subsequent realignments can be effected on a route-by-route basis, as dictated by developing circumstances.

It is recommended that, upon realignment of the state, county, and local trunk highway systems, the State Highway Commission act in cooperation with the Racine County Board and appropriate local officials to effect the realignment of the federal aid urban system within the urban area as established under Title 23, U. S. Code, Section 101. It is recommended that the initial action include all of the specific additions to, and deletions from, the federal aid urban system set forth in Table 52 in order to achieve the first stage (1975) of plan implementation. Subsequent actions should effect the specific additions to, and deletions from, the federal aid urban system set forth in Table 53 by design year (1990) of the recommended plan. It is recommended that all of the initial changes in the federal aid urban system be effected by one inclusive action of the State Highway Commission supported by the Racine County Board, and appropriate local officials. Subsequent realignments can be effected on a route-by-route basis, as dictated by developing circumstances.

It is recommended that the U. S. Department of Transportation, Federal Highway Administration, cooperate in and approve the above recommended revisions in the federal aid systems.

The realignment of the federal aid systems will be one of the major benefits of the jurisdictional highway planning program in Racine County. The present designation of federal aid routes does not, in all cases, coincide with major arterial routes. Yet, the selective transfer of federal aid designations for given routes has been discouraged in recent years without the benefit of comprehensive study.

Table 48

ADDITIONS TO AND DELETIONS FROM THE RECOMMENDED FEDERAL AID PRIMARY SYSTEM IN RACINE COUNTY: 1975

Additions To Federal Aid Primary System			
Route	Limits	Municipality	Number of Miles
USH 45	STH 20 to Milwaukee County line	Towns of Dover, Yorkville, Norway, and Raymond	6.98
STH 20	Mutter Road to 75th Drive	Town of Yorkville	0.99
CTH F	Loomis Road to Waukesha County line	Town of Waterford	3.74
STH 83	Walworth County line to STH 20, and Milwaukee Avenue to Kenosha County line	City of Burlington, Village of Waterford, and Towns of Burlington, Rochester, and Waterford	13.47
New Facility	CTH F at Loomis Road to STH 36	Town of Waterford	1.15

Deletions From Federal Aid Primary System			
Route	Limits	Municipality	Number of Miles
STH 38 (State Street)	N. Newman Road to Main Street	City of Racine, and Towns of Caledonia and Mt. Pleasant	3.76
Durand Avenue	STH 32 to Taylor Avenue	City of Racine	1.07
Fourteenth Street	Racine Street to Main Street	City of Racine	0.57
Main Street	Seventh Street to Fourteenth Street	City of Racine	0.83
108th Street	CTH K to the Milwaukee County line	Town of Raymond	4.15
75th Drive	STH 20 to CTH K	Towns of Raymond and Yorkville	2.60

Source: SEWRPC.

Table 49

ADDITIONS TO AND DELETIONS FROM THE RECOMMENDED FEDERAL AID PRIMARY SYSTEM IN RACINE COUNTY: 1975-1990

Additions To Federal Aid Primary System			
Route	Limits	Municipality	Number of Miles
STH 20	Walworth County line to existing STH 83	Village and Town of Waterford	4.07
STH 43	Jefferson Street to Kenosha County line	City and Town of Burlington	5.01
CTH K	STH 36 to STH 20	Village and Town of Waterford	0.72
Adams Street	Pine Street to Dodge Street	City of Burlington	0.07
Bridge Street	Jefferson Street to Chestnut Street	City of Burlington	0.15
Chestnut Street	Pine Street to Bridge Street	City of Burlington	0.10
Dodge Street	Adams Street to Chestnut Street	City of Burlington	0.33
Douglas Avenue	Goold Street to Marquette Street	City of Racine	0.61
Marquette Street	Douglas Avenue to Washington Avenue	City of Racine	1.29
Milwaukee Avenue	Douglas Avenue to State Street	City of Racine	0.79
Racine Avenue	Fourteenth Street to Washington Street	City of Racine	0.33
Twelfth Street	Racine Avenue to West Boulevard	City of Racine	1.11
New Facility (STH 11)	Burlington bypass to IH 94	Towns of Burlington and Dover	13.18
New Facility	STH 36 to IH 94 along parts of present CTH K	Towns of Norway, Raymond, and Waterford	12.28
New Facility (Burlington bypass)	Walworth County line to the intersection of STH 83 and Hill Valley Road	Towns of Burlington, Rochester, and Waterford	14.09
Lake Freeway	Milwaukee County line to Kenosha County line	Towns of Caledonia and Mt. Pleasant	12.07
Loop Freeway	IH 94 near CTH K to IH 94 near CTH KR	Towns of Caledonia and Mt. Pleasant, and City of Racine	20.60

Deletions From Federal Aid Primary System			
Route	Limits	Municipality	Number of Miles
STH 11	STH 36 to Walworth County line	City and Town of Burlington	1.71
STH 11	Burlington bypass to STH 31	Villages of Union Grove and Sturtevant, and Towns of Burlington, Dover, Mt. Pleasant, and Yorkville	18.48
STH 11	Washington Avenue to Durand Avenue	City of Racine	1.38
STH 38	Milwaukee County line to N. Newman Road	City of Racine and Town of Caledonia	12.54
STH 83	Hillcrest Road to STH 20	Town of Waterford	1.27
Durand Avenue	STH 31 to Taylor Avenue	City of Racine	1.87
Fourteenth Street	Washington Avenue to Racine Street	City of Racine	0.14
Goold Street	Douglas Avenue to N. Main Street	City of Racine	1.53
Jefferson Street	Pine Street to Bridge Street	City of Burlington	0.17
N. Main Street	Seventh Street to Goold Street	City of Racine	1.53
Pine Street	Adams Street to Chestnut Street	City of Burlington	0.33
Seventh Street	Main Street to Washington Avenue	City of Racine	0.32
Sixth Street	Main Street to Washington Avenue	City of Racine	0.32
Washington Avenue	Sixth Street to Marquette Street, and Racine Avenue to West Boulevard	City of Racine	1.69

Source: SEWRPC.

By correlating jurisdictional responsibility with federal aid importance, implementation of the recommended jurisdictional highway system plan will achieve the alignment of the federal aid primary system with the Type I (state trunk) highway system and the alignment of the federal aid secondary system with the Type II (county trunk) highway system in that portion of Racine County that is not designated an urban area, and the alignment of the federal aid urban system with the Type II (county trunk) highway system and the Type III (local trunk) highway system in an urban area.

Realignment of Operational Responsibilities

The State Highway Commission, following the realignment of the state and county trunk highway systems as recommended in this report, shall assume full operational and maintenance responsibilities, as hereinafter defined, over the recommended state trunk highway system, and shall mark and maintain all state trunk highways within Racine County, including those facilities within incorporated cities and villages. The Racine County Board shall similarly assume full operational and maintenance responsibilities as hereinafter defined over the recom-

Table 50

ADDITIONS TO AND DELETIONS FROM THE RECOMMENDED FEDERAL AID SECONDARY SYSTEM IN RACINE COUNTY: 1975

Additions To Federal Aid Secondary System			
Route	Limits	Municipality	Number of Miles
CTH A	STH 75 to STH 20	Towns of Dover and Yorkville	7.35
CTH J	STH 43 to CTH JB	Town of Burlington	1.15
CTH S	STH 20 to CTH G	Towns of Norway and Dover	6.97
CTH JB	CTH J to CTH KD (Kenosha County)	Town of Burlington	1.12
CTH KR	STH 32 to USH 45	Towns of Mt. Pleasant and Yorkville	6.17

Deletions From Federal Aid Secondary System			
Route	Limits	Municipality	Number of Miles
USH 45	STH 20 to Milwaukee County line	Towns of Norway, Raymond, Dover, and Yorkville	6.98
STH 20	Mutter Road to 75th Drive	Town of Yorkville	0.99
STH 31	Three Mile Road to CTH X	Ctiy of Racine, and Towns of Mt. Pleasant and Caledonia	6.59
STH 83	Walworth County line to STH 20, and Milwaukee Avenue to Kenosha County line	City of Burlington, Village of Waterford, and Towns of Burlington, Rochester, and Waterford	13.47
CTH F	Waukesha County line to Loomis Road	Town of Waterford	3.74
CTH G	STH 32 to southern corporate limits of the Village of North Bay	Villages of North Bay and Wind Point, and Town of Caledonia	4.55
CTH H	STH 11 to CTH K	Village of Sturtevant and Town of Mt. Pleasant	4.04
CTH X	STH 31 to Durand Avenue	Village of Elmwood Park and Town of Mt. Pleasant	2.72
CTH Y	Durand Avenue to Chickory Road	City of Racine and Town of Mt. Pleasant	1.01
CTH MM	STH 31 to STH 38	Town of Mt. Pleasant	0.96
Browns Lake Drive	State Street to the urban boundary	City of Burlington	0.61
McHenry Street (CTH P)	Southern corporate limits of the City of Burlington to Jefferson Street	City of Burlington	1.59
N. Main Street	Northern corporate limits of the City of Racine to Goold Street	City of Racine	0.96
Spring Street (CTH C)	Emmertsen Road to State Street	City of Racine and Town of Mt. Pleasant	2.80
New Facility (CTH F Extended)	CTH F at Loomis Road to STH 36	Town of Waterford	1.15

Source: SEWRPC.

mended county trunk highway system, and shall mark and maintain all county trunk highways within Racine County, including those facilities within incorporated cities and villages.

It is recommended that the Rustic Roads Board upon the application of the Racine County Board and pursuant to Section 83.42 of the Wisconsin Statutes designate as Rustic Roads the facilities identified on Map 19.

It is further recommended that the Racine County Board, in cooperation with appropriate governmental agencies and organizations such as the State Department of Natural Resources, the County Park and Planning Commission, the County Historical Society, garden and women's clubs, and recreation-oriented business associations, mark and sign the recommended system of scenic drives and rustic roads within Racine County for such recreational activities as pleasure driving, and to provide access to the sites of cultural, historical, recreational, scenic, and scientific interest within the county.

It is recommended that the State Highway Commission continue to contract with the Racine County Board, pursuant to Section 84.07 of the Wisconsin Statutes, for maintenance of the Type I (state trunk) highway facili-

Table 51

ADDITIONS TO AND DELETIONS FROM THE RECOMMENDED FEDERAL AID SECONDARY SYSTEM IN RACINE COUNTY: 1975-1990

Additions To Federal Aid Secondary System			
Route	Limits	Municipality	Number of Miles
USH 41	IH 94 to Milwaukee County line	Towns of Caledonia and Raymond	0.43
STH 11	STH 75 to the western corporate limits of the Village of Sturtevant	Village of Union Grove and Towns of Dover, Mt. Pleasant, and Yorkville	11.62
STH 20	CTH D to CTH K	Village of Waterford and Town of Rochester	1.62
STH 38	CTH H to Seven Mile Road	Town of Caledonia	0.90
Bridge Drive	Marsh Road to N. Lake Drive	Town of Waterford	1.05
Buena Park Road	STH 83 to Ranke Drive	Town of Waterford	1.51
County Line Road	Fishman Drive to CTH KD (Kenosha County)	Town of Burlington	1.33
County Line Road	STH 32 to IH 94	Town of Caledonia	0.98
County Line Drive	CTH F to CTH Y	Towns of Norway and Waterford	1.16
Fish Hatchery Road	CTH P to Kenosha County line	Town of Burlington	2.49
Fishman Road	Oakwood Drive to the Kenosha County line	Town of Burlington	0.75
Five Mile Road	CTH H to the 1990 western corporate limits of the City of Racine	Town of Caledonia	1.91
Honey Lake Road	STH 20 to Walworth County line	Town of Waterford	0.98
Kraut Road	Approximately 0.12 mile west of Roberts Road to Roberts Road	Towns of Caledonia and Mt. Pleasant	0.12
Marsh Road	Ranke Drive to Waukesha County line	Town of Waterford	3.85
Mormon Road	STH 11 to STH 36	Town of Burlington	0.42
N. Lake Road	Bridge Drive to CTH F	Town of Waterford	1.68
Oakwood Drive	Fishman Road to CTH P	Town of Burlington	0.52
Ranke Drive	Buena Park Road to Marsh Road	Town of Waterford	0.47
Roberts Road	Kraut Road to CTH K	Towns of Caledonia and Mt. Pleasant	0.39
Rolfson Road	County Line Drive to Kelsey Drive	Town of Norway	0.32
Seven Mile Road	USH 45 to existing STH 38, and Nicholson Road to STH 32	Towns of Caledonia and Raymond	10.80
Sharp Road	CTH A to Rowntree Road	Town of Dover	0.39
Tichigan Road	Buena Park Road to CTH F	Town of Waterford	2.73
West Road	STH 20 to the northern corporate limits of the Village of Sturtevant	Town of Mt. Pleasant	1.03
New Facility (CTH A extension)	CTH D to the intersection of Sharp Road and Rowntree Road	Towns of Dover and Rochester	1.72
New Facility (West Road)	STH 20 to Kraut Road	Town of Mt. Pleasant	2.40
New Facility (CTH U)	STH 20 to CTH A	Town of Yorkville	0.70
New Facility	Kelsey Drive to CTH S	Town of Norway	0.70

Table 51 (continued)

Deletions From Federal Aid Secondary System			
Route	Limits	Municipality	Number of Miles
STH 20	Walworth County line to existing STH 83	Village and Town of Waterford	4.07
STH 20	CTH D to Mutter Road, and 75th Drive to CTH C	Towns of Dover, Rochester, and Yorkville	10.15
STH 31	Three Mile Road to STH 32	Town of Caledonia	2.64
STH 43	State Street to Kenosha County line	City and Town of Burlington	4.86
CTH G	USH 45 to CTH H, and STH 38 to STH 32	Towns of Caledonia and Raymond	10.64
CTH J	CTH D to STH 36	Village and Town of Rochester	0.57
CTH K	STH 20 to STH 36	Village and Town of Waterford	0.72
CTH K	STH 36 to 43rd Street	Towns of Norway, Raymond, and Waterford	12.57
CTH K	STH 38 to the urban boundary	Town of Caledonia	0.60
CTH V	STH 20 to Milwaukee County line	Towns of Caledonia and Mt. Pleasant	8.56
CTH W	STH 20 to CTH D	Village of Rochester, and Towns of Burlington and Rochester	2.45
CTH Y	Chickory Road to the urban boundary	Town of Mt. Pleasant	0.50
CTH FF	Burlington bypass to CTH W	Village and Town of Rochester	0.50
Spring Street (CTH C)	Emmertsen Road to the urban boundary	Town of Mt. Pleasant	1.59

Source: SEWRPC.

ties, with the added option of contracting on an annual basis directly with the cities and villages concerned for maintenance of these facilities. It is similarly recommended that the Racine County Board, as its option, contract with the cities and villages concerned for maintenance of the Type II (county trunk) highway facilities. It is recommended that the State Highway Commission and the Racine County Highway Committee, respectively, establish standards for such contractual maintenance, relating these standards to the recommended eligible maintenance items set forth in Chapter VII of this report, namely physical maintenance of roadway surface pavements and structures and physical maintenance of storm sewers, snow and ice control between curbs, traffic control devices, and pavement marking. It is similarly recommended that the state and county assume direct administration of the operational control devices on the state and county trunk highway systems, respectively, as recommended in Chapter VII of this report, namely issuance of driveway permits, control of advertising signs, maintenance of signals and route signing, establishment of speed zoning, issuance of special permits, and prohibition of parking.

