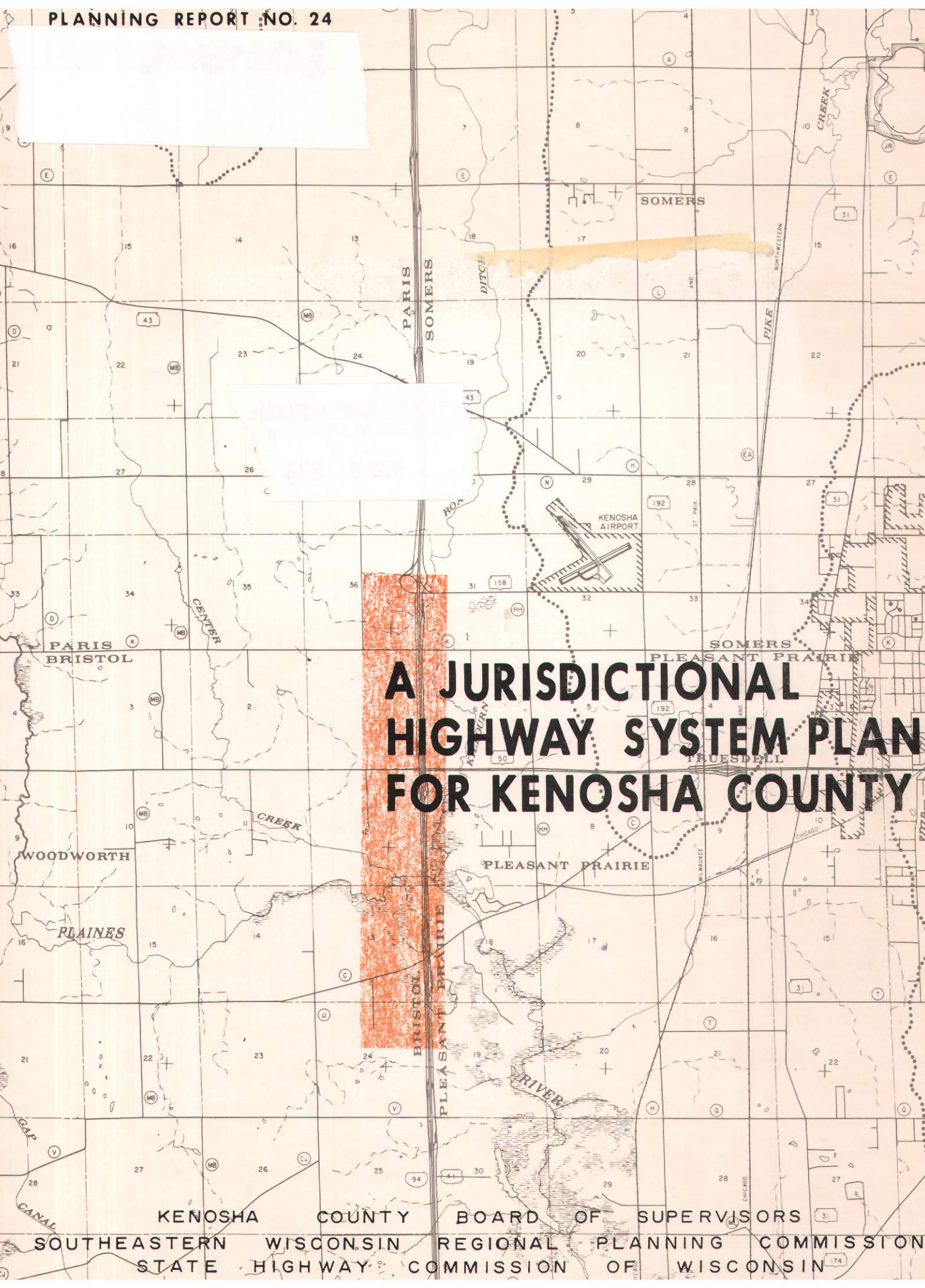
PLANNING REPORT NO. 24




# A JURISDICTIONAL HIGHWAY SYSTEM PLAN FOR KENOSHA COUNTY

KENOSHA COUNTY BOARD OF SUPERVISORS
SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
STATE HIGHWAY COMMISSION OF WISCONSIN

**KENOSHA COUNTY BOARD OF SUPERVISORS**

Eric H. Olson, Chairman

James Amendola
Joseph F. Andrea
Donald H. Brevitz
Angelo P. Capriotti
Jerry O. Covelli
Ronald J. Frederick
Carleton A. Gentz
Earl W. Hollister
David D. Holtze, Sr.
Walter H. Johnson
Roger Jornt
Stanley Kerkman
Donald Knapp
Wayne E. Koessl
Albert K. Krause
Waldemar A. Lange
Richard H. Lindgren
Peter R. Marshall
Bernard T. McAleer
Francis J. Pitts
Emil Ruffalo
Walter Rutkowski
Fred C. Schmalfeldt
Gerald G. Smith
Mark A. Starzyk
Helen S. Tillman

Leo J. Wagner
County Highway Commissioner

**WISCONSIN DEPARTMENT OF TRANSPORTATION**

Zel S. Rice II, Secretary of Transportation

Thomas J. Hart, Administrator, Division of Planning

**STATE HIGHWAY COMMISSION OF WISCONSIN**

Robert T. Huber, Chairman

Joseph Sweda, Vice-Chairman

Rebecca C. Young, Secretary

Harold L. Fiedler, State Highway Engineer

Thomas R. Kinsey, District Engineer

**SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION**

**KENOSHA COUNTY**

Donald L. Klapper
Donald E. Mayew
Francis J. Pitts,
Vice-Chairman

**MILWAUKEE COUNTY**

Richard W. Cutler,
Secretary
Emil M. Stanislawski
Norman C. Storck, P.E.

**OZAUKEE COUNTY**

Thomas H. Buestrin
John P. Dries
James F. Egan

**RACINE COUNTY**

George C. Berteau,
Chairman
John Margis, Jr.
Leonard C. Rauen

**WALWORTH COUNTY**

Anthony F. Balestrieri
Eugene A. Hollister
Harold H. Kolb

**WASHINGTON COUNTY**

Lawrence W. Hillman
Paul F. Quick
Joseph A. Schmitz,
Treasurer

**WAUKESHA COUNTY**

Charles J. Davis
Lyle L. Link
Theodore F. Matt

Kurt W. Bauer, P.E., Executive Director

PLANNING REPORT
NUMBER 24

# A JURISDICTIONAL HIGHWAY SYSTEM PLAN FOR KENOSHA COUNTY

Kenosha 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 Kenosha County.

April 1975

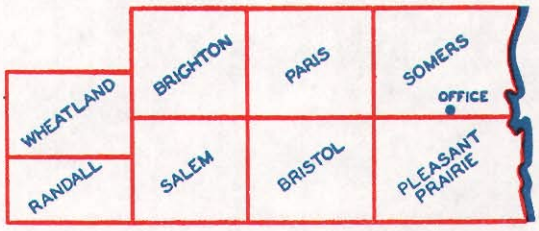
Inside Region $ 5.00
Outside Region $10.00

(This page intentionally left blank)

LEO J. WAGNER
HIGHWAY COMMISSIONER
OFFICE PHONE 652-4930

GAYLORD MALESKI
PATROL SUPERINTENDENT
OFFICE PHONE 889-4011

ROBERT MIDDLECAMP
ASSISTANT
PATROL SUPERINTENDENT
OFFICE PHONE 657-7129




KENOSHA COUNTY
HIGHWAY DEPARTMENT
5512 - 60TH STREET
KENOSHA, WISCONSIN 53140

April 9, 1975

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

The Kenosha County Board of Supervisors on June 11, 1968 directed that a comprehensive study be made of the jurisdictional responsibility for the construction, maintenance, and operation of arterial streets and highways in Kenosha 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 actually involve the local units of government within the County in this important study, a Technical and Intergovernmental Coordinating and Advisory Committee was formed to assist and advise the interagency staff, with membership from the U. S. Department of Transportation; the State Department of Transportation; the Regional Planning Commission; representatives of local units of government; and interested citizens from throughout the County.

This report contains the findings and recommendations of more than one and one-half years of intensive study by the interagency staff and the Technical and Intergovernmental Coordinating and Advisory Committee. The report sets forth a recommended plan for state trunk highway, county trunk highway, local trunk highway, and county branch highway system development within Kenosha 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 and Intergovernmental 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 Kenosha 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 and Intergovernmental Coordinating and Advisory Committee.

Respectfully submitted,

Leo J. Wagner

Leo J. Wagner, Chairman
Technical and Intergovernmental
Coordinating and Advisory Committee
on Jurisdictional Highway Planning
for Kenosha County

(This page intentionally left blank)

TABLE OF CONTENTS

## LIST OF APPENDICES

# LIST OF TABLES

## LIST OF FIGURES

## LIST OF MAPS

(This page intentionally left blank)

# 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 April 20, 1967, after careful consideration and upon the recommendation of the Kenosha County Highway Committee, the Kenosha 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 three-fold 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 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 the adoption of the recommended regional transportation plan and pursuant to specific implementing recommendations contained in that plan, the Kenosha County Board of Supervisors, on June 11, 1968, directed that the County Highway Committee, in cooperation with the U. S. Department of Transportation, Federal Highway Administration; the Highway Commission of the Division of Highways, Wisconsin Department of Transportation; 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 which level and agency of government 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 the state and county trunk highway systems, and if warranted, propose necessary changes in the various state and federal aid formulae.

### 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 these is the fact that the location and extent of the state and county trunk highway systems in Kenosha County, as well as of the related federal aid highway systems, have become increasingly obsolete in light of rapidly changing areawide land use development patterns and accompanying changes in traffic demand. The rapid conversion of land from rural to urban use and the rapid development of automotive transportation within Kenosha County and the Region, of which Kenosha County is a part, have placed 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, Kenosha County can expect to continue to experience substantial residen-

---

[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 Kenosha County.*

tial, commercial, and industrial growth in the next two decades; and this growth will be accompanied by still greater increases in motor vehicle registrations 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 total street and highway system is affected by increased traffic demand 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 Kenosha County, those streets and highways which carried the heaviest volumes of traffic have tended to attract "strip" residential, commercial, and industrial 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 volume and impede the operating capacity of the existing arterials, but also 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. 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 relief from growing traffic congestion. The proper integration of these improvements into a broad, areawide, 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 piecemeal deletions from the county trunk highway system which have resulted elsewhere in the fragmentation of the system as land has been converted from rural to urban use and subsequently incorporated. This fragmentation has complicated construction, operation, and maintenance of the system, and has destroyed the necessary system continuity. A need exists to assure the maintenance of an integrated county trunk highway system to serve the growing transportation needs of the county, particularly in the area of the county lying east of IH 94 known as the Kenosha Planning District, where rapid urbanization and the corresponding growth in travel demand are 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 Kenosha 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, to adjust the jurisdictional systems to reflect the major changes in traffic patterns resulting from freeway utilization, and to reevaluate the system in light of the present inequity in jurisdictional responsibilities throughout the county. The need for such a jurisdictional planning effort is consequently becoming increasingly more urgent within Kenosha 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 local as well as the federal, state, and county levels of government. 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 both technical and non-technical policy-making local officials and interested citizens 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 officials and interested citizens in the planning process, an objective which it has fully met.

The U. S. Department of Transportation, Federal Highway Administration; the Wisconsin Department of Transportation; the Southeastern Wisconsin Regional Planning Commission; and the Kenosha County Highway Department were represented directly on the Committee. The interests of the one city, three villages, and eight towns within the county were all directly represented on the Committee by elected and appointed local public officials. In addition, two members of the Committee represented comprehensive countywide citizen interests.

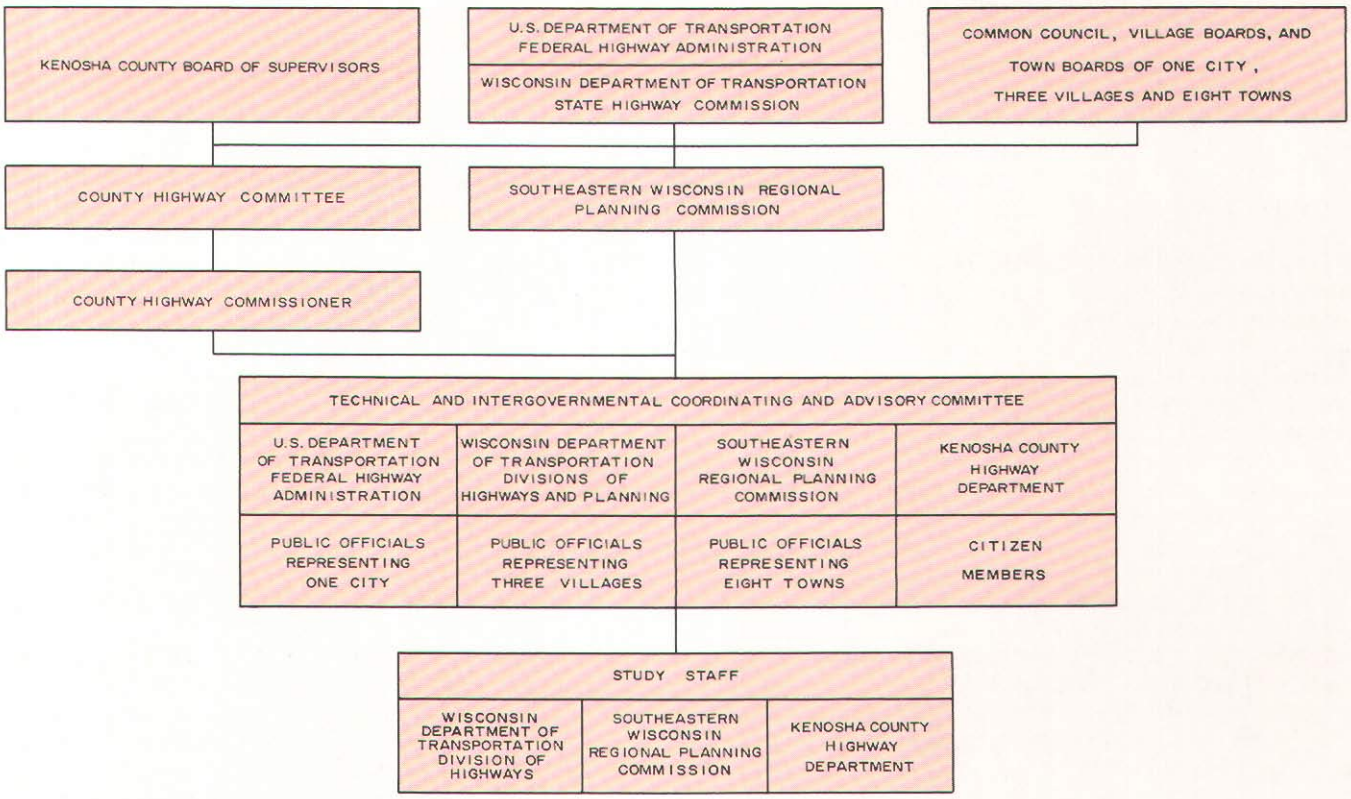
A complete Committee membership list is set forth in Appendix A of this report. The Committee was responsible for the detailed review and ultimate approval of the completed work of the study staff and for transmittal of the recommended jurisdictional plan to the constituent and cooperating agencies for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

## 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

**Figure 1**

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




*Source: SEWRPC.*

similar functions and providing similar levels of service, utilizing criteria established for this purpose; and further, 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 thereby avoiding 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, thereby assuring the most effective use of the total public resources in the provision of highway transportation by 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 Kenosha 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 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 the 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 to the orderly growth and development of a county, such as Kenosha County, which is an integral and rapidly urbanizing part of such a large metropolitan 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.

Although the arterial highways of an urbanizing region must function as a single, integrated system over the entire region, 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 the 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.

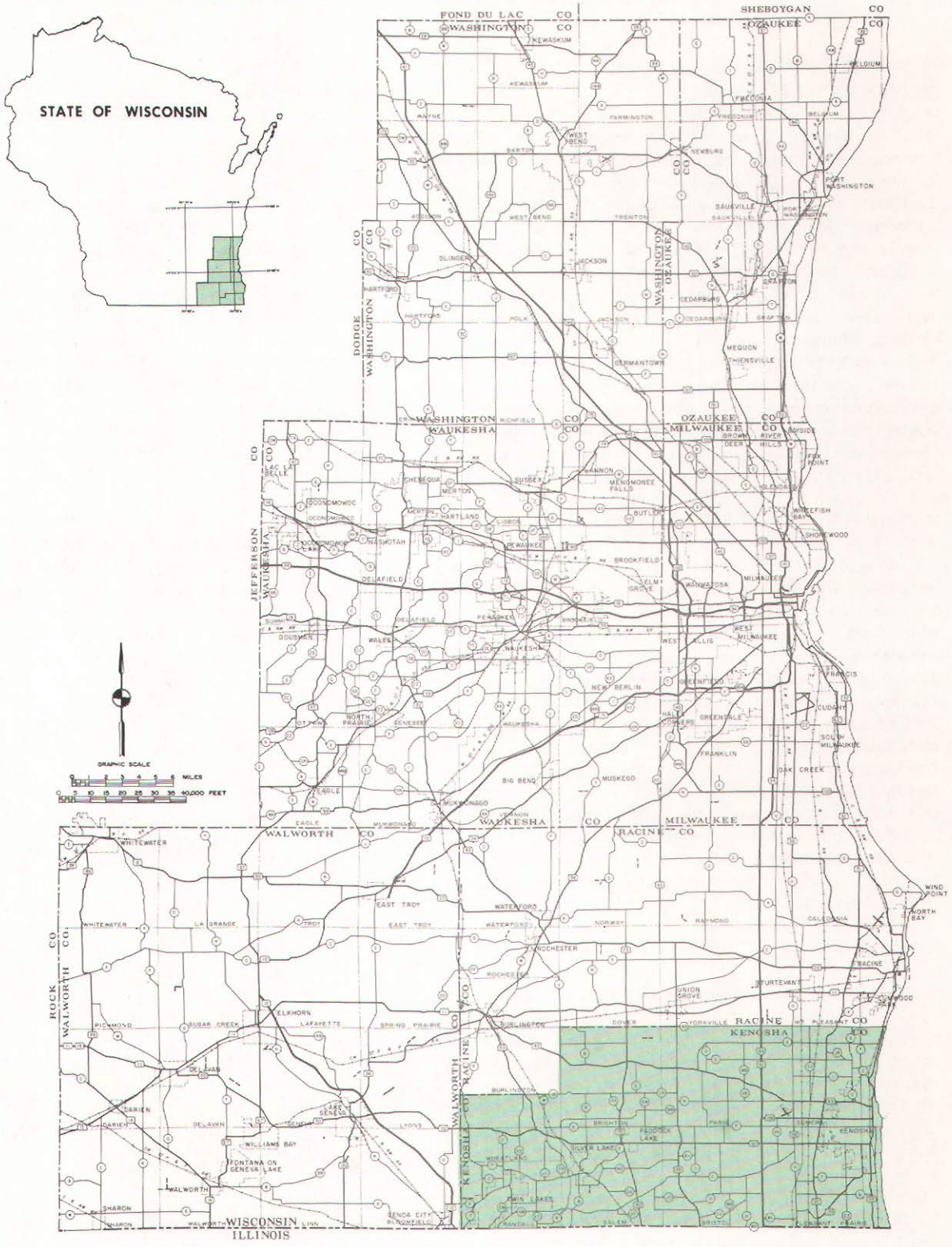
The functional arterial street and highway system established in the initial regional land use-transportation study effort for the Southeastern Wisconsin Region accordingly became the point of departure for the preparation of the jurisdictional highway system plan within Kenosha County. The jurisdictional 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 into two categories on the basis of existing function: arterial and all other. The latter category included the collector and local (land access) street subcategories. The initial classification was based upon the

Map 1

## LOCATION OF KENOSHA COUNTY WITHIN THE SOUTHEASTERN WISCONSIN REGION




Kenosha County comprises about 10 percent of the total area of the seven-county Southeastern Wisconsin Region, contains about 7 percent of the Region's population, employs about 6 percent of its labor force, and contains about 6 percent of its tangible wealth as measured by equalized assessed valuation. The county, which has been a rich agricultural and recreational resource within the Region, has been and is experiencing the pressures of urban development, particularly in that area of the county lying east of IH 94.

*Source: SEWRPC.*

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.

In the initial regional land use-transportation study effort, an arterial facility was defined 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 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. Existing land use within the western two-thirds of the county is still predominantly rural in nature, with urban development occurring in and around the relatively small urban and small lake oriented communities located in the southwestern area of the county and in residential subdivisions dispersed throughout the western two-thirds of the county. Conversely, the eastern one-third of the county, which comprises the Kenosha Planning District, has undergone and is continuing to undergo rapid urbanization.

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 urban 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 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 located so 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.

[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., with 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 urban development[2]—one-half mile spacing.
2. Medium-density urban development[3]—one-mile spacing.
3. Low-density urban development[4]—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 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 category of facility normally not considered in the jurisdictional highway planning process, but considered as both a special functional and jurisdictional classification under the Kenosha County jurisdictional highway planning program, is the system of scenic drives and rustic roads. For the purposes of this report, a scenic drive is defined as a marked and signed route over existing streets and highways that traverses particularly pleasing landscapes, including areas of topographic, vegetative, and geological interests and areas containing sites of scientific, cultural, or historic interest. Rustic roads, which are segments of the overall system of scenic drives, are, for the purposes of this report, defined as low speed, low volume local access roads with outstanding natural features along their borders, including native trees, shrubs, wildflowers, grass, and ferns, as well as open areas with rustic or natural vistas. Such scenic drives are normally heavily utilized only during summer, weekend, and holiday periods, and are routed over existing facilities that perform arterial, 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 local 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 Kenosha County were identified as a special functional category and assigned a jurisdictional classification as a part of the Kenosha 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 Kenosha 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 included consideration of existing and proposed land uses along the facilities, as well as the location, spacing, and operational characteristics of the facilities themselves.

The review indicated that the original functional arterial system for Kenosha 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

---

[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-density 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).*

these functions over time. The fact that 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 Kenosha County were made. The result was the deletion of 41 miles from, and the addition of 18 miles to, the arterial system, with a net reduction of 23 miles in 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 Kenosha 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 Kenosha 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 and Intergovernmental Coordinating and 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 Technical and Intergovernmental Coordinating and Advisory 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 plan[5] and relate to the provision of an integrated transportation system which effectively serves the existing and proposed land use pattern; the provision of a balanced transportation system providing appropriate types and levels of transportation service to the various subareas of the Region; the alleviation of traffic congestion and the reduction of travel time; the reduction of accident exposure and the provision of increased travel safety; the provision of a more economical and efficient transportation system; the minimization of disruption of desirable development and of deterioration or destruction of the natural resource base; and 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.

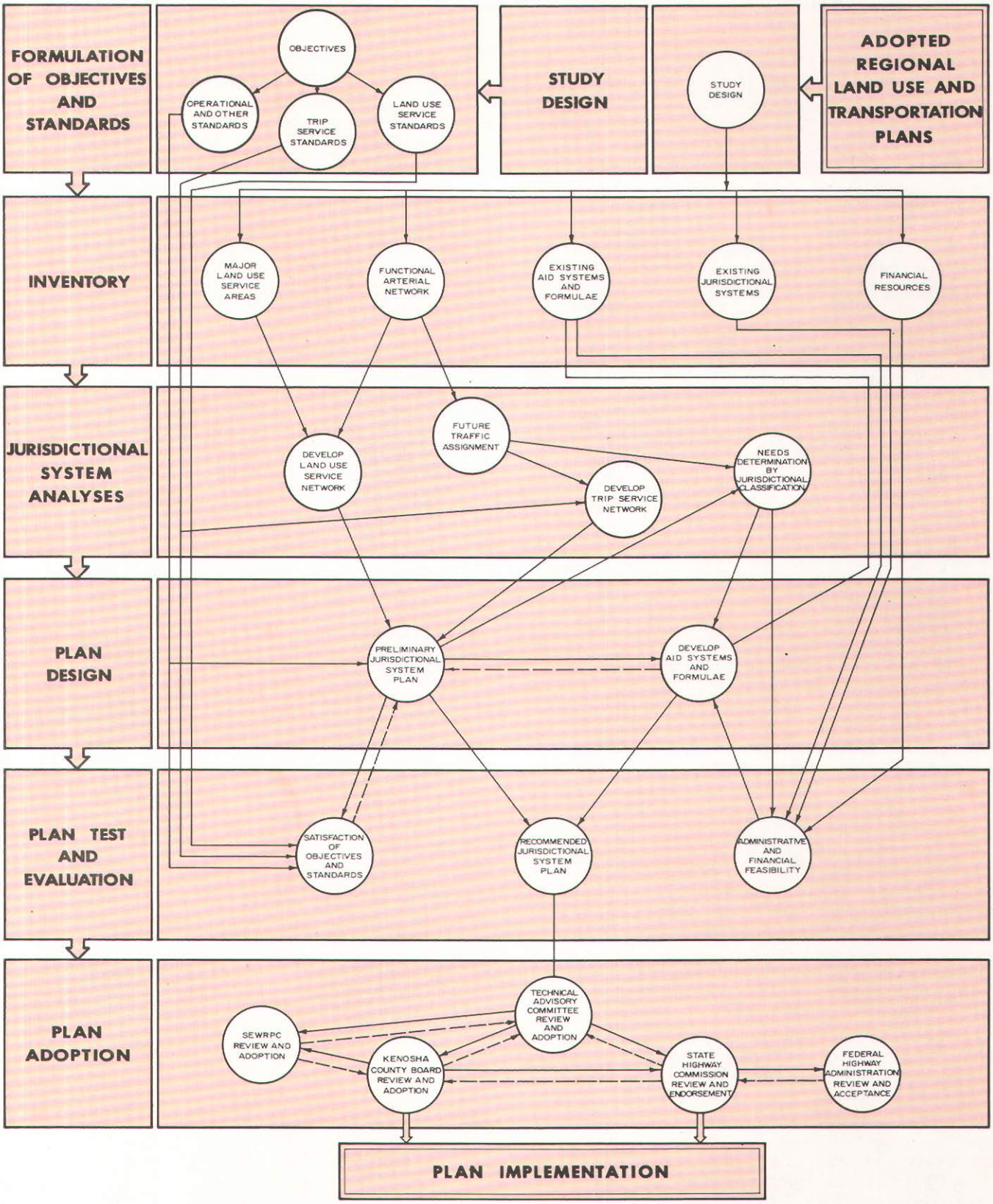
The sound formulation of a jurisdictional highway system plan for Kenosha County required that factual data be collected on the location and configuration of the existing jurisdictional highway systems, including the supporting federal aid routes; the existing route mileage of each major jurisdictional type by civil division; the attendant construction and maintenance aid formulae and related plan implementation policies and practices; and on historic 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 Kenosha County had been preceded by a comprehensive, areawide regional transportation planning process, the

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

Figure 2

THE JURISDICTIONAL HIGHWAY PLANNING PROCESS FOR KENOSHA COUNTY




*Source: SEWRPC.*

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 synthesis. No substitute for intuition and professional judgment in plan design has so far been found, much less developed to a practical level. There are methods, however, which avoid total dependence on the intuitive grasp of the problem; and these methods were fully applied in the Kenosha County jurisdictional highway planning study. They center primarily on the application of systems engineering techniques to quantitatively test 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 synthesis. Consequently, it was still necessary to develop the jurisdictional highway subsystem plans by traditional graphic and analytical "cut and try" methods, then to test the resulting design by application of the simulation model techniques, and 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 synthesis. The knowledge and experience of federal, state, and local highway engineers familiar with the geographic and functional areas concerned was 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 Technical and Intergovernmental Coordinating and Advisory 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

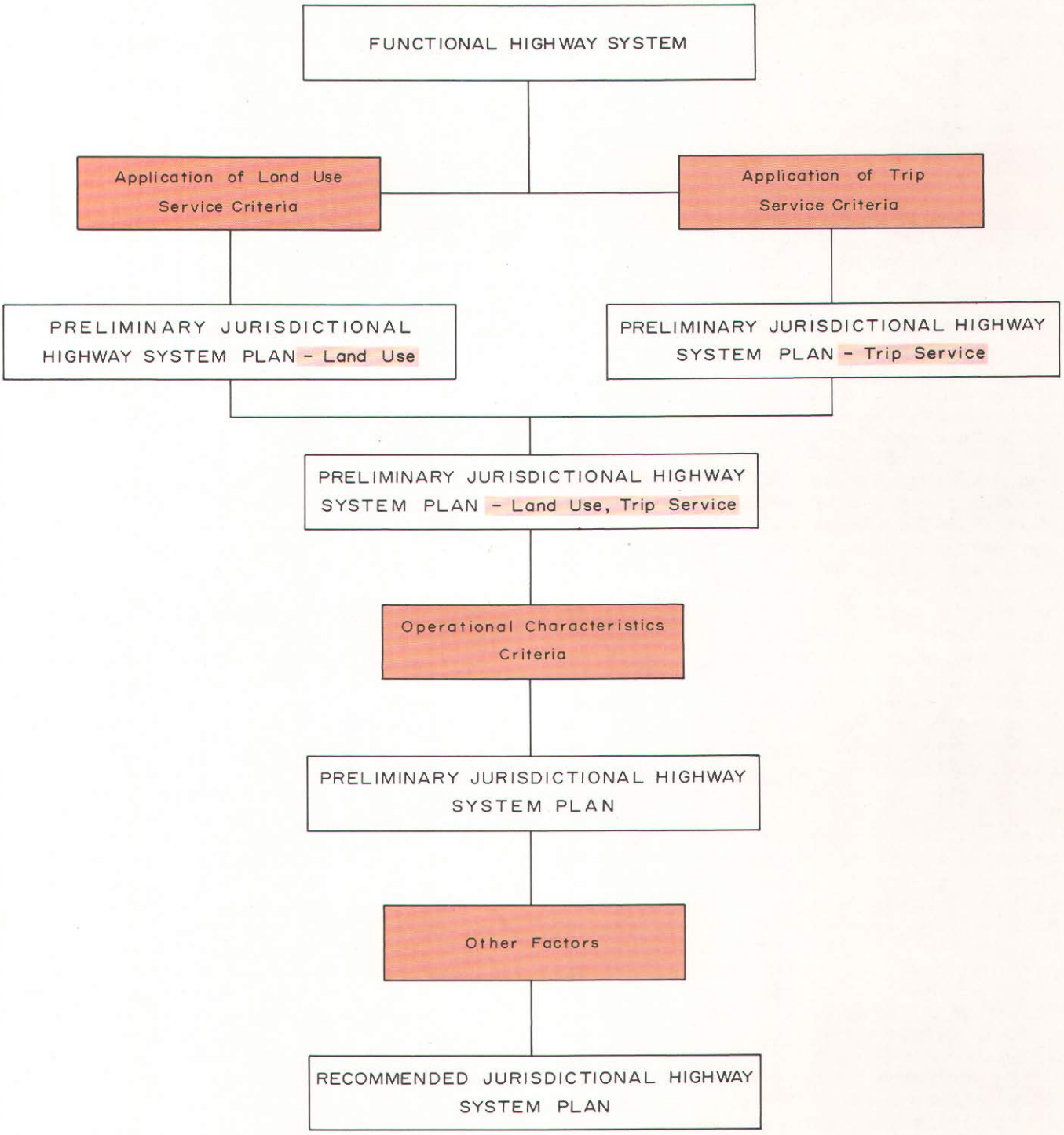
If the plans developed in the design stage of the planning process are to be realized in terms of actual transportation system development, some measures must be applied to quantitatively and qualitatively test these plans in advance of their adoption and implementation. The plan test and evaluation 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 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 agen-

Figure 3

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




*Source: SEWRPC.*

cies, including particularly the Kenosha County Board of Supervisors and the Highway Commission of the Wisconsin Department of Transportation, and formal recognition by 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.