It is further recommended that the State Highway Commission, pursuant to Section 84.25 of the Wisconsin Statutes, review the status of controlled-access highways within Racine County and declare all such Type I (state trunk) highway facilities within the county which meet the statutory requirements and provisions as controlled-access highways. It is similarly recommended that the Racine County Board, pursuant to Section 83.027 of the Wisconsin Statutes, declare all such county trunk highway facilities within Racine County as are found to meet the statutory requirements and provisions as controlled-access highways.

Facility Construction and Right-of-Way Acquisition

It has already been noted that the planning and programming procedure developed by the State Highway Commission provides an orderly and effective device whereby the many complex and highly interrelated tasks involved in the final accomplishment of modern highway improvement projects—tasks such as route location, including necessary mapping; preliminary engineering; implementation of legal changes in the state trunk highway routes; detailed design and final engineering; acquisition of right-of-way; preparation of construction plans, specifications, and cost estimates; letting of contracts; and actual construction, including layout, inspection, and final surveys—can be carried out, and as such, this planning and programming procedure constitutes an effective current planning and plan implementation program. It is accordingly recommended that the recommended jurisdictional highway system plan be integrated into the state and county highway construction planning and programming procedures as necessary to meet the staged completion dates recommended in the jurisdictional highway system plan. In order to assist in such integration, the priority list of Type I and Type II highway facility improvement projects set forth in Tables 54 and 55 has been prepared. The list of recommended highway improvements is arranged in order of priority of need based upon a systems analysis of the existing and probable future traffic demands and on consideration of necessary system continuity, of existing structural condition, and of feasible project limits.

Facility Construction: In connection with facility construction, it is recommended that the State Highway Commission and the Racine County Board adopt common, uniform construction aid formulae and policies providing for a fixed local contribution of 15 percent of the cost of

Table 52

ADDITIONS TO THE RECOMMENDED FEDERAL AID URBAN SYSTEM IN RACINE COUNTY: 1975

Additions To Federal Aid Secondary System			
Route	Limits	Municipality	Number of Miles
STH 31	Three Mile Road to CTH X	City of Racine, and Towns of Caledonia and Mt. Pleasant	6.59
STH 38 (State Street)	N. Newman Road to Main Street	City of Racine, and Towns of Caledonia and Mt. Pleasant	3.76
CTH H	STH 11 to the southern corporate limits of the Village of Sturtevant	Village of Sturtevant	0.25
McHenry Street (CTH P)	Southern corporate limits of City of Burlington to Jefferson Street	City of Burlington	1.59
CTH MM	STH 31 to STH 38	City of Racine	0.96
Beloit Street	McHenry Street to Sheldon Street	City of Burlington	0.19
Braun Road	STH 31 to CTH X	Town of Mt. Pleasant	0.43
Bridge Street	Milwaukee Avenue to Chestnut Street	City of Burlington	0.10
Browns Lake Drive	State Street to the urban boundary	City of Burlington	0.61
Charles Street	Three Mile Road to Five Mile Road	Town of Caledonia	2.01
Chickory Road	STH 32 to CTH Y	Town of Mt. Pleasant	1.70
Commerce Street	Milwaukee Avenue to Origen Street	City of Burlington	0.27
Durand Avenue	STH 32 to Taylor Avenue	City of Racine	1.07
Emmertsen Road	CTH C (Spring Street) to STH 20	City of Racine and Town of Mt. Pleasant	1.28
Five Mile Road	STH 32 to Charles Street	Town of Caledonia	2.75
Fourteenth Street	Main Street to Racine Street	City of Racine	0.57
Four Mile Road	N. Green Bay Road to N. Main Street	Town of Caledonia	2.75
Graceland Boulevard	STH 31 to Osborne Boulevard	City of Racine	1.28
High Street	Main Street to STH 38	City of Racine	1.35
Jefferson Street	Milwaukee Avenue to Pine Street	City of Burlington	0.42
Kinzie Avenue	Osborne Boulevard to Sixth Street	City of Racine	0.66
Lake Street	Second Street to Ninth Street	City of Racine	0.62
Lathrop Avenue	Graceland Boulevard to Chickory Road	City of Racine, Village of Elmwood Park, and Town of Mt. Pleasant	2.56
Main Street	Four Mile Road to Goold Street, and Ninth Street to Fourteenth Street	City of Racine, Villages of North Bay and Wind Point, and Town of Caledonia	3.13
Market Street	Pine Street to Emerson Street	City of Burlington	0.75
Melvin Avenue	N. Main Street to N. Green Bay Road	City of Racine	1.94
Memorial Drive	Rapids Drive to Durand Avenue	City of Racine	3.62
90th Street	STH 20 to Broadway Drive	Village of Sturtevant and Town of Mt. Pleasant	2.00
N. Green Bay Road	Four Mile Road to Rapids Court	City of Racine and Town of Caledonia	2.30
Ohio Street	Spring Street to Chickory Road	City of Racine and Town of Mt. Pleasant	3.73
Origen Street	Commerce Street to Chestnut Street	City of Burlington	0.04
Osborne Boulevard	Graceland Boulevard to Kinzie Avenue	City of Racine	0.40
Rapids Court	N. Green Bay Road to Rapids Drive	City of Racine	0.04
Rapids Drive	Mt. Pleasant Street to Memorial Drive	City of Racine	0.37
Second Street	Wisconsin Avenue to Lake Street	City of Racine	0.09
Six Mile Road	STH 31 to proposed Type II facility at Sumner Street	Town of Caledonia	1.35
Sixteenth Street	STH 31 to Racine Street	City of Racine	2.76
Sixth Street	Kinzie Avenue to Washington Avenue	City of Racine	0.90
Spring Street	Emmertsen Road to State Street	City of Racine and Town of Mt. Pleasant	2.80

Table 52 (continued)

Additions To Federal Aid Secondary System			
Route	Limits	Municipality	Number of Miles
State Street	Milwaukee Avenue to Main Street	City of Burlington	0.70
Taylor Avenue (CTH X)	Durand Avenue to STH 31	City of Racine, Village of Elmwood Park, and Town of Mt. Pleasant	2.72
Three Mile Road	STH 31 to STH 32	Town of Caledonia	1.65
Twelfth Street	Racine Avenue to Main Street	City of Racine	0.57
21st Street	Ohio Street to S. Memorial Drive	City of Racine	1.86
Wisconsin Avenue	State Street to Fourteenth Street	City of Racine	1.31
Yout Street	N. Main Street to Rapids Drive	City of Racine	0.81
New Facility	Intersection of N. Main Street and Four Mile Road to Six Mile Road	Town of Caledonia	2.85
New Facility (Burlington Loop)	Milwaukee Avenue to Pine Street, Emerson Street to McHenry Street, and Sheldon Street to the Walworth County line	City of Burlington	3.24
New Facility (Chickory Road)	CTH Y to CTH X	Town of Mt. Pleasant	0.58
New Facility (Emmertsen Road)	STH 20 to STH 31	Town of Mt. Pleasant	0.74
New Facility (Memorial Drive)	Durand Avenue to Chickory Road	City of Racine	1.15
New Facility (Mt. Pleasant Street extended)	South Street to STH 32	City of Racine	0.85

Source: SEWRPC

all state and county trunk highway construction projects involving urban cross sections, except interstate highway and other freeway projects, with the cost of the construction project being determined on the basis of the participating work items set forth in Chapter VII of this report, namely right-of-way acquisition; grading; construction of pavement base and surface and curb and gutter; construction of inlets for surface water drainage, together with connections to storm sewer mains; construction of storm sewer mains necessary for pavement and right-of-way drainage; and engineering services.

Except for interstate highway projects in Racine County, freeway projects on federal aid routes are financed with 70 percent federal funds and 30 percent state funds.

Right-of-Way Reservation: A considerable interval necessarily exists between the time a long-range plan for a given highway facility is formally adopted and the time when actual construction of the facility can begin. If maximum economies are to be effected and future disruption to urban development minimized, the conversion of open land to urban use and the redevelopment of land for urban use within required future right-of-way lines must be avoided. This is particularly true in the rural areas in and surrounding developing cities and villages such as exist in Racine County, where urban development, if allowed to proceed in the path of needed highway facilities, will not only make the eventual construction of the proposed facilities extremely costly and difficult but will also require expensive and agonizing readjustment of the urban development itself to the ultimate highway development.

It is therefore recommended that prior reservation of right-of-way for the required highway facilities be accomplished in accordance with the recommended jurisdictional highway system plan, utilizing statutory devices made available for this purpose, including official mapping, building setback line ordinances, and land subdivision control ordinances. Such prior reservation of right-of-way serves as an expression of governmental intent to acquire land for highway purposes in advance of actual facility construction, and thereby can not only achieve great economies in ultimate right-of-way acquisition, but also permits land adjacent to the required right-of-way to be privately purchased and developed with full knowledge of the future highway development proposals. Such action can serve greatly to reduce public misunderstanding of proposed highway improvements and should thereby assist in avoiding and overcoming opposition to the actual construction of the recommended facilities. Such prior reservation of right-of-way also serves to assure that lands needed for future highways will be available when needed at the price of unimproved land. This serves not only to effect great

Table 53

ADDITIONS TO AND DELETIONS FROM THE RECOMMENDED FEDERAL AID URBAN SYSTEM IN RACINE COUNTY: 1975-1990

Additions To Federal Aid Urban System			
Route	Limits	Municipality	Number of Miles
STH 31	Three Mile Road to Six Mile Road	Town of Caledonia	3.00
STH 38	N. Newman Road to Four Mile Road	Town of Caledonia	2.60
STH 38	Seven Mile Road to the Milwaukee County line	Town of Caledonia	1.00
CTH C (Spring Street)	Emmertsen Road to the urban boundary	Town of Mt. Pleasant	1.59
CTH K	Existing STH 38 to the urban boundary	Town of Caledonia	0.60
CTH Y (Ohio Street)	Chickory Road to the urban boundary	Town of Mt. Pleasant	0.50
Chestnut Street (STH 11)	Origen Street to the Walworth County line	City and Town of Burlington	1.40
Durand Avenue	Taylor Avenue to the urban boundary	City of Racine, Village of Sturtevant, and Town of Mt. Pleasant	5.21
Emmertsen Road	Spring Street to existing STH 38	Towns of Caledonia and Mt. Pleasant	1.39
Five Mile Road	STH 32 to the urban boundary	Town of Caledonia	2.76
Four Mile Road	N. Green Bay Road to the urban boundary	Town of Caledonia	2.93
Goold Street	Douglas Avenue to Main Street	City of Racine	0.68
Jefferson Street	Pine Street to Dodge Street	City of Burlington	0.10
Lathrop Avenue	Chickory Road to the urban boundary	Town of Mt. Pleasant	0.50
Main Street	Goold Street to Second Street	City of Racine	1.13
Mormon Road	STH 36 to STH 11	Town of Burlington	0.42
Nicholson Road	Seven Mile Road to the Milwaukee County line	Town of Caledonia	1.00
90th Street	STH 20 to 0.25 mile south of CTH C	Town of Mt. Pleasant	0.75
Seven Mile Road	STH 38 to Nicholson Road	Town of Caledonia	1.02
Seventh Street	Grand Avenue to Lake Avenue	City of Racine	0.36
Sixth Street	Grand Avenue to Lake Avenue	City of Racine	0.36
Taylor Avenue	Sixteenth Street to Durand Avenue	City of Racine	1.27
Three Mile Road	STH 31 to Johnson Park Drive	Town of Caledonia	0.74
West Road	STH 11 to northern corporate limits of the Village of Sturtevant	Village of Sturtevant	0.43
New Facility (Johnson Park Drive)	STH 38 to Three Mile Road	Town of Caledonia	1.03

Deletions From Federal Aid Urban System			
Route	Limits	Municipality	Number of Miles
Douglas Avenue	Milwaukee Avenue to Marquette Street	City of Racine	0.24
Marquette Street	Douglas Avenue to Washington Avenue	City of Racine	1.29
Milwaukee Avenue	Douglas Avenue to State Street	City of Racine	0.79

Source: SEWRPC.

economies but also to avoid in the future the disruption, dislocation, discontent, and great expense involved in the acquisition and clearance of developed areas for street and highway purposes.

The most effective and efficient means of prior reservation of right-of-way for highway purposes is the use of the official mapping powers granted by the State Legislature to the State Highway Commission, counties, cities, villages, and towns in Wisconsin. These powers are thoroughly discussed and illustrated in SEWRPC Planning Guide No. 2, Official Mapping Guide, February 1964. It is recommended that, upon adoption of the jurisdictional highway system plan by the Racine County Board and endorsement by the State Highway Commission, the Racine County Board in cooperation with

Table 54

RECOMMENDED STAGING OF TYPE I (STATE TRUNK)
ARTERIAL HIGHWAY SYSTEM IMPROVEMENTS
IN RACINE COUNTY: 1973-1990

Time Period	Highway Facility	Limits	Municipality	Number of Miles
1973-1975	Proposed Extension of CTH F	Loomis Road to STH 36	Town of Waterford	1.15
1976-1980	STH 11	Proposed Burlington loop to the Burlington bypass	City and Town of Burlington	2.74
	STH 20	West corporate limits of the City of Racine to IH 94	Town of Mt. Pleasant	5.71
	STH 32	Milwaukee County line to Five Mile Road, and CTH G to Three Mile Road	Town of Caledonia	4.41
	STH 32	South corporate limits of the City of Racine to the Kenosha County line	Town of Mt. Pleasant	2.68
	STH 83	Walworth County line to Hill Valley Road	Town of Waterford	4.73
	Marquette Street	State Street to Washington Avenue	City of Racine	0.69
	Milwaukee Avenue	Douglas Avenue to State Street	City of Racine	0.79
	Racine Avenue	Washington Avenue to the south corporate limits of the City of Racine	City of Racine	1.10
	Twelfth Street	West Boulevard to Racine Avenue	City of Racine	1.11
	Washington Avenue	Marquette Street to Racine Avenue, and West Boulevard to western corporate limits of the City of Racine	City of Racine	1.59
	Proposed Burlington Bypass	Intersection of Hill Valley Road and STH 83 to the Walworth County line	Towns of Burlington, Rochester, and Waterford	14.09
1981-1985	STH 20	Walworth County line to Jefferson Street	Village and Town of Waterford	5.20
	STH 36	Waukesha County line to proposed Burlington loop, and western corporate limits of the City of Burlington to the Walworth County line	City of Burlington, Village of Waterford, and Towns of Burlington, Norway, Rochester, and Waterford	13.67
	STH 43	STH 11 to Kenosha County line	City and Town of Burlington	4.86
	STH 45	Milwaukee County line to Kenosha County line	Village of Union Grove and Towns of Dover, Norway, Raymond, and Yorkville	12.95
	STH 83	Yanke Road to Kenosha County line	Town of Burlington	3.75
1986-1990	CTH K	From the intersection of present CTH K and Hillcrest Road to IH 94	Towns of Norway and Raymond	11.33
	Lake Freeway	Milwaukee County line to Kenosha County line	Towns of Caledonia and Mt. Pleasant	12.07
	Loop Freeway	IH 94 and proposed Type I facility to intersection of IH 94 and proposed extension of STH 11	City of Racine and Towns of Caledonia and Mt. Pleasant	20.60
	New Facility (STH 11)	Proposed Burlington bypass to IH 94	Towns of Burlington, Dover, and Yorkville	13.18

Source: SEWRPC.