(This page intentionally left blank)

## 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, and 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 military roads that traversed Kenosha County. An east-west route comprised part of the road between Southport (Kenosha) and the Town of Beloit, portions of which are now STH 50 and STH 83. A north-south route comprised part of the road between Fort Howard (Green Bay) and Fort Dearborn (Chicago). Its route followed that of present STH 31 in Kenosha County. Thus, the earliest roads within the Region were federal roads.

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 territorial roads that traversed Kenosha County. The Waterford-Southport (Kenosha) road followed portions of present STH 43,[1] STH 75, and CTH BB. The Prairieville (Waukesha)-Fort Dearborn (Chicago) road followed portions of present STH 83, CTH W, and CTH B.

Since the territorial roads were generally poorly constructed and therefore 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. One of these roads was the Fox River-Southport (Kenosha) Plank Road. Map 4 depicts this plank road as constructed in Kenosha County. Its route followed the alignment of present CTH K. A combination of high maintenance costs, low profits, and competition from railroads caused the eventual abandonment of these plank roads. 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. 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 participation 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 the 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.

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 enacted the first county aid highway laws in 1907. These laws provided that any town could, by making an appropriation for highways, secure a similar amount of money from the county for highway improvements. The counties were required to select systems of highways upon which improvements were to be made and to elect a County Highway Commissioner to carry out the improvements. The counties were also authorized to levy taxes for highway improvements.

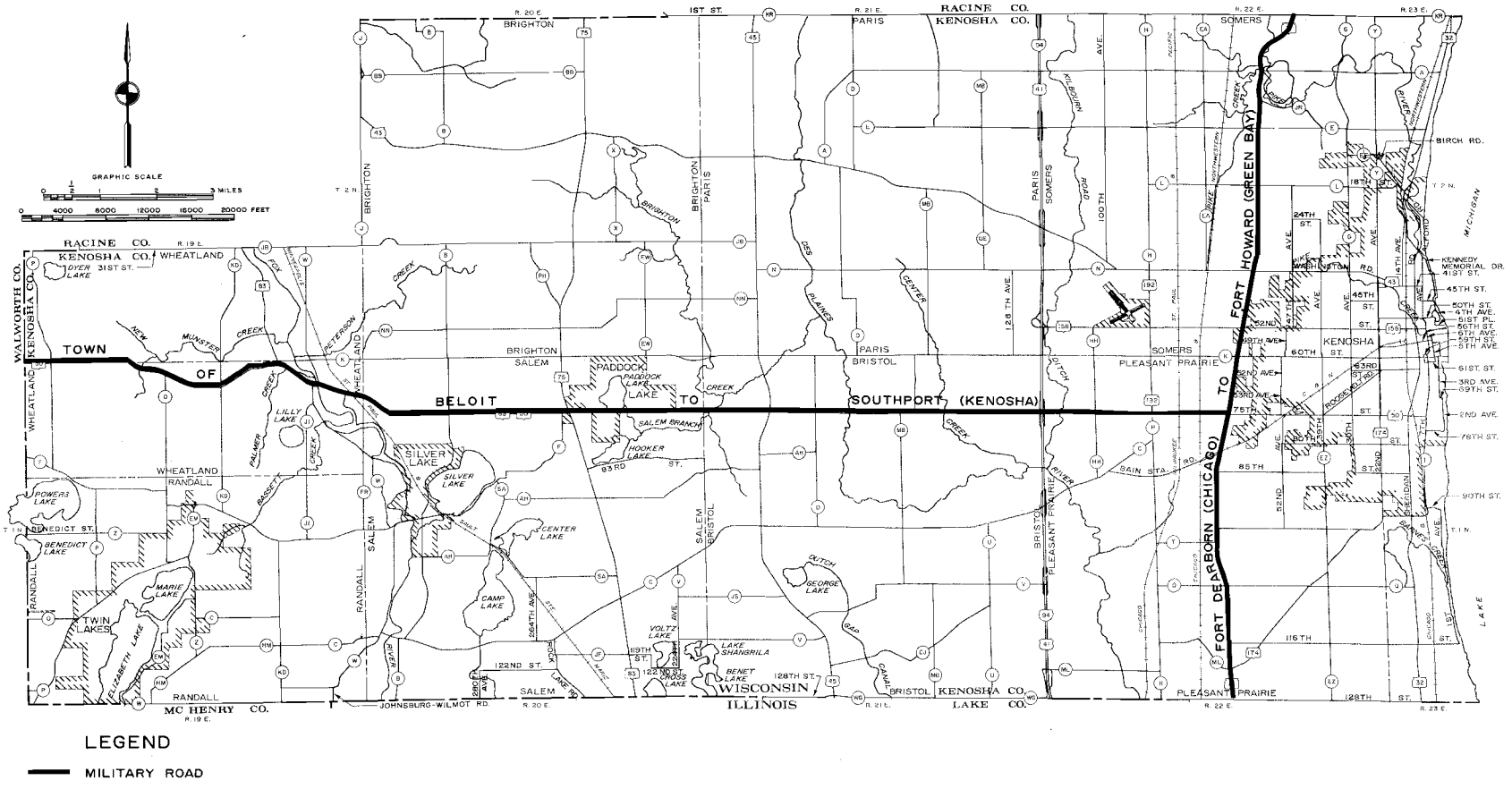
In the general election of 1908, the people of the state approved a constitutional amendment which provided:

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

[1] *As of January 1, 1975, STH 43 was renumbered STH 142.*

**Map 2**

## MILITARY ROADS IN KENOSHA COUNTY: 1835-1870

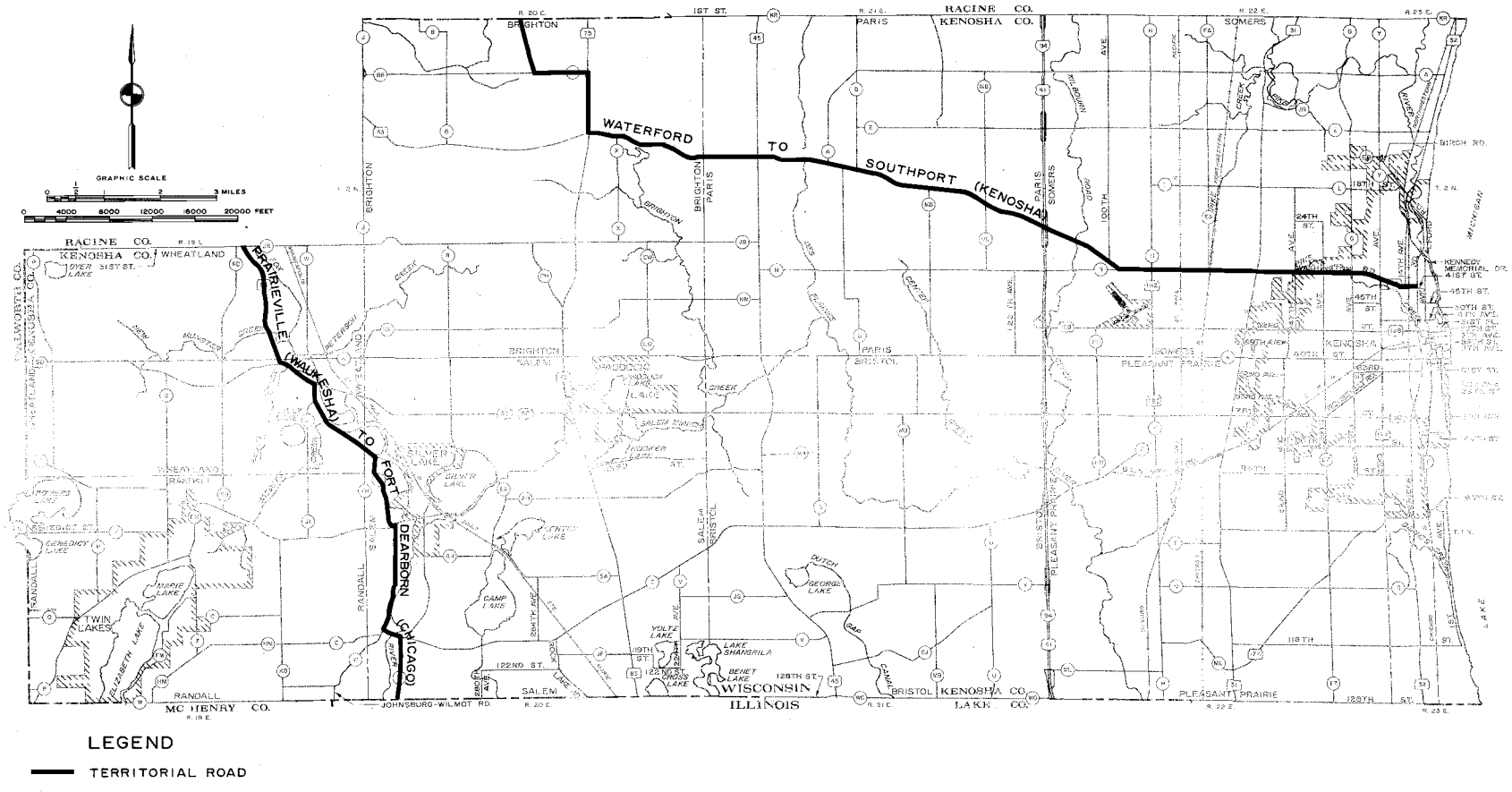



A system of military roads was built by the federal government in territorial Wisconsin to make the transportation of troops and supplies easier between forts established to guard the developing frontier. Two of these military roads were located in Kenosha County, connecting Fort Howard (Green Bay) with Fort Dearborn (Chicago) over portions of present STH 31, and the Town of Beloit with Southport (Kenosha) over portions of present STH 50.

*Source: SEWRPC.*

**Map 3**

## TERRITORIAL ROADS IN KENOSHA COUNTY: 1839-1848

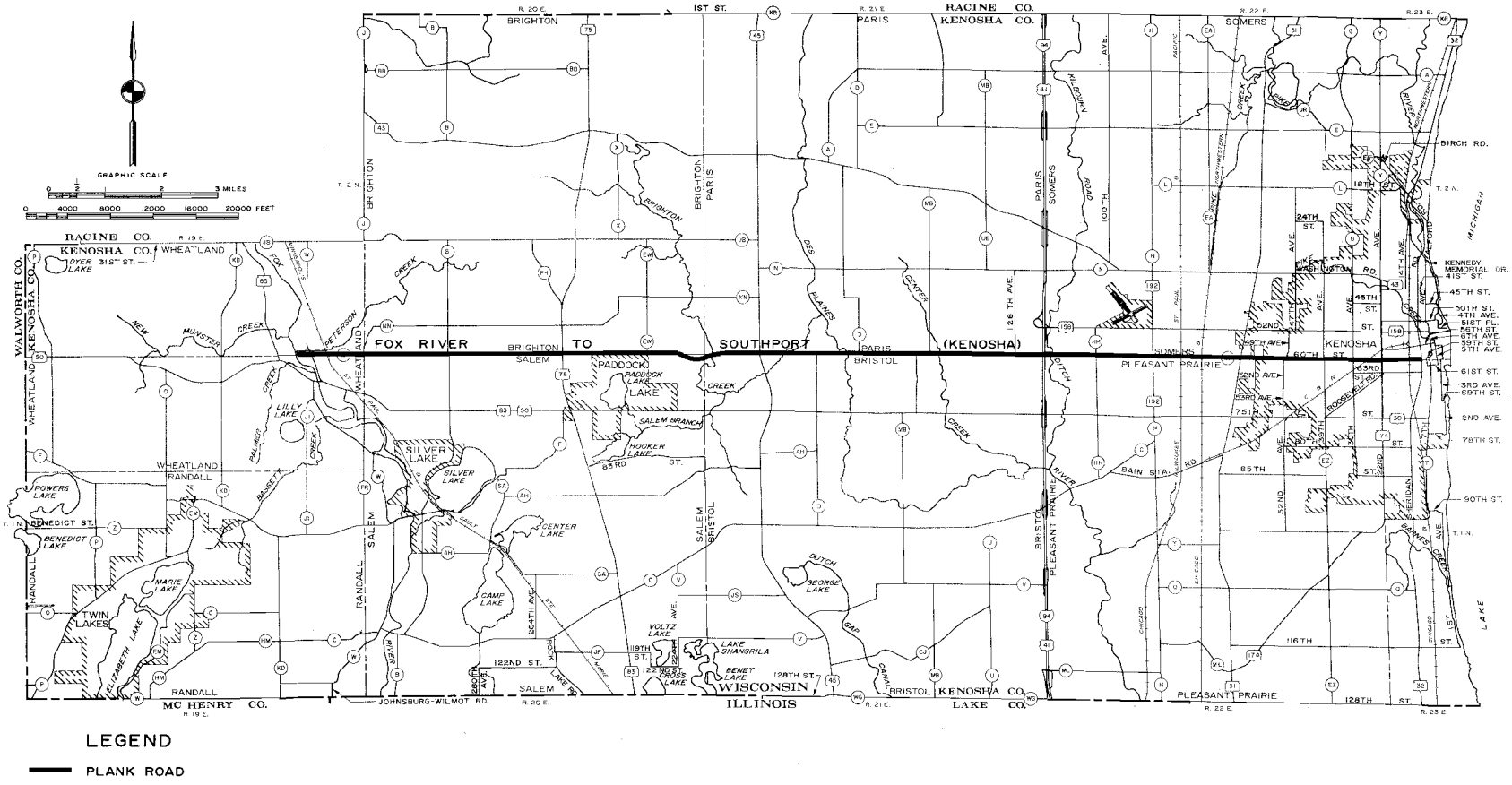



In 1836, the Territorial Legislature established a system of territorial roads to connect important settlements within the territory. Two territorial roads traversed Kenosha County, including the Waterford to Southport (Kenosha) road with portions of its alignment over present STH 43, STH 75, and CTH BB, and the Prairieville (Waukesha) to Fort Dearborn (Chicago) road over portions of present STH 83, CTH B, and CTH W.

*Source: SEWRPC.*

## Map 4

## PLANK ROADS IN KENOSHA COUNTY: 1846-1854




LEGEND

PLANK ROAD

Due to the poor construction of many of the territorial roads, demand soon developed for the construction of plank roads. The single plank road located in Kenosha County linked the Fox River with Southport (Kenosha) over present CTH K.

*Source: Kenosha County Historical Society and Museum and SEWRPC.*

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 had become 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 of not only a much higher level of highway improvement, but also a more centralized regulation and financing of highway construction and maintenance.

Under Chapter 52, Statutes of 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 to the proper performance of its duties and functions. The chief engineer was designated the State Highway Engineer, 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 Highway Commission, already a well-established department, to proceed with the development of an integrated system of state highways, a vast improvement over the aggregation of the 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 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 hearing 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 for the guidance of travel. 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, and Map 6 depicts this system as established in Kenosha County in 1918, consisting of about 36 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, one known as primary, or interstate, highways, and the second known as 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, totaling 3,152 route miles of facilities, was selected by the State Highway Commission in cooperation with local officials and consisted of farm-to-market roads, rural mail routes, rural public school bus routes, and county trunk highways. 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.

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 not only to improve farm-to-market roads but also to integrate these roads into a system of secondary highways, provided for the creation of a new federal aid secondary system. This federal aid secondary system in Wisconsin was selected 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.

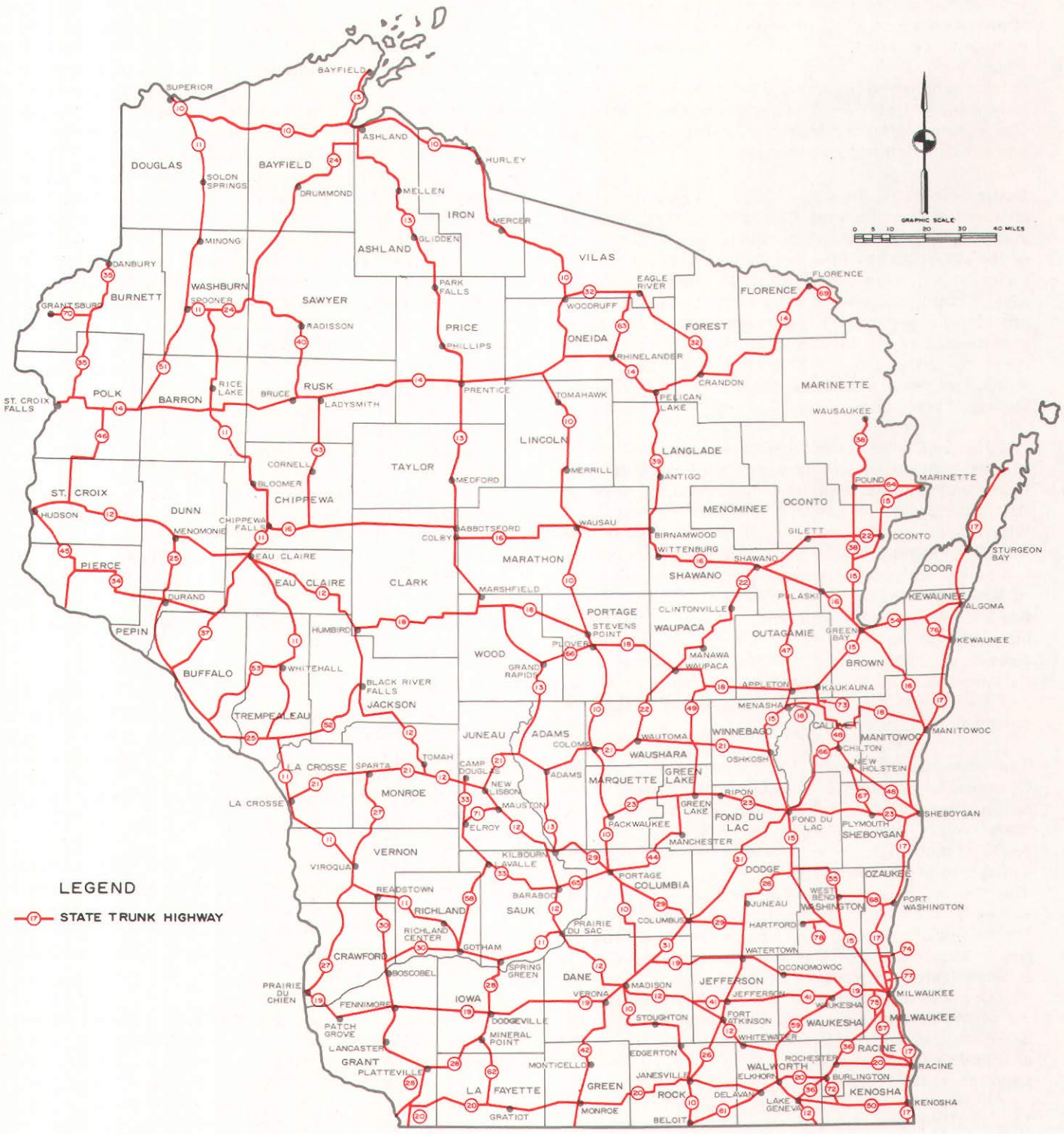
The 1944 Federal Aid Highway Act also provided for the establishment of a third system of highways known as the federal aid urban system. This system was not a true continuous highway system, but rather consisted of the extensions of federal aid primary and federal aid secondary routes into urban areas having populations of 5,000 or more.

In the Federal Aid Highway Act of 1956, Congress provided for the development of a national system of interstate and defense highways. Limited to 41,000 miles nation-wide at completion, the system was to connect principal metropolitan areas, major ports, and major military installations.

In 1967 the U. S. Department of Transportation, Federal Highway Administration, initiated a program of federal aid to urban areas having a population of 5,000 or more persons known as TOPICS, an acronym for "Traffic Operations Program to Increase Capacity and Safety." The program was developed to encourage municipalities to accelerate their efforts to reduce traffic congestion, facilitate the flow of traffic, and reduce accidents on streets other than those principal streets already on the federal aid highway systems by means of such traffic engineering techniques as intersection channelization, signalization, widening of approaches, and upgrading of lighting.

Map 5

## ORIGINAL STATE TRUNK HIGHWAY SYSTEM IN WISCONSIN: 1918

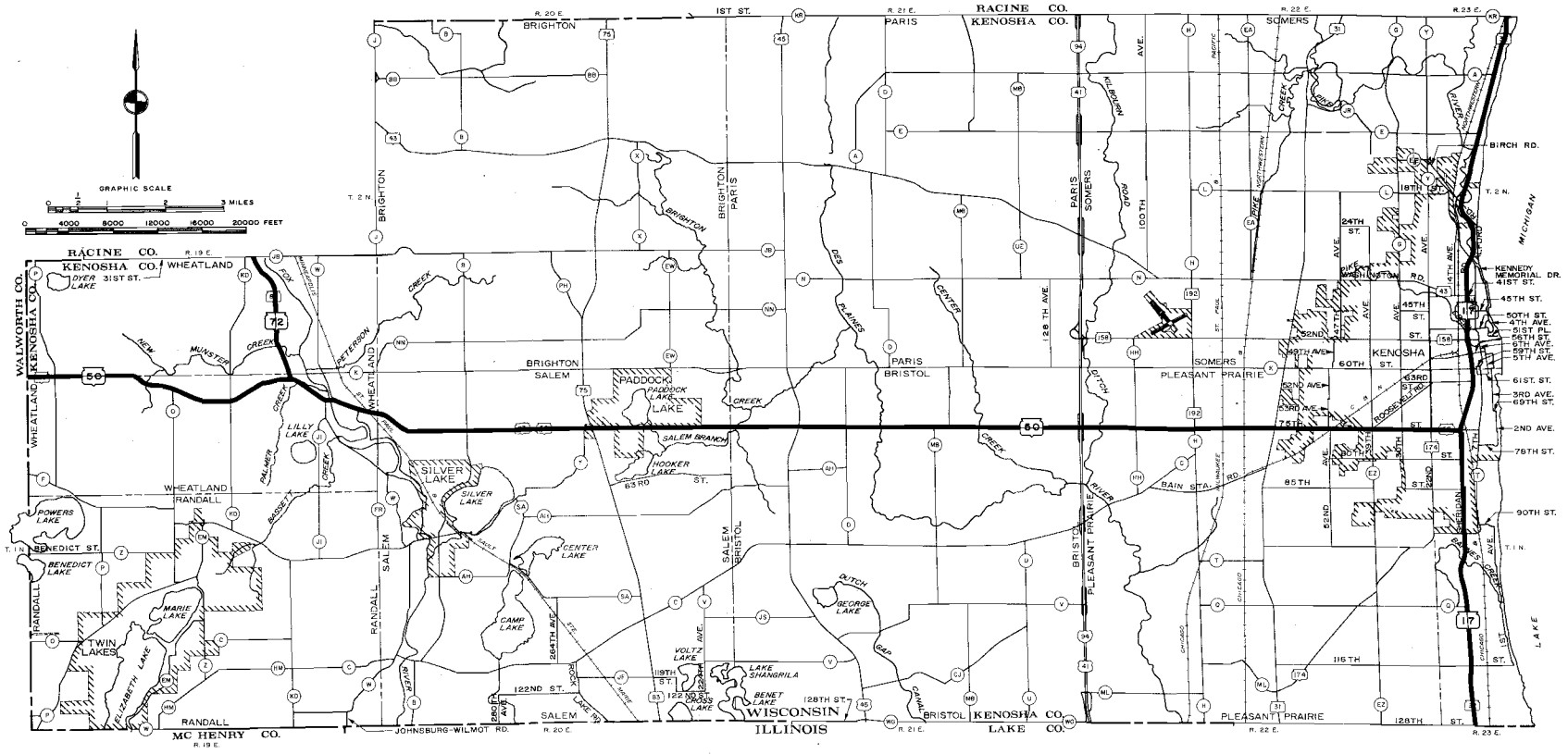



The original state trunk highway system in Wisconsin as established in 1918 totaled 5,000 miles, and interconnected every county seat and every city in the state with a population of 5,000 persons or more. Initially, this was the only system of streets and highways for which federal aid in partial support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

*Source: Wisconsin Department of Transportation.*

Map 6

## ORIGINAL STATE TRUNK HIGHWAY SYSTEM IN KENOSHA COUNTY: 1918




The original system of state trunk highways in Kenosha County consisted of about 36 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 present STH 32, STH 50, and STH 83 still being located on original state trunk highway alignments.

*Source: Wisconsin Department of Transportation.*

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 is intended to supplement the existing federal aid highway systems within urbanized areas, which formerly consisted only of the extensions of the federal aid primary and secondary systems into such urbanized areas. As such, the new system is intended to include the most heavily traveled elements of the urban street and highway system.

During the period from 1918 to 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 the responsibility for the improvement and maintenance of an additional number of miles of highway. 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 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 provided to be set aside for the improvement of the county trunk highway system, including construction, repair, and maintenance of highways and bridges under supervision of the county highway committee. Map 7 depicts the original Kenosha County trunk highway system as validated by the State Legislature in 1925.

The state trunk highway system, which by 1923 had been increased to 10,000 miles statewide, became the primary system of highways; the county trunk highway system, the secondary system; and other roads more local in nature, the tertiary system.

The 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, except that those portions of any such streets or highways along which houses were spaced at an average distance of more than 200 feet could be included at the option of the State Highway Commission. This provision of the statutes permitted the projection of the state trunk highway system into the more thinly developed areas of cities of over 2,500 population to points known as "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 of like classification. 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 in Kenosha County developed over the years, with minor additions and revisions, to the present state and county trunk systems.

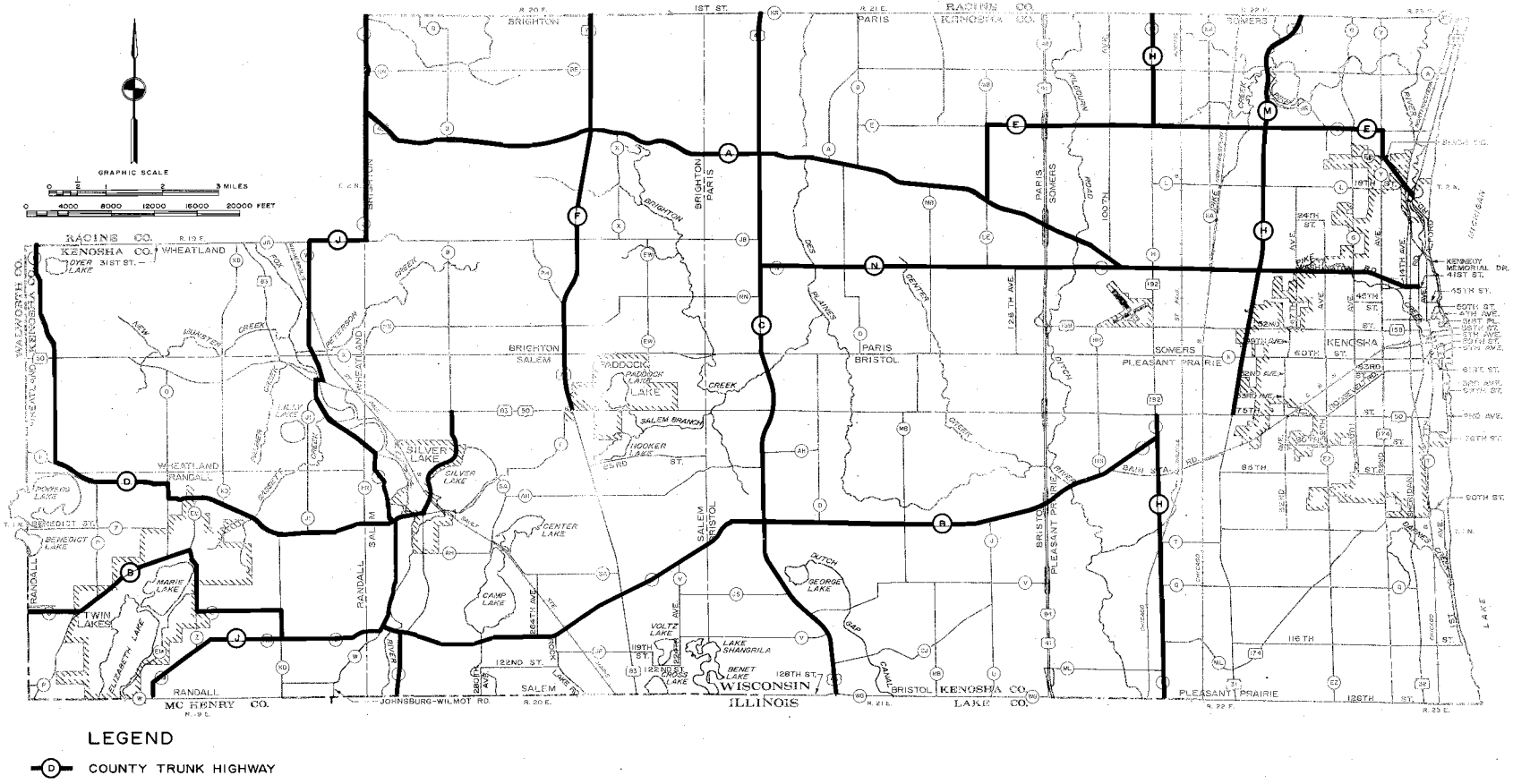
Table 1 sets forth changes in the jurisdictional street and highway system mileage within Kenosha County over the 55-year period between 1918 and 1973. The state trunk highway mileage shown includes connecting streets. Figure 4 indicates that, generally, the mileage of each of the three jurisdictional highway systems has increased to accommodate the relatively rapid growth in population, employment, urban land use, motor vehicle registrations, and vehicle miles of travel which have occurred within the county during this period. The only exception to this general trend is the decrease in county trunk highway mileage which took place from 1930 to 1940, when 49 miles of facilities were removed from the county trunk highway system and placed on a county system of prospective state highways. This system was created under a provision of the state statutes originally enacted in 1911 which permitted counties to select roads for inclusion in a countywide system of highways which, upon improvement, were to become state trunk highways. Chapter 83 of the Wisconsin Statutes provided that facilities on this system of highways could be improved with state and county aid, but that the maintenance responsibility for such facilities until improved was the sole responsibility of the county in unincorporated areas, and of the local unit of government within incorporated cities and villages. Upon improvement, the facilities on this system were to become state trunk highways, with the maintenance in rural areas becoming the responsibility of the state and in urban areas the responsibility of the local unit of government.

Over the period from 1911 to 1940, Kenosha County placed about 147 miles of facilities on this system of prospective state highways, thus taking advantage of the state aids available for improvement. During the years 1940 to 1945, in response to a 1939 amendment of Section 83.03 of the Wisconsin Statutes, which enabled a county to construct, improve, or repair or aid in the construction, improvement, or repair of any highway or bridge in the county, Kenosha County placed all of its system of prospective state highways onto the county trunk highway system, and in addition added 19 miles of local roads to that system. This action in effect eliminated the county system of prospective state highways. Legally the system still exists, but it has fallen into disuse, no longer being relevant to highway facility development in the county.