Table 55

RECOMMENDED STAGING OF TYPE II (COUNTY TRUNK) ARTERIAL HIGHWAY SYSTEM IMPROVEMENTS IN RACINE COUNTY: 1973-1990

Time Period	Highway Facility	Limits	Municipality	Number of Miles
1973-1975	STH 31	STH 32 to Kenosha County line	City of Racine and Towns of Caledonia and Mt. Pleasant	9.92
	CTH A	USH 45 to CTH C	Town of Yorkville	4.33
	CTH H	Existing STH 11 to the Kenosha County line	Town of Mt. Pleasant	2.02
	CTH U	STH 20 to existing CTH K	Towns of Raymond and Yorkville	3.56
	CTH FF	Maple Lane to proposed Burlington bypass	Town of Rochester	1.75
	West Road	Existing STH 11 to STH 20	Village of Sturtevant and Town of Mt. Pleasant	1.50
	New Facility (West Road)	STH 20 to Kraut Road	Town of Mt. Pleasant	2.40
	New Facility (CTH K)	Intersection of STH 36 and proposed extension of CTH F to the intersection of CTH K and Hillcrest Road	Towns of Norway and Waterford	1.25
1976-1980	STH 11	Bieneman Road to the Walworth County line	City and Town of Burlington	0.85
	CTH C	USH 45 to existing CTH H, and from the proposed Lake Freeway to STH 31	Towns of Mt. Pleasant and Yorkville	9.83
	CTH D	Walworth County line to STH 36	Village and Town of Rochester	4.86
	CTH KR	IH 94 to CTH Y	Town of Mt. Pleasant	2.99
	CTH MM	STH 31 to STH 38	City of Racine	0.96
	Chestnut Street	Bieneman Road to N. Origen Street	City of Burlington	0.55
	Commerce Street	N. Origen Street to Milwaukee Avenue	City of Burlington	0.27
	Honey Creek Road	Walworth County line to STH 20	Town of Waterford	0.98
	Mormon Road	STH 20 to existing STH 11	Town of Burlington	0.42
	N. Main Street	Three Mile Road to Four Mile Road	Village of Wind Point and Town of Caledonia	1.00
	Origen Street	Chestnut Street to Commerce Street	City of Burlington	0.04
	Six Mile Road	STH 31 to proposed Type II facility	Town of Caledonia	1.35
	New Facility	Intersection of N. Main Street and Four Mile Road to Six Mile Road	Town of Caledonia	2.85
	New Facility (CTH U)	CTH A to existing STH 20	Town of Yorkville	0.70
1981-1985	CTH J	STH 43 to proposed new alignment of STH 11	Town of Burlington	0.87
	CTH JB	CTH J to CTH KD (Kenosha County)	Town of Burlington	1.12
	Bridge Drive	Marsh Road to N. Lake Drive	Town of Waterford	1.05
	County Line Road	CTH KD (Kenosha County) to Fishman Road	Town of Burlington	1.38
	County Line Road	USH 45 to CTH U, and 60th Street to STH 32	Towns of Caledonia and Raymond	3.42
	County Line Drive	CTH F to CTH Y	Towns of Norway and Waterford	0.75
	Fish Hatchery Road	Kenosha County line to CTH P	Town of Burlington	2.49
	Fishman Road	Kenosha County line to Oakwood Road	Town of Burlington	0.75
	Five Mile Road	CTH 11 to Middle Road, and from Charles Street to a point 0.25 mile west of Charles Street	Town of Caledonia	5.26
	Marsh Road	Ranke Drive to Waukesha County line	Town of Waterford	3.85
	N. Lake Drive	Bridge Drive to CTH F	Town of Waterford	1.68
	Oakwood Road	Fishman Road to CTH P	Town of Burlington	0.52
	Ranke Drive	Buena Park Road to Marsh Road	Town of Waterford	0.47
	Rolfson Road	CTH Y to Waukesha County line	Town of Norway	0.32
	Sharp Road	CTH A to Rowntree Road	Town of Dover	0.39
	Sixteenth Street	Main Street to the proposed Loop Freeway	City of Racine	1.69
	New Facility (Sharp Road)	The intersection of Sharp Road and Rowntree Road to CTH D	Towns of Dover and Rochester	1.72

Table 55 (continued)

Time Period	Highway Facility	Limits	Municipality	Number of Miles
1981-1985	New Facility (Rolfson Road)	Rolfson Road to CTH S	Town of Norway	0.70
	New Facility (Five Mile Road)	Middle Road to Charles Street	Town of Caledonia	0.75
	New Facility (County Line Road)	CTH U to 60th Street	Town of Raymond	0.50
1986-1990	STH 11	STH 75 to STH 31	Villages of Sturtevant and Union Grove, and Towns of Dover, Mt. Pleasant, and Yorkville	13.30
	STH 38	Milwaukee County line to CTH H, and CTH K to Rapids Drive	City of Racine and Town of Caledonia	4.15
	STH 75	STH 11 to Kenosha County line	Town of Dover	1.31
	CTH K	STH 38 to CTH H, and IH 94 to 43rd Street	Towns of Caledonia, Mt. Pleasant, and Raymond	3.87
	CTH P (McHenry Street)	Proposed Burlington bypass to proposed Burlington loop	City and Town of Burlington	1.02
	CTH W (Browns Lake Drive)	CTH A to State Street	City and Town of Burlington	2.07
	CTH Y	STH 38 to Waukesha County line	Town of Norway	1.10
	CTH Y	CTH X to Kenosha County line	Town of Mt. Pleasant	1.42
	Browns Lake Road	STH 11 to CTH W	City of Burlington	0.51
	Beloit Street (Part of Burlington Loop)	McHenry Street to Sheldon Street	City of Burlington	0.19
	Emmertsen Road	Intersection of STH 31 and 16th Street to STH 38	Towns of Caledonia and Mt. Pleasant	3.41
	Market Street (Part of Burlington Loop)	Emerson Street to Pine Street	City of Burlington	0.75
	Melvin Avenue	Douglas Avenue to Mt. Pleasant Avenue	City of Racine	0.38
	Seven Mile Road	STH 32 to USH 45	Towns of Caledonia and Raymond	11.80
	State Street	Rapids Drive to Wisconsin Avenue	City of Racine	2.41
	Three Mile Road	N. Main Street to N. Green Bay Road, and STH 31 to Johnson Park Drive	Town of Caledonia	2.73
	Twelfth Street	Racine Avenue to Main Street	City of Racine	0.57
	New Facility (Burlington Loop)	Milwaukee Avenue to Pine Street, Emerson Street to McHenry Street, and Sheldon Street to the Walworth County line	City and Town of Burlington	3.24
	New Facility	Three Mile Road to STH 38 over portions of Johnson Park Drive	Town of Caledonia	1.03
	New Facility	Green Bay Road to STH 31	Town of Caledonia	0.70
	New Facility	Eighth Street to Ninth Street	City of Racine	0.13
	New Facility	Mt. Pleasant Avenue to Green Bay Road	Town of Mt. Pleasant	0.76

Source: SEWRPC.

the two cities, seven villages, and nine towns within Racine County adopt a modified "official" map pursuant to Section 80.64 of the Wisconsin Statutes. This map initially should encompass all of the Type I and Type II highway facilities which are to remain on existing location and which, therefore, should require no route location studies as a basis for the mapping. Proposed Type I and Type II highway facilities which are to be placed on new location should be added to the map as the necessary route location studies are completed. Such a County Official Map will serve to establish street and highway widths in excess of the widths in use and likewise to establish the location and width of proposed future arterial streets or highways. It is important to note, however, that to become effective such a county map must be approved by the governing body of the municipality in which a mapped street or highway or any part thereof is located and, therefore, actually becomes a joint

county and city, village, or town map. It is, therefore, recommended that the governing bodies of the two cities, seven villages, and nine towns within the county approve the County Map prepared in accordance with the adopted jurisdictional highway system plan.

It is further recommended, because of the limited powers of such a county map, that the County Official Map be augmented by the preparation and adoption of local official maps and ordinances, which would include, in addition to the recommended state and county mapped routes, all of the Type III highway facilities shown on the recommended jurisdictional highway system plan. In accordance with Section 62.23(6) of the Wisconsin Statutes, such official mapping may be supplemented in certain intensely developed areas by the establishment of building setback lines, pursuant to Section 62.23(11) of the Wisconsin Statutes, in order to protect portions of recommended street and highway rights-of-way.

It is recommended that the planning agencies of the two cities, seven villages, and nine towns within the county recommend to their respective governing bodies, pursuant to Section 236.45(4) of the Wisconsin Statutes, the adoption of the subdivision regulations similar to those contained in the SEWRPC Model Land Division Ordinance set forth in SEWRPC Planning Guide No. 1, Land Development Guide, November 1963, to assure dedication of required rights-of-way for the arterial streets and highways included on the recommended jurisdictional highway system plan. It is further recommended that the respective governing bodies adopt such ordinances or amendments thereto, pursuant to Section 236.45 of the Wisconsin Statutes.

Finally, it is recommended that the plan commissions of the two cities, seven villages, and nine towns within the county formulate and recommend to their respective governing bodies new zoning ordinances or amendments to their existing ordinances, pursuant to Section 62.23(7) of the Wisconsin Statutes, to provide for traffic, parking, and access restrictions; exclusive highway service districts; sign controls; and conditional use regulations similar to those provided in the SEWRPC Model Zoning Ordinance as set forth in SEWRPC Planning Guide No. 3, Zoning Guide, April 1964, and apply these provisions properly to the lands abutting the proposed Type I, II, and III arterial subsystems. It is further recommended that their respective governing bodies adopt such ordinances or amendments pursuant to Section 62.23(7) of the Wisconsin Statutes.

SUMMARY

This chapter has set forth specific procedures for implementation of the recommended jurisdictional highway system plan. Implementation procedures by the U. S. Department of Transportation, Federal Highway Administration; the Wisconsin Department of Transportation; the Southeastern Wisconsin Regional Planning Commission; the Racine County Board; and the governing bodies of the two cities, seven villages, and nine towns are intended to be consistent with all existing and proposed legislation, administrative codes, and ordinances of the implementing agencies. The most important of the recommended plan implementation actions are summarized in the following paragraphs by level of government concerned.

Federal Level

U. S. Department of Transportation, Federal Highway Administration: It is recommended that the U. S. Department of Transportation, Federal Highway Administration:

1. Acknowledge the recommended jurisdictional highway system plan for Racine County and utilize the plan as a guide in the review of requests for realignment of the various federal aid systems and in the administration and granting of federal aids for highway improvement within the county.

2. Cooperate in, and approve the adjustment of, the federal aid systems to the recommended jurisdictional highway system plan.

State Level

Highway Commission of the Wisconsin Department of Transportation, Division of Highways: It is recommended that the State Highway Commission:

1. Endorse and integrate the recommended jurisdictional highway system plan into the state long-range highway system plan.

2. Seek, in cooperation with the Racine County Board and appropriate local officials, realignment of the state trunk, county trunk, local trunk, and federal aid systems to the recommended jurisdictional highway system plan.

3. Assume full operational and maintenance responsibilities for all state trunk highways within Racine County.

4. Review the status of controlled-access highways within Racine County and declare all such state trunk highways within Racine County found to meet the statutory requirements and provisions as controlled-access highways.

5. Proceed with right-of-way acquisition and facility construction to meet the staged facility completion dates included in the recommended jurisdictional highway system plan.

6. Adopt uniform construction aid formulae and policies for all state trunk highways consistent with similar formulae and policies for all county trunk highways in Racine County.

Rustic Road Board: It is recommended that the Rustic Road Board:

1. Act to endorse the recommended jurisdictional highway system plan for Racine County and utilize the plan as a guide in the review of requests for designation of Rustic Roads within the county.

2. Cooperate in, and approve the designation of the Rustic Roads recommended in the jurisdictional highway system plan.

Regional Level

Southeastern Wisconsin Regional Planning Commission: It is recommended that the Southeastern Wisconsin Regional Planning Commission act to formally adopt the recommended jurisdictional highway system plan as an integral part of the master plan for the Region, constituting an amendment to the regional transportation plan adopted by the Commission on December 1, 1966.

County Level

Racine County Board: It is recommended that the Racine County Board, upon recommendation of the Racine County Highway Committee:

1. Adopt the recommended jurisdictional highway system plan as a guide to future highway facility development within the county.

2. Seek, in cooperation with the State Highway Commission, realignment of the state trunk, county trunk, local trunk, and federal aid systems to the recommended jurisdictional highway system plan.

3. Assume full operational and maintenance responsibilities for all county trunk highways within Racine County.

4. Proceed, in cooperation with the appropriate agencies and organizations, to designate a system of scenic drives and rustic roads to be marked and signed for routing within Racine County.

5. Declare all county trunk facilities that are found to meet the statutory requirements and provisions as controlled-access highways.

6. Proceed with right-of-way acquisition and facility construction as necessary to meet the staged facility completion dates included in the recommended jurisdictional highway system plan.

7. Adopt uniform construction aid formulae and policies for all county trunk highways consistent with similar formulae and policies for state trunk highways in Racine County.