After World War II, the large increase in motor vehicle utilization brought about a public demand for further improvements in highway system development. To

Map 7

## COUNTY TRUNK HIGHWAY SYSTEM IN KENOSHA COUNTY: 1925




The original county trunk highway system in Kenosha County, established by the County Board and the Wisconsin Legislature in 1925, totaled about 110 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 Kenosha County was completed. Portions of the original county trunk highway system remain on the present county trunk highway system, including segments along present alignments of CTH B, CTH C, CTH EM, CTH F, CTH H, CTH HM, CTH J, CTH JB, CTH MB, CTH N, CTH O, CTH OP, CTH P, and CTH W.

*Source: Kenosha County Highway Department and SEWRPC.*

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 statute to 1,500 miles, with 371 miles so designated statewide to date. No such highways, however, have been designated in Kenosha County. The state has, however, purchased access control along 22 route miles of facilities in Kenosha County, as shown on Map 8.

In 1955 the State Legislature created the state arterial system as an integrated statewide, interregional, and intercommunity network of highways. The purpose of the 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. Routes designated in Kenosha County totaled 12 miles in length (see Map 9). Aside from the requirements of public hearings for changes, no differences significant to jurisdictional highway system planning or plan implementation exist 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, and in 1972 it removed the mileage limitation on such designation. Under this legislative authorization, those highway segments carrying sufficient traffic to warrant ultimate construction of four or more moving lanes could be designated as freeways or expressways by the State Highway Commission. To date, no state trunk highways have been designated as freeways or expressways in Kenosha County. It is interesting to note that IH 94, although actually developed as a freeway, has not been so designated by the State Highway Commission.

Subject to certain statutory limitations, changes to the state trunk highway system may be made by the 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 the Wisconsin Statutes. The requirements vary, depending on 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 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 1,000 vehicles per day. By cooperative agreement with city of 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 35 percent of the county trunk mileage. The Kenosha County Board has not chosen to designate any portions of the county trunk highway system as controlled-access facilities.

**Table 1**

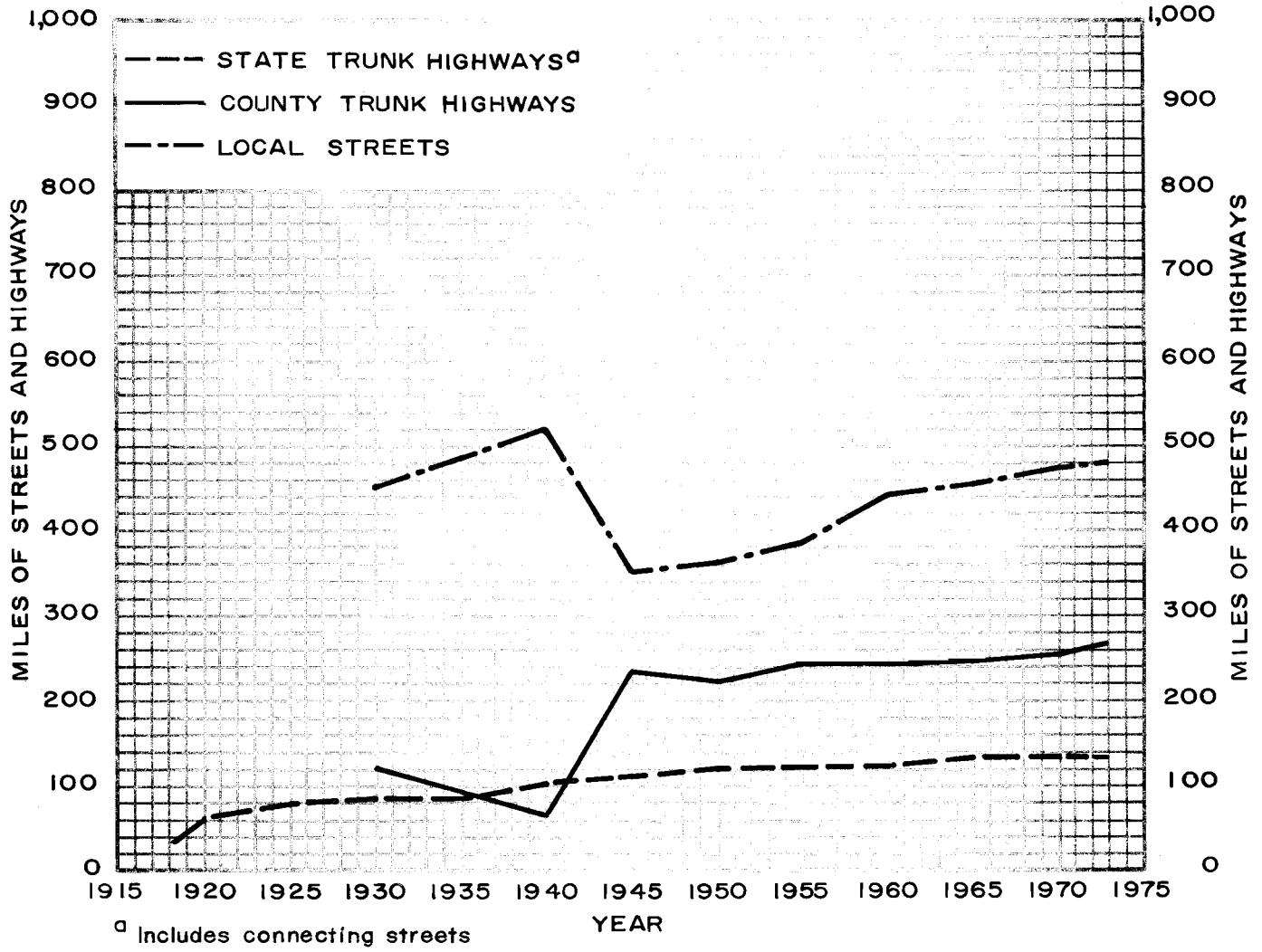
**STREET AND HIGHWAY MILEAGE IN KENOSHA COUNTY: SELECTED YEARS 1918-1973**

| 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 | 36 | -- | 36 | -- | -- | -- | -- |
| 1925 | 78 | -- | 110 | -- | -- | -- | -- |
| 1930 | 83 | 12.7 | 119 | 18.2 | 452 | 69.1 | 654 |
| 1935 | 83 | 12.6 | 84 | 12.8 | 490 | 74.6 | 657 |
| 1940 | 104 | 15.0 | 70 | 10.1 | 520 | 74.9 | 694 |
| 1945 | 104 | 15.0 | 245 | 35.4 | 344 | 49.6 | 693 |
| 1950 | 117 | 16.4 | 235 | 33.0 | 360 | 50.6 | 712 |
| 1955 | 117 | 15.4 | 249 | 32.9 | 392 | 51.7 | 758 |
| 1960 | 114 | 14.4 | 249 | 31.4 | 430 | 54.2 | 793 |
| 1965 | 123 | 14.6 | 254 | 30.2 | 464 | 55.2 | 841 |
| 1970 | 123 | 14.2 | 265 | 30.6 | 479 | 55.2 | 867 |
| 1973 | 123 | 14.2 | 266 | 30.6 | 481 | 55.2 | 870 |

*Source: Wisconsin Department of Transportation and SEWRPC.*

Figure 4

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




*Source: SEWRPC.*

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.

## CURRENT STATUS

### Current Jurisdictional Highway Mileage

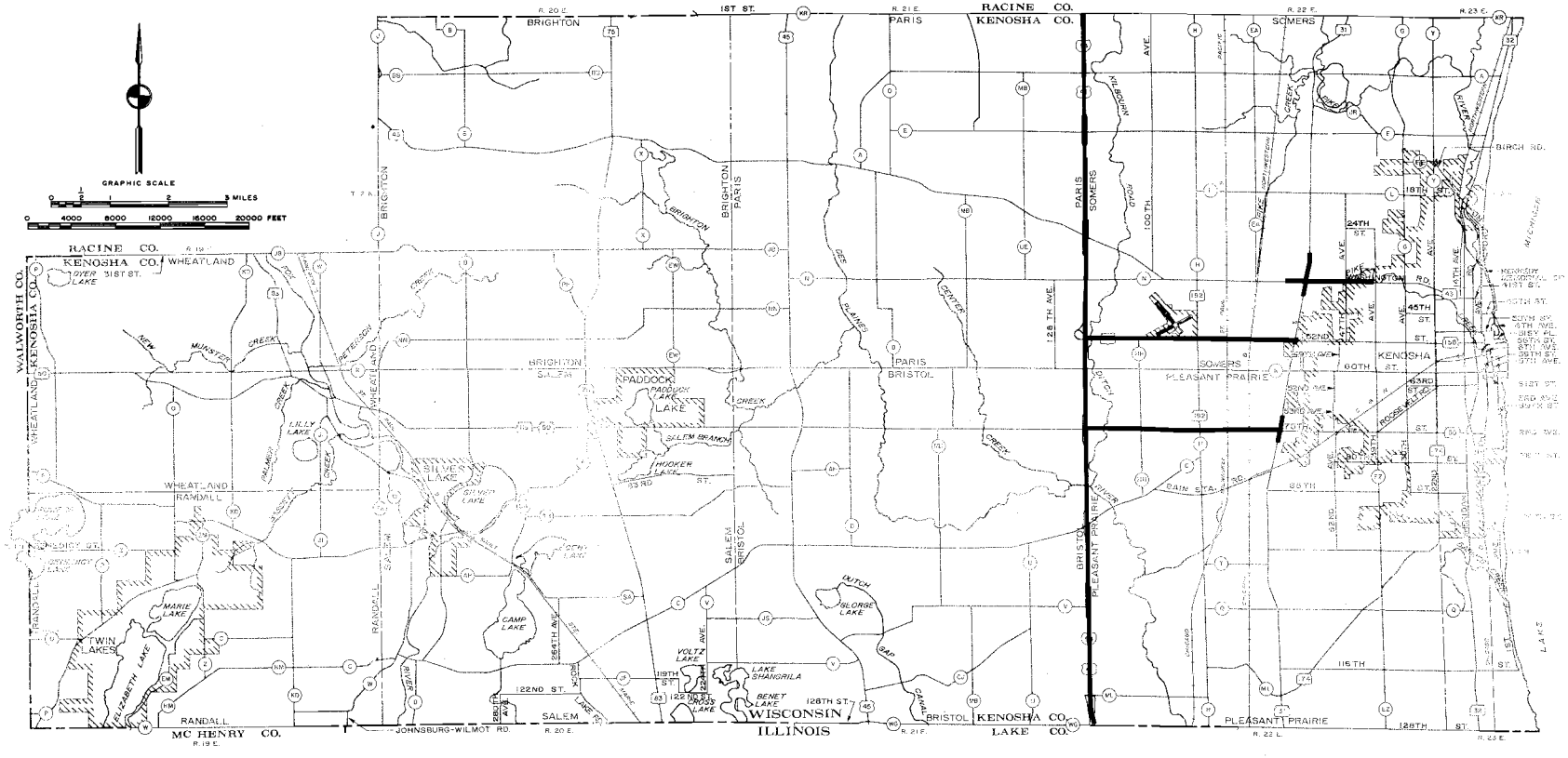
As of January 1, 1973, there were 11,914 miles of state trunk highways in Wisconsin, including 456 miles of interstate highways and 524 miles of connecting streets. In Kenosha County there were 111 miles of state trunk highways, of which 12 miles consisted of interstate highways. There were also 12 miles of connecting streets over which state trunk highways were routed (see Map 10), and 266 miles of county trunk highways (see Map 11). There were as of January 1, 1973, a total of 870 miles of streets and highways open to traffic in Kenosha County. Of this total, 283 miles, or 33 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 Kenosha 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 274 miles of federal aid routes designated within Kenosha County. Of this total, 12 miles were located on the federal aid interstate system, 68 were located on the federal aid primary system, 175 were located on the federal aid secondary system, 16 were located on the TOPICS system, and 3 miles were located on the federal aid urban system. The total federal aid system mileage open to traffic as of January 1973 was 261. Of this total, 12 miles

Map 8

## CONTROLLED-ACCESS HIGHWAYS IN KENOSHA COUNTY: 1973




LEGEND

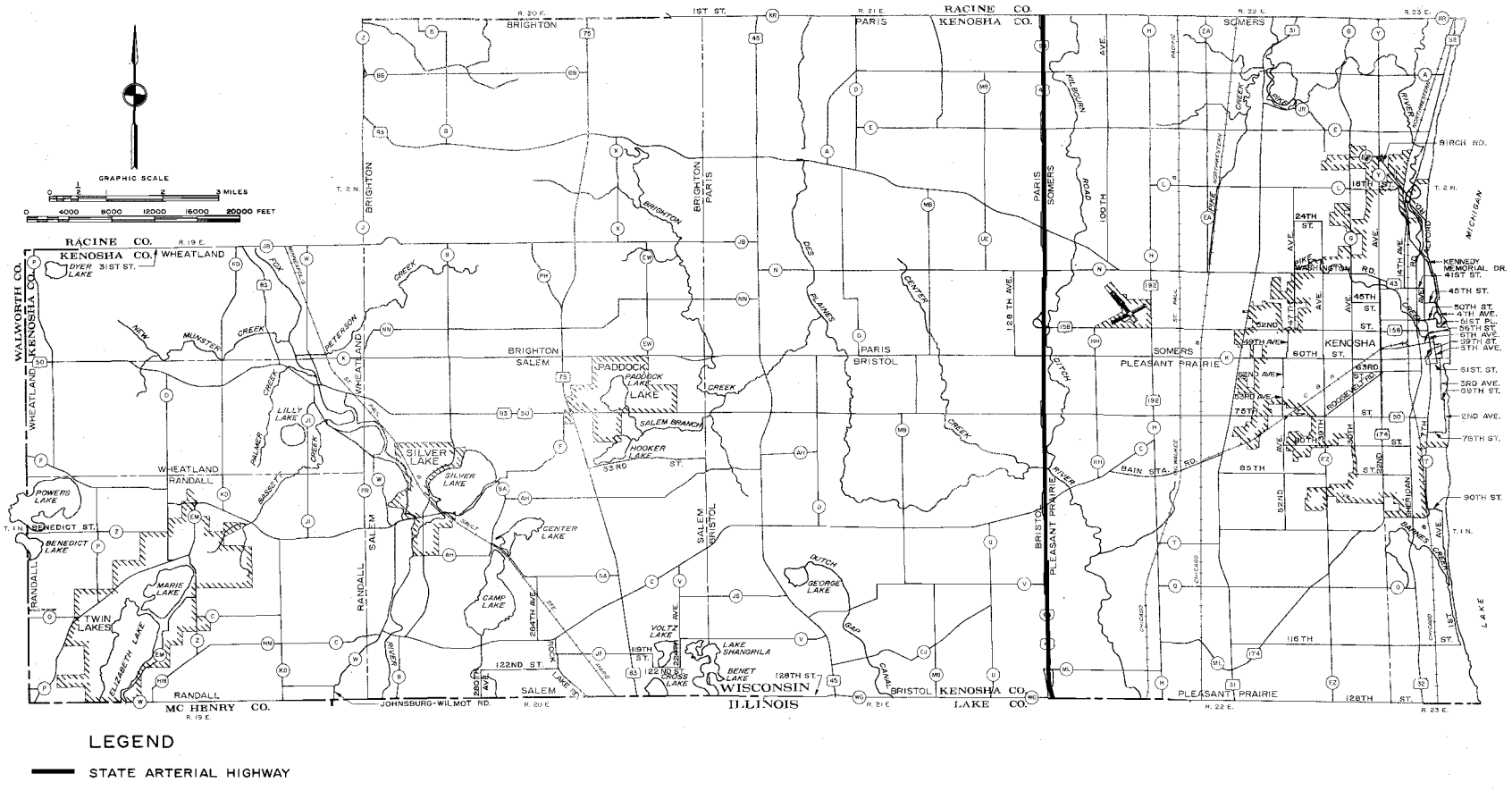
CONTROLLED ACCESS BY PURCHASE--
WISCONSIN DEPARTMENT OF TRANSPORTATION

In order to improve safety and provide a higher level of service on heavily traveled arterial highways, the Wisconsin Department of Transportation, Division of Highways, has purchased access control along 22 route miles of state trunk highways in Kenosha County.

*Source: Wisconsin Department of Transportation.*

Map 9

## DESIGNATED STATE ARTERIAL HIGHWAY SYSTEM IN KENOSHA COUNTY: 1973




LEGEND

STATE ARTERIAL HIGHWAY

In 1955 the Wisconsin Legislature provided for the creation of the state arterial system to facilitate improvement of the most important portions of the total state trunk highway system. Within Kenosha County this system includes 12 route miles of facilities from the north to the south county line along IH 94, the designated route.

*Source: Wisconsin Department of Transportation.*

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 2 1/2 miles | No | No |
| STH | 84.02(3)(a) | 2 1/2 miles or more | Yes | Yes |
| STH and 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 1971 Wisconsin Statutes.*

*Source: Wisconsin Department of Transportation and SEWRPC.*

Table 3

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

| Jurisdictional Category | Number of Miles | Percent of Total |
|---|---|---|
| State Trunk Highways | 111.43 | 39.4 |
| Connecting Streets | 11.96 | 4.2 |
| County Trunk Highways | 127.45 | 45.1 |
| Local Arterial Streets and Highways | 31.82 | 11.3 |
| Total | 282.66 | 100.0 |

*Source: SEWRPC.*

were on the federal aid interstate system, 55 miles were on the federal aid primary system, 175 miles were on the federal aid secondary system, and 19 miles were on either the TOPICS or federal aid urban systems. 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 Kenosha County are shown on Map 13. The sections on the federal aid systems which are not open to traffic are indicated by broken lines. Table 5 sets forth the designated federal aid system mileages by municipality.

## SUMMARY

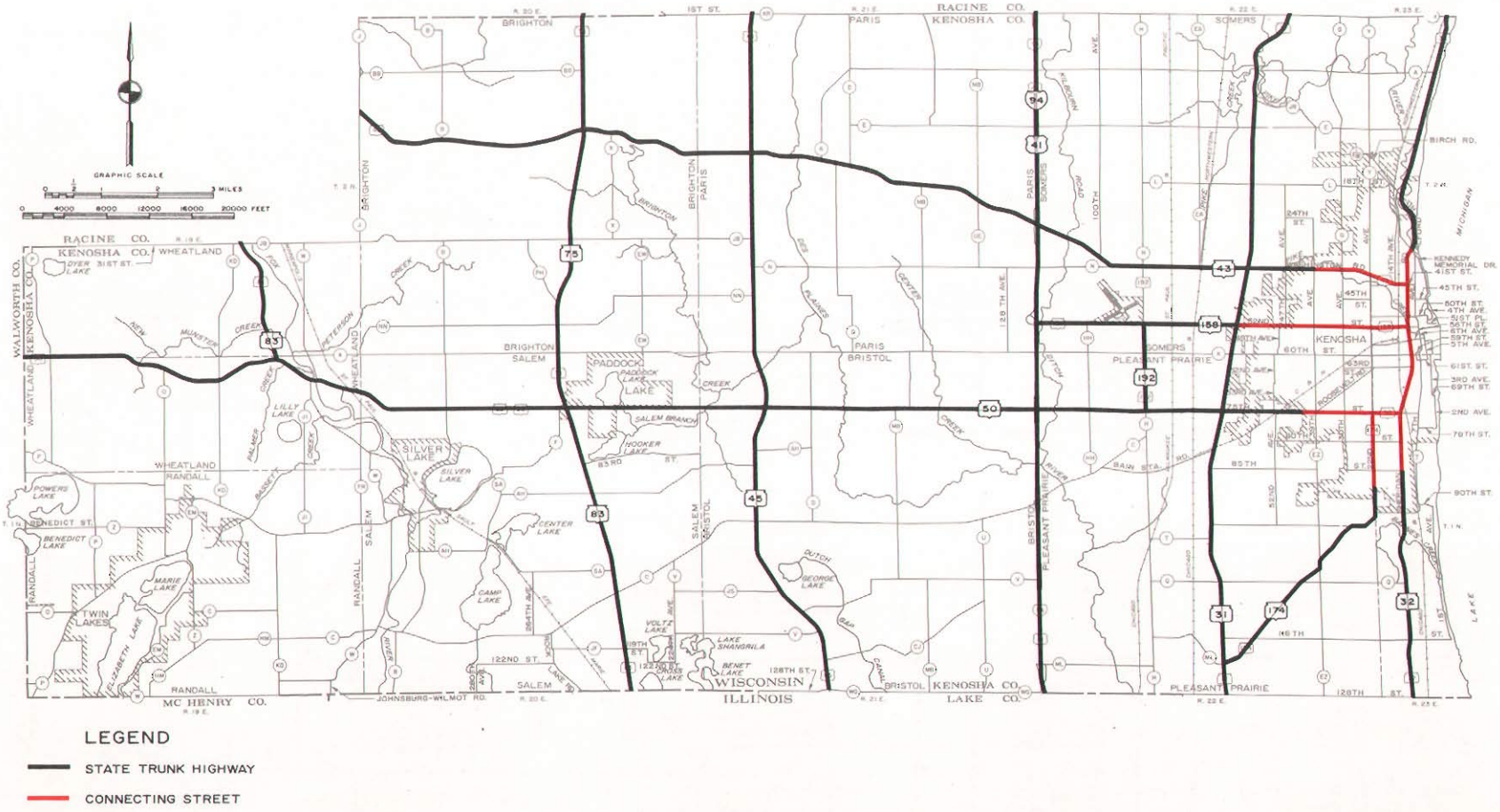
As of January 1, 1973, there were a total of 870 miles of streets and highways open to traffic within Kenosha County. Of this total, 283 miles, or 33 percent, comprised the functional arterial street and highway network. The responsibility for the design, construction, operation, and maintenance of this arterial street and highway network rested with three levels of government: the state, the county, and local municipalities. Approximately 123 miles, or 44 percent of the arterial street and highway network, was under state jurisdiction, being comprised of interstate highways, state trunk highways, and connecting streets. About 128 miles, or 45 percent, were under county jurisdiction, being comprised of county trunk highways; and about 32 miles, or 11 percent, were under city or village jurisdiction, being comprised of local arterial streets and highways.

Superimposed on the state, county, and local trunk highways and arterial streets were 274 miles of federal aid routes, of which about 12 miles, or 4 percent, consisted of federal aid interstate routes; 68 miles, or 25 percent, consisted of federal aid primary routes; 175 miles, or 64 percent, consisted of federal aid secondary routes; and 19 miles, or 7 percent, consisted of either TOPICS or federal aid urban routes.

The location and configuration of these jurisdictional highway systems and supporting aid routes were the result of a long process of historical evolution 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, by the State Highway Commission of Wisconsin and the Kenosha County Board in 1925. Many piecemeal additions and deletions have been made to these two jurisdictional highway networks since 1925. Consequently, these two important networks no longer represent fully integrated and continuous arterial highway systems capable of serving, in the most efficient manner

Map 10

## STATE TRUNK HIGHWAY AND CONNECTING STREET SYSTEM IN KENOSHA COUNTY: 1973

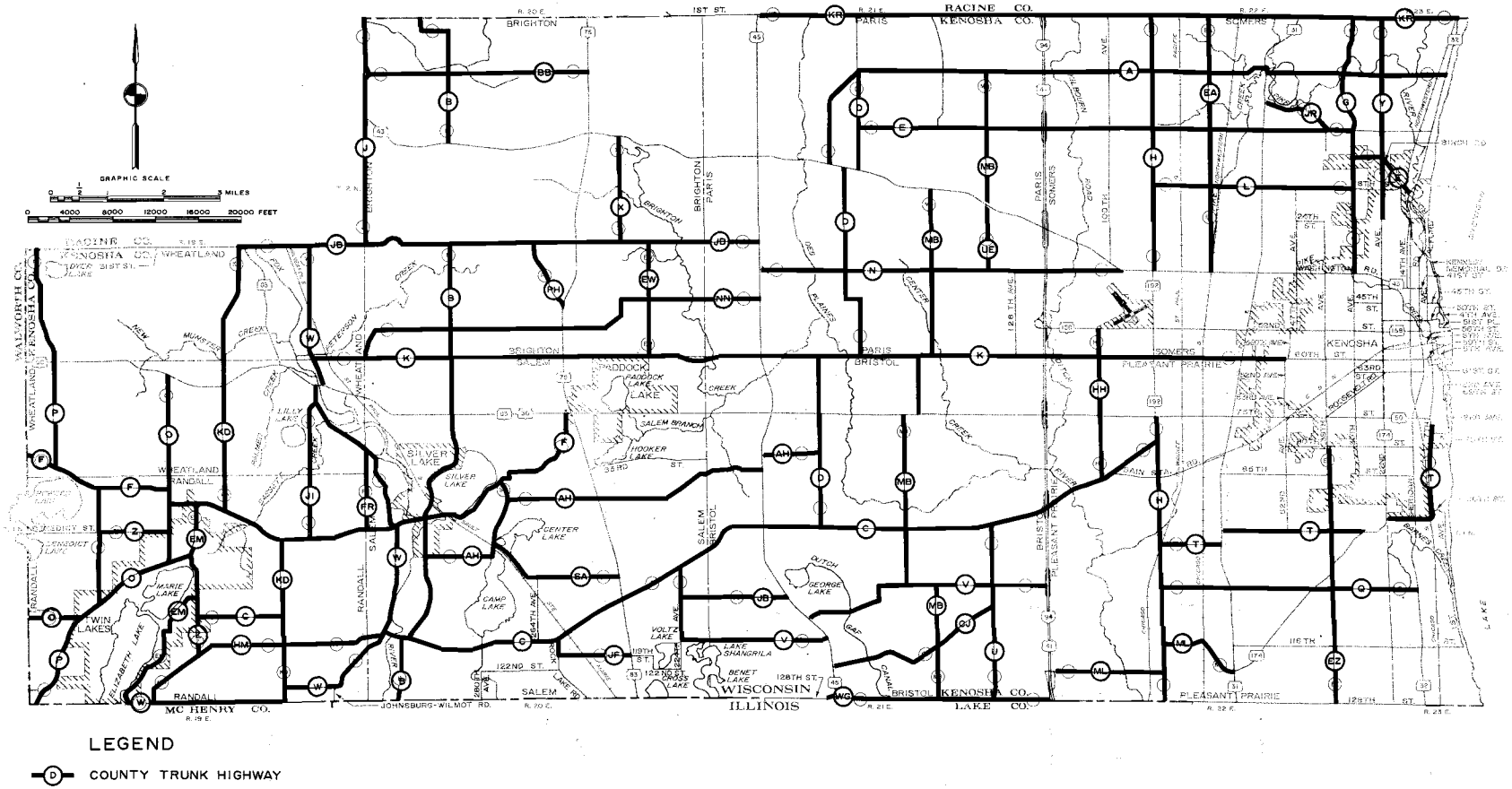



The existing system of state trunk highways and connecting streets over which state trunk highways are routed consists of about 123 miles of state trunk highways and 12 miles of connecting streets in Kenosha County.

*Source: Wisconsin Department of Transportation.*

Map 11

## COUNTY TRUNK HIGHWAY SYSTEM IN KENOSHA COUNTY: 1973

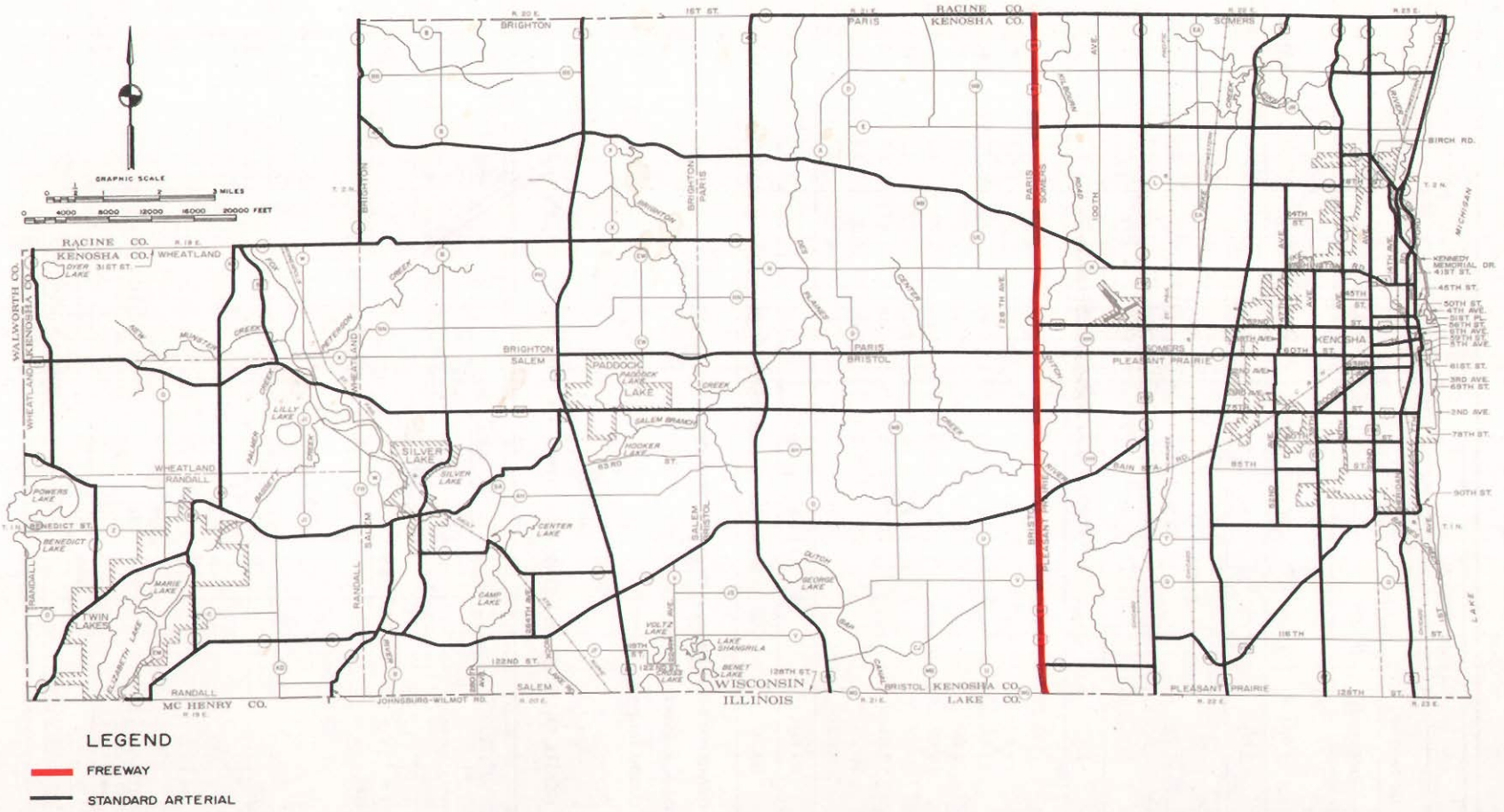



Since 1945, Kenosha County has maintained as county trunk highways a significant proportion of the "nonsubdivision" collector and land access streets located in the rural portions of the county. As a result, the existing county trunk system, although continuous outside the City of Kenosha, is comprised almost equally of arterial and nonarterial facilities. As of January 1973, there were 266 miles of county trunk highways in Kenosha County, of which 127 miles, or about 48 percent, functioned as arterial facilities. This unique historical development has necessitated special consideration in the preparation of a jurisdictional plan for Kenosha County.

*Source: Wisconsin Department of Transportation.*

Map 12

## ARTERIAL STREET AND HIGHWAY SYSTEM IN KENOSHA COUNTY: 1973




The 283 miles of streets and highways shown on this map comprise the existing arterial street and highway system in Kenosha County. Of this total, 123 are state trunk highways and connecting streets, 128 miles are county trunk highways, and 32 miles are local streets and highways.