8. Establish, with the approval of the municipalities as they are affected, a modified "official" map including the proposed Type I and Type II highways.

Local Level

1. It is suggested that, to supplement recommended federal, state, regional, and county plan adoption actions, two city common councils, seven village boards, and nine town boards within Racine County act to adopt the recommended jurisdictional highway system plan as a guide to highway system development within their area of jurisdiction. It is further suggested that the respective local planning agencies adopt and integrate the recommended jurisdictional highway system plan into the local master plans and certify such adoption to their local governing body.

2. It is recommended that the two city common councils, seven village boards, and nine town boards within Racine County act to approve a County Official Map prepared in conformance with the recommended jurisdictional highway system plan, and establish local official maps including the proposed local trunk highway facilities.

3. It is recommended that the two city common councils, seven village boards, and nine town boards within Racine County adopt, pursuant to the recommendation of their local planning agencies, subdivision control ordinances and zoning regulations necessary to assure the integrity of the recommended jurisdictional highway system plan.

In addition, it is recommended that the State Highway Commission and the Racine County Board cooperatively support state legislation to abolish the connecting street concept and assure the full continuity of state and county trunk highway systems through incorporated municipalities.

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Chapter IX

SUMMARY AND CONCLUSIONS

INTRODUCTION

On December 1, 1966, the Southeastern Wisconsin Regional Planning Commission, pursuant to its statutory responsibilities and after four years of intensive study, adopted a comprehensive regional transportation plan for the seven-county Southeastern Wisconsin Region. On March 17, 1967, in accordance with its advisory role, the Commission certified this plan to the constituent counties, cities, villages, and towns, as well as to certain state and federal agencies, for adoption and implementation. Subsequently, all of the county boards concerned as well as the State Highway Commission adopted or endorsed the recommended transportation plan as a guide to the development of transportation facilities within the Region. The Racine County Board of Supervisors adopted the plan on March 28, 1967, after careful consideration and upon the recommendation of the Racine County Highway Committee. Southeastern Wisconsin thus became the first large urbanizing Region in the United States to have completed and adopted an official transportation plan in accordance with the spirit and intent of the 1962 Federal Aid Highway Act.

The adopted regional transportation plan contains, as an integral element, a functional arterial street and highway system plan. This functional plan consists of recommendations concerning the general location, type, capacity, and service levels of the arterial street and highway facilities required to serve the rapidly developing Region to the year 1990. Except for freeways, however, the functional plan does not contain recommendations as to which levels and agencies of government should assume responsibility for the construction, operation, and maintenance of each of the various facilities included in the functional plan.

As a logical sequel to the adoption of the regional transportation plan, and as recommended in that plan, the Racine County Board of Supervisors directed that the County Highway Committee, in cooperation with the U. S. Department of Transportation, Federal Highway Administration; the Wisconsin Department of Transportation, Division of Highways; the Southeastern Wisconsin Regional Planning Commission; and the local units of government concerned, proceed with the conversion of the functional highway system plan contained within the adopted regional transportation plan to a jurisdictional plan. This plan would contain specific recommendations as to the level and agency of government which should assume responsibility for the construction, maintenance, and operation of each segment of the total arterial street and highway system within Racine County. Such a plan would also contain concomitant recommendations for the realignment of the federal aid highway systems, as well as of the state and county trunk highway systems, and if warranted, proposed necessary or desirable changes in the various federal, state, and county highway aid formulae, policies, or programs.

Although implementation of the adopted regional transportation plan was an important reason for proceeding with the jurisdictional highway planning program, other equally important reasons existed. The jurisdictional highway planning effort was also required in order to cope with the growing traffic demands within Racine County, adjust the existing jurisdictional highway systems to changes in land use development along their alignment, reestablish an integrated county trunk highway system, and adjust the jurisdictional highway systems to better serve the major changes in traffic patterns within the county that have resulted from freeway construction and use.

Accordingly, an interagency study staff consisting of planning and engineering personnel drawn from the staffs of the Wisconsin Department of Transportation, Division of Highways; and the Southeastern Wisconsin Regional Planning Commission was organized to carry out the necessary jurisdictional highway planning effort. Because any realignment of the existing jurisdictional highway systems would affect the local units of government within the county in many ways, it was considered essential to involve actively these local units of government in the planning process. This was done by the formation of a Technical and Intergovernmental Coordinating and Advisory Committee on Jurisdictional Highway Planning for Racine County, with representation from the U. S. Department of Transportation, Federal Highway Administration; the Wisconsin Department of Transportation, Divisions of Highways and Planning; the Southeastern Wisconsin Regional Planning Commission; the Racine County Highway Department; and five local public officials and citizen members who collectively represent the interests of the two cities, seven villages, and nine towns within Racine County.

STUDY PURPOSE AND PLAN OBJECTIVES

The primary purpose of the jurisdictional highway planning study was to identify and subsequently group into subsystems classes of arterial streets and highways serving similar functions and providing similar levels of service and, further, to assign jurisdictional responsibility over the subsystems so established to the appropriate level of government having the greatest basic interest. This was intended to achieve the following objectives:

1. Promote implementation of the adopted regional transportation plan.

2. Provide a sound basis for the efficient multijurisdictional management of the total arterial street and highway system and for the attainment of the necessary intergovernmental coordination in that management.

3. Provide a sound basis for the efficient design and improvement of the total arterial system by combining into subsystems those facilities which, because of the type and level of service provided, should have similar standards for design, construction, operation, and maintenance.

4. Provide a basis for the establishment of a sound, long-range fiscal policy and for the systematic programming of arterial street and highway improvements, and thereby assure the most effective use of the public resources in the provision of highway transportation, focusing the appropriate resources and capabilities on corresponding areas of need.

5. Provide a basis for the more equitable distribution of highway system development costs and revenues among the levels and agencies of government concerned.

THE JURISDICTIONAL HIGHWAY PLANNING PROCESS

The singularly most important basic concept underlying the jurisdictional highway planning process applied in Racine County was that the jurisdictional highway planning process must be preceded by, and grow out of, a functional highway planning process; that is, that a jurisdictional highway system plan must be based upon, and derived from, a prior functional highway system plan. The development of a sound and viable jurisdictional highway system plan, therefore, can properly proceed only within the context of a comprehensive, areawide transportation planning process which has identified the transportation needs of the entire urbanizing Region to a selected design year, and which has provided definitive recommendations for meeting those needs through the improvement of both arterial highway and mass transit facilities in the form of a functional transportation plan.

Based upon this basic concept, a seven-step planning process was employed in the development of a jurisdictional highway system plan for Racine County: 1) study design; 2) formulation of objectives and standards; 3) inventory of existing systems, aid formulae, and financial resources; 4) jurisdictional systems analyses; 5) plan design; 6) plan test and evaluation; and 7) plan adoption. One of the most important steps in this process was the formulation of a set of criteria which could be used as a basis for the objective and rational assignment of jurisdictional responsibility to the various facilities comprising the total arterial street and highway system. Functional variations within the total system provided the basis for the establishment of the criteria.

Since three levels of government—state, county, and local—have direct responsibilities for the planning, design, construction, operation, and maintenance of highway facilities within southeastern Wisconsin, criteria were prepared to classify all segments of the total arterial street and highway systems into three subsystems: Type I (state trunk) highway facilities; Type II (county trunk) highway facilities; and Type III (local trunk) highway facilities. The Type I highway facilities included all those routes which are intended to provide the highest level of traffic mobility, that is, the highest speeds and lowest degree of traffic congestion, the minimum degree of land access service, and which must have regional or interregional system continuity. The Type II highway facilities include all those routes which are intended to provide an intermediate level of traffic mobility, an intermediate level of land access service, and which must have intercommunity system continuity. The Type III highway facilities include all those routes which are intended to provide the lowest level of arterial traffic mobility, the highest degree of arterial land access service, and which must possess intracommunity system continuity. The Type III arterial subsystem was provided only in the urban areas of Racine County, with all arterial facilities in the rural areas being included in either Type I or Type II arterial subsystems.

The criteria deemed most significant to a functional subclassification of the total arterial system were related to three basic characteristics of the facilities: the trips served, the land uses served, and the operational characteristics of the facilities themselves. Detailed criteria related to each of these basic characteristics were prepared as a part of the jurisdictional highway planning study and have been fully described in Chapter IV of this report.

The criteria were applied to the total arterial street and highway system for Racine County as proposed in the adopted regional transportation plan and subsequently refined through a careful review of the arterial network by experienced public works engineers responsible for the design, construction, operation, and maintenance of arterial highway facilities within the county. The application of the criteria required a careful analysis of the trip lengths and traffic volumes to be served by each link in the total arterial system, an inventory of the land uses to be served by each of the jurisdictional subsystems, and an investigation of the operational characteristics of the arterial facilities themselves. This application has been fully described in Chapter V of this report.

PRESENT STATE OF THE JURISDICTIONAL HIGHWAY SYSTEMS

The study found that, as of January 1, 1973, there were a total of 1,074 miles of streets and highways open to traffic within Racine County. Of this total, 348 miles, or approximately 32 percent, comprised the functional arterial street and highway network. Responsibility for the design, construction, operation, and maintenance of this arterial street and highway network rested with three levels and 20 units of government—the state, the county, and 18 local municipalities. Approximately 156 miles, or 45 percent of the arterial network

were under state jurisdiction, being comprised of state trunk highways and connecting streets. About 134 miles, or 38 percent, were under county jurisdiction, being comprised of county trunk highways; and about 58 miles, or 17 percent, were under city, village, and town jurisdiction, being comprised of local arterial streets and highways.

Superimposed on the state, county, and local trunk highways were 291 miles of federal aid routes, of which about 12 miles, or 4 percent, were a federal aid interstate route; 93 miles, or 32 percent, were federal aid primary routes; 179 miles, or 62 percent, were federal aid secondary routes; and 7 miles, or 2 percent, were federal aid urban routes. In addition, there were 38 miles on the assigned TOPICS system.

The location and configuration of these jurisdictional highway systems and supporting aid routes were the result of a long process of historic evolution influenced by many complex political, administrative, financial, and engineering considerations and constraints. The state trunk and county trunk networks were originally conceived by the State Legislature as integrated highway systems and were originally so delineated and mapped. The state trunk highway network, however, was last studied and revised as an integrated system by the State Legislature in 1923; and the county trunk systems by the State Highway Commission and the Racine County Board in 1925. Many piecemeal additions and deletions have been made to these two jurisdictional highway networks since 1923 and 1925. Consequently, these two important networks no longer represent fully integrated, continuous, arterial highway systems capable of serving in the most efficient manner possible the areawide land use and traffic service functions originally intended. Moreover, since the federal aid highway networks are intended to assist in implementing the state and county trunk highway systems, and therefore reflect the pattern of these systems, these federal aid networks were also found to be in need of revision.

It was, therefore, considered most appropriate at this time to study and analyze the jurisdictional highway systems within Racine County and, guided by the functional transportation system plan prepared by the Southeastern Wisconsin Regional Planning Commission, endorsed by the State Highway Commission, and adopted by the Racine County Board, to recommend changes necessary to reclassify and regroup these networks into complete, fully coordinated, and continuous systems able to meet the present and expected future arterial highway traffic demands within Racine County at an adequate level of service.

THE RECOMMENDED PLAN

The jurisdictional highway system plan prepared for Racine County provides for three jurisdictional highway systems—Type I, state trunk; Type II, county trunk; and Type III, local trunk—which together comprise the total arterial street and highway system required to serve the growing travel demands within Racine County and its constituent cities, villages, and towns to the plan design year of 1990. Thus, the jurisdictional highway system plan recommends an alignment of governmental responsibility for each of the various facilities comprising the total arterial street and highway system in the design year. The recommended plan also constitutes a refinement of the functional arterial street and highway system plan prepared by the Southeastern Wisconsin Regional Planning Commission, and as such, is intended upon its adoption to constitute a functional, as well as a jurisdictional, highway system plan for Racine County to the plan design year of 1990. As a functional plan, the plan recommends cross sections having right-of-way and pavement widths adequate to serve the forecast traffic demand at a desirable level of service while meeting state and regional transportation system development objectives.

Type I (State Trunk) Highway System

The arterial street and highway system recommended to serve the growing traffic demand within Racine County through the plan design year 1990 totals approximately 446 route-miles of facilities, or about 30 percent of the estimated 1,456 route-miles of facilities expected to comprise the total street and highway system within the county in 1990. Of this total arterial system, 165 route-miles, or about 37 percent, are proposed to comprise the Type I system, an increase of nine route-miles over the present system. This Type I system may be expected to carry approximately 69 percent of the arterial travel demand and approximately 65 percent of the total travel demand expected to be generated with Racine County by the year 1990. The Type I system as recommended includes all of the existing, committed, and proposed freeway facilities within the county as well as certain important surface arterials and, as such, comprises the basic framework of the total highway transportation system in the county.

Type II (County Trunk) Highway System

The recommended plan further proposes a Type II (county trunk) highway system consisting of 219 route-miles, or an additional 49 percent, of the total arterial mileage required to serve the county in the plan design year of 1990. This Type II system represents an increase of 66 route-miles over the present system. It is intended to complement the recommended Type I highway system, and together with that system, to include all major arterial facilities having areawide significance. The county trunk highway system may be expected to carry 24 percent of the arterial travel demand and 22 percent of the total travel demand expected to be generated within Racine County by the year 1990.

Type III (Local Trunk) Highway System

Finally, the plan recommends a Type III (local trunk) highway system consisting of the remaining 62 route-miles of arterial facilities, or about 14 percent of the total arterial mileage proposed to serve Racine County in the plan design year 1990. This Type III system, comprising an integral part of the total arterial street and highway system, represents an increase of four route-miles over the present system and is intended to serve primarily local arterial street and highway needs.

Finally, the plan recommends that a system of rustic roads and scenic drives within the county should be marked and signed by the county. The recommended system consists basically of a Fox River scenic drive and a Root River Parkway Drive, with interconnecting links providing access to the county's scenic, historical, cultural, and scientific areas.

Financial Feasibility

In order to determine the practicality and acceptability of the recommended jurisdictional highway system plan, a careful analysis was made of the financial feasibility of the plan. Total plan construction and maintenance costs were estimated and compared to anticipated revenues over a 20-year plan implementation period. As a necessary part of this analysis, the existing structure of highway revenues and expenditures was carefully examined and construction and maintenance formulae and policies analyzed. The analysis indicated that the recommended plan is financially feasible. Total plan implementation costs, including construction and maintenance of collector and minor land-access as well as of arterial facilities, were estimated at $276 million over the 20-year plan implementation period.