*Source: SEWRPC.*

**Table 4**

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

| Civil Division | Existing Arterials (Miles) | | | | | | Existing Nonarterials (Miles) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | State Trunk Highway | | Connecting Street | County Trunk Highway | Local Trunk Highway | Subtotal | County Trunk Highway | Local Trunk Highway[a] | Subtotal | Total[b] |
| | Freeway | Nonfreeway | | | | | | | | |
| City | | | | | | | | | | |
| Kenosha | -- | 3.96 | 11.96 | 3.55 | 24.89 | 44.36 | -- | 181.50 | 181.50 | 225.86 |
| Subtotal | -- | 3.96 | 11.96 | 3.55 | 24.89 | 44.36 | -- | 181.50 | 181.50 | 225.86 |
| Villages | | | | | | | | | | |
| Paddock Lake | -- | 1.72 | -- | 0.68 | -- | 2.40 | -- | 13.96 | 13.96 | 16.36 |
| Silver Lake | -- | -- | -- | 2.96 | -- | 2.96 | -- | 10.49 | 10.49 | 13.45 |
| Twin Lakes | -- | -- | -- | 5.59 | -- | 5.59 | 4.10 | 22.94 | 27.04 | 32.63 |
| Subtotal | -- | 1.72 | -- | 9.23 | -- | 10.95 | 4.10 | 47.39 | 51.49 | 62.44 |
| Towns | | | | | | | | | | |
| Brighton | -- | 12.43 | -- | 9.10 | -- | 21.53 | 22.29 | 14.51 | 36.80 | 58.33 |
| Bristol | 3.02 | 12.48 | -- | 9.40 | -- | 24.90 | 27.75 | 20.69 | 48.44 | 73.34 |
| Paris | 3.01 | 12.26 | -- | 6.30 | -- | 21.57 | 26.20 | 6.16 | 32.36 | 53.93 |
| Pleasant Prairie | 3.03 | 19.02 | -- | 20.51 | 3.45 | 46.01 | 7.80 | 63.70 | 71.50 | 117.51 |
| Randall | -- | -- | -- | 13.22 | 0.25 | 13.47 | 12.19 | 13.81 | 26.00 | 39.47 |
| Salem | -- | 10.61 | -- | 19.74 | 1.13 | 31.48 | 14.87 | 52.72 | 67.59 | 99.07 |
| Somers | 3.01 | 18.25 | -- | 26.44 | 2.10 | 49.80 | 14.86 | 27.72 | 42.58 | 92.38 |
| Wheatland | -- | 8.63 | -- | 9.96 | -- | 18.59 | 8.31 | 20.76 | 29.07 | 47.66 |
| Subtotal | 12.07 | 93.68 | -- | 114.67 | 6.93 | 227.35 | 134.27 | 220.07 | 354.34 | 581.69 |
| Total | 12.07 | 99.36 | 11.96 | 127.45 | 31.82 | 282.66 | 138.37 | 448.96 | 587.33 | 869.99 |

[a] *The mileage figures for town roads reflect net pay mileage, with intersections deducted.*

[b] *The total mileages do not include national forest, state park and forest, or county forest roads.*

*Source: Wisconsin Department of Transportation and SEWRPC.*

**Table 5**

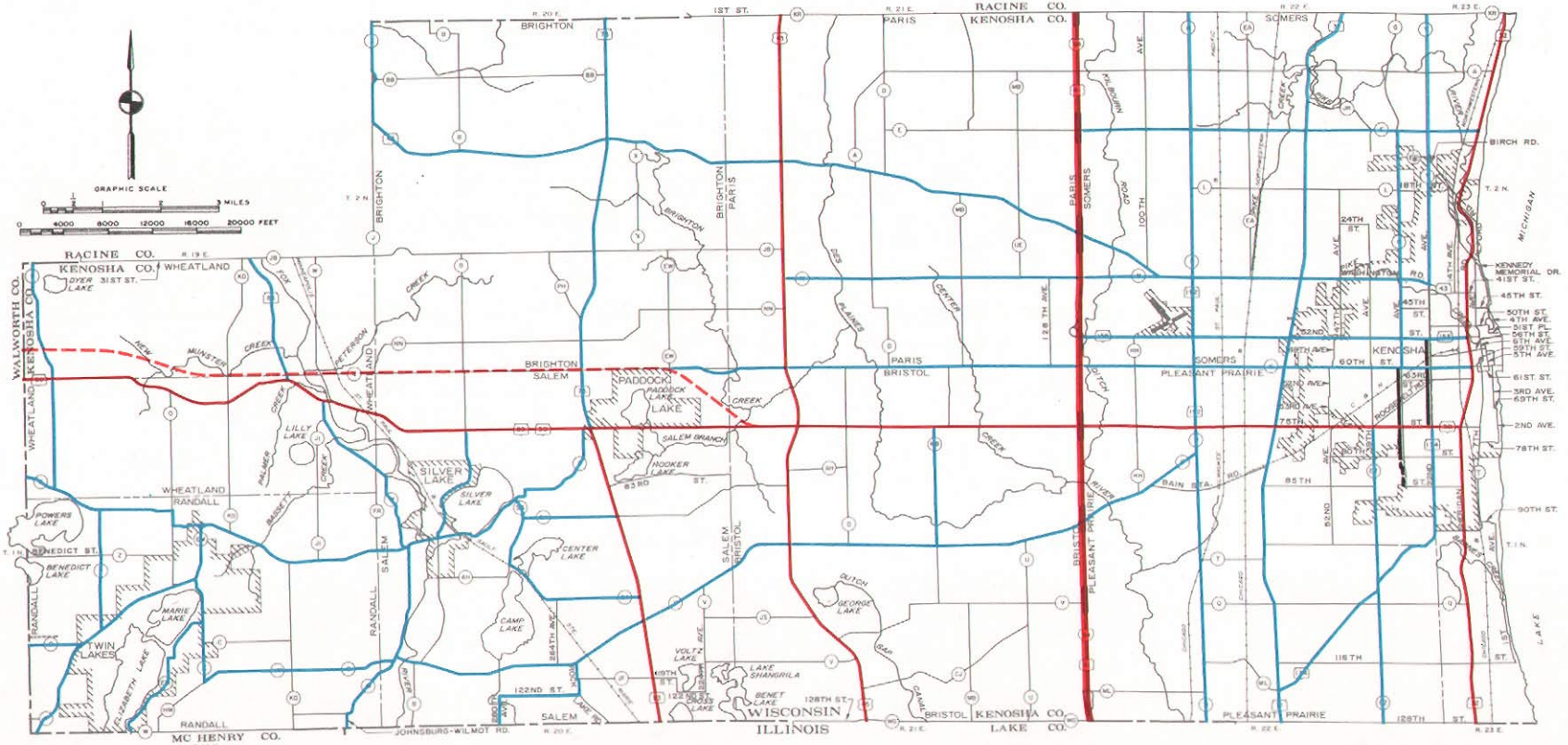
**FEDERAL AID ROUTE MILEAGE IN KENOSHA COUNTY BY CIVIL DIVISION: JANUARY 1973**

| Civil Division | Federal Aid Interstate Route Mileage Open To Traffic | Federal Aid Primary | | | | | | Federal Aid Secondary | | | | | Federal Aid Urban | | | | TOPICS | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | State Trunk Highway | | Connecting Street | County Trunk Highway | Local Street | Subtotal | State Trunk Highway | Connecting Street | County Trunk Highway | Local Street | Subtotal | Connecting Street | County Trunk Highway | Local Street | Subtotal | | |
| | | Officially Designated | Open To Traffic | | | | | | | | | | | | | | | |
| City | | | | | | | | | | | | | | | | | | |
| Kenosha | -- | -- | 2.46 | 5.72 | -- | -- | 8.18 | 1.50 | 6.05 | 2.82 | 6.22 | 16.59 | -- | -- | 3.00 | 3.00 | 15.09 | 42.86 |
| Subtotal | -- | -- | 2.46 | 5.72 | -- | -- | 8.18 | 1.50 | 6.05 | 2.82 | 6.22 | 16.59 | -- | -- | 3.00 | 3.00 | 15.09 | 42.86 |
| Villages | | | | | | | | | | | | | | | | | | |
| Paddock Lake | -- | 0.49 | 1.53 | -- | -- | -- | 2.02 | 0.19 | -- | 0.68 | -- | 0.87 | -- | -- | -- | -- | -- | 2.89 |
| Silver Lake | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2.14 | -- | 2.14 | -- | -- | -- | -- | -- | 2.14 |
| Twin Lakes | -- | -- | -- | -- | -- | -- | -- | -- | -- | 9.10 | -- | 9.10 | -- | -- | -- | -- | -- | 9.10 |
| Subtotal | -- | 0.49 | 1.53 | -- | -- | -- | 2.02 | 0.19 | -- | 11.92 | -- | 12.11 | -- | -- | -- | -- | -- | 14.13 |
| Towns | | | | | | | | | | | | | | | | | | |
| Brighton | -- | 2.52 | -- | -- | -- | -- | 2.52 | 12.43 | -- | 1.85 | -- | 14.28 | -- | -- | -- | -- | -- | 16.80 |
| Bristol | 3.02 | -- | 12.48 | -- | -- | -- | 12.48 | -- | -- | 11.40 | -- | 11.40 | -- | -- | -- | -- | -- | 26.90 |
| Paris | 3.01 | -- | 5.99 | -- | -- | -- | 5.99 | 6.27 | -- | 7.89 | -- | 14.16 | -- | -- | -- | -- | -- | 23.16 |
| Pleasant Prairie | 3.03 | -- | 7.67 | -- | -- | -- | 7.67 | 11.35 | -- | 13.22 | -- | 24.57 | -- | -- | -- | -- | 0.75 | 36.02 |
| Randall | -- | -- | -- | -- | -- | -- | -- | -- | -- | 13.85 | 0.67 | 14.52 | -- | -- | -- | -- | -- | 14.52 |
| Salem | -- | 3.45 | 9.78 | -- | -- | -- | 13.23 | 0.83 | -- | 21.61 | 2.15 | 24.59 | -- | -- | -- | -- | -- | 37.82 |
| Somers | 3.01 | -- | 3.01 | -- | -- | -- | 3.01 | 15.24 | -- | 18.69 | -- | 33.93 | -- | -- | -- | -- | 0.46 | 40.41 |
| Wheatland | -- | 6.25 | 6.35 | -- | -- | -- | 12.60 | 2.28 | -- | 6.30 | 0.20 | 8.78 | -- | -- | -- | -- | -- | 21.38 |
| Subtotal | 12.07 | 12.22 | 45.28 | -- | -- | -- | 57.50 | 48.40 | -- | 94.81 | 3.02 | 146.23 | -- | -- | -- | -- | 1.21 | 217.01 |
| Total | 12.07 | 12.71 | 49.27 | 5.72 | -- | -- | 67.70 | 50.09 | 6.05 | 109.55 | 9.24 | 174.93 | -- | -- | 3.00 | 3.00 | 16.30 | 274.00 |

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

Map 13

## FEDERAL AID HIGHWAY SYSTEMS IN KENOSHA COUNTY: 1973




Highways designated as part of the federal aid highway systems are eligible for federal aids in partial support of improvements. There are presently 274 miles of federal aid routes designated within Kenosha County, including 80 miles on the federal aid primary system and 175 miles on the federal aid secondary system. The primary system includes portions of IH 94, USH 41, USH 45, STH 32, STH 50, STH 75, and STH 83. The secondary system includes portions of STH 31, STH 43, STH 75, STH 83, STH 174, STH 192, and several county trunk highways.

*Source: Wisconsin Department of Transportation.*

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 are also in need of revision.

It is, therefore, appropriate at this time to study and analyze the jurisdictional highway systems within Kenosha County, and guided by the functional transportation system plan prepared by the Southeastern Wisconsin Regional Planning Commission and adopted by the Highway Commission of Wisconsin and the Kenosha 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 Kenosha County.

## 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 South-

eastern 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 Kenosha 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 Kenosha County. It is, therefore, proposed that all segments of the total (existing and proposed) arterial street and highway system be classified into one of the 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 arterial highway facilities in the rural areas of Kenosha 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 5 miles (see Figure 6) and would have an average trip length range of from 0 to 5 miles. This fact, together with the fact that an analysis of origin-destination data for Kenosha County indicated that 78 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 Kenosha 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 Kenosha County should be assigned to either the state trunk or 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 areas 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 with relatively long trip lengths and low traffic volumes, nevertheless require good arterial highway facilities to remain economically productive and competitive.

In Kenosha 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 Kenosha urbanized area, essentially that part of Kenosha County lying east of IH 94 and known as the Kenosha 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 important to note, then, that the definitions of the terms "urban" and "rural" as applied to arterial highway facilities with respect to these two criteria relate 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

**Table 6**

**AVERAGE TRIP LENGTH CRITERIA FOR ARTERIAL SUBCLASSIFICATION**

| Arterial Type | Average Trip Length (Miles) | |
|---|---|---|
| | Urban | Rural |
| I (State Trunk) . . . | 20.0 or More | 50.0 or More |
| II (County Trunk) . . | 10.0 to 19.9 | Less than 50.0 |
| III (Local Trunk) . . . | Less than 10.0 | -- |

*Source: SEWRPC.*

[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.*

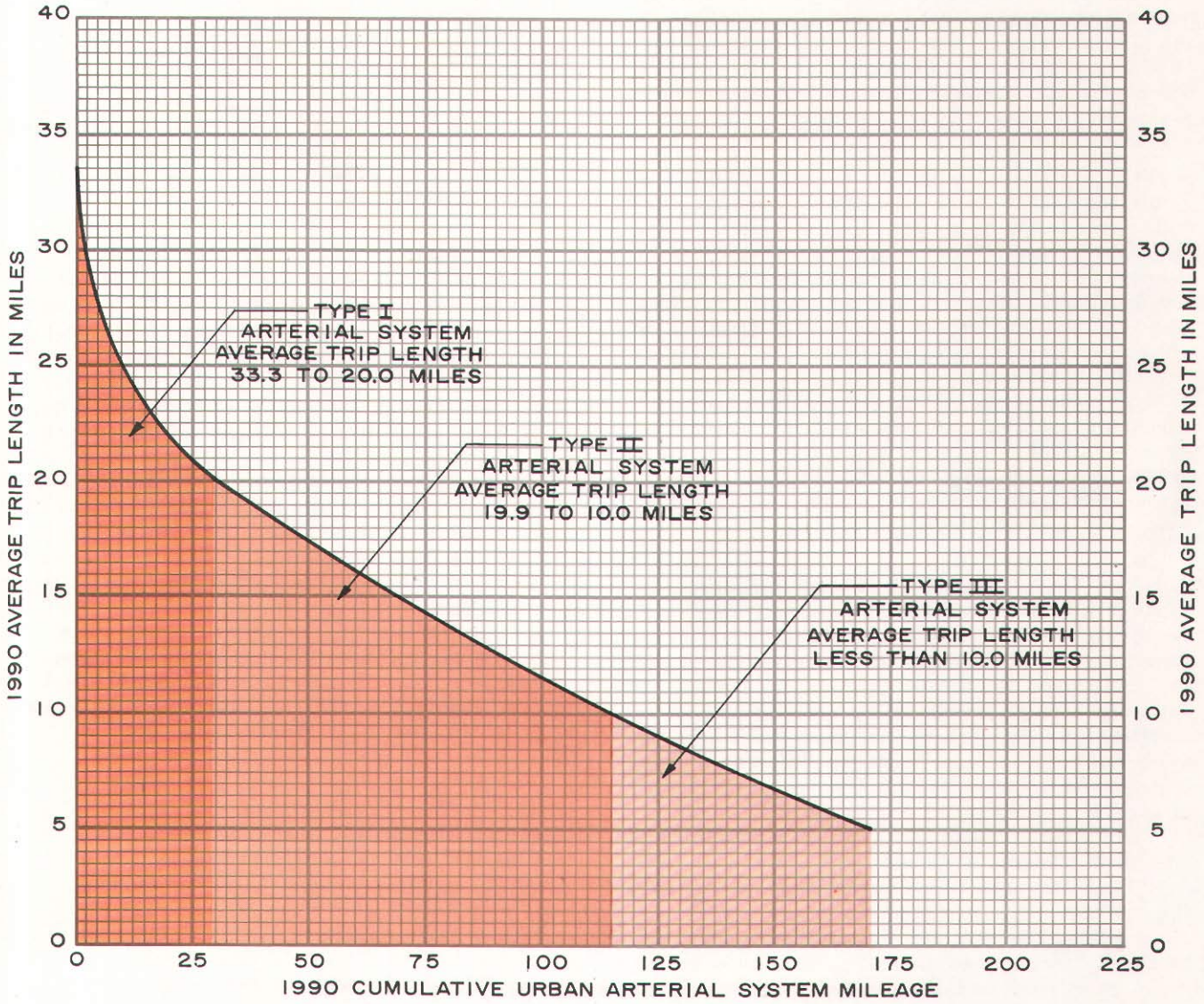
[2] *A traffic analysis zone consists of a homogeneous grouping of trip generation activities, such as a residential neighborhood unit, a regional shopping center, or a contiguous industrial area. Such a zone is shown on the arterial network diagram by a centroid representing the point where trips generated 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 5

RELATIONSHIP BETWEEN AVERAGE TRIP LENGTH AND CUMULATIVE URBAN ARTERIAL MILEAGE
KENOSHA COUNTY JURISDICTIONAL HIGHWAY SYSTEM: 1990




*Source: SEWRPC.*

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.

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:

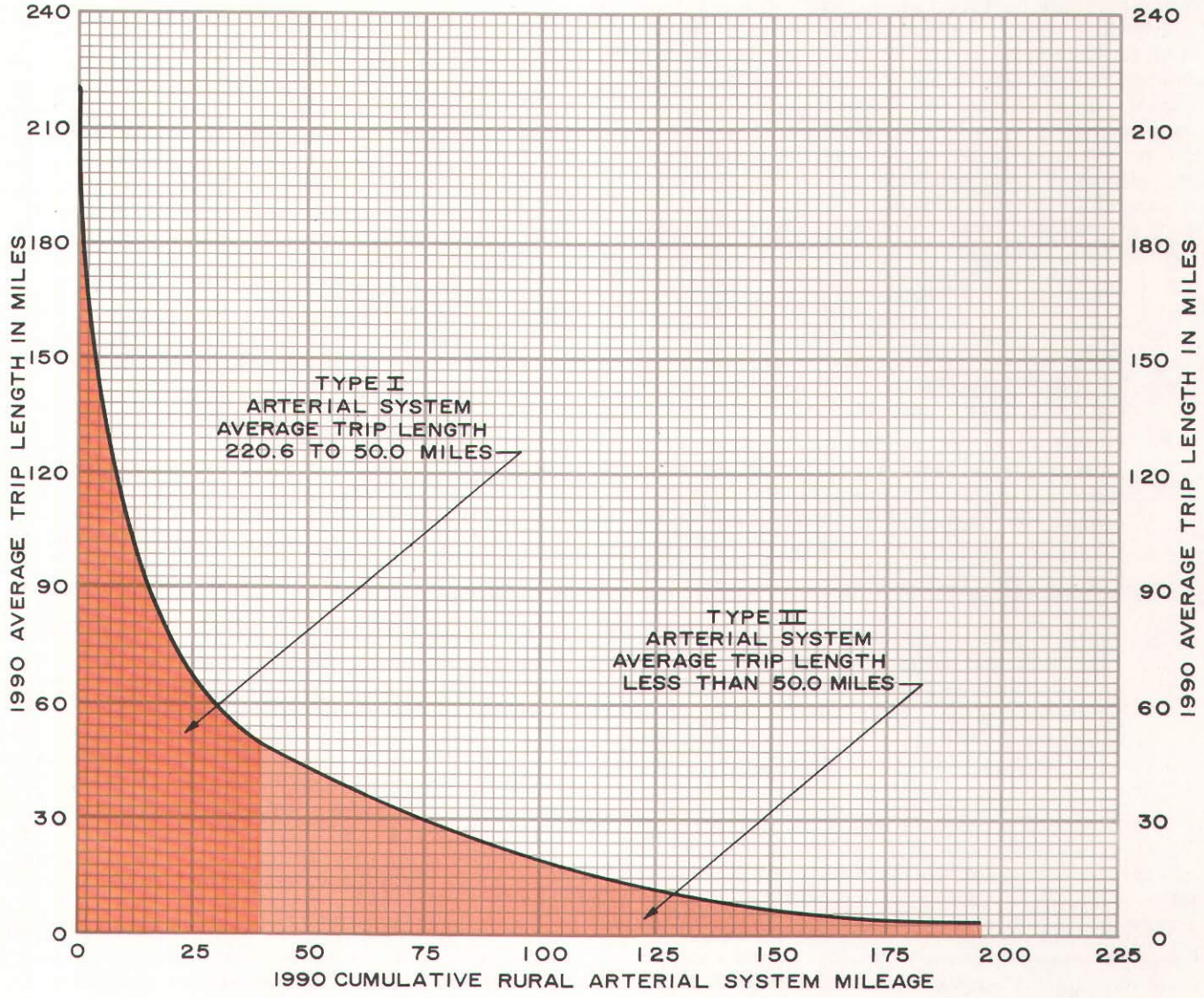
Type I Arterials—Urban and Rural

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 from 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

Figure 6

RELATIONSHIP BETWEEN AVERAGE TRIP LENGTH AND CUMULATIVE RURAL ARTERIAL MILEAGE
KENOSHA COUNTY JURISDICTIONAL HIGHWAY SYSTEM: 1990




*Source: SEWRPC.*

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 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 is available within a maximum over-the-road distance of one mile of the main vehicular entrance to the land use to be served.

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 Kenosha 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, rail 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 50 or more truck trips per average weekday, and off-street parking facilities having a minimum of 150 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 recreation 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] and special recreational use areas of local significance 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]

---

[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 transshipment of goods.*

[6] *A major interregional truck terminal shall be defined as a complex of contiguous, concentrated land uses generating 50 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 truck-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 50 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, 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, 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, village, and town 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 2,500 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 Kenosha 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 levels.

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.

---

[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.*

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 Kenosha 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 Kenosha County jurisdictional highway planning study.

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 Kenosha County as 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

Table 7

TRAFFIC VOLUME CRITERIA FOR ARTERIAL SUBCLASSIFICATION

| Arterial Type | Average Weekday Traffic Volume (Vehicles) | |
|---|---|---|
| | Urban | Rural |
| I (State Trunk) . . . | 13,500 or More | 6,300 or More |
| II (County Trunk) . . | 6,300 to 13,499 | Less than 6,300 |
| III (Local Trunk) . . . | Less than 6,300 | -- |

*Source: SEWRPC.*

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

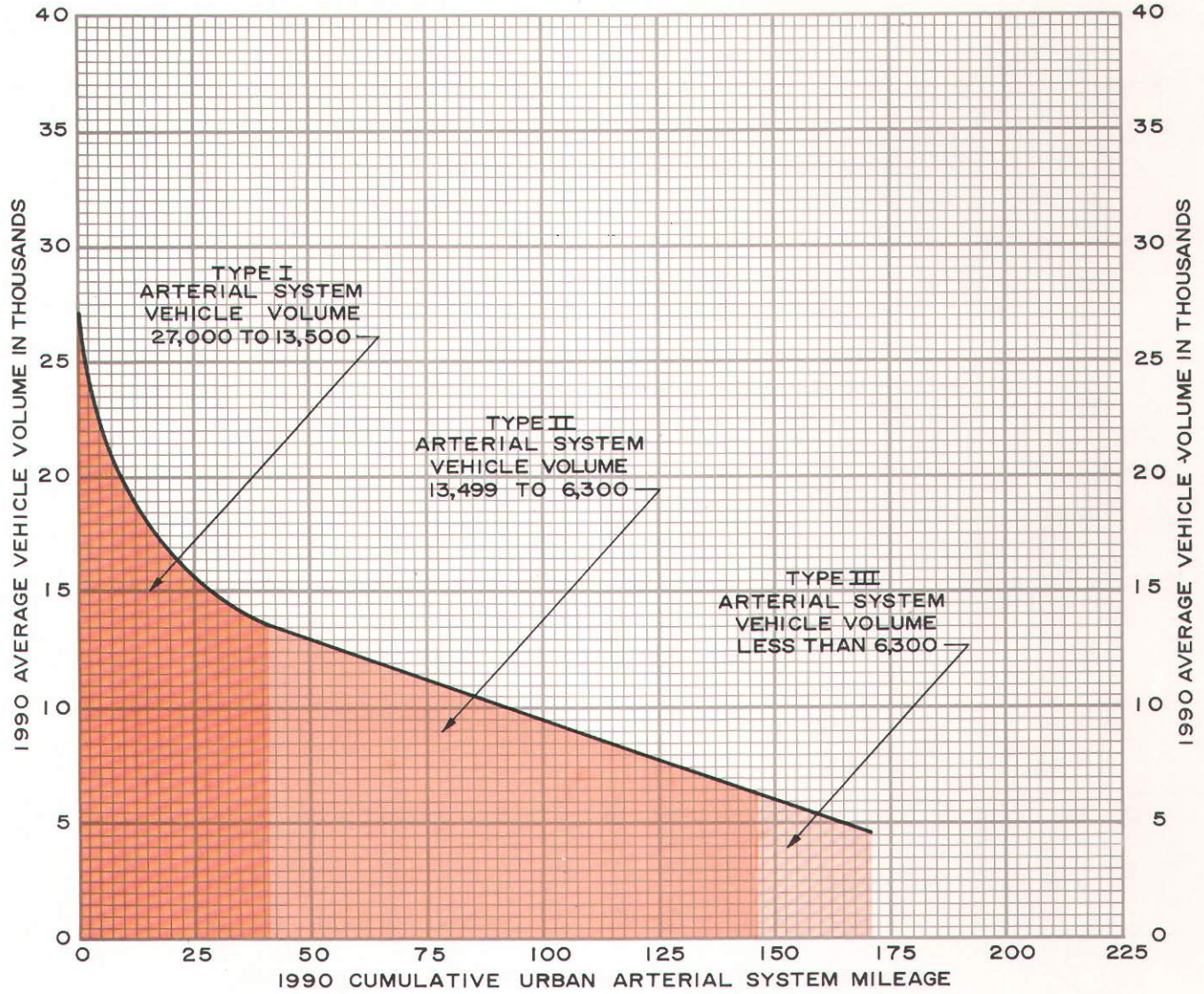
Traffic mobility criteria for a functional subclassification of arterials could be established in terms of speed, volume-to-capacity ratios, or other measures of traffic density. In recognition of the fact that the longer the trip the more critical the time of travel, however, it is an accepted practice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

Figure 7

RELATIONSHIP BETWEEN AVERAGE WEEKDAY VEHICLE VOLUME AND CUMULATIVE URBAN ARTERIAL MILEAGE
KENOSHA COUNTY JURISDICTIONAL HIGHWAY PLAN: 1990




*Source: SEWRPC.*

Type I Arterials—Urban and Rural
All Type I arterials shall have full or partial control of access.[18,19]

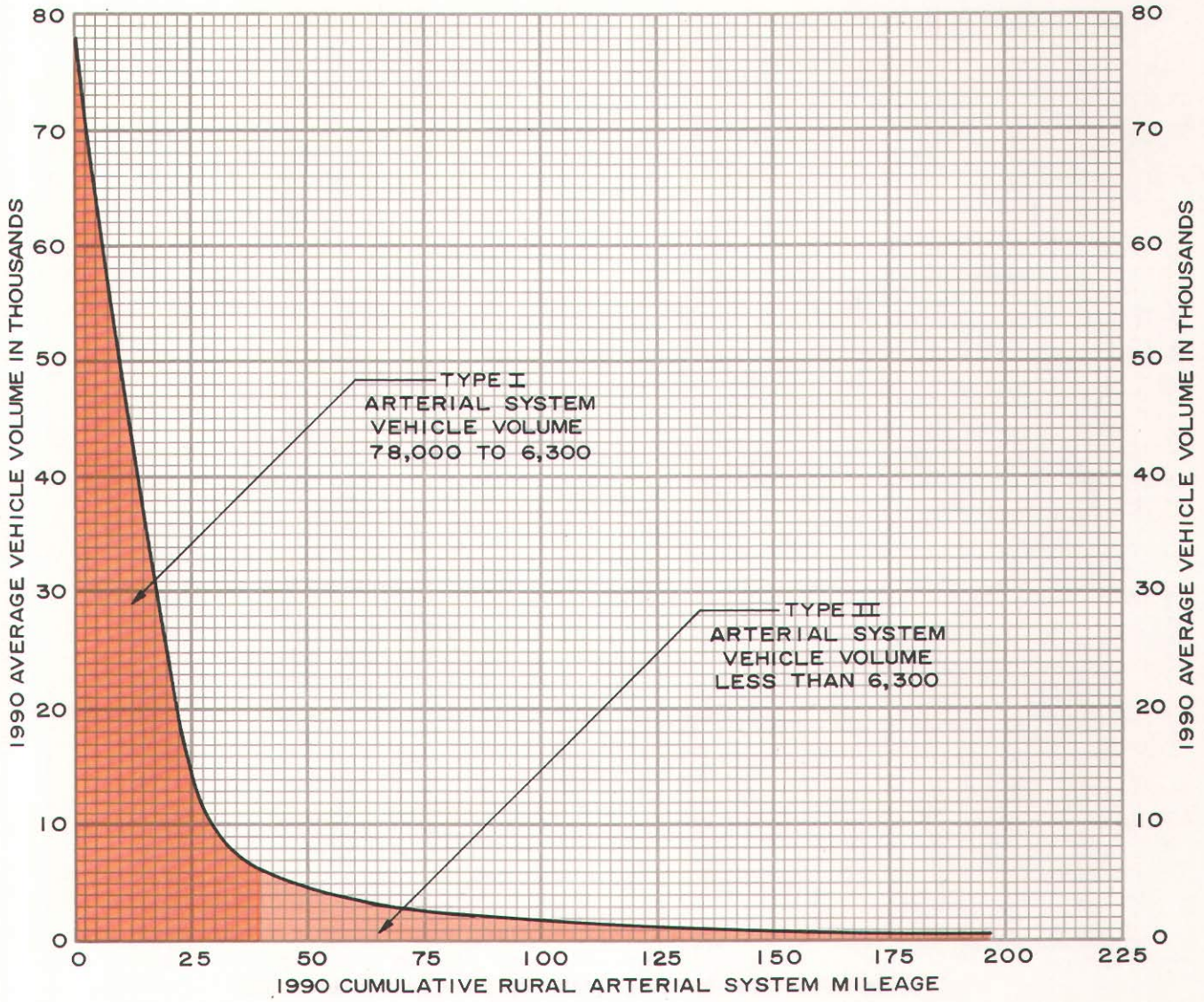
Type II Arterials—Urban and Rural
All Type II arterials shall have at least partial control of access.[19]

[18] *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 movement of through traffic by providing access connections only at selected public roads via grade-separated interchanges.*

[19] *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.*

Figure 8

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




*Source: SEWRPC.*

Type III Arterials—Urban
All Type III arterials shall have at least minimum control of access.[20]

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

[20] *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.*

## 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 be indicated by type classification alone. It must

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.*

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 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 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 Kenosha County.

It is proposed that all segments of the total (existing and proposed) arterial street and highway system in Kenosha 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 Kenosha County is primarily of an intercommunity nature, the Technical and Intergovernmental Coordinating and Advisory Committee was of the opinion that town governments in Kenosha 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, travel on urban arterial facilities in the western two-thirds of Kenosha County includes travel between the relatively small urban communities in this part of the county, the surrounding rural areas, and the Kenosha urbanized area, of which the eastern one-third of the county is a part. 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.