It is extremely difficult to forecast the revenues which may become available for highway purposes over the 20-year plan implementation period. This difficulty is due not only to the length of the forecast period involved and the unpredictable changes which may occur during this period in such important factors affecting highway revenues as the general level of economic activity, but also to major changes in the structure of highway aid formulae which will come about upon expiration of the massive interstate highway construction program. Based upon current rates of expenditure for highway purposes within Racine County, anticipated revenues for highway purposes over the plan implementation period were estimated at $300 million, or approximately $24 million more than the amount required to fully implement the plan.

Although the financial analysis indicates that the plan is feasible considering the county as a whole, some disparities may exist with respect to the initial distribution of resources between the county and local levels of government relating to the transfer of local trunk facilities to the county trunk system, and within the individual municipalities comprising the county relating primarily to the anticipated costs of, and revenues for, the Type III system and to the nonarterial facilities located within the various municipalities within Racine County.

The financial analysis also carefully explored the effect of the recommended changes in the jurisdictional highway systems on supplemental aids and allotments as well as on other construction and maintenance aids, and resulted in the formulation of two major recommended revisions to the aid structure: the abandonment of the connecting street concept, and the adoption of common, uniform construction aid formulae and policies for state and county trunk highways.

Implementing Recommendations

Specific procedures for implementation of the recommended jurisdictional highway system plan have been set forth in Chapter VIII of this report. The most important of these include formal plan adoption by the Racine County Board and by the Southeastern Wisconsin Regional Planning Commission, and endorsement by the Highway Commission of the Wisconsin Department of Transportation, Division of Highways; realignment of the state trunk, county trunk, and federal aid systems to conform with the recommended jurisdictional highway system plan through the cooperative actions of the Racine County Board, the State Highway Commission, and the U. S. Department of Transportation, Federal Highway Administration; assumption of full operational and maintenance responsibilities by the state for all state trunk highways and by the county for all county trunk highways; integration of the recommended plan into the construction, planning, and programming procedures of both the Highway Commission and the Racine County Highway Department; and adoption of common, uniform construction aid formulae and policies for all state and county trunk highways within Racine County. Additional recommendations include the establishment of an Official Map for the protection of the rights-of-way of all Type I and Type II highway facilities through the cooperative action of the Racine County Board and the governing bodies of the 18 municipalities comprising the county.

ADVISORY COMMITTEE ACTION—LOOP FREEWAY

The foregoing description of the recommended Type I arterial system for Racine County includes the proposed Racine Loop Freeway, a facility designed to provide a high level of highway transportation service to the Racine urbanized area, and particularly to the City of Racine and to the central business district of that city. This freeway was initially recommended in the adopted regional transportation plan, and was envisioned in that plan as being located on the abandoned Chicago, Northshore, and Milwaukee Railroad right-of-way through the more intensely developed portions of the Racine area. At the time of the adoption of the regional transportation plan in 1966, this abandoned right-of-way within the Racine city limits was owned by the City of Racine. On August 18, 1970, the Common Council of the City of Racine, after careful consideration and deliberation, decided to dispose of the abandoned right-of-way and permit its utilization for urban development. Since that time, most of the right-of-way has been disposed of, including a section 1.75 miles long sold to the Wisconsin Electric Power Company. Urban land use development has taken place upon the abandoned right-of-way, and for all practical purposes has resulted in a commitment to utilize the abandoned right-of-way for purposes other than transportation.

The ramifications of this decision by the City of Racine on the arterial street and highway system plan for the Racine urbanized area were examined in a comprehensive planning effort conducted parallel to the jurisdictional highway system planning program for Racine County.

This planning effort resulted in the preparation of a comprehensive plan for the Racine Urban Planning District, as documented in SEWRPC Planning Report No. 14, A Comprehensive Plan for the Racine Urban Planning District, Volume Two, The Recommended Comprehensive Plan. Five alternative arterial street and highway system plans were analyzed as part of that study, and the findings and recommendations of this analysis are fully documented in that planning report.

The alternative plans analyzed ranged from an arterial street system with a Racine Loop Freeway—although not necessarily located on the abandoned Chicago, Northshore, and Milwaukee Railroad right-of-way—to a "do nothing" alternative. The Racine Urban Planning District Citizens Advisory Committee, an intergovernmental committee consisting of local elected public officials, business and industrial leaders, and citizens in the Racine area, carefully considered the five alternative arterial street and highway system plans presented, and, as documented in the aforementioned planning report, unanimously recommended the adoption of the arterial street and highway system plan alternative containing a Racine Loop Freeway. In making this recommendation, the Citizens Advisory Committee recommended that consideration be given in future engineering studies to locating the Racine Loop Freeway on an alignment easterly of the abandoned Chicago, Northshore, and Milwaukee Railroad right-of-way in order that the proposed freeway facility would provide the best possible service to the Racine central business district and to other concentrations of renewable commercial and industrial land uses in the City of Racine.

On September 17, 1974, the Common Council of the City of Racine again went on record as being opposed to constructing the proposed Racine Loop Freeway on the abandoned Chicago, Northshore, and Milwaukee Railroad right-of-way, and requested that consideration again be given to alternatives. This resolution, the previous recommendation by the Racine Urban Planning District Citizens Advisory Committee, and the matter of recent urban land use development on the abandoned Northshore right-of-way in the Racine area were all discussed at great length by the Technical and Intergovernmental Coordinating and Advisory Committee on Jurisdictional Highway System Planning for Racine County at a meeting held on December 18, 1974. The Committee carefully reconsidered the functional arterial street and highway system plan as proposed, and deliberated at great length the developments concerning the Loop Freeway that have taken place since its initial recommendation in 1966. In particular, representatives of the City of Racine indicated that while the Common Council was opposed to constructing the Loop Freeway on the abandoned Northshore Railroad right-of-way, the Council did recognize a long-term need to provide a higher level of arterial street and highway service to the City of Racine if the city was to remain a viable urban entity.

Based upon these deliberations, the Committee unanimously determined to recommend that the concept of a "Racine Loop" arterial highway facility be retained in the jurisdictional highway system plan. In making this determination, the Committee recognized that such a facility could be either a freeway, as initially proposed, with full control of access and grade separation of all intersections; an expressway, with partial control of access and grade separation of some intersections; or a standard street, with minimum control of access and no grade separation of intersections. The Committee further recognized that the proposed facility, no matter which of the foregoing three design types it may eventually take, could be constructed on a right-of-way as narrow as 130 feet. Accordingly, the Racine County jurisdictional highway system plan as recommended by the Advisory Committee, if adopted by the several units and agencies of government concerned, including the Regional Planning Commission, would serve to amend the adopted regional transportation plan in this important respect.

CONCLUSION

Adoption and implementation of the jurisdictional highway system plan recommended in this report would provide the county with an integrated highway transportation system which will effectively serve the existing, and promote a desirable future, land use pattern, meet the anticipated future travel demand at an adequate level of service, abate traffic congestion, reduce travel time and costs between component parts of the Region, and reduce accident exposure. It would serve to concentrate appropriate resources and capabilities on corresponding areas of need, assuring a more effective use of the total public resources in the provision of highway transportation, and provide a sound basis for the establishment of long-range fiscal policies and for the systematic programming of arterial street and highway improvements within Racine County. It would also provide a basis for the more efficient planning and design of the total arterial street and highway system, for the efficient multijurisdictional management of that system, and for the attainment of intergovernmental coordination necessary to the cooperative development of the system. Finally, it should provide a more equitable distribution of highway improvement, maintenance, and operating costs among the various levels and agencies of government concerned.

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APPENDICES

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Appendix A

TECHNICAL AND INTERGOVERNMENTAL COORDINATING AND ADVISORY COMMITTEE ON JURISDICTIONAL HIGHWAY PLANNING FOR RACINE COUNTY

Earl G. Skagen Chairman	County Highway Commissioner, Racine County
Kurt W. Bauer, P.E.	Executive Director, SEWRPC
Thomas R. Clark, P.E.	Chief Planning Engineer, District 2, Division of Highways, Wisconsin Department of Transportation
Arnold L. Clement	Planning Director and Zoning Administrator, Racine County
George Gunderson, P.E.	Chief of Statewide Planning Section, Division of Planning, Wisconsin Department of Transportation
Chester J. Harrison, P.E.	Caledonia Town Engineer
Thomas R. Kinsey, P.E.	District Engineer, District 2, Division of Highways, Wisconsin Department of Transportation
Fred H. Larson, P.E.	Commissioner of Public Works, City of Racine
Jayant B. Trevadia, P.E.	Burlington City Engineer
Thomas M. Wahtola	Planning and Research Engineer, U. S. Department of Transportation, Federal Highway Administration
Thomas N. Wright	Director of Planning, City of Racine
Donald E. Zenz, P.E.	Racine County Highway Engineer

Appendix B

DETAILED DATA—RACINE COUNTY JURISDICTIONAL HIGHWAY SYSTEM PLAN

Table B-1

CONSTRUCTION AND MAINTENANCE COST ESTIMATES FOR THE RACINE COUNTY JURISDICTIONAL HIGHWAY SYSTEM PLAN BY MUNICIPALITY[a]

Civil Division	Construction Cost Estimates					Maintenance Cost Estimates						
	Arterial			Nonarterial		Arterial			Nonarterial			
	Type I (Nonfreeway)	Type II	Type III	Existing Local Collector	Subtotal	Type I (Nonfreeway)	Type II	Type III	New Local Collector[b]	Existing Local Collector	Subtotal	Total
CITIES												
Burlington	$ 158,900	$ 590,500	$ 136,500	$ 908,300	$ 1,794,200	$ --	$ --	$ 186,970	$ 630,700	$ 1,807,710	$ 2,625,380	$ 4,419,580
Racine	1,236,700	3,545,900	11,397,400	9,380,000	25,560,000	--	--	3,785,720	10,626,700	17,682,240	32,094,660	57,654,660
Subtotal	$1,395,600	$ 4,136,400	$11,533,900	$10,288,300	$27,354,200	$ --	$ --	$3,972,690	$11,257,400	$19,489,950	$34,720,040	$ 62,074,240
VILLAGES												
Elmwood Park	$ --	$ --	$ 304,400	$ 46,400	$ 350,800	$ --	$ --	$ 54,680	$ 15,640	$ 97,240	$ 167,560	$ 518,360
North Bay	--	900	--	42,200	43,100	--	--	--	27,200	88,400	115,600	158,700
Rochester	--	44,700	501,400	88,200	634,300	--	--	96,180	23,800	180,740	300,720	935,020
Sturtevant	--	219,700	706,700	309,500	1,235,900	--	--	139,490	180,710	623,420	943,620	2,179,520
Union Grove	115,700	106,100	--	319,200	541,000	--	--	--	305,490	665,310	970,800	1,511,800
Waterford	59,700	2,700	668,600	393,200	1,124,200	--	--	148,580	561,510	801,520	1,511,610	2,635,810
Wind Point	--	36,100	--	328,600	364,700	--	--	--	148,920	688,840	837,760	1,202,460
Subtotal	$ 175,400	$ 410,200	$ 2,181,100	$ 1,527,300	$ 4,294,000	$ --	$ --	$ 438,930	$ 1,263,270	$ 3,145,470	$ 4,847,670	$ 9,141,670
TOWNS												
Burlington	$ --	$ --	$ --	$ 729,000	$ 729,000	$ --	$ --	$ --	$ --	$ 1,060,900	$ 1,060,900	$ 1,789,900
Caledonia	--	70,700	2,241,800	551,600	2,864,100	--	--	522,860	--	1,213,060	1,735,920	4,600,020
Dover	--	--	--	740,600	740,600	--	--	--	--	825,420	825,420	1,566,020
Mt. Pleasant	--	--	2,288,400	312,100	2,600,500	--	--	314,550	--	526,860	841,410	3,441,910
Norway	--	--	--	714,800	714,800	--	--	--	--	936,140	936,140	1,650,940
Raymond	--	--	--	782,900	782,900	--	--	--	--	1,050,360	1,050,360	1,833,260
Rochester	--	--	548,300	174,900	723,200	--	--	77,030	--	228,160	305,190	1,028,390
Waterford	--	--	--	611,000	611,000	--	--	630	--	907,480	908,110	1,519,110
Yorkville	--	--	--	710,600	710,600	--	--	--	--	869,720	869,720	1,580,320
Subtotal	$ --	$ 70,700	$ 5,078,500	$ 5,327,500	$10,476,700	$ --	$ --	$ 915,070	$ --	$ 7,618,100	$ 8,533,170	$ 19,009,870
Racine County	$ --	$37,151,600	$ --	$ --	$37,151,600	$ --	$11,467,180	$ --	$ --	$ --	$11,467,180	$ 48,618,780
Total	$1,571,000	$41,768,900	$18,793,500	$17,143,100	$79,276,500	$ --	$11,467,180	$5,326,690	$12,520,670	$30,253,520	$59,568,060	$138,844,560

[a] *For analysis purposes, it was assumed that the corporate limits of cities and villages would change over the 20-year plan implementation period to include any adjacent planned urban development as recommended in the adopted regional land use plan.*

[b] *Plan implementation costs set forth in Chapter VII of this report assumed that the cost of all new collector streets and local streets would be borne by the developer.*

Source: SEWRPC.

INTRODUCTION TO FIGURE B-1
TYPICAL RURAL AND URBAN STREET AND HIGHWAY CROSS SECTIONS

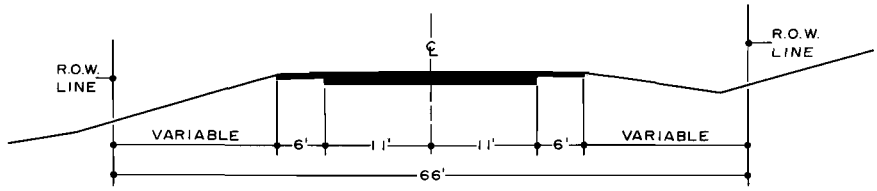
The typical rural and urban street and highway cross sections developed under the Racine County jurisdictional highway system planning program and utilized in the preparation of the Racine County jurisdictional highway system plan are shown in Figure B-1. The cross sections presented include, for two, four, and six moving lanes of traffic, both desirable and minimum configurations of pavement width; curb lawns, medians, shoulders, and sidewalks where appropriate; and the required right-of-way.

Included with each cross section are typical cost estimates, on a per mile basis, for the construction, resurfacing, and annual maintenance of the particular facility involved. In atypical circumstances such as unusual topography or intensive urban development, the typical cross sections presented may require modification during plan implementation to meet detailed design standards and to minimize disruption of the landscape or cityscape. It should be noted that the resurfacing cost for Cross Section No. 1, a minimum two-lane rural arterial, includes costs for minor reconstruction for spot improvement of horizontal and vertical alignment and of intersections. It should also be noted that the per mile costs for construction, resurfacing, and annual maintenance are expressed in 1973 dollars and reflect the most recent cost experiences of the Wisconsin Division of Highways in Racine County and in areas of the state similar to Racine County. While these cost estimates thus provide an average project cost for all proposed arterial highway improvements within Racine County, the cost of an individual project during plan implementation should be expected to vary somewhat from the average costs.

Figure B-1

TYPICAL RURAL AND URBAN STREET AND HIGHWAY CROSS SECTIONS

RURAL AREA
TYPICAL CROSS SECTION NO. 1
MINIMUM TWO LANE ARTERIAL

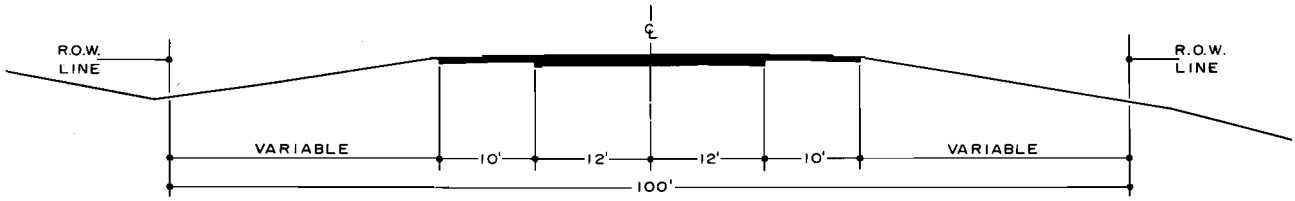


GRAVEL BASE VARIES
22' HIGH TYPE PAVEMENT, 66' R.O.W.
ESTIMATED COST PER MILE:
CONSTRUCTION = $226,000
RESURFACE = $ 23,300
MAINTENANCE = $ 1,400 (ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	4,400 VEH./DAY
C	7,400 VEH./DAY

RURAL AREA
TYPICAL CROSS SECTION NO. 2
DESIRABLE TWO LANE ARTERIAL

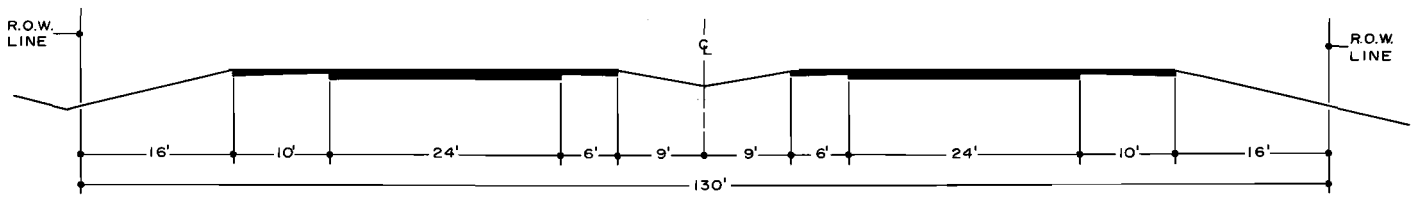


GRAVEL BASE VARIES
24' HIGH TYPE PAVEMENT, 100' R.O.W.
ESTIMATED COST PER MILE:
CONSTRUCTION = $270,000
RESURFACE = $ 28,100
MAINTENANCE = $ 1,700 (ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	5,200 VEH./DAY
C	8,500 VEH./DAY

RURAL AREA
TYPICAL CROSS SECTION NO. 3
MINIMUM FOUR LANE ARTERIAL

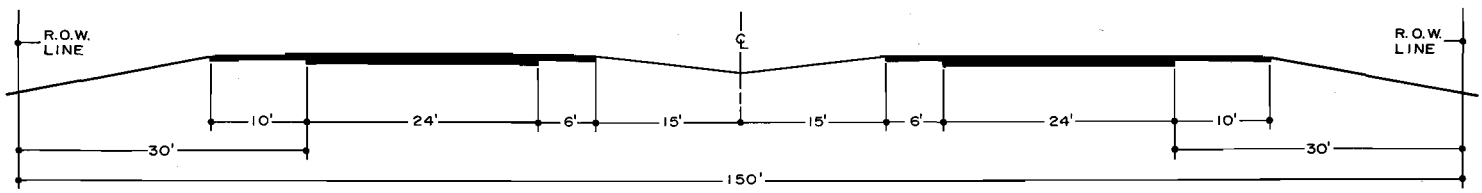


GRAVEL BASE VARIES
DUAL 24' HIGH TYPE PAVEMENT, 130' R.O.W.
ESTIMATED COST PER MILE:
CONSTRUCTION = $710,000
RESURFACE = $ 59,400
MAINTENANCE = $ 3,200 (ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	8,700 VEH./DAY
C	13,400 VEH./DAY

RURAL AREA
TYPICAL CROSS SECTION NO.4
DESIRABLE FOUR LANE ARTERIAL

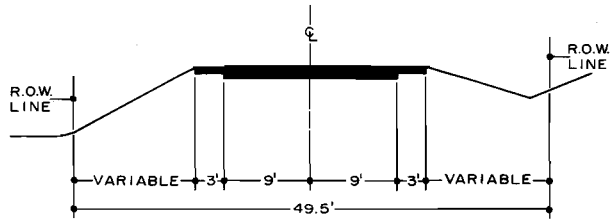


GRAVEL BASE VARIES
DUAL 24' HIGH TYPE PAVEMENT, 150' R.O.W.
ESTIMATED COST PER MILE:
CONSTRUCTION = $721,000
RESURFACE = $ 59,400
MAINTENANCE = $ 3,700 (ANNUAL)

CAPACITY RANGE:

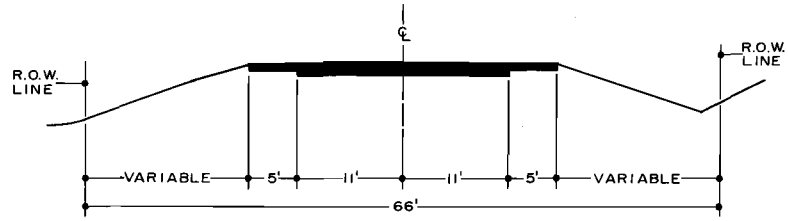
LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	8,700 VEH./DAY
C	13,400 VEH./DAY

RURAL AREA
TYPICAL CROSS SECTION
MINIMUM TWO LANE[a]
COLLECTOR OR MINOR STREET[a]



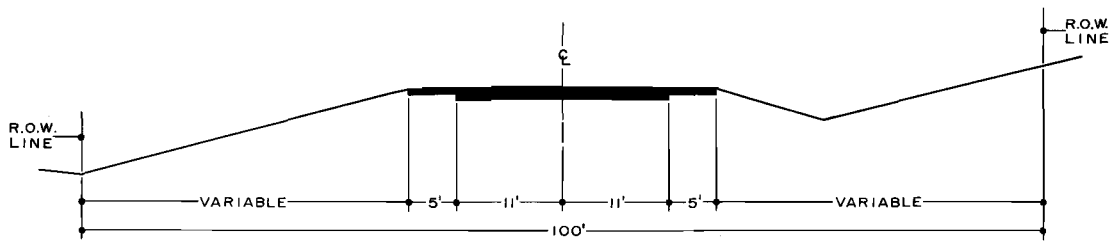
GRAVEL BASE VARIES — 18' BITUMINOUS PAVEMENT — 49.5' R.O.W.

RURAL AREA
TYPICAL CROSS SECTION
DESIRABLE TWO LANE
COLLECTOR OR MINOR STREET



GRAVEL BASE VARIES — 22' BITUMINOUS PAVEMENT — 66' R.O.W.

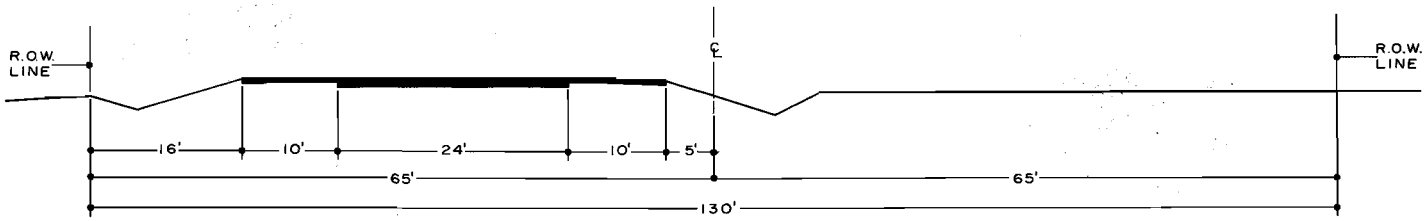
RURAL AREA
TYPICAL CROSS SECTION
PROSPECTIVE ARTERIAL



GRAVEL BASE VARIES — 22' BITUMINOUS PAVEMENT — 100' R.O.W.

ESTIMATED COST PER MILE FOR RURAL, NON-ARTERIAL STREETS:
CONSTRUCTION = $226,000 (AVERAGE)
RESURFACE = $ 14,000 (AVERAGE)
MAINTENANCE = $ 900 (ANNUAL AVERAGE)

URBANIZING AREA
TYPICAL CROSS SECTION NO. 5
DESIRABLE TWO LANE ARTERIAL
(INITIAL STAGE OF FUTURE FOUR LANE ARTERIAL)



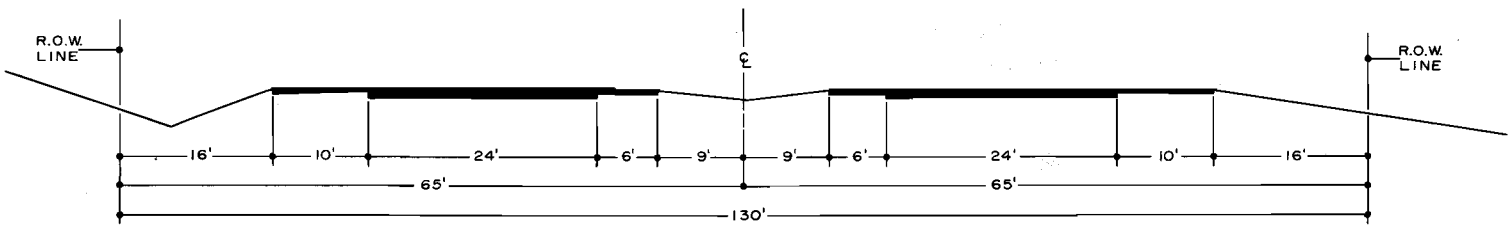
GRAVEL BASE VARIES
24' HIGH TYPE PAVEMENT, 130' R.O.W.

ESTIMATED COST PER MILE:
CONSTRUCTION = $ 512,000
RESURFACE = $ 30,400
MAINTENANCE = $ 2,200(ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
RURAL	
B	5,200 VEH./DAY
C	8,500 VEH./DAY
URBAN	
B	7,300 VEH./DAY
C	8,100 VEH./DAY
D	8,800 VEH./DAY

URBANIZING AREA
TYPICAL CROSS SECTION NO. 6
DESIRABLE FOUR LANE ARTERIAL



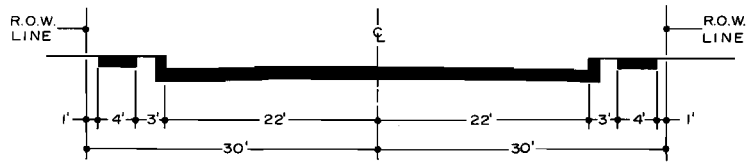
GRAVEL BASE VARIES
DUAL 24' HIGH TYPE PAVEMENT, 130' R.O.W.

ESTIMATED COST PER MILE:
CONSTRUCTION = $ 781,000
RESURFACE = $ 59,400
MAINTENANCE = $ 5,500(ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
RURAL	
B	8,700 VEH./DAY
C	13,400 VEH./DAY
URBAN	
B	13,300 VEH./DAY
C	14,700 VEH./DAY
D	16,500 VEH./DAY

URBAN AREA
TYPICAL CROSS SECTION NO. 7
MINIMUM TWO LANE ARTERIAL



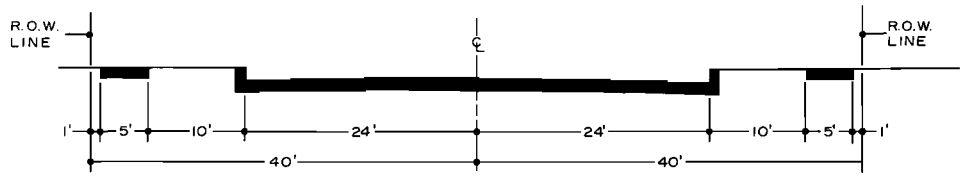
6" GRAVEL BASE
44' HIGH TYPE PAVEMENT, 60' R.O.W.
SIDEWALK, STREET LIGHTING

ESTIMATED COST PER MILE:
CONSTRUCTION = $451,000
RESURFACE = $ 25,300
MAINTENANCE = $ 5,000 (ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	9,700 VEH./DAY
C	10,000 VEH./DAY
D	10,700 VEH./DAY

URBAN AREA
TYPICAL CROSS SECTION NO. 8
DESIRABLE TWO LANE ARTERIAL



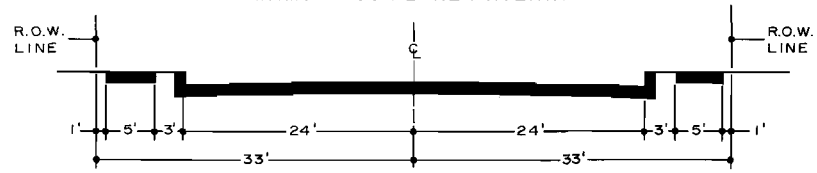
6" GRAVEL BASE
48' HIGH TYPE PAVEMENT, 80' R.O.W.
(ADDITIONAL R.O.W. MAY BE RESERVED IN UNDEVELOPED AREAS)
SIDEWALK, STREET LIGHTING

ESTIMATED COST PER MILE:
CONSTRUCTION = $534,000
RESURFACE = $ 27,700
MAINTENANCE = $ 5,500 (ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	10,500 VEH./DAY
C	11,000 VEH./DAY
D	12,000 VEH./DAY