Table 9

## SUMMARY OF FUNCTIONAL CRITERIA FOR JURISDICTIONAL CLASSIFICATION OF ARTERIAL HIGHWAYS IN KENOSHA COUNTY

| | Criteria | Arterial Type | | |
|---|---|---|---|---|
| | | I (State Trunk) | II (County Trunk) | III (Local Trunk)[a] |
| TRIP SERVICE | Average Trip Length (Miles) | Urban<br>20.0 or More<br>Rural<br>50.0 or More | Urban<br>10.0 to 19.9<br>Rural<br>Less than 50.0 | Urban<br>Less than 10.0<br>-- |
| LAND USE SERVICE | Transportation Terminals | Urban[b] and Rural[c]<br>Connect and serve interregional rail, bus, and major truck terminals; air carrier airports; and seaports. | Urban[b] and Rural[c]<br>Connect and serve freeway interchanges, general aviation airports, pipeline terminals, rail 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]<br>Connect and serve truck terminals generating 50 or more truck trips per average weekday, and off-street parking facilities having a minimum of 150 parking spaces not served by Type I and II arterials. |
| | Recreational Facilities | Urban and Rural<br>Connect and serve all state parks having a gross area of 500 acres or more. | Urban and Rural<br>Connect and serve regional parks and special recreational use areas of countywide significance. | Urban<br>Connect and serve community parks and special recreational use areas of local significance not served by Type I and II arterials. |
| | Commercial Centers | Urban and Rural<br>Connect and serve major retail and service centers. | Urban and Rural<br>Connect and serve community retail and service centers not served by Type I arterials. | Urban<br>Connect and serve neighborhood retail and service commercial centers not served by Type I and II arterials. |
| | Industrial Centers | Urban and Rural<br>Connect and serve major regional industrial centers. | Urban and Rural<br>Connect and serve major community industrial centers not served by Type I arterials. | Urban<br>Connect and serve minor community industrial centers not served by Type I and II arterials. |
| | Institutional | Urban and Rural<br>Connect and serve universities, county seats, and state institutions. | Urban and Rural<br>Connect and serve county institutions; accredited, degree-granting colleges; public vocational schools; and community hospitals not served by Type I arterials. | Urban<br>Connect and serve city, village, and town halls and high schools not served by Type I and II arterials. |
| | Urban Areas | Rural<br>Connect and serve urban areas of 2,500 or more population. | Rural<br>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)[a] |
| OPERATIONAL CHARACTERISTICS | System Continuity | Urban and Rural<br>Interregional or regional continuity comprising total systems at the regional and state levels. | Urban and Rural<br>Intermunicipality and intercounty continuity comprising integrated systems at the county level. | Urban<br>Intracommunity continuity comprising an integrated system at the city or village level. |
| | Spacing | Urban and Rural<br>Minimum 2 miles. | Urban and Rural<br>Minimum 1 mile. | Urban<br>Minimum 0.5 mile. |
| | Volume | Urban<br>Minimum 13,500 vehicles per average weekday (1990 forecast).<br>Rural<br>Minimum 6,300 vehicles per average weekday (1990 forecast). | Urban<br>6,300 to 13,499 vehicles per average weekday (1990 forecast).<br>Rural<br>Maximum 6,300 vehicles per average weekday (1990 forecast). | Urban<br>Less than 6,300 vehicles per average weekday (1990 forecast).<br>-- |
| | Traffic Mobility | Urban<br>Average overall travel speed[d] 30 to 70 miles per hour.<br>Rural<br>Average overall travel speed 40 to 70 miles per hour. | Urban<br>Average overall travel speed[d] 25 to 50 miles per hour.<br>Rural<br>Average overall travel speed 30 to 60 miles per hour. | Urban<br>Average overall travel speed[d] 20 to 40 miles per hour.<br>-- |
| | Land Access Control | Urban and Rural<br>Full or partial control of access.[e,f] | Urban and Rural<br>Partial control of access.[f] | Urban<br>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; and 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; and 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.*

(This page intentionally left blank)

## 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 Kenosha 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 Kenosha 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 Kenosha 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, those 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 to incorporate the effects of any changes in land use and highway system development which had occurred within Kenosha 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 Kenosha 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.

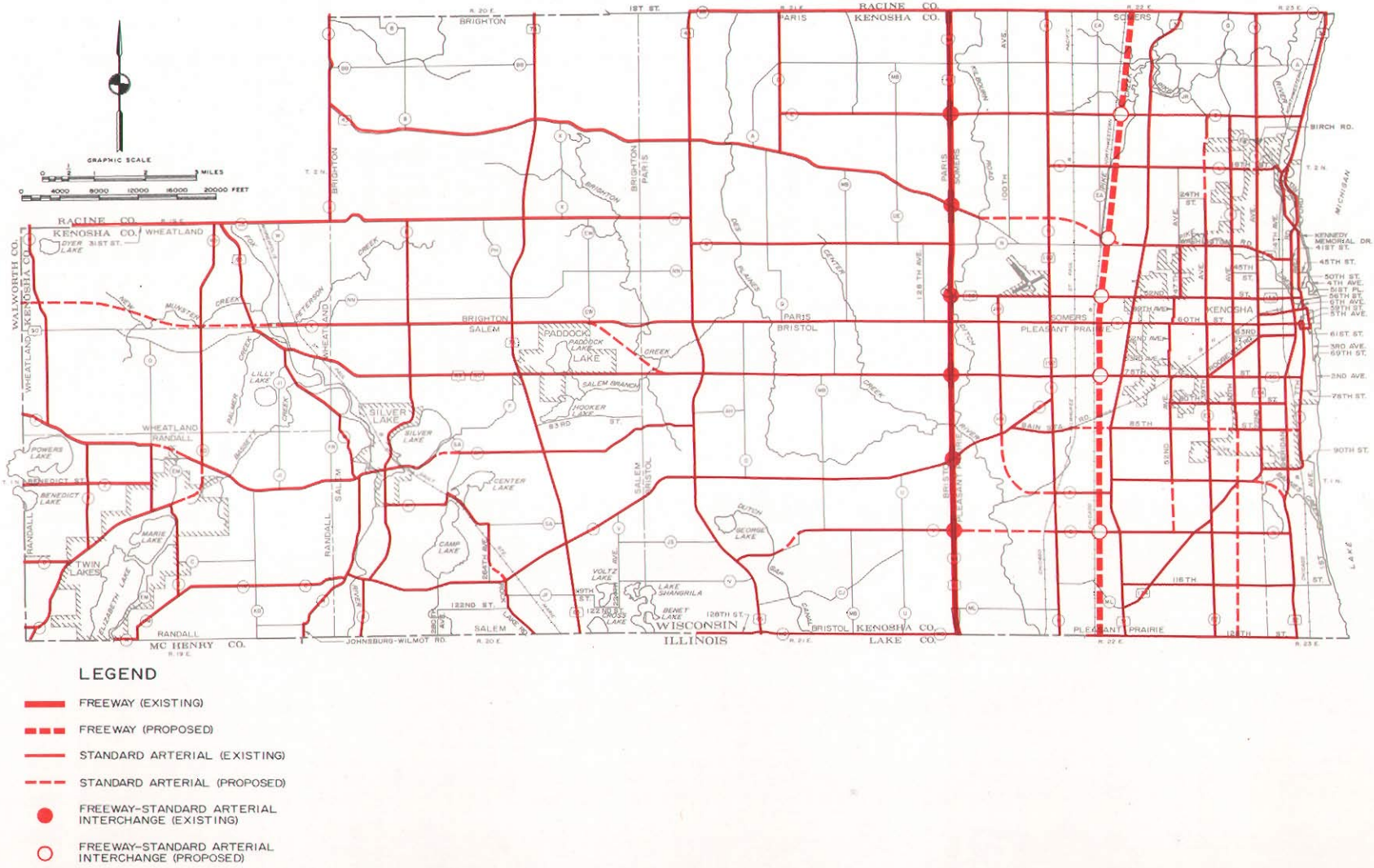
In the development of the trip service subsystems, the average trip length which could be expected to occur on each link was calculated in the manner previously described in Chapter IV of this report. Using the calculated trip length data, each link was classified as a Type I, Type II, or Type III arterial 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.

It should be noted that the average trip length for those arterial facilities which cross the southern boundary of Kenosha County were increased subsequent to a review of the 1963 travel survey data. These adjustments were deemed necessary to reflect that portion of the trips on these arterials which involves out-of-Region travel, thus providing a more accurate representation of the trip service provided by those arterial facilities carrying travel into and out of the Region.

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 facili-

Map 14

## ARTERIAL STREET AND HIGHWAY SYSTEM IN KENOSHA COUNTY: 1990




LEGEND

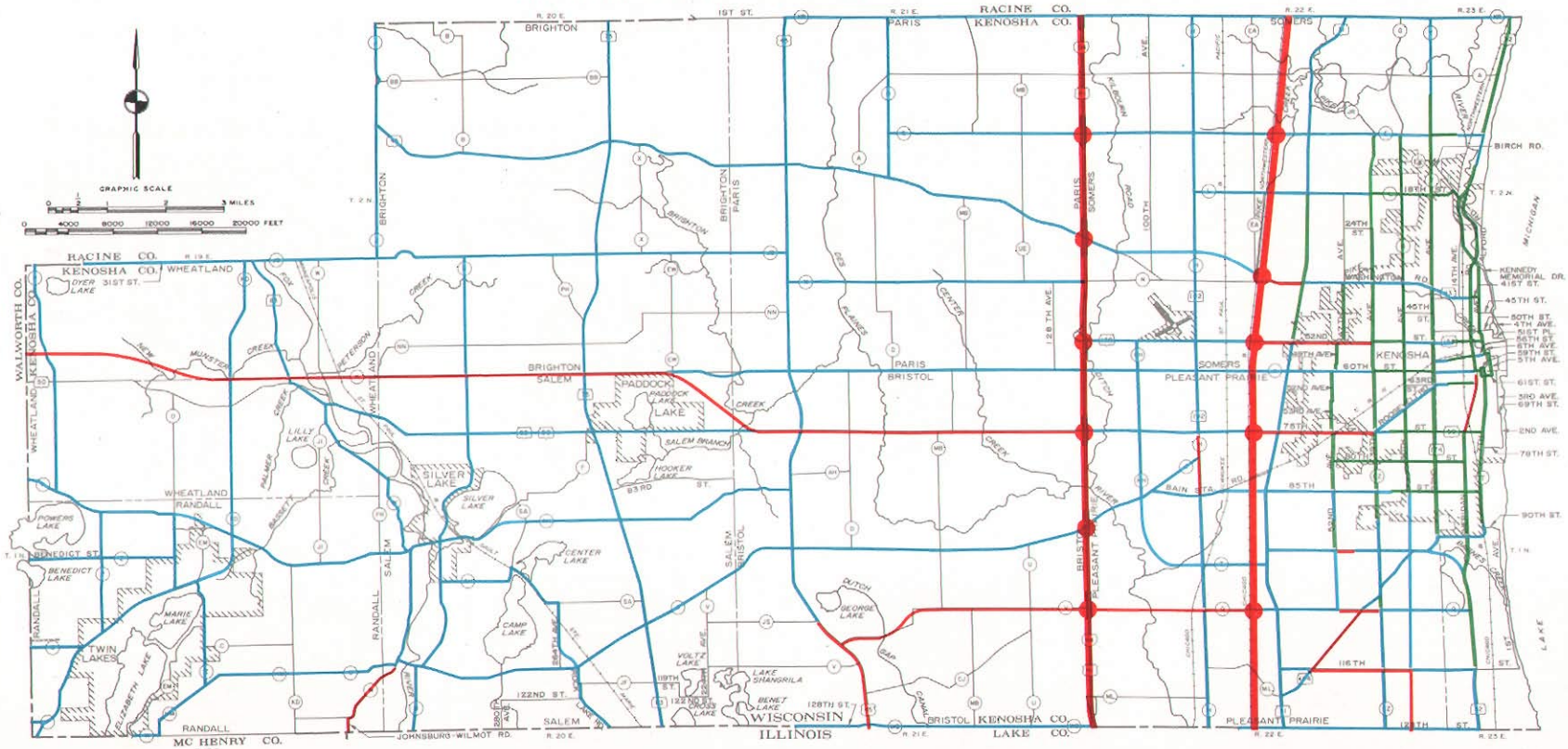
- FREEWAY (EXISTING)
- FREEWAY (PROPOSED)
- STANDARD ARTERIAL (EXISTING)
- STANDARD ARTERIAL (PROPOSED)
- FREEWAY-STANDARD ARTERIAL INTERCHANGE (EXISTING)
- FREEWAY-STANDARD ARTERIAL INTERCHANGE (PROPOSED)

A 363-mile arterial street and highway system is proposed to serve existing and probable future travel demand in Kenosha County to the year 1990. This system forms the basic network to which criteria for the assignment of jurisdictional responsibilities for each link in the system were applied. The arterial system so used represents a refinement of the arterial street and highway system for Kenosha County as included in the adopted regional transportation plan, and will provide the county with an adequate level of highway transportation service through 1990, meeting the existing and probable future travel demand within the county efficiently and effectively.

*Source: SEWRPC.*

Map 15

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




LEGEND

AVERAGE TRIP LENGTH (MILES)

| | URBAN | RURAL |
|---|---|---|
| TYPE I FREEWAY / TYPE I ARTERIAL | 20.0 OR MORE | 50.0 OR MORE |
| TYPE II ARTERIAL | 10.0 TO 19.9 | LESS THAN 50.0 |
| TYPE III ARTERIAL | LESS THAN 10.0 | — |

FREEWAY–STANDARD ARTERIAL INTERCHANGE

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 20 miles or more in the urban areas and 50 miles or more in rural areas; for the Type II arterial facility, 10 to 20 miles in urban areas and less than 50 miles in rural areas; and for the Type III arterial facility, less than 10 miles in urban areas. The configuration of the systems indicates the importance of freeways in serving the longer trip lengths.

*Source: SEWRPC.*

ties providing the highest level of service, characterized by free flow traffic conditions—that is, the freeways—exhibited the longest average trip lengths, ranging from 59 miles up to 221 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 two miles, and were, therefore, classified into the lowest trip service facility type.

## 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 officials, 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, as 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. One exception is STH 43[1] which meets only the land service criteria as a Type I facility. This facility, because of its service to the site of the former Richard I. Bong Air Force Base, which site has potential for development as a recreational area of statewide significance, has been proposed to be retained on the Type I state trunk highway system in order to provide state trunk highway service to the site.

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

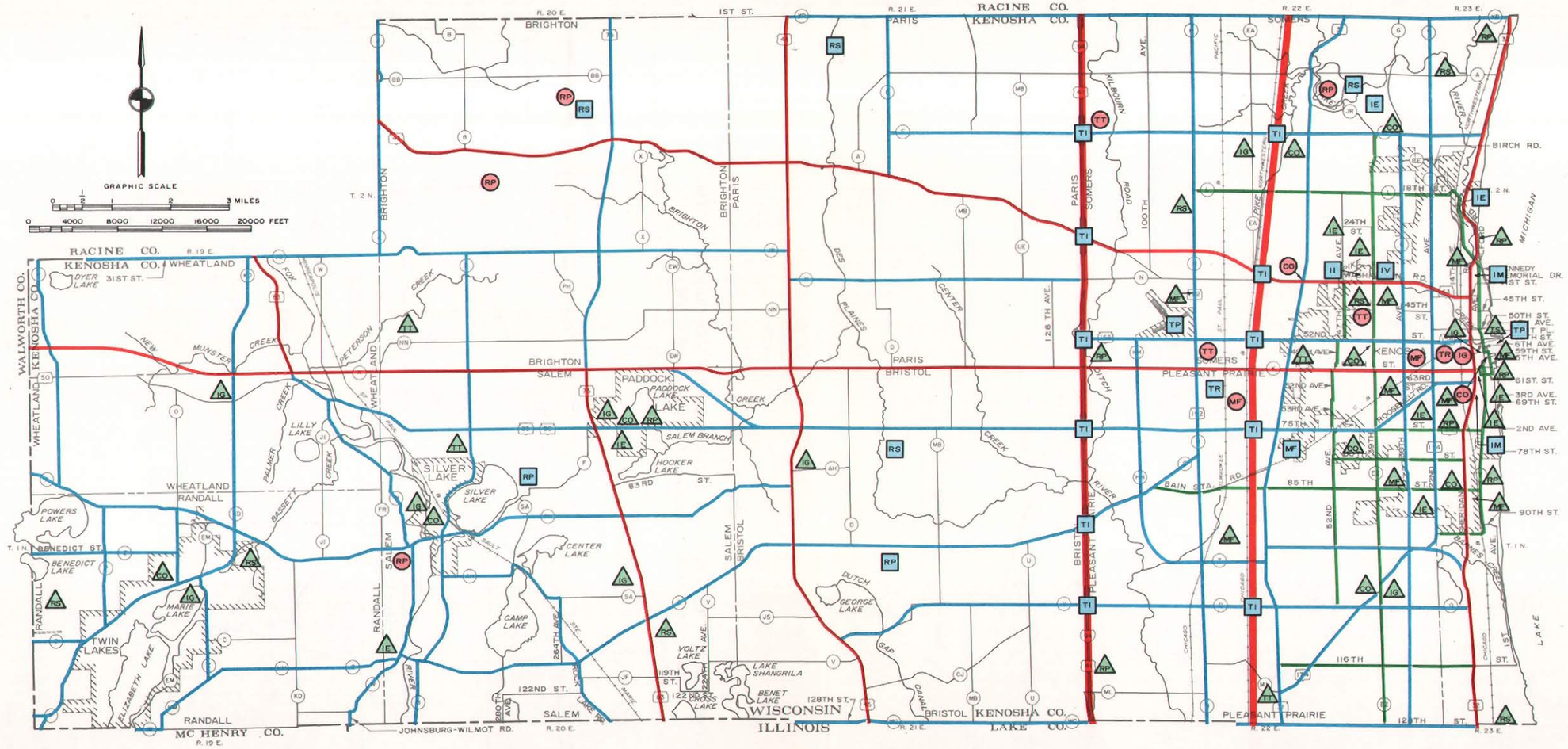
The application of functional criteria for jurisdictional highway classification required analysis of the trip lengths and traffic volumes to be served by each link in the total arterial street and highway system, an inventory of existing and proposed land uses to be served by each of the jurisdictional 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

---

[1] *As of January 1, 1975, STH 43 was renumbered STH 142.*

Map 16

## JURISDICTIONAL CLASSIFICATION OF THE ARTERIAL STREET AND HIGHWAY SYSTEM IN KENOSHA 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
- ARTERIAL FACILITY CONNECTING AND SERVING TYPE II LAND USES
- ARTERIAL FACILITY CONNECTING AND SERVING TYPE III LAND USES

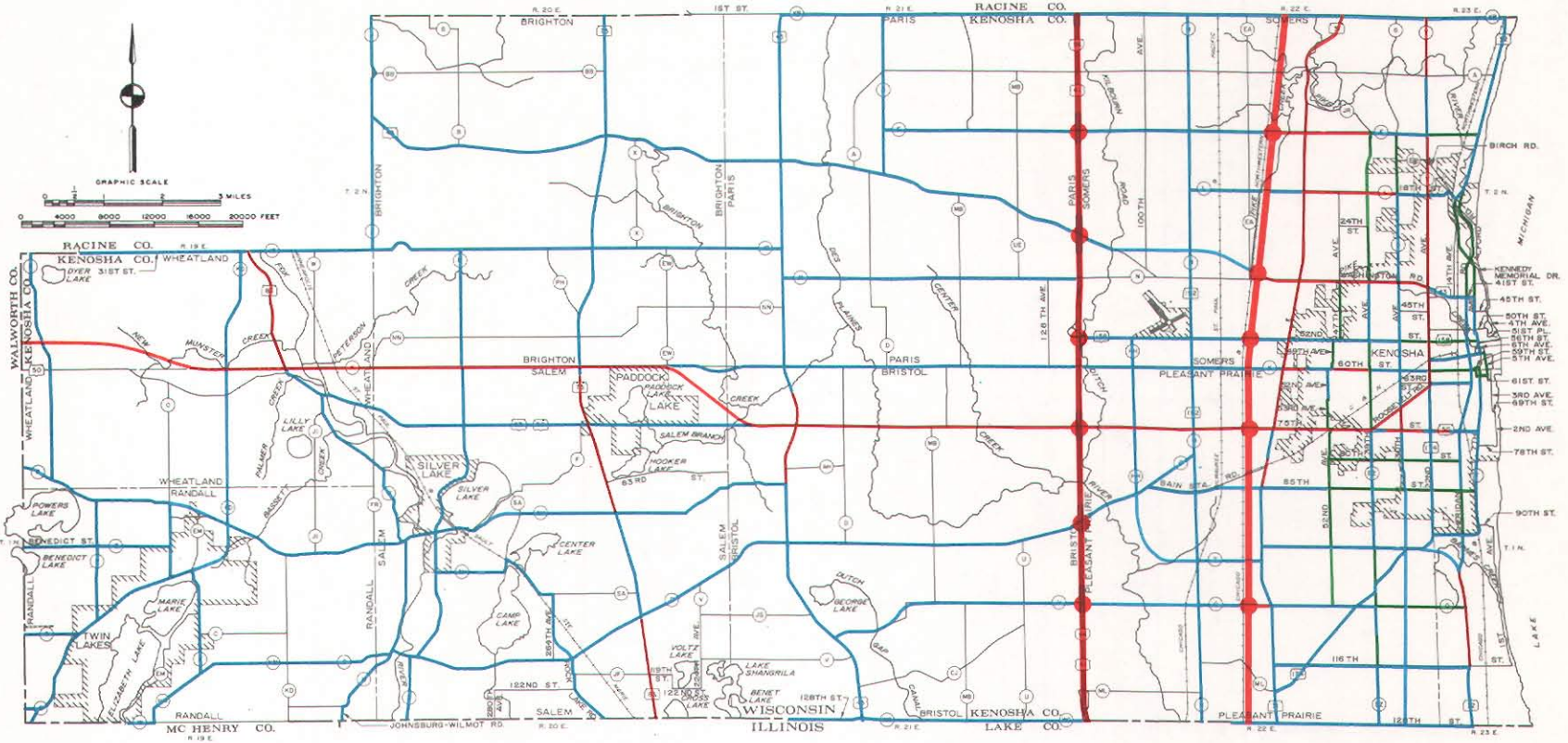
| LAND USE TYPE | TRANSPORTATION TERMINALS | RECREATIONAL AREAS | COMMERCIAL CENTERS | INDUSTRIAL CENTERS | INSTITUTIONAL CENTERS |
|---|---|---|---|---|---|
| I | TR RAIL TERMINAL<br>TB BUS TERMINAL<br>TT TRUCK TERMINAL<br>TP PORT (AIR & SEA) | RS SPECIAL USE AREA<br>RP REGIONAL OR INTER-REGIONAL PARK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

Map 17

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




LEGEND

VEHICLE VOLUME RANGE (ADT)

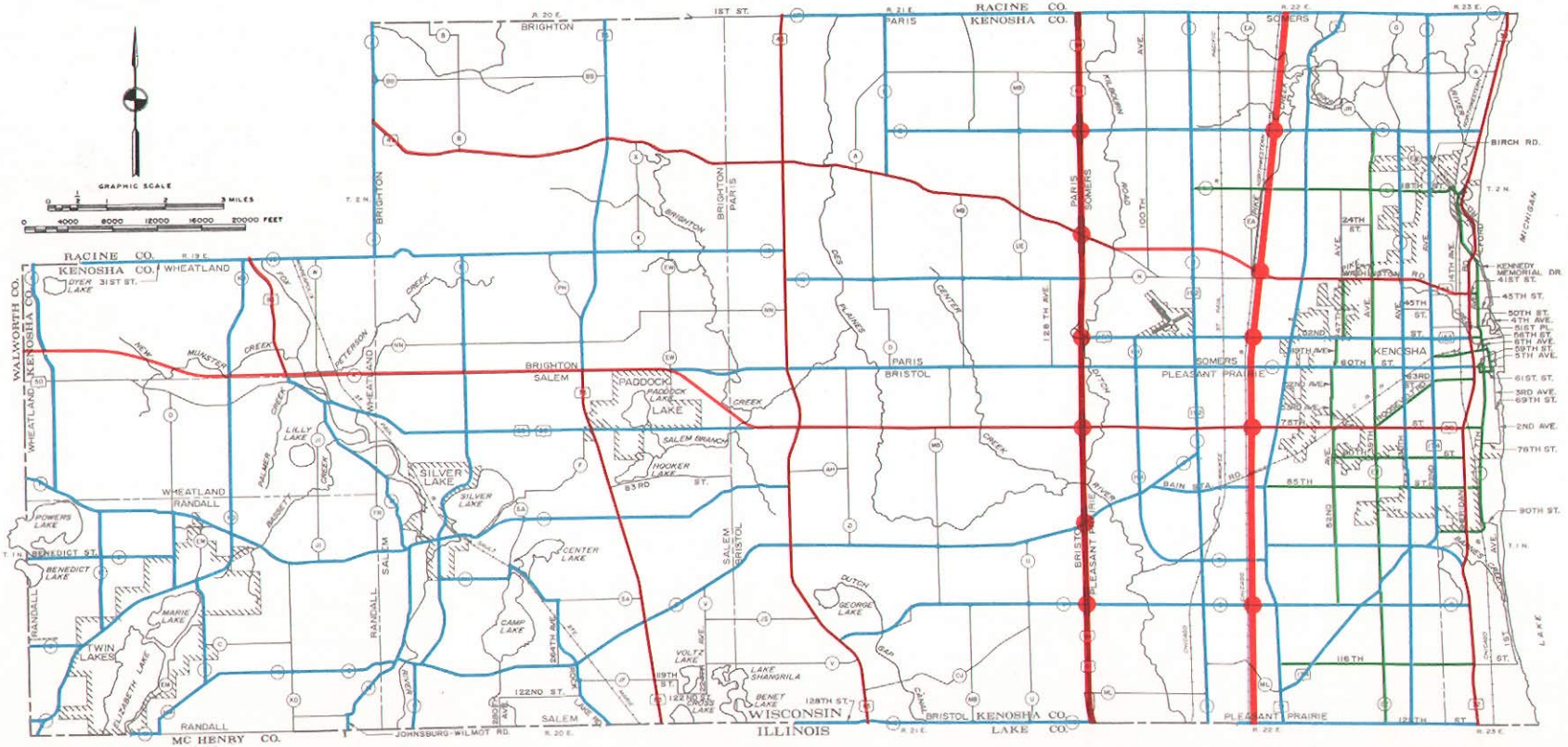
| | URBAN | RURAL |
|---|---|---|
| TYPE I FREEWAY | 13,500 OR MORE | 6,300 OR MORE |
| TYPE I ARTERIAL | | |
| TYPE II ARTERIAL | 6,300 TO 13,499 | LESS THAN 6,300 |
| TYPE III ARTERIAL | LESS THAN 6,300 | — |
| FREEWAY – ARTERIAL INTERCHANGE | | |

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 indicates the importance of freeways in serving the highest traffic volumes. 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 KENOSHA 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 Kenosha 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.*

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.

## 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 Kenosha 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 Kenosha County and its constituent cities, villages, and towns through the plan design year of 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 Kenosha 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. These routes generally parallel the proposed Lake Freeway, and to avoid duplication of facilities and service, it is proposed that these state trunk highway facilities revert to the Type II system at such time as the recommended paralleling freeway has been completed and opened to traffic.

This staging is intended to provide during the interim period the best possible trip service, land use service, and system continuity 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 Kenosha 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 1975, 1980, and 1990 are such that in each case the proposed state trunk arterial system forms a complete and continuous arterial subsystem in and of itself, the proposed county trunk arterial system complements the proposed state trunk arterial system and with that system forms a continuous arterial subsystem, while the proposed local trunk arterial system comprises the remainder of the total 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 Kenosha County through the plan design year 1990 totals 363 route-miles of facilities, or about 32 percent of the estimated 1,116 route-miles of facilities expected to comprise the total street and highway system within the county in 1990. Of this total arterial system, 102 route-miles, or about 28 percent, are proposed to comprise the Type I arterial highway system. This represents a decrease of 21 miles from the existing state trunk highway and connecting street mileage within Kenosha County. The recommended Type I system includes 78 miles of standard arterial facilities, as well as all of the 24 miles of existing and proposed freeways serving Kenosha County through the plan design year 1990 (see Table 10).

The proposed Type I arterial system for 1990 is shown on Map B-1, contained in Appendix B to this report.

**Table 10**

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

| Functional Facility Type | Number of Miles | Percent of Total |
|---|---|---|
| Freeways | | |
| Existing | 12.07 | 11.8 |
| Proposed | 11.98 | 11.7 |
| Subtotal | 24.05 | 23.5 |
| Standard Surface Arterials | | |
| Existing | 67.90 | 66.5 |
| Proposed | 10.16 | 10.0 |
| Subtotal | 78.06 | 76.5 |
| Total | 102.11 | 100.0 |

*Source: SEWRPC.*

The recommended Type I arterial system includes the following standard arterials, in addition to IH 94 and the proposed Lake Freeway:

1. USH 45 over its present alignment from the Racine County line to the Illinois state line through the Towns of Paris and Bristol.

2. STH 32 over its present alignment from the Racine County line through the Town of Somers over Alford Drive and Sheridan Road in the City of Kenosha, to the Illinois state line through the Town of Pleasant Prairie.

3. STH 43[1] over its present alignment from the Racine County line through the Towns of Brighton and Paris to IH 94, then over a new alignment through the Town of Somers, interchanging with the proposed Lake Freeway to present STH 31 and continuing over its present alignment over Washington Avenue in the City of Kenosha to STH 32 (Sheridan Road).

4. STH 50 over a proposed new alignment approximately parallel with and north of present STH 50 from the Walworth County line through the Towns of Wheatland, Brighton, and Salem, then rejoining its present alignment east of the Village of Paddock Lake through the Towns of Bristol and Pleasant Prairie and the City of Kenosha over 75th Street to STH 32 (Sheridan Road).

5. STH 83 over its present alignment from the Racine County line through the Town of Wheatland to proposed STH 50, then concurrent with proposed STH 50 through the Town of Brighton to present STH 75, then over present STH 75 through the Village of Paddock Lake to present STH 50, and then rejoining its present alignment to the Illinois state line through the Town of Salem.

A total of 10 of the 12 municipalities in Kenosha 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 1973, 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 probable future traffic demand within Kenosha 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-2 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 section 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 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 221 route-miles of facilities, or about 61 percent of the total arterial mileage proposed to serve Kenosha County in the plan design year of 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 221 route-miles of arterial county trunk highways proposed represents a decrease of 45 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 1973, 1975, 1980, and 1990 is indicated in Table 12. As shown on Map 18, all of the 11 freeway interchanges with surface arterials expected to exist within Kenosha County by 1990 are served by either the Type I or Type II arterial systems. Four of the interchanges are served by existing Type I arterial facilities. The Type II arterial street and highway system serves to provide access to the remaining seven freeway interchanges with surface arterials, including two served by present STH 158 which is proposed to revert in its entirety to the Type II system. Five interchanges are served by the following existing county trunk highway facilities proposed to be retained in the Type II system: county trunk highways E, C, Q, and V. The adequate improvement and maintenance and operation of these routes is essential to the efficient operation of the freeway system.