URBAN AREA
TYPICAL CROSS SECTION NO. 9
MINIMUM FOUR LANE ARTERIAL



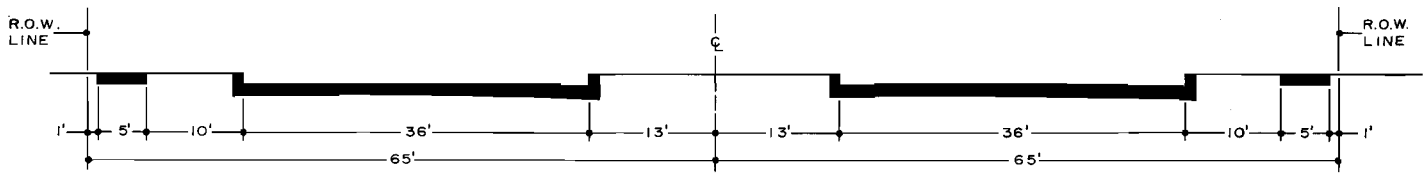
6" GRAVEL BASE
48' HIGH TYPE PAVEMENT, 66' R.O.W.
SIDEWALK, STREET LIGHTING

ESTIMATED COST PER MILE:
CONSTRUCTION = $473,000
RESURFACE = $ 27,700
MAINTENANCE = $ 5,500(ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	14,100 VEH./DAY
C	15,300 VEH./DAY
D	17,400 VEH./DAY

URBAN AREA
TYPICAL CROSS SECTION NO. 10
DESIRABLE FOUR LANE ARTERIAL



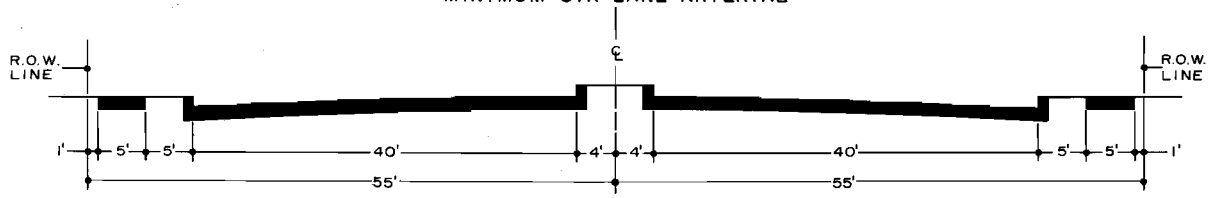
6" GRAVEL BASE
DUAL 36' HIGH TYPE PAVEMENT, 130' R.O.W.
SIDEWALK, STREET LIGHTING

ESTIMATED COST PER MILE:
CONSTRUCTION = $473,000
RESURFACE = $ 27,700
MAINTENANCE = $ 5,500(ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	14,100 VEH./DAY
C	15,300 VEH./DAY
D	17,400 VEH./DAY

URBAN AREA
TYPICAL CROSS SECTION NO. 11
MINIMUM SIX LANE ARTERIAL



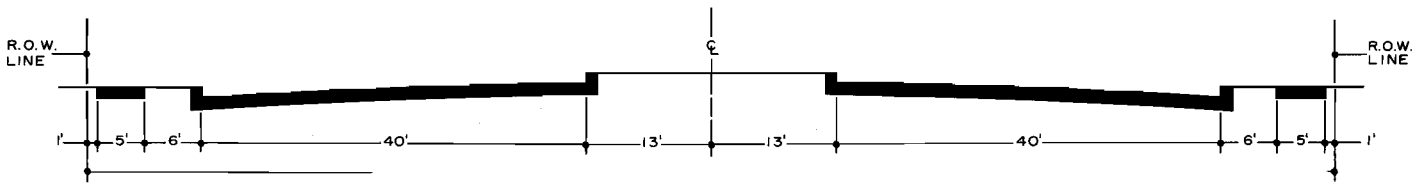
6" GRAVEL BASE
DUAL 40' HIGH TYPE PAVEMENT, 110' R.O.W.
SIDEWALK, STREET LIGHTING

ESTIMATED COST PER MILE:
CONSTRUCTION = $1,095,000
RESURFACE = $ 44,900
MAINTENANCE = $ 9,900 (ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	24,700 VEH./DAY
C	26,600 VEH./DAY
D	31,100 VEH./DAY

URBAN AREA
TYPICAL CROSS SECTION NO. 12
DESIRABLE SIX LANE ARTERIAL



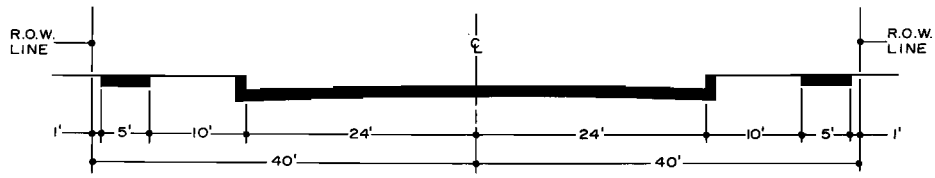
6" GRAVEL BASE
DUAL 40' HIGH TYPE PAVEMENT, 130' R.O.W.
SIDEWALK, STREET LIGHTING

ESTIMATED COST PER MILE:
CONSTRUCTION = $1,095,000
RESURFACE = $ 44,900
MAINTENANCE = $ 9,900 (ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	24,700 VEH./DAY
C	26,600 VEH./DAY
D	31,100 VEH./DAY

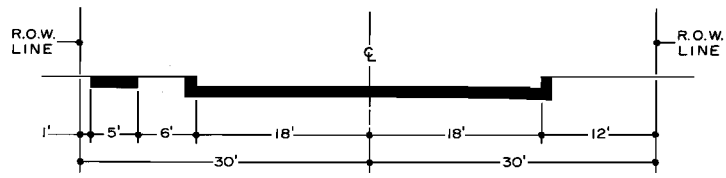
URBAN AREA
TYPICAL CROSS SECTION
COLLECTOR STREET



6" GRAVEL BASE
48' HIGH TYPE PAVEMENT
80' R.O.W.

ESTIMATED COST PER MILE:
CONSTRUCTION = $308,000
RESURFACE = $ 27,700
MAINTENANCE = $ 4,500 (ANNUAL)

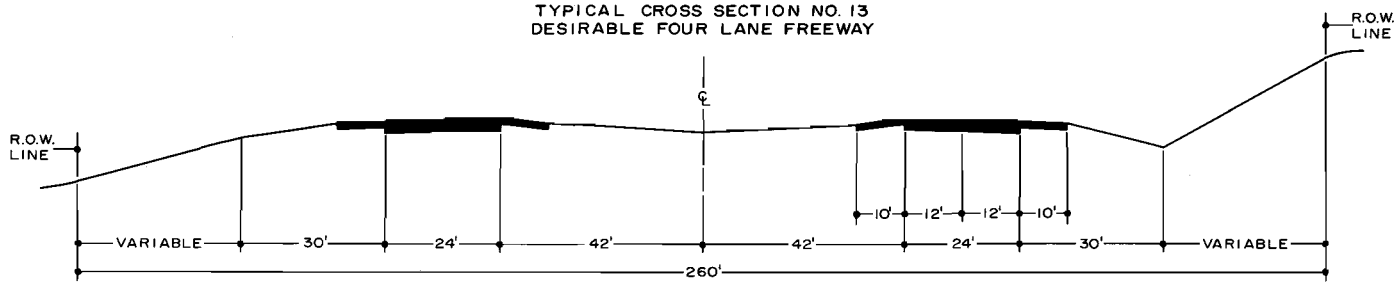
URBAN AREA
TYPICAL CROSS SECTION
MINOR STREET



6" GRAVEL BASE
36' HIGH TYPE PAVEMENT
60' R.O.W.

ESTIMATED COST PER MILE:
CONSTRUCTION = $242,000
RESURFACE = $ 20,900
MAINTENANCE = $ 3,000 (ANNUAL)

RURAL AREA
TYPICAL CROSS SECTION NO. 13
DESIRABLE FOUR LANE FREEWAY



DUAL 24' HIGH TYPE PAVEMENT, 260' R.O.W.

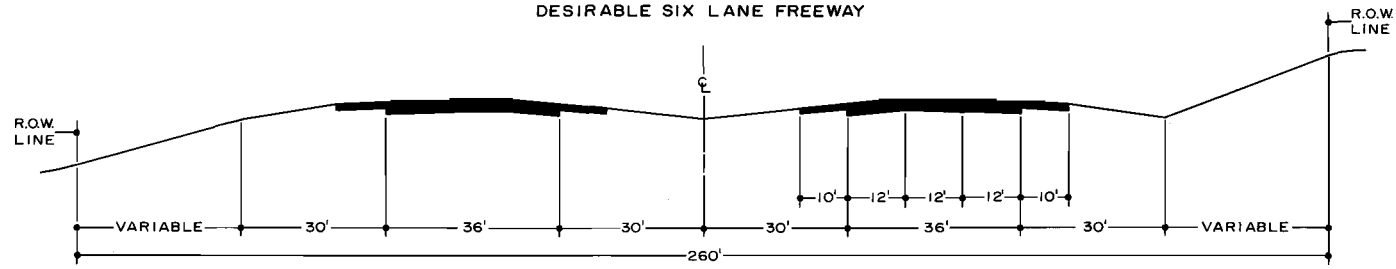
ESTIMATED COST PER MILE:

CONSTRUCTION	= $1,078,000
RESURFACE	= $ 64,100
MAINTENANCE	= $ 4,500 (ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
A	19,200 VEH./DAY
B	27,500 VEH./DAY
C	37,500 VEH./DAY

RURAL AREA
TYPICAL CROSS SECTION NO. 14
DESIRABLE SIX LANE FREEWAY



DUAL 36' HIGH TYPE PAVEMENT, 260' R.O.W.

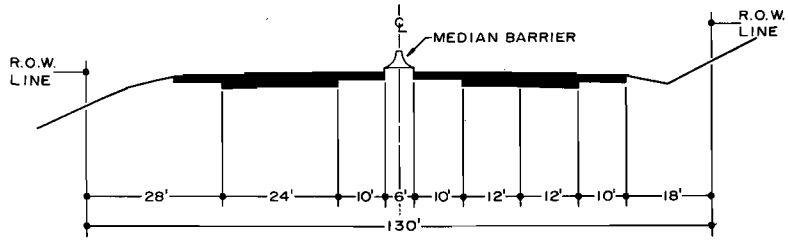
ESTIMATED COST PER MILE:

CONSTRUCTION	= $1,293,000
RESURFACE	= $ 81,600
MAINTENANCE	= $ 5,800 (ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
A	33,000 VEH./DAY
B	47,800 VEH./DAY
C	60,000 VEH./DAY

URBAN AREA
TYPICAL CROSS SECTION NO. 15
MINIMUM FOUR LANE FREEWAY



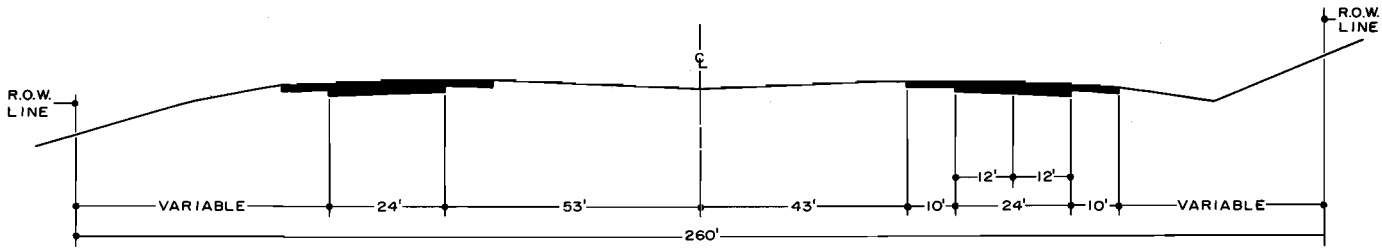
DUAL 24' HIGH TYPE PAVEMENT, 130' R.O.W.

ESTIMATED COST PER MILE:
CONSTRUCTION = $1,216,000
RESURFACE = $ 64,100
MAINTENANCE = $ 7,300(ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	37,800 VEH./DAY
C	51,500 VEH./DAY
D	61,900 VEH./DAY

URBAN AREA
TYPICAL CROSS SECTION NO. 16
DESIRABLE FOUR LANE FREEWAY



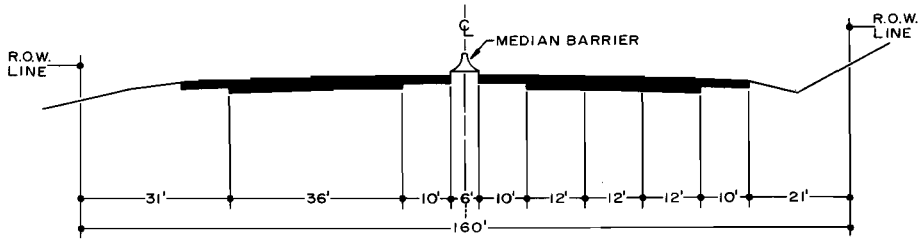
DUAL 24' HIGH TYPE PAVEMENT, 260' R.O.W.

ESTIMATED COST PER MILE:
CONSTRUCTION = $1,458,000
RESURFACE = $ 64,100
MAINTENANCE = $ 13,200 (ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	37,800 VEH./DAY
C	51,500 VEH./DAY
D	61,900 VEH./DAY

URBAN AREA
TYPICAL CROSS SECTION NO. 17
MINIMUM SIX LANE FREEWAY



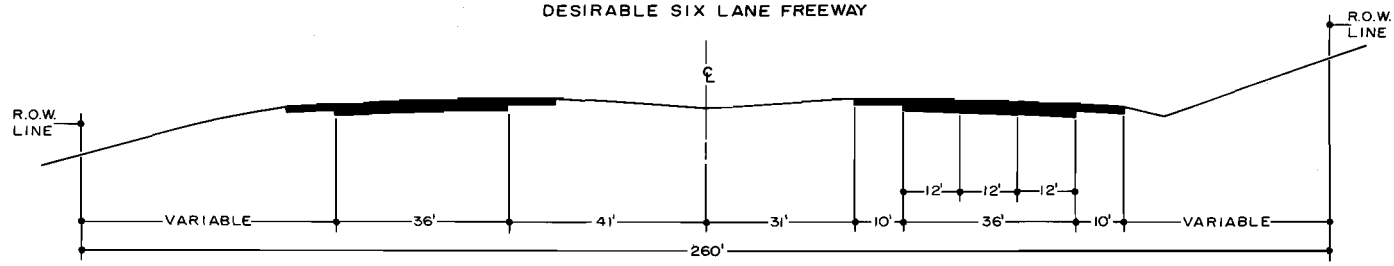
DUAL 36' HIGH TYPE PAVEMENT, 160' R.O.W.