[1] *As of January 1, 1975, STH 43 was renumbered STH 142 by the State Highway Commission of Wisconsin.*

Table 11

RECOMMENDED DISTRIBUTION OF TYPE I (STATE TRUNK) ARTERIAL SYSTEM MILEAGE IN KENOSHA COUNTY BY CIVIL DIVISION: 1973, 1975, 1980, and 1990

| Civil Division | Number of Miles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1973 | | | | 1975 | | | 1980 | | | 1990 | | |
| | Freeway | Nonfreeway | Connecting Street | Total | Freeway | Standard Arterial | Total | Freeway | Standard Arterial | Total | Freeway | Standard Arterial | Total |
| City | | | | | | | | | | | | | |
| Kenosha | -- | 3.96 | 11.96 | 15.92 | -- | 15.73 | 15.73 | -- | 27.86 | 27.86 | 2.96 | 19.85 | 22.81 |
| Subtotal | -- | 3.96 | 11.96 | 15.92 | -- | 15.73 | 15.73 | -- | 27.86 | 27.86 | 2.96 | 19.85 | 22.81 |
| Villages | | | | | | | | | | | | | |
| Paddock Lake | -- | 1.72 | -- | 1.72 | -- | 1.72 | 1.72 | -- | 3.26 | 3.26 | -- | 1.91 | 1.91 |
| Silver Lake | -- | -- | -- | -- | -- | -- | -- | -- | 0.48 | 0.48 | -- | -- | -- |
| Twin Lakes | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Subtotal | | 1.72 | -- | 1.72 | -- | 1.72 | 1.72 | -- | 3.74 | 3.74 | -- | 1.91 | 1.91 |
| Towns | | | | | | | | | | | | | |
| Brighton | -- | 12.43 | -- | 12.43 | -- | 12.43 | 12.43 | -- | 6.39 | 6.39 | -- | 8.91 | 8.91 |
| Bristol | 3.02 | 12.48 | -- | 15.50 | 3.02 | 12.48 | 15.50 | 3.02 | 12.48 | 15.50 | 3.02 | 12.52 | 15.54 |
| Paris | 3.01 | 12.26 | -- | 15.27 | 3.01 | 12.26 | 15.27 | 3.01 | 12.26 | 15.27 | 3.01 | 12.26 | 15.27 |
| Pleasant Prairie | 3.03 | 19.02 | -- | 22.05 | 3.03 | 19.02 | 22.05 | 3.03 | 11.13 | 14.13 | 9.10 | 3.47 | 12.57 |
| Randall | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Salem | -- | 10.61 | -- | 10.61 | -- | 10.61 | 10.61 | -- | 8.05 | 8.05 | -- | 8.20 | 8.20 |
| Somers | 3.01 | 18.25 | -- | 21.26 | 3.01 | 18.25 | 21.26 | 3.01 | 14.04 | 17.05 | 5.96 | 2.51 | 8.47 |
| Wheatland | -- | 8.63 | -- | 8.63 | -- | 8.63 | 8.63 | -- | 8.15 | 8.15 | -- | 8.43 | 8.43 |
| Subtotal | 12.07 | 93.68 | | 105.75 | 12.07 | 93.68 | 105.75 | 12.07 | 72.47 | 84.54 | 21.09 | 56.30 | 77.39 |
| Total | 12.07 | 99.36 | 11.96 | 123.39 | 12.07 | 111.13 | 123.20 | 12.07 | 104.07 | 116.14 | 24.05 | 78.06 | 102.11 |

*Source: Wisconsin Department of Transportation and SEWRPC.*

The recommended Type II arterial system complements the recommended Type I system and is intended, together with that system, to include all major arterials within Kenosha County having areawide significance. In addition, the recommended Type II arterial system is intended, in the rural areas of the county, 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 in 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 40 route-miles of facilities, or about 11 percent of the total arterial mileage proposed to serve Kenosha County in the plan design year of 1990. The proposed system is shown on Map B-1 in Appendix B, and the distribution by municipality for 1973, 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 Kenosha 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

Table 12

RECOMMENDED DISTRIBUTION OF TYPE II (COUNTY TRUNK) ARTERIAL SYSTEM MILEAGE IN KENOSHA COUNTY BY CIVIL DIVISION 1973, 1975, 1980, and 1990

| Civil Division | Number of Miles | | | |
|---|---|---|---|---|
| | 1973 | 1975 | 1980 | 1990 |
| City | | | | |
| Kenosha | 3.55 | 10.32 | 19.79 | 49.45 |
| Subtotal | 3.55 | 10.32 | 19.79 | 49.45 |
| Villages | | | | |
| Paddock Lake | 0.68 | 0.68 | 2.08 | 3.43 |
| Silver Lake | 2.96 | 2.96 | 4.46 | 4.94 |
| Twin Lakes | 5.59 | 6.95 | 9.82 | 8.34 |
| Subtotal | 9.23 | 10.59 | 16.36 | 16.71 |
| Towns | | | | |
| Brighton | 9.10 | 11.12 | 17.16 | 16.40 |
| Bristol | 9.40 | 17.76 | 17.76 | 17.78 |
| Paris | 6.30 | 17.37 | 17.37 | 17.37 |
| Pleasant Prairie | 20.51 | 24.52 | 24.18 | 27.53 |
| Randall | 13.22 | 17.47 | 16.56 | 18.36 |
| Salem | 19.74 | 27.45 | 23.51 | 27.65 |
| Somers | 26.44 | 21.97 | 16.83 | 15.91 |
| Wheatland | 9.96 | 11.52 | 11.07 | 13.71 |
| Subtotal | 114.67 | 149.18 | 144.44 | 154.71 |
| Total | 127.45 | 170.09 | 180.59 | 220.87 |

*Source: Wisconsin Department of Transportation and SEWRPC.*

Table 13

RECOMMENDED DISTRIBUTION OF TYPE III (LOCAL TRUNK) ARTERIAL SYSTEM MILEAGE IN KENOSHA COUNTY BY CIVIL DIVISION 1973, 1975, 1980, and 1990

| Civil Division | Number of Miles | | | |
|---|---|---|---|---|
| | 1973 | 1975 | 1980 | 1990 |
| City | | | | |
| Kenosha | 24.89 | 16.15 | 24.40 | 37.71 |
| Subtotal | 24.89 | 16.15 | 24.40 | 37.71 |
| Villages | | | | |
| Paddock Lake | -- | -- | -- | -- |
| Silver Lake | -- | -- | -- | -- |
| Twin Lakes | -- | -- | -- | -- |
| Subtotal | -- | -- | -- | -- |
| Towns | | | | |
| Brighton | -- | -- | -- | -- |
| Bristol | -- | -- | -- | -- |
| Paris | -- | -- | -- | -- |
| Pleasant Prairie | 3.45 | 7.00 | 1.25 | 1.26 |
| Randall | 0.25 | -- | -- | -- |
| Salem | 1.13 | -- | -- | -- |
| Somers | 2.10 | 1.22 | -- | 1.02 |
| Wheatland | -- | -- | -- | -- |
| Subtotal | 6.93 | 8.22 | 1.25 | 2.28 |
| Total | 31.82 | 24.37 | 25.65 | 39.99 |

*Source: Wisconsin Department of Transportation and SEWRPC.*

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.

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, forecast traffic volume, and desirable level 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 and changing traffic and land use patterns, will be required as each segment of facility in the system is considered for improvement.

## THE RECOMMENDED COUNTY BRANCH HIGHWAY SYSTEM

Historically, Kenosha County has maintained as county trunk highways nearly all[2] of the "nonsubdivision" collector and land access streets located in the rural portions of the county. Consequently, the county has over the years developed a very high maintenance capability, with staff, equipment, and physical plant able to maintain 266 miles of facilities. Abandonment of this policy would necessitate the expansion and in some cases the development of maintenance facilities by the local units of government, and therefore a duplication of the organization, equipment, and physical plant of the County Highway Department. Such a duplication would constitute a financial hardship for local units of government and an unnecessary expenditure of public funds. The plan, therefore, proposes retaining on a county branch highway system 111 miles of existing state and county trunk highways which do not now and/or are not required to serve an arterial function in the plan design year of 1990. The proposed system is shown on Map B-1 of Appendix B, and the distribution by municipality for the years 1975, 1980, and 1990 is indicated in Table 14.

The establishment of such a system of county branch highways under the jurisdictional responsibility of the county will require amendment of the state legislation relating to county highways.[3] It is, therefore, recommended that the County Board and State Highway Commission actively seek and support the legislative changes required to permit the establishment of a county branch highway system consisting of nonarterial highway facilities under county ownership. The proposed county branch highway system is intended to complement the proposed Type I and Type II arterial systems while functioning as a system of minor collectors and land access facilities in the rural portions of Kenosha County. The typical cross section recommended in the plan for this nonarterial system is set forth in Figure B-1 of Appendix B of this report. The miles of facilities for which the county would have responsibility, including both Type II (county trunk) arterial facilities and county branch highways, totals 332 route-miles, representing an increase of 66 route-miles over the present system.

[2] *In 1973, there were a total of 582.19 miles of streets and highways open to traffic in the unincorporated areas of the county. Of this total, 159.00 miles are collector and land access streets located within platted subdivisions, and 201.22 miles are collector and local access streets and highways in essentially rural areas. Of the latter, the county maintains 134.27 miles, or 66.7 percent, as county trunk highways.*

[3] *The Wisconsin Statutes provide for and define three highway systems to be owned and maintained by the county: county trunk highways, consisting of arterial facilities; county forest roads, consisting of nonarterial public roads within county forests which are not state or county trunk or town roads; and rustic roads, consisting of nonarterial public roads whose right-of-way is to be maintained, because of its beauty and habitat, in its natural state. The plan herein proposes the establishment of a fourth system—county branch highways, consisting of nonarterial public roads in rural areas which were formerly designated as state or county trunk highways.*

## RELATIONSHIP OF RECOMMENDED PLAN TO OTHER COUNTY JURISDICTIONAL HIGHWAY SYSTEM PLANS

One of the important considerations in the preparation of the Kenosha 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 Kenosha 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 preparation of the jurisdictional highway system plan for Walworth County. These facilities are 125th Street in the Town of Randall in Kenosha County, which extends into the Town of Bloomfield in Walworth County as South Road and which should be designated as a Type II facility between the Kenosha/Walworth County line and USH 12; and 93rd Street in

**Table 14**

**RECOMMENDED DISTRIBUTION OF COUNTY BRANCH HIGHWAY SYSTEM MILEAGE IN KENOSHA COUNTY 1975, 1980, and 1990**

| Civil Division | Number of Miles | | |
|---|---|---|---|
| | 1975 | 1980 | 1990 |
| City | | | |
| Kenosha | 0.47 | 2.70 | 10.09 |
| Subtotal | 0.47 | 2.70 | 10.09 |
| Villages | | | |
| Paddock Lake | -- | 0.19 | 0.19 |
| Silver Lake | -- | 0.40 | 0.40 |
| Twin Lakes | 2.74 | 2.74 | 4.26 |
| Subtotal | 2.74 | 3.33 | 4.85 |
| Towns | | | |
| Brighton | 20.27 | 20.27 | 18.51 |
| Bristol | 19.93 | 19.93 | 19.93 |
| Paris | 16.09 | 16.09 | 16.09 |
| Pleasant Prairie | 3.52 | 3.52 | 3.52 |
| Randall | 8.19 | 8.19 | 8.19 |
| Salem | 7.16 | 9.65 | 8.99 |
| Somers | 20.73 | 18.50 | 10.25 |
| Wheatland | 6.75 | 6.75 | 10.78 |
| Subtotal | 102.64 | 102.90 | 96.26 |
| Total | 105.85 | 108.93 | 111.20 |

*Source: Wisconsin Department of Transportation and SEWRPC.*

the Town of Randall in Kenosha County, which extends into the Town of Bloomfield in Walworth County as Mariette Road, which should be designated as a Type II facility between the Kenosha/Walworth County line and CTH U. Although these disparities between Kenosha and Walworth Counties are minor, it is recommended that the Advisory Committee for Walworth County meet to modify its jurisdictional plan so that it is consistent with that of Kenosha County.

## SCENIC DRIVES AND RUSTIC ROADS

Although the safe and efficient movement of traffic received careful consideration in the preparation of the Kenosha County jurisdictional highway system plan, consideration was also given to the preservation and enhancement of the natural beauty of the county and to the accommodation of leisure time activities such as hiking, bicycling, horseback riding, and pleasure driving. Pleasure driving alone attracted an estimated average of 27,000 seasonal Sunday participants in Kenosha County during 1973. Forecasts indicate a substantial increase in the demand for these recreational pursuits, with the average seasonal Sunday participation in pleasure driving expected to reach 44,000 by 1990.

To provide facilities for these activities, it is hereby recommended that a system of scenic drives be designated and marked, and that special consideration be given to preserving the scenic beauty of these facilities. This recommendation also constitutes a first step toward the establishment of a roadside conservation and beautification program for the county as jointly recommended by the Wisconsin Natural Resources Council of State Agencies and the Southeastern Wisconsin Regional Planning Commission in a 1972 report entitled A Roadside Conservation and Beautification Program for Southeastern Wisconsin Watersheds.

The recommended scenic drive system for Kenosha County is shown on Map 19. The total recommended scenic drive system consists of 136 miles of existing arterial, collector, or land access facilities. Of this total, about 50 miles, or 37 percent, would normally perform arterial street and highway functions, while the remaining 86 miles, or 63 percent, would normally perform collector and land access functions during weekdays through the plan design year 1990.

Pursuant to Section 83.42 of the Wisconsin Statutes, a special subset of the scenic drive system known as rustic roads has been identified for Kenosha County. Consisting of roughly six miles of nonarterial facilities, the rustic roads are to be maintained essentially in their natural state, because of their native flora along their rights-of-way. It is specifically recommended that those portions of the proposed scenic drive system included in Table 15, by virtue of satisfying the established criteria for identification, use, and preservation as rustic roads, be so designated by the appropriate local unit of government and the Kenosha County Highway Committee.

The recommended scenic drive system in Kenosha County consists of three basic drives. The first is routed over the existing Wisconsin Bikeway, from Washington Park in the City of Kenosha westward through the county, traversing the recreational areas of southern Kenosha County to the Walworth County line. The second scenic drive is the proposed Fox River Scenic Drive, which approximately parallels the Fox River from the Racine County line to the Illinois state line. The third is the proposed Kenosha Scenic Drive which traverses the entire county, paralleling the Lake Michigan shoreline from the Chiwaukee Prairie to Petrifying Springs, then traversing westward through the county, with interconnecting links providing access to the Bong Recreational Area and the wetlands and waterways of southern Kenosha County.

The location and configuration of the proposed scenic drive 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. As shown on Map 19, this system would connect nearly all existing county and state parks within Kenosha County as well as sites of cultural, historical, natural, and scientific interest within the county (see Table 16). In order to attain the necessary intercom-

**Table 15**

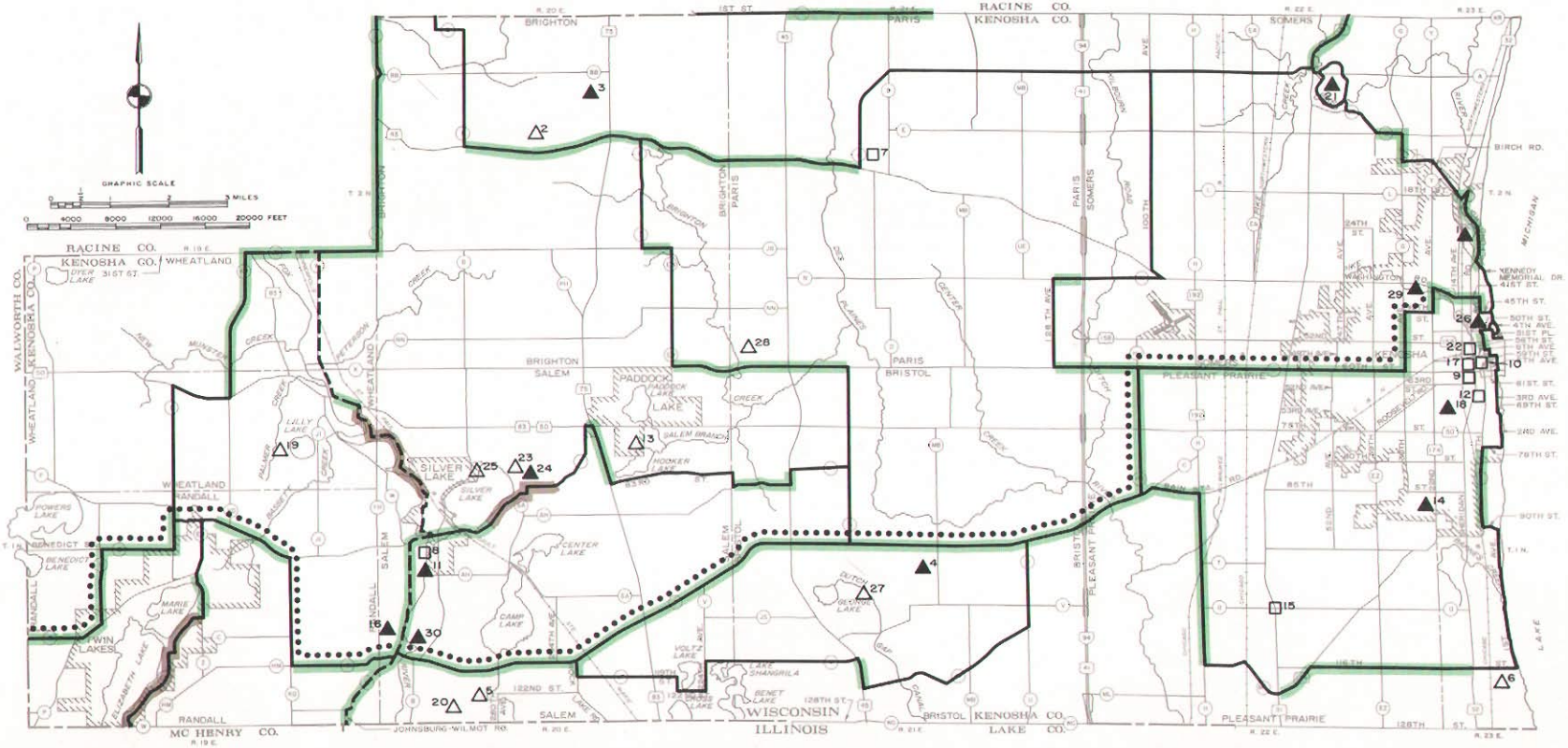
**RECOMMENDED RUSTIC ROAD SYSTEM IN KENOSHA COUNTY: 1990**

| Route | Limits | Municipality | Number of Miles |
|---|---|---|---|
| CTH F | 85th Street and 264th Avenue to 90th Street | Town of Salem | 1.51 |
| CTH EM | Illinois state line to CTH Z | Village of Twin Lakes | 2.61 |
| 312th Avenue | Williams Drive to Shorewood Drive | Town of Salem | 0.15 |
| 317th Avenue | 75th Street to STH 50 and STH 83 | Town of Wheatland | 0.53 |
| 75th Street | 317th Avenue to 312th Avenue | Town of Wheatland | 0.11 |
| N. Riverside | Shorewood Drive to 303rd Avenue | Town of Salem | 0.26 |
| Shorewood Drive | 312th Avenue to N. Riverside | Town of Salem | 0.63 |
| Williams Drive | 75th Street to 312th Avenue | Town of Salem | 0.09 |

*Source: SEWRPC.*

Map 19

## RECOMMENDED SCENIC DRIVE AND RUSTIC ROAD SYSTEM IN KENOSHA COUNTY: 1990




The plan recommends that a network of scenic drives and rustic roads be marked and signed within Kenosha County. This network consists of 136 miles of existing arterial, collector, and land access facilities, and provides for three basic drives: the existing Wisconsin Bikeway route, the proposed Fox River Scenic Drive, and the proposed Kenosha Scenic Drive, as well as for certain interconnecting links that provide good access to the best scenic, historical, and recreational sites in Kenosha County. A special subset of the scenic drive system, known as rustic roads, has been identified, and consists of about six miles of nonarterial facilities which, because of the natural beauty of the landscape traversed and of the roadside itself, are to be maintained in their present attractive state.

*Source: SEWRPC.*

Table 16

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

| Code Number[a] | Cultural, Historical, Scientific, or Major Outdoor Recreation Site | Level of Government, Agency, or Organization Responsible for Designating or Maintaining Site |
|---|---|---|
| 1 | Alford Park | City of Kenosha |
| 2 | Bong Recreational and Wildlife Area | Wisconsin Department of Natural Resources |
| 3 | Brighton-Dale County Park | Kenosha County |
| 4 | Bristol Woods County Park | Kenosha County |
| 5 | Camp Lake Fishery Area | Wisconsin Department of Natural Resources |
| 6 | Chiwaukee Prairie | University of Wisconsin-Parkside |
| 7 | Civil War Soldiers Monument | Wisconsin Historical Society |
| 8 | Claim Cabin | Kenosha County |
| 9 | First Methodist Church | Wisconsin Historical Society |
| 10 | First Methodist Church Site | Daughters of the American Revolution |
| 11 | Fox River Park | Kenosha County |
| 12 | Greenridge Cemetery | Wisconsin Historical Society |
| 13 | Hooker Lake Marsh | Wisconsin Department of Natural Resources |
| 14 | James Anderson Park | City of Kenosha |
| 15 | Janbeau Trail | Wisconsin Historical Society |
| 16 | Kenosha County Fairgrounds | Kenosha County Fair Association |
| 17 | Kenosha High School Site | Daughters of the American Revolution |
| 18 | Lincoln Park | City of Kenosha |
| 19 | New Munster Wildlife Area | Wisconsin Department of Natural Resources |
| 20 | Peat Lake Wildlife Area | Wisconsin Department of Natural Resources |
| 21 | Petrifying Springs Park | Kenosha County |
| 22 | Sholes House | Kenosha County Historical Society |
| 23 | Silver Lake Bog | Silver Lake Sportsmen's Club |
| 24 | Silver Lake County Park | Kenosha County |
| 25 | Silver Lake Marsh | Wisconsin Department of Natural Resources |
| 26 | Simmons Island Park | City of Kenosha |
| 27 | State Wetland Area | Wisconsin Department of Natural Resources |
| 28 | University of Wisconsin Nature Area | University of Wisconsin |
| 29 | Washington Park | City of Kenosha |
| 30 | Wilmot Dam Area | Kenosha County |

[a] *See Map 19.*

*Source: Kenosha County Historical Society and Museum and SEWRPC.*

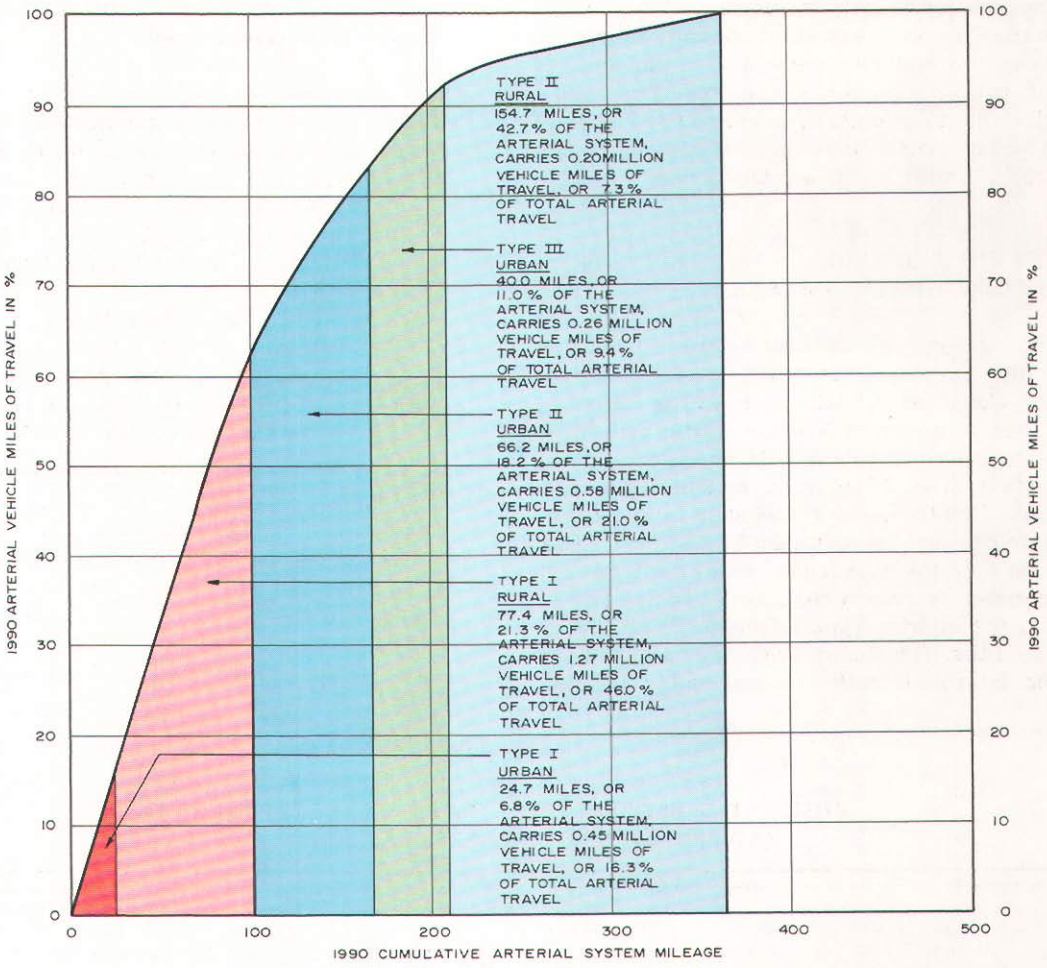
munity and intercounty continuity in the scenic drives, to assure the proper relationship of the scenic drives to the natural resource base, to assure uniformity in the marking and signing of the scenic drives, and most importantly, to assure the attainment of an equitable fiscal policy for the maintenance of the scenic drives, the functional classification categories established under the study were expanded to include the scenic drives as a special category.

## EVALUATION OF THE PROPOSED JURISDICTIONAL HIGHWAY SYSTEM

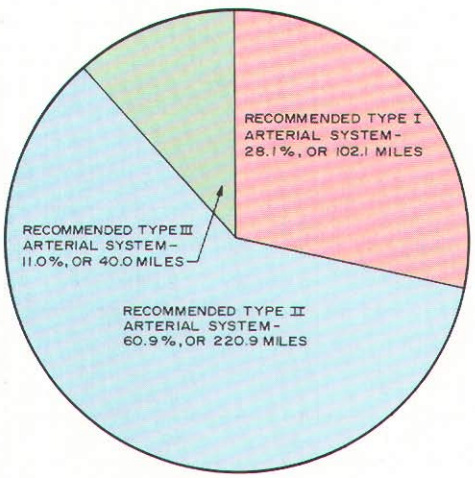
One of the most important objectives of the jurisdictional highway planning process is to attain the most effective use of the total public resources in the provision of highway transportation by focusing the appropriate resources and capabilities on corresponding areas of need. That the recommended 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 1.72 million of the 2.76 million arterial miles of travel anticipated to occur daily within Kenosha County by the year 1990. Thus, approximately 28 percent of the total arterial street and highway mileage within the county may be expected to carry approximately 62 percent of the total arterial travel demand. The proposed Type II arterials may be expected to carry an additional 0.78 million arterial vehicle miles of travel. Thus, an additional 61 percent of the total arterial street and highway mileage may be expected to carry an additional 28 percent of the total arterial travel demand. The remaining 0.26 million arterial vehicle miles of travel, or 10 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 90 percent of the total arterial vehicle miles of travel expected to take place within the county by the year 1990, leaving only 10 percent to be carried by Type III arterials. This concentration of travel demand on the various arterial subsystems is indicated in Figure 9.

Figure 9

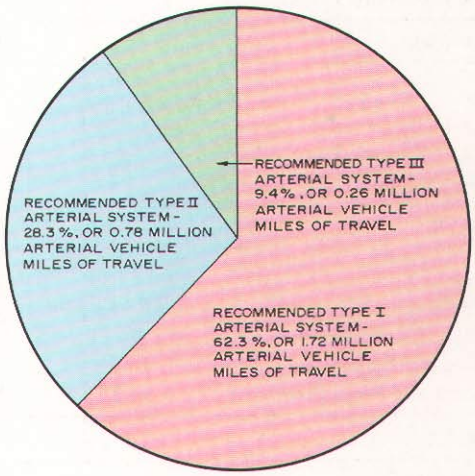
RELATIONSHIP BETWEEN PERCENT OF ARTERIAL VEHICLE MILES OF TRAVEL AND CUMULATIVE ARTERIAL MILEAGE
RECOMMENDED KENOSHA COUNTY JURISDICTIONAL HIGHWAY SYSTEM PLAN: 1990




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.*

The total vehicle miles of travel which may be expected to occur daily on all streets and highways within Kenosha County by 1990 is similarly estimated at 3.05 million vehicle miles. The proportionate share of this total load which each of the recommended jurisdictional subsystems may be expected to carry is summarized in Table 17 and Figure 10. The proposed jurisdictional system thus clearly focuses the available resources on the areas of greater need, and its 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 areawide importance within the county.

## STAGING OF THE PROPOSED JURISDICTIONAL HIGHWAY SYSTEM

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 the traffic demand in the corridor to be served by the Lake Freeway proposed for construction after 1975, it is recommended that certain arterial facilities should ultimately be designated as Type II routes and be maintained as Type I routes until such time as the paralleling freeway intended to serve the corridor is constructed. Upon completion of this freeway, 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 18, together with a listing of the corresponding surface arterial required to fulfill the Type I needs in the corridor on an interim basis.

The jurisdictional highway system within Kenosha County as the system is anticipated to exist in 1975 is shown on Map 20. This 1975 staging reflects the reversion of STH 158 between Sixth Avenue and Sheridan Road in the City of Kenosha, CTH T from STH 174 to its northern terminus in the City of Kenosha and Town of Pleasant Prairie, and CTH EZ from 80th Street to

**Table 18**

**PROPOSED FREEWAY AND TEMPORARY ALTERNATE ROUTING OVER STATE TRUNK HIGHWAYS IN KENOSHA COUNTY: 1973-1990**

| Proposed Freeway | Temporary Alternate Routing |
|---|---|
| Proposed Lake Freeway from Racine County line to the Illinois state line | Over present STH 31 from the Racine County line to the Illinois state line |

*Source: Wisconsin Department of Transportation and SEWRPC.*

**Table 17**

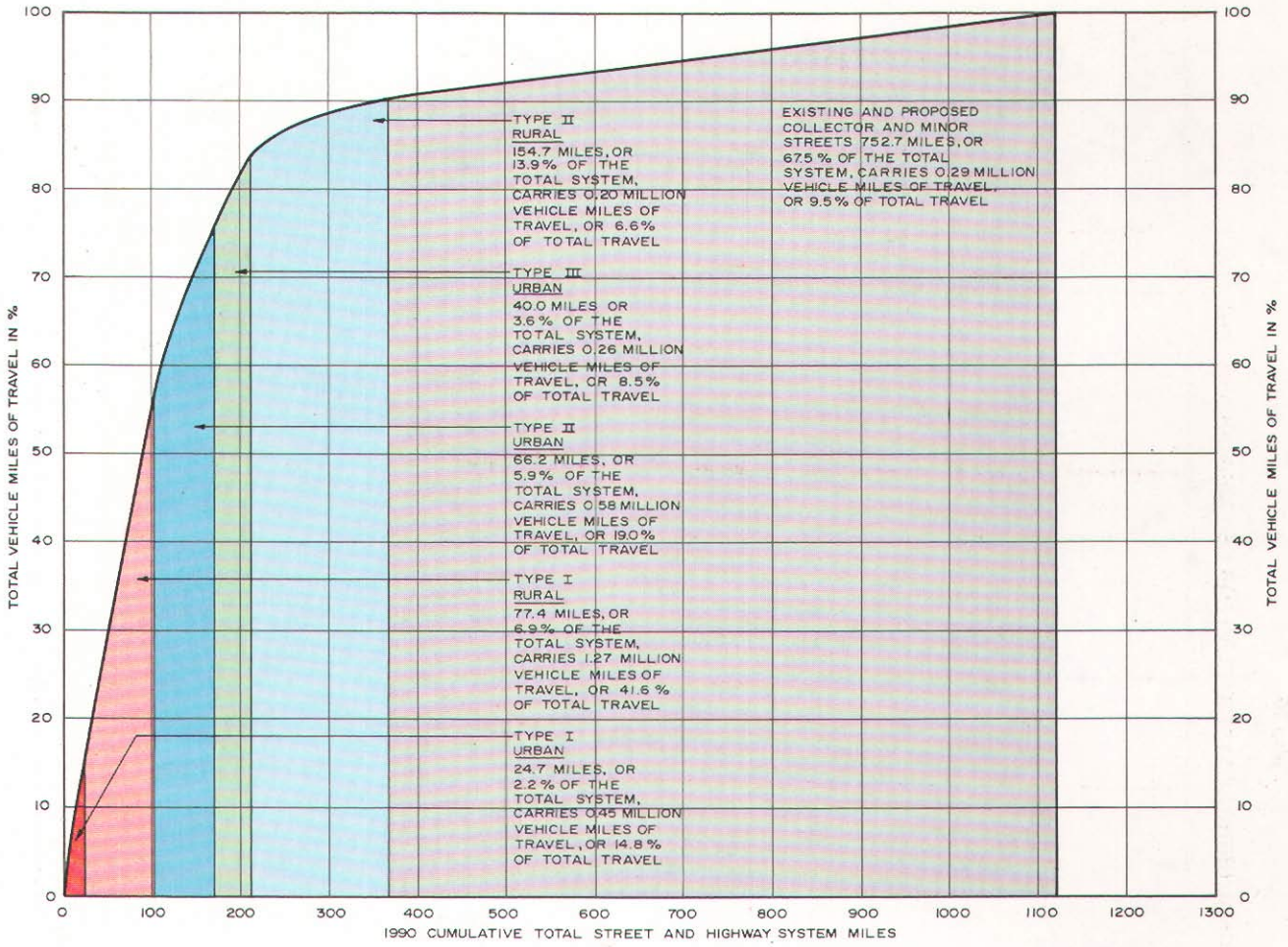
**ANTICIPATED DISTRIBUTION OF TRAVEL ON THE TOTAL STREET AND HIGHWAY SYSTEM IN KENOSHA COUNTY: 1990**

| Type of Street or Highway Arterial | Miles | | Travel Demand Served | |
|---|---|---|---|---|
| | Number | Percent of Total | Millions of Vehicle Miles Per Day | Percent of Total |
| Arterial | | | | |
| Rural | | | | |
| Type I (State Trunk) | 77.4 | 6.9 | 1.27 | 41.6 |
| Type II (County Trunk) | 154.7 | 13.9 | 0.20 | 6.5 |
| Subtotal | 232.1 | 20.8 | 1.47 | 48.2 |
| Urban | | | | |
| Type I (State Trunk) | 24.7 | 2.2 | 0.45 | 14.8 |
| Type II (County Trunk) | 66.2 | 5.9 | 0.58 | 19.0 |
| Type III (Local Trunk) | 40.0 | 3.6 | 0.26 | 8.5 |
| Subtotal | 130.9 | 11.7 | 1.29 | 42.3 |
| Arterial Total | 363.0 | 32.5 | 2.76 | 90.5 |
| Nonarterial | | | | |
| Existing and Proposed Collector and Minor Streets | 752.7 | 67.5 | 0.29 | 9.5 |
| Total | 1,115.7 | 100.0 | 3.05 | 100.0 |

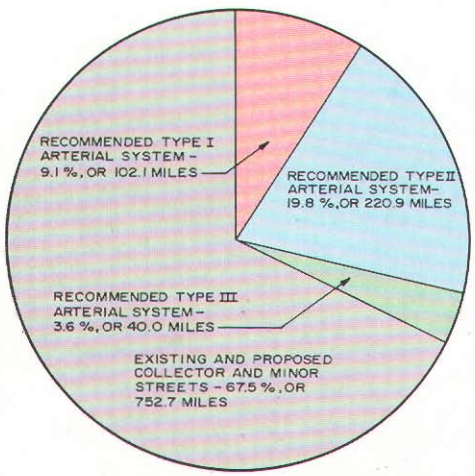
*Source: SEWRPC.*

Figure 10

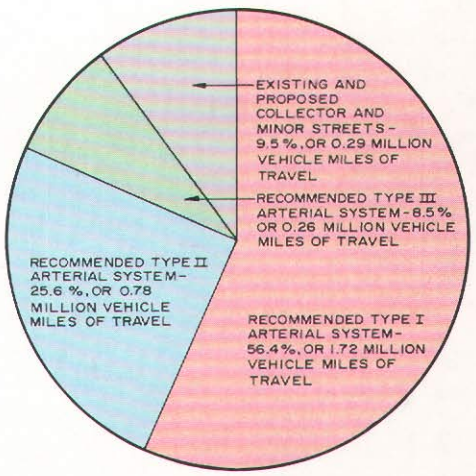
RELATIONSHIP BETWEEN PERCENT OF TOTAL VEHICLE MILES OF TRAVEL AND CUMULATIVE TOTAL MILEAGE
RECOMMENDED KENOSHA COUNTY JURISDICTIONAL HIGHWAY SYSTEM: 1990




DISTRIBUTION OF MILEAGE
ON THE TOTAL STREET AND HIGHWAY SYSTEM
1990



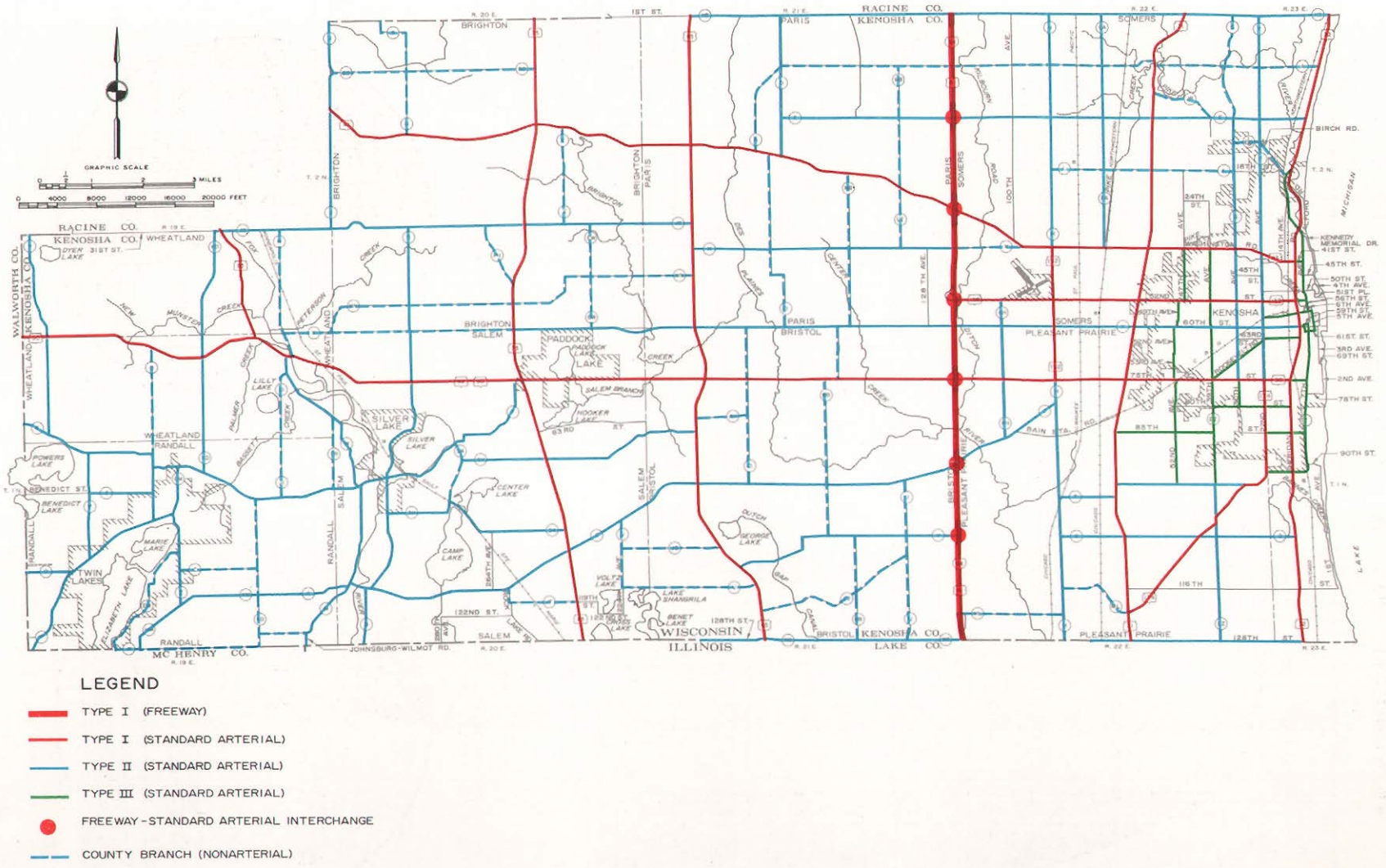

DISTRIBUTION OF VEHICLE MILES OF TRAVEL
ON THE TOTAL STREET AND HIGHWAY SYSTEM
1990




*Source: SEWRPC.*

Map 20

## RECOMMENDED JURISDICTIONAL HIGHWAY SYSTEM PLAN FOR KENOSHA COUNTY: 1975 STAGE




The changes in jurisdiction recommended by 1975 include the reversion of STH 158 between Sixth Avenue and Sheridan Road in the City of Kenosha, CTH T from STH 174 to its northern terminus in the City of Kenosha, and CTH EZ from 80th Street to CTH T all to the local road system; and the additions to the county trunk system described in Table 19.

*Source: SEWRPC.*

CTH T in the City of Kenosha and Town of Pleasant Prairie from the county trunk highway system to the local trunk arterial system. Additions to the Type II system include the new construction of an extension to CTH E (Town of Somers) from CTH G to STH 32, the new construction of an extension to CTH Q from IH 94 to CTH H, as well as the reversions from the local road system as indicated in Table 19. These additions, while affecting system continuity of the Type II system through the City of Kenosha, provide for continuity across the Wisconsin-Illinois state line.

The proposed configuration of the jurisdictional highway system within Kenosha County as anticipated to exist by 1980 is shown on Map 21. The 1980 stage reflects the reversion of STH 75 from the Racine County line to present STH 50 from the state trunk system to the Type II (county trunk) system. The 1980 stage also reflects the construction and addition to the Type II system of several proposed arterial facilities, including the extension of 30th Avenue from 80th Street to CTH T in the City of Kenosha and the Town of Pleasant Prairie, the extension of CTH KD from CTH F to CTH Z in the Town of Randall and Village of Twin Lakes, and the construction of the link between CTH F and CTH AH in the Town of Salem. Local roads proposed to revert to Type II facilities during the 1980 stage include 30th Avenue in the City of Kenosha from 75th Street to 80th Street, and 125th Street in the Town of Randall from CTH P to the Walworth County line.

The proposed configuration of the jurisdictional highway system plan in Kenosha County as anticipated in 1990 is shown on Map B-1. The 1990 stage reflects the completion of the proposed Lake Freeway from the Racine County line to the Illinois state line; the construction of a relocated STH 50 over a new alignment north of and parallel to existing STH 50, traversing portions of CTH K from the Walworth County line to approximately the east corporate limits of the Village of Paddock Lake; the realignment of STH 43 in the Town of Somers; and the reversion of the Type I facilities identified in Table 20 to the Type II system. The 1990 stage also reflects the additions to the county trunk system identified in Table 21, and the addition to this system of the local roads identified in Table 22, which are recom-

**Table 19**

**LOCAL ROADS PROPOSED TO BE ADDED TO THE TYPE II ARTERIAL SYSTEM IN KENOSHA COUNTY BY 1975**

| Route | Limits | Municipality |
|---|---|---|
| 12th Street | CTH Y to a point 0.36 mile east of CTH Y | Town of Somers |
| 60th Street | Sheridan Road to 51st Avenue | City of Kenosha |
| 128th Street | CTH WG to approximately 200th Avenue | Town of Bristol |
| 128th Street | STH 32 to the proposed Lake Freeway | Town of Pleasant Prairie |
| 172nd Street | Racine County line to CTH A | Town of Paris |
| 22nd Avenue | 23rd Street to 75th Street | City of Kenosha |
| 30th Avenue | STH 43[a] to 75th Street | City of Kenosha |
| Wilmot Road | CTH W to the Illinois state line | Town of Randall |

[a] *As of January 1, 1975, STH 43 was renumbered STH 142.*

*Source: SEWRPC.*

**Table 20**

**STATE TRUNK HIGHWAYS PROPOSED TO BE RETAINED THROUGH 1980 AND TO REVERT TO THE COUNTY TRUNK ARTERIAL SYSTEM IN KENOSHA COUNTY BY 1990**

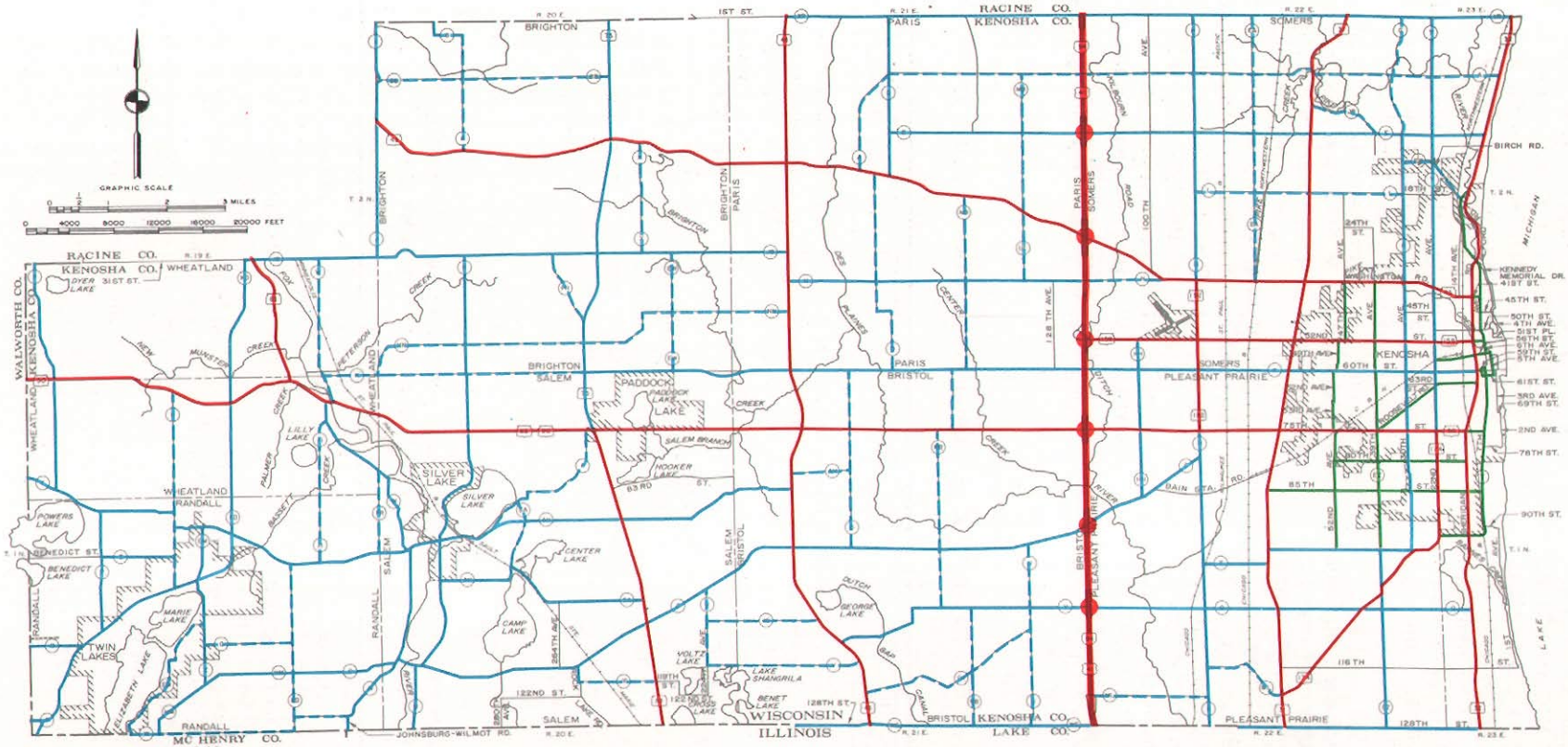
| Route | Limits | Municipality |
|---|---|---|
| STH 31 | Illinois state line to Racine county line | Towns of Pleasant Prairie and Somers |
| STH 50 | The western intersection of STH 50 and STH 83 to the intersection of existing STH 50 and proposed STH 30 | Villages of Paddock Lake and Silver Lake, and the Towns of Bristol, Wheatland, and Salem |
| STH 83 | Existing STH 50 to the proposed alignment of STH 50 | Town of Wheatland |
| STH 158 | IH 94 to Sheridan Road (STH 32) | City of Kenosha and Town of Somers |
| STH 174 | STH 31 to 75th Street (STH 50) | City of Kenosha and Town of Pleasant Prairie |
| STH 192 | STH 43[a] to STH 50 | Towns of Somers and Pleasant Prairie |

[a] *As of January 1, 1975, STH 43 was renumbered STH 142.*

*Source: SEWRPC.*

Map 21

## RECOMMENDED JURISDICTIONAL HIGHWAY SYSTEM PLAN FOR KENOSHA COUNTY: 1980 STAGE




The proposed 1980 stage of the recommended Kenosha County jurisdictional highway system plan anticipates the reversion of STH 75 from the Racine County line to present STH 50 to the county trunk system, the extension of 30th Avenue from 80th Street to CTH T in the City of Kenosha and the Town of Pleasant Prairie, the extension of CTH KD from CTH F to CTH Z in the Town of Randall and Village of Twin Lakes, and the construction of the link between CTH F and CTH AH in the Town of Salem.

*Source: SEWRPC.*

Table 21

NEW FACILITIES PROPOSED TO BE ADDED TO THE COUNTY TRUNK ARTERIAL SYSTEM IN KENOSHA COUNTY BY 1990

| Route | Limits | Municipality |
|---|---|---|
| New Facility (85th Street) | STH 31 to Bain Station Road | Town of Pleasant Prairie |
| New Facility | 264th Avenue to CTH C | Town of Salem |
| New Facility | CTH O to CTH F | Town of Randall |
| New Facility | STH 32 to STH 174 | Town of Pleasant Prairie |
| New Facility (CTH V) | The intersection of existing CTH V and the proposed alignment of CTH V | Town of Bristol |
| New Facility (CTH T) | The intersection of CTH C and CTH HH to the intersection of CTH T and CTH H | Town of Pleasant Prairie |
| New Facility (30th Avenue) | CTH T to the Illinois state line | Town of Pleasant Prairie |

*Source: SEWRPC.*

Table 22

LOCAL ROADS PROPOSED TO BE ADDED TO THE TYPE II ARTERIAL SYSTEM IN KENOSHA COUNTY: 1990

| Route | Limits | Municipality |
|---|---|---|
| 31st Street | 392nd Avenue to CTH KD | Town of Wheatland |
| 93rd Street | Walworth County line to CTH P | Town of Randall |
| 264th Avenue | CTH SA to 110th Street | Town of Salem |
| 368th Avenue | Existing STH 50 to proposed alignment of STH 50 | Town of Wheatland |
| Bain Station Road | CTH C to 85th Street extended | Town of Pleasant Prairie |
| Rock Lake Road | CTH JF to the Illinois state line | Town of Salem |

*Source: SEWRPC.*

mended to be added at such time as new arterial facilities have been constructed to provide continuity in the existing roadway system. County trunk highways proposed to revert to the local road system include CTH L from CTH H to CTH G and CTH EZ from CTH T to the Illinois state line.

## SUMMARY

This chapter has described the recommended jurisdictional highway plan developed for Kenosha 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 Kenosha County and its constituent cities, villages, and towns to the plan design year 1990, and for Type II (county branch) highways which are local roads and collectors that are the financial responsibility of Kenosha County. 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 Kenosha County to the plan design year 1990.

The arterial street and highway system recommended to serve the traffic demand within Kenosha County through the plan design year 1990 totals 363 route-miles of facilities, or about 32 percent of the estimated 1,116 route-miles of facilities expected to comprise the total street and highway system within the county in 1990. Of this total arterial system, 102 route-miles, or about 28 percent, are proposed to comprise the Type I (state trunk) highway system, a decrease of 21 miles from the present system. This Type I system is anticipated to carry approximately 62 percent of the arterial travel demand and approximately 56 percent of the total travel demand expected to be generated in the county by the year 1990. The Type I system is recommended to include all of the existing, committed, and proposed freeway facilities within Kenosha 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, or county trunk, highway system, consisting of 221 route-miles of arterial facilities, or an additional 61 percent

of the total arterial mileage required to serve Kenosha County in 1990. This Type II system represents a decrease of 45 route-miles over the present system, would serve to complement the recommended Type I 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 28 percent of the arterial travel demand and an additional 26 percent of the total travel demand expected to be generated within Kenosha County by the year 1990.

The Type III, or local trunk, highway system recommended in the plan consists of the remaining 40 route-miles of arterial facilities, or about 11 percent of the total arterial mileage proposed to serve Kenosha 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 Kenosha County, while comprising an integral part of the total arterial street and highway system.

In addition, the Type II county branch highway system consists of 111 miles, or 10 percent of the total route mileage required to serve Kenosha County in the plan design year 1990. This Type II nonarterial system supplements the local road system but remains under county funding so as not to burden the rural townships.

Finally, the plan recommends the marking and signing of a system of scenic drives and rustic roads within the county. This system, consisting of 136 route-miles of streets and highways, would be comprised of 50 miles of local, county, and state trunk highways and 86 miles of local collector and land access streets. The system would accommodate the anticipated 44,000 average seasonal Sunday participants in pleasure driving forecast for 1990 in Kenosha County. The recommended scenic system would consist of three basic drives, including the designated Wisconsin Bikeway, the proposed Fox River Scenic Drive, and the proposed Kenosha Scenic Drive which traverses the entire county, with interconnecting links providing access to the wetlands, waterways, and recreational areas of Kenosha 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 Kenosha 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 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 is 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 Aid 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 of 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 performed by motor vehicles in all the States. No State shall receive less than one-half of 1 per centum of each year's apportionment.[3]

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:

---

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

[2] *Ibid.*

[3] *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.[4]

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.[5] 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 is 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.[6]

---

[4] *Ibid.*

[5] *Title 23, United States Code, 135.*

[6] *Title 23, United States Code, 104(6)(b).*

The Federal Aid Highway Act of 1973 provides for the realignment of the federal aid highway systems into three such 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 such 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 23 indicates federal aid apportionments to Wisconsin during the 10 years from fiscal year 1964 through fiscal year 1973.

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. Ninety percent of the construction cost of these interstate highways is paid for with federal interstate funds and the remaining 10 percent with state funds. Table 24 sets forth the annual amounts of federal aid interstate funds expended in Kenosha County during fiscal years 1964 through 1973.

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, Kenosha County has received varying annual amounts of such aids. Tabel 24 also sets forth the annual amounts of federal aid primary funds expended in Kenosha County during fiscal years 1964 through 1973.

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

Table 23

FEDERAL HIGHWAY AID APPORTIONMENTS TO WISCONSIN BY AID CATEGORY: FISCAL YEARS 1964-1973

| Fiscal Year | Aid Category | | | | | |
|---|---|---|---|---|---|---|
| | Interstate | | Primary | | Secondary | |
| | Apportionment | Percent of Total | Apportionment | Percent of Total | Apportionment | Percent of Total |
| 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 | 20.0 | 9,243,153 | 14.0 |
| 1972 | 35,828,800 | 53.5 | 13,080,267 | 19.6 | 9,441,046 | 14.0 |
| 1973 | 22,557,000 | 42.3 | 12,902,000 | 24.2 | 7,279,000 | 13.7 |
| Total | $282,677,220 | -- | $112,921,249 | -- | $77,945,342 | -- |
| 10-Year Average | $ 28,267,722 | -- | $ 11,292,125 | -- | $ 7,794,534 | -- |

| Fiscal Year | Aid Category | | | | | | Total Apportionments |
|---|---|---|---|---|---|---|---|
| | Urban | | TOPICS[a] | | Urban (M System) | | |
| | Apportionment | Percent of Total | Apportionment | Percent of Total | Apportionment | Percent of Total | |
| 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 | 8.0 | 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 |
| 1973 | 4,470,000 | 8.4 | 3,415,000 | 6.4 | 1,744,000 | 3.8 | 52,367,000 |
| Total | $48,885,851 | -- | $13,001,153 | -- | $3,438,387 | -- | $538,869,202 |
| 10-Year Average | $ 4,888,585 | -- | $ 3,250,288 | -- | $1,719,193 | -- | $ 53,886,920 |

[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.*

registered within the county compared with the total number of motor vehicles registered within the state. Based on this formula, Kenosha County has received about $95,000 annually, or more than 1 percent of the total federal aid secondary funds received annually by the state. If 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 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. Kenosha County along with other populous counties in the state had received such reverted funds.

Beginning with fiscal year 1973, federal aid secondary funds were to be apportioned by the State of Wisconsin to the counties by means of a new formula. This apportionment is to be based on a ranked priority list of

Table 24

FEDERAL HIGHWAY AID ALLOTTED TO KENOSHA COUNTY BY AID CATEGORY: FISCAL YEARS 1964-1973

| Fiscal Year | Aid Category | | | | | | | | | | Total Allotments | Federal Highway Aid Apportioned to Wisconsin | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Interstate | | Primary | | Secondary | | Urban | | TOPICS | | | | |
| | Allotment | Percent of Total | Allotment | Percent of Total | Allotment | Percent of Total | Allotment | Percent of Total | Allotment | Percent of Total | | Total | Percent Received by Kenosha County |
| 1964 | $ -- | -- | $175,000 | 95.7 | $ 7,845 | 4.3 | $ -- | -- | $ -- | -- | $ 182,845 | $ 43,692,038 | 0.4 |
| 1965 | -- | -- | -- | -- | 116,970 | 100.0 | -- | -- | -- | -- | 116,970 | 44,737,526 | 0.2 |
| 1966 | -- | -- | -- | -- | 109,125 | 100.0 | -- | -- | -- | -- | 109,125 | 46,978,243 | 0.2 |
| 1967 | -- | -- | -- | -- | 118,850 | 100.0 | -- | -- | -- | -- | 118,850 | 47,274,451 | 0.3 |
| 1968 | -- | -- | -- | -- | 118,850 | 100.0 | -- | -- | -- | -- | 118,850 | 50,875,316 | 0.2 |
| 1969 | -- | -- | -- | -- | 72,752 | 93.6 | -- | -- | 5,000 | 6.4 | 77,752 | 54,039,505 | 0.1 |
| 1970 | 1,782,000 | 94.9 | -- | -- | 89,240 | 4.7 | -- | -- | 7,500 | 0.4 | 1,878,740 | 66,076,007 | 2.8 |
| 1971 | 4,374,000 | 93.6 | -- | -- | 167,091 | 3.6 | -- | -- | 132,105 | 2.8 | 4,673,196 | 65,784,587 | 7.1 |
| 1972 | -- | -- | -- | -- | 150,601 | 53.7 | -- | -- | 129,605 | 46.3 | 280,206 | 67,044,529 | 0.4 |
| 1973 | 179,000 | 62.8 | -- | -- | -- | -- | -- | -- | 106,000 | 37.2 | 285,000 | 52,367,000 | 0.1 |
| Total | $6,335,000 | -- | $175,000 | -- | $951,324 | -- | $ -- | -- | $380,210 | -- | $7,841,534 | $538,869,202 | -- |
| 10-Year Average | $ 633,500 | -- | $ 17,500 | -- | $ 95,132 | -- | $ -- | -- | $ 76,042 | -- | $ 784,153 | $ 53,886,920 | -- |

*Source: Wisconsin Department of Transportation.*

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 cost of the selected counties' projects approximately equals the amount of federal aid secondary funds available. The annual amounts of federal aid secondary funds expended in Kenosha County during fiscal years 1964 through 1973 are shown in Table 24.

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 1964 through 1973 Kenosha 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 City of Kenosha was eligible for TOPICS aid, and has availed itself of such aid. The federal aid urban system, as provided for in the Federal Aid Highway Act of 1970, was not designated in Kenosha County until May of 1972, and no apportionments were made in the county during the fiscal years 1963 to 1973.

The Federal Aid Highway Act of 1973 provided for the realignment of the federal aid urban system. This redefinition of the urban system has been undertaken by the appropriate local officials with the concurrence of the State Highway Commission, and has been approved by the Federal Highway Administration. The federal aid urban system 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

Table 25

WISCONSIN MOTOR VEHICLE REVENUES: FISCAL YEARS 1964-1973

| 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 | | | | |
| 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 |
| 1973 | 81,020,630 | 155,740,186 | 688,190 | 29,678 | 237,478,684 | 30,757,898 | 206,720,786 |
| Total | $647,341,025 | $1,171,165,327 | $6,314,911 | $173,148 | $1,824,994,411 | $195,628,120 | $1,629,366,291 |
| 10-Year Average | $ 64,734,102 | $ 117,116,533 | $ 631,491 | $ 17,315 | $ 182,499,441 | $ 19,562,812 | $ 162,936,629 |

[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.*

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 25 indicates the state motor vehicle revenues collected in Wisconsin during fiscal years 1964 through 1973.

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 26 indicates the statewide distribution of net motor vehicle revenues for fiscal years 1964 through 1973. It may be noted from this table that for fiscal year 1973, about 48 percent of the net motor vehicle revenues were allocated to state trunk highways; about 44 percent were returned to local units of government, including counties, cities, villages, and towns; and about 8 percent were utilized for miscellaneous purposes.