ESTIMATED COST PER MILE:
CONSTRUCTION = $1,474,000
RESURFACE = $ 81,600
MAINTENANCE = $ 8,500 (ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	65,700 VEH./DAY
C	82,500 VEH./DAY
D	92,800 VEH./DAY

URBAN AREA
TYPICAL CROSS SECTION NO. 18
DESIRABLE SIX LANE FREEWAY



DUAL 36' HIGH TYPE PAVEMENT, 260' R.O.W.

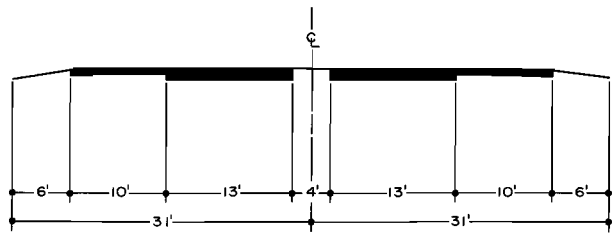
ESTIMATED COST PER MILE:

CONSTRUCTION	=	$1,694,000
RESURFACE	=	$ 81,600
MAINTENANCE	=	$ 15,400 (ANNUAL)

CAPACITY RANGE:

LEVEL OF SERVICE	MAXIMUM SERVICE VOLUME
B	65,700 VEH./DAY
C	82,500 VEH./DAY
D	92,800 VEH./DAY

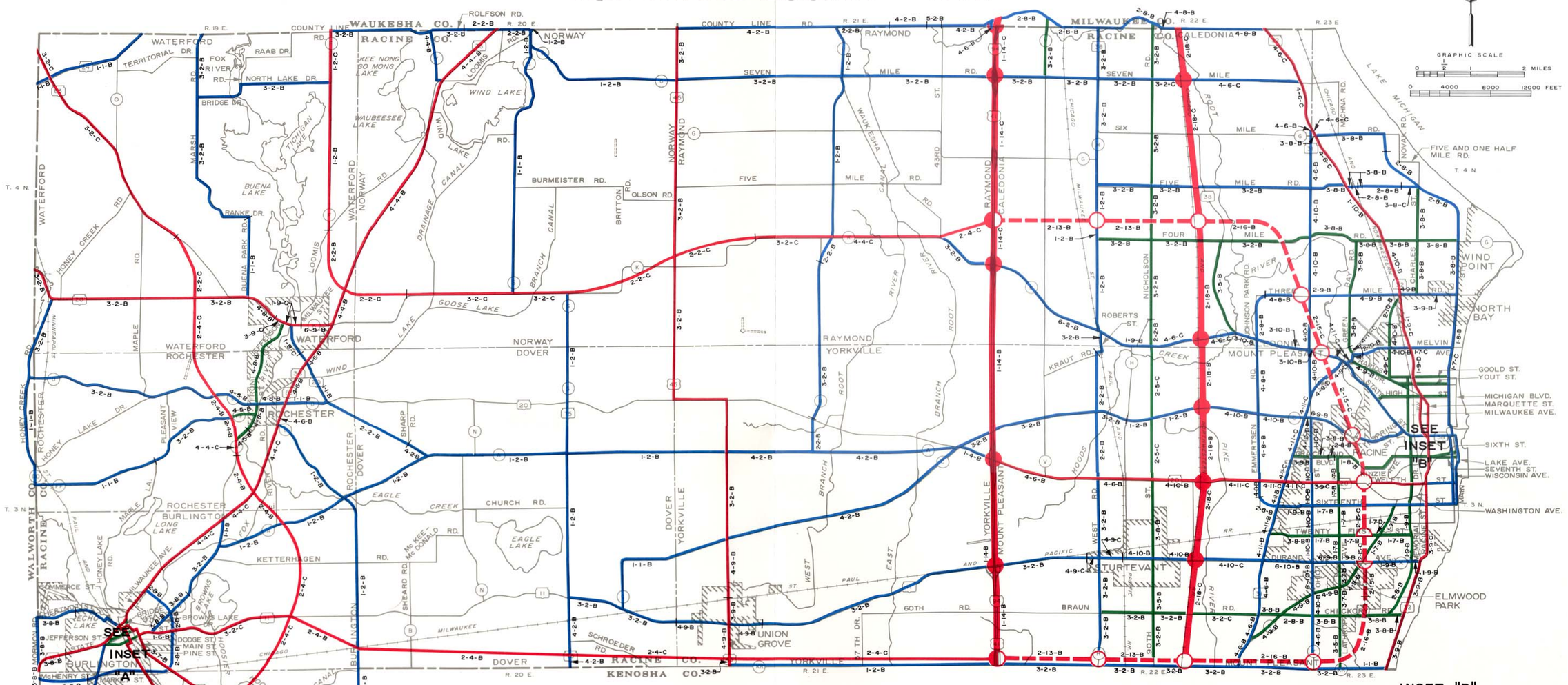
TYPICAL TRANSITWAY CROSS SECTION



FOR FUTURE DEVELOPMENT WITHIN FREEWAY MEDIAN

MAP B-1

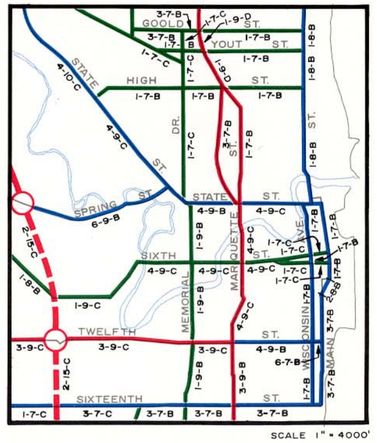
RECOMMENDED JURISDICTIONAL HIGHWAY SYSTEM PLAN FOR RACINE COUNTY — 1990



INSET "A"

SCALE 1" = 4000'

INSET "B"



SCALE 1" = 4000'

Source: SEWRPC

DESIGN CLASSIFICATION CODE KEY

TYPE OF IMPROVEMENT	TYPICAL CROSS SECTION[a]	LEVEL OF SERVICE[b]
1 Resurfacing Only	1 Two-Lane Arterial (Minimum-Rural Area)	A Level of Service A describes a condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.
2 Construction of New Facility	2 Two-Lane Arterial (Desirable-Rural Area)	
3 Reconstruction With Same Capacity	3 Four-Lane Arterial (Minimum-Rural Area)	B Level of Service B is in the zone of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted. The lower limit (lowest speed, highest volume) of this level of service has been associated with service volumes used in the design of rural highways.
4 Reconstruction for Additional Capacity	4 Four-Lane Arterial (Desirable-Rural Area)	
5 Special Project	5 Two-Lane Arterial (Desirable-Urbanizing Area)	C Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes, or pass. A relatively satisfactory operating speed is still obtained, with service volumes perhaps suitable for urban design practice.
6 No Work Required	6 Four-Lane Arterial (Desirable-Urbanizing Area)	
	7 Two-Lane Arterial (Minimum-Urban Area)	
	8 Two-Lane Arterial (Desirable-Urban Area)	
	9 Four-Lane Arterial (Minimum-Urban Area)	D Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.
	10 Four-Lane Arterial (Desirable-Urban Area)	
	11 Six-Lane Arterial (Minimum-Urban Area)	
	12 Six-Lane Arterial (Desirable-Urban Area)	E Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds than in level D, with volumes at or near the capacity of the highway. At capacity, speeds are typically, but not always, in the neighborhood of 30 mph. Flow is unstable, and there may be stoppages of momentary duration.
	13 Four-Lane Freeway (Desirable-Rural Area)	
	14 Six-Lane Freeway (Desirable-Rural Area)	F Level of Service F describes forced flow operation at low speeds, where volumes are below capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. The section under study will be serving as a storage area during parts or all of the peak hour. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of the downstream congestion. In the extreme, both speed and volume can drop to zero.
	15 Four-Lane Freeway (Minimum-Urban Area)	
	16 Four-Lane Freeway (Desirable-Urban Area)	
	17 Six-Lane Freeway (Minimum-Urban Area)	
	18 Six-Lane Freeway (Desirable-Urban Area)	

[a] *See Figure B-1.*

[b] *See Highway Research Board Special Report 87, Highway Capacity Manual 1965, pages 78-81.*

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Appendix C

SUGGESTED MODEL RESOLUTION FOR ADOPTION OF THE RACINE COUNTY JURISDICTIONAL HIGHWAY SYSTEM PLAN

WHEREAS, the Southeastern Wisconsin Regional Planning Commission which was duly created by the Governor of the State of Wisconsin in accordance with Section 66.945(2) of the Wisconsin Statutes on the 8th day of August 1960, upon petition of the Counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha, has the function and duty of making and adopting a master plan for the physical development of the Region; and

WHEREAS, the Southeastern Wisconsin Regional Planning Commission completed and adopted a regional transportation plan (highway and transit components) at its meeting held on the 1st day of December 1966; and

WHEREAS, the said adopted regional transportation plan recommends as an important plan implementation step that the State Highway Commission of Wisconsin, the Milwaukee County Expressway Commission (now the Milwaukee Expressway and Transportation Commission), and the seven county highway committees, in cooperation with the local units of government within the Region, convert the functional highway plan contained in the adopted regional transportation plan into a jurisdictional plan on a county-by-county basis; and

WHEREAS, the Racine County Highway Commissioner, acting pursuant to a directive of the Racine County Board of Supervisors dated January 24, 1967, requested on January 24, 1967, the guidance, cooperation, and assistance of the Commission in the preparation of a jurisdictional highway system plan for Racine County; and

WHEREAS, a Technical and Intergovernmental Coordinating and Advisory Committee for Jurisdictional Highway Planning in Racine County was created to assist in the preparation of such a study, which consisted of knowledgeable and experienced engineers and planners from the U. S. Department of Transportation, Wisconsin Department of Transportation, Racine County, municipalities within Racine County, and the Southeastern Wisconsin Regional Planning Commission, as well as citizen representatives; and

WHEREAS, under the guidance of the Technical and Intergovernmental Coordinating and Advisory Committee for Jurisdictional Highway Planning in Racine County and of a competent interagency staff, all research studies undertaken for the accomplishment of a jurisdictional highway system plan for Racine County have been concluded, including: 1) the preparation and printing of a map setting forth the proposed jurisdictional highway system in Racine County, as projected to the calendar year 1990; and 2) the preparation and publication of SEWRPC Planning Report No. 22, entitled A Jurisdictional Highway System Plan for Racine County, published in February of 1975, which contains specific recommendations as to the level and agency of government which should assume responsibility for the construction, maintenance, and operation of each segment of the total 1990 planned arterial street and highway system within Racine County, and concomitant recommendations for the realignment of the federal aid highway systems and the state and county trunk highway systems, together with descriptive and explanatory matter and other matters intended to comprise a conversion of the functional highway plan for Racine County into a jurisdictional highway plan, said functional plan being a component of the adopted regional transportation plan; and

WHEREAS, the process of converting the adopted functional highway plan for Racine County into a jurisdictional highway system plan has necessarily resulted in refinements to the functional highway plan, such refinements consisting of additions, deletions, and changes to the functional highway system, thus constituting recommended amendments to the adopted functional plan; and

WHEREAS, the Commission has transmitted certified copies of its resolution adopting such jurisdictional highway system plan for Racine County, together with the aforementioned SEWRPC Planning Report No. 22; to the local units of government; and

WHEREAS, the (Name of Local Governing Body) did on the _____ day of _____, 19__, approve a resolution adopting the regional transportation plan; and

WHEREAS, the (Name of Local Governing Body) has supported, participated in the financing of, and generally concurred in the regional transportation and other planning programs undertaken by the Southeastern Wisconsin Regional Planning Commission and believes that the Racine County jurisdictional highway system plan as prepared by the Commission in cooperation with other agencies is a valuable guide not only to the development of Racine County but also of the community, and the adoption of such plan by the (Name of Local Governing Body) will assure a common understanding by the several governmental levels and agencies concerned and enable these levels and agencies of government to program the necessary plan implementation work.

NOW, THEREFORE, BE IT HEREBY RESOLVED that, pursuant to Section 66.945(12) of the Wisconsin Statutes, the (Name of Local Governing Body) on the _____ day of _____, 19__, hereby adopts the Racine County jurisdictional highway system plan previously adopted by the Commission as set forth in SEWRPC Planning Report No. 22, as an amendment to the highway system component of the adopted regional transportation plan and as a guide for community development.

BE IT FURTHER RESOLVED, that the _____ Clerk transmit a certified copy of this resolution to the Southeastern Wisconsin Regional Planning Commission.

_____

(Chairman, President, or Mayor of Local Governing Body)

ATTESTATION:

_____

(Clerk of Local Governing Body)

TECHNICAL AND INTERGOVERNMENTAL COORDINATING AND ADVISORY COMMITTEE ON JURISDICTIONAL HIGHWAY PLANNING FOR RACINE COUNTY

Earl G. Skagen, Chairman . . . . . County Highway Commissioner, Racine County

Kurt W. Bauer, P.E. . . . . Executive Director, SEWRPC

Thomas R. Clark, P.E. . . . . Chief Planning Engineer, District 2, Division of Highways, Wisconsin Department of Transportation

Arnold L. Clement . . . . . Planning Director and Zoning Administrator, Racine County

George Gunderson, P.E. . . . . Chief of Statewide Planning Section, Division of Planning, Wisconsin Department of Transportation

Chester J. Harrison, P.E. . . . . Caledonia Town Engineer

Thomas R. Kinsey, P.E. . . . . District Engineer, District 2, Division of Highways, Wisconsin Department of Transportation

Fred H. Larson, P.E. . . . . Commissioner of Public Works, City of Racine

Jayant B. Trevadia, P.E. . . . . Burlington City Engineer

Thomas M. Wahtola . . . . . Planning and Research Engineer, U. S. Department of Transportation, Federal Highway Administration

Thomas N. Wright . . . . . Director of Planning, City of Racine

Donald E. Zenz, P.E. . . . . Racine County Highway Engineer

INTERAGENCY STAFF
RACINE COUNTY JURISDICTIONAL HIGHWAY STUDY

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Keith W. Graham, P.E. . . . . Assistant Director SEWRPC

Mark P. Green, P.E. . . . . Chief Transportation Planner SEWRPC

William A. Heimlich, P.E. . . . . Urban Planning Supervisor, District 2 Division of Highways, Wisconsin Department of Transportation

William M. Hendricks . . . . . Transportation Planner SEWRPC

Thomas R. Kinsey, P.E. . . . . District Engineer, District 2 Division of Highways, Wisconsin Department of Transportation

Leland H. Kreblin . . . . . Chief Planning Illustrator SEWRPC

Earl G. Skagen . . . . . County Highway Commissioner Racine County

Donald E. Zenz, P.E. . . . . Racine County Highway Engineer