Of the approximately 44 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 such mileage within the state;[7] 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 44 percent of the motor fuel revenues returned to local units of government, approximately 26 percent were returned to local municipalities on the following basis: 12 percent to towns, 2 percent to villages, and 12 percent to cities. This return comprises the local road and street allotment and supplemental aids. The

[7] *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 26

PERCENTAGE DISTRIBUTION OF NET MOTOR VEHICLE REVENUES BY THE STATE OF WISCONSIN
FISCAL YEARS 1964-1973

| Net Motor Vehicle Revenue Distribution | Annual Percent Distributed | | | | | | | | | 1973 Distribution | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | Amount | Percent |
| Allotted and Apportioned to Local Units of Government | | | | | | | | | | | |
| Counties | 14.1 | 14.1 | 14.1 | 12.5 | 12.4 | 12.4 | 12.3 | 12.2 | 11.8 | $ 24,806,315 | 12.0 |
| Cities | 17.0 | 17.1 | 17.2 | 15.6 | 15.5 | 15.6 | 15.4 | 15.3 | 15.0 | 24,891,293 | 12.0 |
| Villages | 3.2 | 3.2 | 3.2 | 3.0 | 3.0 | 3.0 | 3.1 | 3.0 | 3.0 | 5,171,738 | 2.5 |
| Towns | 15.1 | 15.1 | 15.1 | 13.6 | 13.5 | 13.7 | 13.4 | 13.3 | 13.0 | 23,847,445 | 11.7 |
| Flood Damage Aid | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Subtotal | 49.4 | 49.5 | 49.6 | 44.7 | 44.4 | 44.7 | 44.2 | 43.8 | 42.8 | $ 89,911,028[b] | 43.5 |
| Allotted and Apportioned for State Trunk Highways | | | | | | | | | | | |
| Construction | 20.4 | 19.5 | 20.1 | 25.3 | 31.1 | 28.1 | 25.4 | 24.7 | 23.5 | $ 51,480,475 | 25.0 |
| Urban Street Improvement | 3.2 | 3.0 | 2.8 | 2.5 | 2.3 | 2.2 | 2.1 | 2.0 | 2.0 | 3,800,000 | 1.8 |
| Bond Retirement and Improvement | 6.7 | 6.4 | 6.0 | 5.2 | 4.9 | 4.7 | 4.6 | 4.4 | 4.1 | 8,049,153 | 3.9 |
| Maintenance, Traffic Service | 11.3 | 11.2 | 11.1 | 10.7 | 10.1 | 10.6 | 11.7 | 10.9 | 12.8 | 25,028,142 | 12.1 |
| Snow Removal | 3.5 | 4.6 | 3.7 | 4.7 | -- | 2.6 | 4.4 | 5.5 | 4.3 | 8,297,808 | 4.0 |
| Safety Improvement | 0.0 | 0.0 | 0.9 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 2,763,780 | 1.3 |
| Subtotal | 45.1 | 44.7 | 44.6 | 49.8 | 49.8 | 49.6 | 49.6 | 48.9 | 48.1 | $ 99,419,358 | 48.1 |
| Miscellaneous Allotments[a] | 5.5 | 5.8 | 5.8 | 5.5 | 5.8 | 5.7 | 6.2 | 7.3 | 9.1 | $ 17,390,400 | 8.4 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | $206,720,786 | 100.0 |

[a] *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.*

[b] *Total exceeds distribution by $11,194,237, which represents privilege and supplemental privilege tax paid into the municipal and county shared tax account and distributed under Subchapter 1 of Chapter 79 of the Wisconsin Statutes.*

*Source: Wisconsin Department of Transportation and SEWRPC.*

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 27 shows the rate per mile at which the towns, villages, and cities are paid their respective local road and street allotments. The supplemental aids consist of 35 percent of the revenues raised by the two-cent-a-gallon gas tax increases 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 the villages and cities with a population of 10,000 or less are apportioned on the basis of local road mileage.

Table 27

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

| Level of Government | Rate Per Mile | Supplemental Aids Distributed in 1973/Mile |
|---|---|---|
| Towns | $ 65 | $ 339 |
| Villages | 65 | 1,891 |
| Cities with Population of: | | |
| 0 - 10,000 | 130 | 1,891 |
| 10,001 - 35,000 | 260 | 1,746 |
| 35,001 - 150,000 | 390 | 2,619 |
| 150,001 or more | 520 | 3,492 |

[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: Wisconsin Department of Transportation.*

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 28 indicates the combined state and federal aid funds allocated to Kenosha County for the calendar years 1964 through 1973 for the construction and maintenance of state trunk highways and connecting streets.

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 70-30 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 times, as negotiated and agreed upon between the Wisconsin Department of Transportation,

**Table 28**

**STATE OF WISCONSIN EXPENDITURES AND REVENUES FOR STATE TRUNK HIGHWAYS AND CONNECTING STREETS IN KENOSHA COUNTY: CALENDAR YEARS 1964-1973**

| Calendar Year | Expenditures[a] | | | Revenues[a] | | |
|---|---|---|---|---|---|---|
| | Maintenance | Construction | Total | State Funds[b] | Federal Aids | Total |
| 1964 | $ 224,537 | $ 757,000 | $ 981,537 | $ 806,537 | $ 175,000 | $ 981,537 |
| 1965 | 261,810 | 1,138,000 | 1,399,810 | 1,044,810 | 355,000 | 1,399,810 |
| 1966 | 243,056 | 218,000 | 461,056 | 338,056 | 123,000 | 461,056 |
| 1967 | 297,977 | -- | 297,977 | 297,977 | -- | 297,977 |
| 1968 | 303,560 | 828,000 | 1,131,560 | 1,131,560 | -- | 1,131,560 |
| 1969 | 323,748 | -- | 323,748 | 323,748 | -- | 323,748 |
| 1970 | 296,989 | 2,478,000 | 2,774,989 | 926,989 | 1,848,000 | 2,774,989 |
| 1971 | 401,908 | 4,860,000 | 5,261,908 | 887,908 | 4,374,000 | 5,261,908 |
| 1972 | 438,718 | 45,000 | 483,718 | 483,718 | -- | 483,718 |
| 1973 | 396,168 | 199,100 | 595,268 | 416,268 | 179,000 | 595,268 |
| Total | $3,188,471 | $10,523,100 | $13,711,571 | $6,657,571 | $7,054,000 | $13,711,571 |
| 10-Year Average | $ 318,847 | $ 1,052,310 | $ 1,371,157 | $ 665,757 | $ 705,400 | $ 1,371,157 |

[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 Kenosha County were set equal to the difference between total revenues and federal aids.*

*Source: Wisconsin Department of Transportation and Kenosha County Highway Department.*

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 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 28 summarizes state expenditures in Kenosha County for the construction and operation and maintenance of the state trunk highways and connecting streets for the calendar years 1964 through 1973.

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. Kenosha 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 in Wisconsin received about 10 percent of its total highway revenues from federal aid, about 36 percent from state aid, and about 54 percent from local sources. Table 29 indicates the revenues received by Kenosha County for highway purposes for the fiscal years 1964 through 1973.

**Table 29**

**KENOSHA COUNTY EXPENDITURES AND REVENUES FOR COUNTY TRUNK HIGHWAYS: FISCAL YEARS 1964-1973**

| Fiscal Year | Expenditures[a] | | | Revenues[a] | | | |
|---|---|---|---|---|---|---|---|
| | Maintenance | Construction | Total | Local Funds[c] | State Aids | Federal Aids | Total |
| 1964[b] | $ 461,800 | $ 297,437 | $ 759,237 | $ 514,347 | $ 244,890 | $ -- | $ 759,237 |
| 1965 | 576,574 | 20,324 | 596,898 | 337,111 | 259,787 | -- | 596,898 |
| 1966 | 558,636 | 187,488 | 746,124 | 394,091 | 275,633 | 76,400 | 746,124 |
| 1967 | 658,478 | 323,027 | 981,505 | 575,392 | 274,513 | 131,600 | 981,505 |
| 1968 | 644,688 | 414,324 | 1,059,012 | 636,329 | 288,683 | 134,000 | 1,059,012 |
| 1969 | 704,583 | 47,041 | 751,624 | 450,251 | 301,373 | -- | 751,624 |
| 1970 | 751,294 | 254,431 | 1,005,725 | 570,487 | 306,838 | 128,400 | 1,005,725 |
| 1971 | 794,911 | 360,480 | 1,155,391 | 652,090 | 321,401 | 181,900 | 1,155,391 |
| 1972 | 786,875 | 562,183 | 1,349,058 | 738,353 | 327,005 | 283,700 | 1,349,058 |
| 1973 | 879,885 | 148,633 | 1,028,518 | 598,835 | 354,683 | 75,000 | 1,028,518 |
| Total | $6,817,724 | $2,615,368 | $9,433,092 | $5,467,286 | $2,954,806 | $1,011,000 | $9,433,092 |
| 10-Year Average | $ 681,772 | $ 261,537 | $ 943,309 | $ 546,729 | $ 295,481 | $ 101,100 | $ 943,309 |

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

[b] *The county fiscal year 1964 extends from January 1, 1964 through December 31, 1964.*

[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.*

*Source: Kenosha County Highway Department and SEWRPC.*

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, Kenosha 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 29 indicates the county highway funds expended by Kenosha County for highway construction and maintenance and operation during fiscal years 1964 through 1973.

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 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 30, 31, and 32 indicate the highway

**Table 30**

**CITY EXPENDITURES AND REVENUES FOR CITY STREETS IN KENOSHA COUNTY: FISCAL YEARS 1964-1973**

| Fiscal Year | Expenditures[a] | | | Revenues[a] | | | |
|---|---|---|---|---|---|---|---|
| | Maintenance | Construction | Total | Local Funds[c] | Federal Aids | State Aids | Total[d] |
| 1964[b] | $ 882,864 | $ 2,123,858 | $ 3,006,772 | $ 2,447,798 | $ -- | $ 558,924 | $ 3,006,722 |
| 1965 | 843,897 | 1,235,878 | 2,079,775 | 1,487,271 | -- | 592,504 | 2,079,775 |
| 1966 | 820,392 | 1,457,606 | 2,277,998 | 1,653,560 | -- | 624,438 | 2,277,998 |
| 1967 | 1,120,104 | 1,504,692 | 2,624,796 | 1,988,499 | -- | 636,297 | 2,624,796 |
| 1968 | 992,992 | 953,417 | 1,946,409 | 1,271,432 | -- | 674,977 | 1,946,409 |
| 1969 | 1,088,626 | 965,224 | 2,053,850 | 1,352,257 | -- | 701,593 | 2,053,850 |
| 1970 | 1,152,339 | 2,031,659 | 3,183,998 | 2,472,283 | -- | 711,715 | 3,183,998 |
| 1971 | 1,144,780 | 1,350,399 | 2,495,179 | 1,496,540 | 273,000 | 725,639 | 2,495,179 |
| 1972 | 1,206,986 | 1,247,942 | 2,454,928 | 1,714,420 | -- | 740,508 | 2,454,928 |
| 1973 | 1,552,285 | 2,108,254 | 3,660,539 | 2,920,120 | 106,000 | 634,419 | 3,660,539 |
| Total | $10,805,265 | $14,978,929 | $25,784,194 | $18,804,180 | $379,000 | $6,601,014 | $25,784,194 |
| 10-Year Average | $ 1,080,526 | $ 1,497,893 | $ 2,578,419 | $ 1,880,418 | $ 37,900 | $ 660,101 | $ 2,578,419 |

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

[b] *The city fiscal year 1964 extends from January 1, 1964 through December 31, 1964.*

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

[d] *Bond issues are not included in total revenues.*

*Source: Wisconsin Department of Administration and SEWRPC.*

and highway-related revenues for the city, villages, and towns, respectfully, in Kenosha County for the fiscal years 1964 through 1973.

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 30, 31, and 32 summarize the expenditures for construction, operation, and maintenance by the city, villages, and towns, respectively, in Kenosha County for fiscal years 1964 through 1973.

Concluding Remark-Highway Improvement and Maintenance Funding

Table 33 provides a summary of all expenditures for highway construction, operation, and maintenance in Kenosha County for the calendar years 1964 through 1973. The present participation of the various levels of government in highway construction and maintenance costs is summarized in Table 34. 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 costs, may vary considerably depending on the definition of participating or eligible work items. Local participation in past construction projects within Kenosha 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 responsibility for the operation and maintenance of individual facilities comprising the subsystem, as well as the design 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 opera-

**Table 31**

**VILLAGE EXPENDITURES AND REVENUES FOR VILLAGE STREETS IN KENOSHA COUNTY: FISCAL YEARS 1964-1973**

| Fiscal Year | Expenditures[a] | | | Revenues[a] | | |
|---|---|---|---|---|---|---|
| | Maintenance | Construction | Total | Local Funds[c] | State Aids | Total |
| 1964[b] | $ 93,748 | $ 3,523 | $ 97,271 | $ 32,893 | $ 64,378 | $ 97,271 |
| 1965 | 70,844 | 2,273 | 73,117 | 5,554 | 67,563 | 73,117 |
| 1966 | 90,526 | 14,342 | 104,868 | 32,693 | 72,175 | 104,868 |
| 1967 | 75,108 | 24,226 | 99,334 | 26,017 | 73,317 | 99,334 |
| 1968 | 72,487 | 75,959 | 148,446 | 72,026 | 76,420 | 148,446 |
| 1969 | 88,958 | 29,022 | 117,980 | 48,760 | 69,220 | 117,980 |
| 1970 | 96,855 | 22,973 | 119,828 | 48,501 | 71,327 | 119,828 |
| 1971 | 87,523 | 36,917 | 124,440 | 31,710 | 92,730 | 124,440 |
| 1972 | 119,226 | 38,097 | 157,323 | 72,612 | 84,711 | 157,323 |
| 1973 | 159,414 | 12,405 | 171,819 | 79,103 | 92,716 | 171,819 |
| Total | $954,689 | $259,737 | $1,214,426 | $449,869 | $764,557 | $1,214,426 |
| 10-Year Average | $ 95,469 | $ 25,974 | $ 121,443 | $ 44,987 | $ 76,456 | $ 121,443 |

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

[b] *The village fiscal year 1963 extends from January 1, 1964 through December 31, 1964.*

[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.*

tion 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 highway system within the more densely populated portions of the City of Kenosha in Kenosha County.

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 Kenosha 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.

The City of Kenosha has the only connecting street mileage within the county. Of the three villages, only Pad-

**Table 32**

**TOWN EXPENDITURES AND REVENUES FOR TOWN ROADS IN KENOSHA COUNTY: FISCAL YEARS 1964-1973**

| Fiscal Year | Expenditures[a] | | | Revenues[a] | | |
|---|---|---|---|---|---|---|
| | Maintenance | Construction | Total | Local Funds[c] | State Aids | Total |
| 1964[b] | $ 167,934 | $ 20,322 | $ 188,256 | $ 66,658 | $ 121,598 | $ 188,256 |
| 1965 | 198,535 | 62,663 | 261,198 | 129,926 | 131,272 | 261,198 |
| 1966 | 170,578 | 102,597 | 273,175 | 150,413 | 122,762 | 273,175 |
| 1967 | 284,468 | 72,250 | 356,718 | 220,654 | 136,064 | 356,718 |
| 1968 | 207,389 | 69,459 | 276,848 | 134,323 | 142,525 | 276,848 |
| 1969 | 312,334 | 38,077 | 350,411 | 191,893 | 158,518 | 350,411 |
| 1970 | 343,906 | 47,580 | 391,486 | 232,654 | 158,832 | 391,486 |
| 1971 | 296,405 | 135,186 | 431,591 | 260,400 | 171,191 | 431,591 |
| 1972 | 350,082 | 322,515 | 672,597 | 483,537 | 189,060 | 672,597 |
| 1973 | 586,523 | 110,819 | 697,342 | 605,504 | 91,838 | 697,342 |
| Total | $2,918,154 | $981,468 | $3,899,622 | $2,475,962 | $1,423,660 | $3,899,622 |
| 10-Year Average | $ 291,154 | $ 98,147 | $ 389,962 | $ 247,596 | $ 142,366 | $ 389,962 |

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

[b] *The town fiscal year 1964 extends from April 1, 1963 through March 31, 1964.*

[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 33

## EXPENDITURES BY FEDERAL, STATE, COUNTY, AND LOCAL GOVERNMENTS FOR HIGHWAY CONSTRUCTION, OPERATION, AND MAINTENANCE IN KENOSHA COUNTY: 1964-1973

| Calendar Year | Level of Government | | | | | |
|---|---|---|---|---|---|---|
| | Federal | | | State | | |
| | Construction[a] | Operation and Maintenance[b] | Total | Construction[a] | Operation and Maintenance[b] | Total |
| 1964 | $ 175,000 | -- | $ 175,000 | $ 582,000 | $ 224,537 | $ 806,537 |
| 1965 | 355,000 | -- | 355,000 | 783,000 | 261,810 | 1,044,810 |
| 1966 | 199,400 | -- | 199,400 | 95,000 | 243,056 | 338,056 |
| 1967 | 131,600 | -- | 131,600 | -- | 297,977 | 297,977 |
| 1968 | 134,000 | -- | 134,000 | 828,000 | 303,560 | 1,131,560 |
| 1969 | -- | -- | -- | -- | 323,748 | 323,748 |
| 1970 | 1,976,400 | -- | 2,181,150 | 630,000 | 296,989 | 926,989 |
| 1971 | 4,828,900 | -- | 4,624,150 | 486,000 | 401,908 | 887,908 |
| 1972 | 283,700 | -- | 363,200 | 45,000 | 438,718 | 483,718 |
| 1973 | 280,500 | -- | 280,500 | 20,100 | 396,168 | 416,268 |
| Total | $8,444,000 | -- | $8,444,000 | $3,469,100 | $3,188,471 | $6,657,571 |
| 10-Year Average | $ 844,400 | -- | $ 844,400 | $ 346,910 | $ 318,847 | $ 665,757 |

| Calendar Year | Level of Government | | | | | |
|---|---|---|---|---|---|---|
| | County | | | Local | | |
| | Construction[a] | Operation and Maintenance[b] | Total | Construction[a] | Operation and Maintenance[b] | Total |
| 1964 | $ 297,437 | $ 461,800 | $ 759,237 | $ 2,179,459 | $ 1,167,497 | $ 3,346,956 |
| 1965 | 20,324 | 576,574 | 596,898 | 1,330,765 | 1,092,309 | 2,423,074 |
| 1966 | 111,088 | 558,636 | 669,724 | 1,551,785 | 1,166,914 | 2,718,699 |
| 1967 | 191,427 | 658,478 | 849,905 | 1,599,075 | 1,421,871 | 3,020,946 |
| 1968 | 280,324 | 644,688 | 925,012 | 1,075,299 | 1,351,577 | 2,426,876 |
| 1969 | 47,041 | 704,583 | 751,624 | 1,039,450 | 1,513,598 | 2,553,048 |
| 1970 | 126,031 | 751,294 | 877,325 | 2,167,917 | 1,557,475 | 3,725,392 |
| 1971 | 178,580 | 794,911 | 973,491 | 1,389,999 | 1,568,966 | 2,958,965 |
| 1972 | 278,483 | 786,875 | 1,065,358 | 1,449,782 | 1,853,625 | 3,303,407 |
| 1973 | 73,633 | 879,885 | 953,518 | 2,115,974 | 2,339,265 | 4,455,239 |
| Total | $1,604,368 | $6,817,724 | $8,422,092 | $15,899,505 | $15,033,097 | $30,932,602 |
| 10-Year Average | $ 160,437 | $ 681,772 | $ 842,209 | $ 1,589,950 | $ 1,503,309 | $ 3,093,260 |

[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.*

dock Lake has state trunk highway mileage, with the Villages of Twin Lakes and Silver Lake having no state trunk highway or connecting street mileage. Table 4 indicates the present distribution of state trunk highway and connecting street mileage within Kenosha County by municipality. State trunk highways within Kenosha 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 Kenosha 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 Kenosha County of a Type I arterial highway system totaling 102 route-miles was recommended. Of this total, approximately 24 miles would consist of freeways and the remaining 78 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 Kenosha 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

**Table 34**

**RELATIONSHIP BETWEEN JURISDICTIONAL HIGHWAY CLASSIFICATION AND AID FORMULAS FOR CONSTRUCTION AND MAINTENANCE IN KENOSHA 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) | 111.43 | 12.8 | Freeways and Rural Highways - 100 percent state<br><br>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) | 11.96 | 1.4 | 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 | 265.82 | 30.5 | Rural Highways - 100 percent county<br><br>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.<br><br>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 | 480.78 | 55.3 | 100 percent municipal funds | State aid provided at variable rate based on size and class of municipality. |
| Total | 869.99 | 100.0 | -- | -- |

Table 34 (continued)

| Federal Aid Classification | Number of Miles (1973) | Percent of Total Miles | Participation in Construction Costs | Participation in Maintenance Costs[a] |
|---|---|---|---|---|
| Interstate | 12.07 | 4.4 | 90 percent federal, 10 percent state | 100 percent nonfederal |
| Primary System (Includes 49 percent of state trunk highway mileage) | 67.70 | 24.7 | 70 percent federal, 30 percent nonfederal[b] | 100 percent nonfederal |
| Secondary System (Includes 51 percent of the state trunk highway mileage, 41 percent of the county trunk highway mileage, and 1 percent of the local street and road mileage) | 174.93 | 63.8 | 70 percent federal, 30 percent nonfederal[b] | 100 percent nonfederal |
| TOPICS | 16.30 | 5.9 | 70 percent federal, 30 percent nonfederal[b] | 100 percent nonfederal |
| Urban System (Includes 1 percent of the local street and road mileage) | 3.00 | 1.2 | 70 percent federal, 30 percent nonfederal[b] | 100 percent nonfederal |
| Total | 274.00 | 100.0 | -- | -- |

[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.*

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 proration 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 and administration of operational controls with those cities and villages which have a demonstrated capability and desire to perform the maintenance and administrative functions and which continue to meet the county established standards for such functions. 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 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 Kenosha 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 construc-

tion 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 service.
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 would require that the town contribute 15 percent of the participating cost of the improvement.

Proposed Establishment of the County Branch Highway System

The public financial resource analysis conducted under the jurisdictional highway planning program indicated that, given the same relative local tax effort for highway transportation purposes as the city and villages, the towns within Kenosha County would not be financially capable of providing the required level of highway service. It is therefore recommended that, in order to equalize tax efforts to meet transportation needs, Kenosha County retain on the county trunk highway system through the planning period those existing facilities outside of the urban area which are not required to provide arterial service. With the establishment of the recommended county branch highway system, the local tax effort required of the towns would approximately equal the per capita tax effort of the city and villages. Furthermore, in addition to making the recommended plan financially feasible at all levels of government, the establishment of the county branch highway system would result in the equalizing of urban and rural transportation-related tax efforts.

## 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 considerations of the effects of the proposed plan on highway aids and allotments to the municipalities comprising Kenosha 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 Kenosha County will affect the mileage of state trunk and county trunk facilities within each municipality in Kenosha 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 Kenosha County on highway aids and allotments is summarized in Table 35. 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 35 indicates that, as a result of the recommended jurisdictional realignment for the 1975 stage of the plan, a decrease in the local street aids and allotments paid to units of government in Kenosha County of about $46,700 per year could be expected. In part, this decrease in aids and allotments is the net effect of a 7.24-mile increase in urban county trunk highway mileage in con-

Table 35

## HIGHWAY AND HIGHWAY-RELATED AIDS AND ALLOTMENTS RETURNED TO MUNICIPALITIES IN KENOSHA 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 | | | | | | | |
| City | | | | | | | | | |
| Kenosha. . . . . | -- | 3.96 | 11.96 | 3.55 | 206.39 | $ 621,068 | $ 7,370 | $5,980 | $ -- |
| Subtotal | -- | 3.96 | 11.96 | 3.55 | 206.39 | $ 621,068 | $ 7,370 | $5,980 | $ -- |
| Villages | | | | | | | | | |
| Paddock Lake. . . | -- | 1.72 | -- | 0.68 | 13.96 | $ 27,311 | $ 120 | $ -- | $ -- |
| Silver Lake. . . . . | -- | -- | -- | 2.96 | 10.49 | 20,523 | 124 | -- | -- |
| Twin Lakes. . . . . | -- | -- | -- | 9.69 | 22.94 | 44,880 | 228 | -- | -- |
| Subtotal | -- | 1.72 | -- | 13.33 | 47.39 | $ 92,714 | $ 472 | $ -- | $ -- |
| Towns | | | | | | | | | |
| Brighton . . . . . | -- | 12.43 | -- | 31.39 | 14.51 | $ 5,861 | $ 102 | $ -- | $ -- |
| Bristol . . . . . | 3.02 | 12.48 | -- | 37.15 | 20.69 | 8,357 | 359 | -- | -- |
| Paris . . . . . | 3.01 | 12.26 | -- | 32.50 | 6.16 | 2,488 | 175 | -- | -- |
| Pleasant Prairie . . | 3.03 | 19.02 | -- | 28.31 | 67.15 | 27,125 | 878 | -- | -- |
| Randall . . . . . | -- | -- | -- | 25.41 | 14.06 | 5,679 | 187 | -- | -- |
| Salem . . . . . | -- | 10.61 | -- | 34.61 | 53.85 | 21,752 | 658 | -- | -- |
| Somers . . . . . | 3.01 | 18.25 | -- | 41.30 | 29.82 | 12,045 | 585 | -- | -- |
| Wheatland . . . . . | -- | 8.63 | -- | 18.27 | 20.76 | 8,385 | 214 | -- | -- |
| Subtotal | 12.07 | 93.68 | -- | 248.94 | 227.00 | $ 91,692 | $ 3,158 | $ -- | $ -- |
| Kenosha County | -- | -- | -- | -- | -- | $ 354,683 | $ -- | $ -- | $388,600 |
| Total | 12.07 | 99.36 | 11.96 | 265.82 | 480.78 | $1,160,157 | $11,000 | $5,980 | $388,600 |

junction with a 6.83-mile decrease in city street mileage, a 2.88-mile increase in rural county trunk highway mileage, and a 2.88-mile decrease in town road mileage, resulting in a reduction of about $18,900 per year. The remainder of the decrease in local street aids and allotments, about $27,800, is caused by assuming a reduction in the amount of supplemental aids available for distribution to local units of government after all other statutory disbursements are made from motor vehicle derived revenues to pay for the cost of maintaining the state trunk highway system after the connecting street system is abolished.

It was recognized that policy change affecting the status of the connecting streets would have to be administratively feasible on a statewide basis. 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, with the exception of a portion of the supplemental motor fuel tax,[8] 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 Kenosha County may be expected to result in a decrease of $27,800 in local street aids and allotments, as previously stated, and the elimination of $5,980 in connecting street allotments, a total decrease of about $33,800.

[8] *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 35 (continued)

Initial Jurisdictional Realignment - 1975

| 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 Highway | Local Street | | | | |
| | Freeway | Nonfreeway | | | | | | | |
| City | | | | | | | | | |
| Kenosha. . . . . | -- | 15.73 | -- | 10.79 | 199.56 | $ 585,908 | $ -- | $ --- | $ 59,800 |
| Subtotal | -- | 15.73 | -- | 10.79 | 199.56 | $ 585,908 | $ -- | $ -- | $ 59,800 |
| Villages | | | | | | | | | |
| Paddock Lake . . . | -- | 1.72 | -- | 0.68 | 13.96 | $ 26,571 | $ -- | $ -- | $ -- |
| Silver Lake . . . . . | -- | -- | -- | 2.96 | 10.49 | 19,966 | -- | -- | -- |
| Twin Lakes. . . . . | -- | -- | -- | 9.69 | 22.94 | 43,663 | -- | -- | -- |
| Subtotal | -- | 1.72 | -- | 13.33 | 47.39 | $ 90,200 | $ -- | $ ---- | $ -- |
| Towns | | | | | | | | | |
| Brighton . . . . . | -- | 12.43 | -- | 31.39 | 14.51 | $ 5,723 | $ -- | $ -- | $ -- |
| Bristol . . . . . | 3.02 | 12.48 | -- | 37.69 | 20.15 | 7,948 | -- | -- | -- |
| Paris . . . . . | 3.01 | 12.26 | -- | 33.46 | 5.20 | 2,051 | -- | -- | -- |
| Pleasant Prairie . . | 3.03 | 19.02 | -- | 28.04 | 67.42 | 26,592 | -- | -- | -- |
| Randall . . . . . | -- | -- | -- | 25.66 | 13.81 | 5,447 | -- | -- | -- |
| Salem . . . . . | -- | 10.61 | -- | 34.61 | 53.85 | 21,240 | -- | -- | -- |
| Somers . . . . . | 3.01 | 18.25 | -- | 42.70 | 28.42 | 11,209 | -- | -- | -- |
| Wheatland . . . . . | -- | 863 | -- | 18.27 | 20.76 | 8,188 | -- | -- | -- |
| Subtotal | 12.07 | 93.68 | -- | 251.82 | 224.12 | $ 88,398 | $ -- | $ -- | $ -- |
| Kenosha County | -- | -- | -- | -- | -- | $ 348,967 | $ -- | $ -- | $388,600 |
| Total | 12.07 | 111.13 | -- | 275.94 | 471.07 | $1,113,473 | $ -- | $ -- | $448,400 |

With the abolishment of the connecting street concept and the establishment of a continuous state trunk highway system through incorporated areas, it is proposed that the state reimburse the units of government within Kenosha County for the full cost incurred in maintaining state trunk highways, in an effort to offset this reduction in aids and allotments. As noted in Table 35, such reimbursement could be expected to amount to about $5,980 per year. The net effect on total aids and allotments would be an increase of about $3,500 in the monies paid to municipalities within Kenosha County for the year 1975.

It should be noted that the forecast of aids and allotments returned to municipalities as shown in Table 35 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 Kenosha County through the 20-year planning period 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 Kenosha 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.

**Table 35 (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 Highway | Local Street | | | | |
| | Freeway | Nonfreeway | | | | | | | |
| City | | | | | | | | | |
| Kenosha | 2.96 | 19.85 | -- | 59.54 | 470.16 | $2,134,334 | $ -- | $ -- | $143,600 |
| Subtotal | 2.96 | 19.85 | -- | 59.54 | 470.16 | $2,134,334 | $ -- | $ -- | $143,600 |
| Villages | | | | | | | | | |
| Paddock Lake | -- | 1.91 | -- | 3.62 | 31.26 | $ 95,703 | $ -- | $ -- | $ -- |
| Silver Lake | -- | -- | -- | 5.34 | 21.36 | 65,394 | -- | -- | -- |
| Twin Lakes | -- | -- | -- | 12.60 | 27.51 | 84,222 | -- | -- | -- |
| Subtotal | -- | 1.91 | -- | 21.56 | 80.13 | $ 245,319 | $ -- | $ -- | $ -- |
| Towns | | | | | | | | | |
| Brighton | -- | 8.91 | -- | 34.91 | 14.51 | $ 8,735 | $ -- | $ -- | $ -- |
| Bristol | 3.02 | 12.52 | -- | 37.71 | 20.88 | 12,568 | -- | -- | -- |
| Paris | 3.01 | 12.26 | -- | 33.46 | 5.20 | 3,130 | -- | -- | -- |
| Pleasant Prairie | 9.10 | 3.47 | -- | 31.05 | 11.67 | 7,024 | -- | -- | -- |
| Randall | -- | -- | -- | 26.55 | 11.46 | 6,899 | -- | -- | -- |
| Salem | -- | 3.20 | -- | 36.64 | 41.19 | 24,796 | -- | -- | -- |
| Somers | 5.96 | 2.51 | -- | 26.16 | 10.31 | 6,206 | -- | -- | -- |
| Wheatland | -- | 8.43 | -- | 24.49 | 15.99 | 9,625 | -- | -- | -- |
| Subtotal | 21.09 | 56.30 | -- | 250.97 | 131.21 | $ 78,985 | $ -- | $ -- | $ -- |
| Kenosha County | -- | -- | -- | -- | -- | $ 555,390 | $ -- | $ -- | $281,400 |
| Total | 24.05 | 78.06 | -- | 331.57 | 681.50 | $3,014,028 | $ -- | $ -- | $425,000 |

[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 was estimated that in 1973 the net effect of this change in the method of distributing the privilege highway tax would be a slight reduction—about 7 percent—in the amount of aid from this source received by Kenosha 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 15 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 Kenosha 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.*

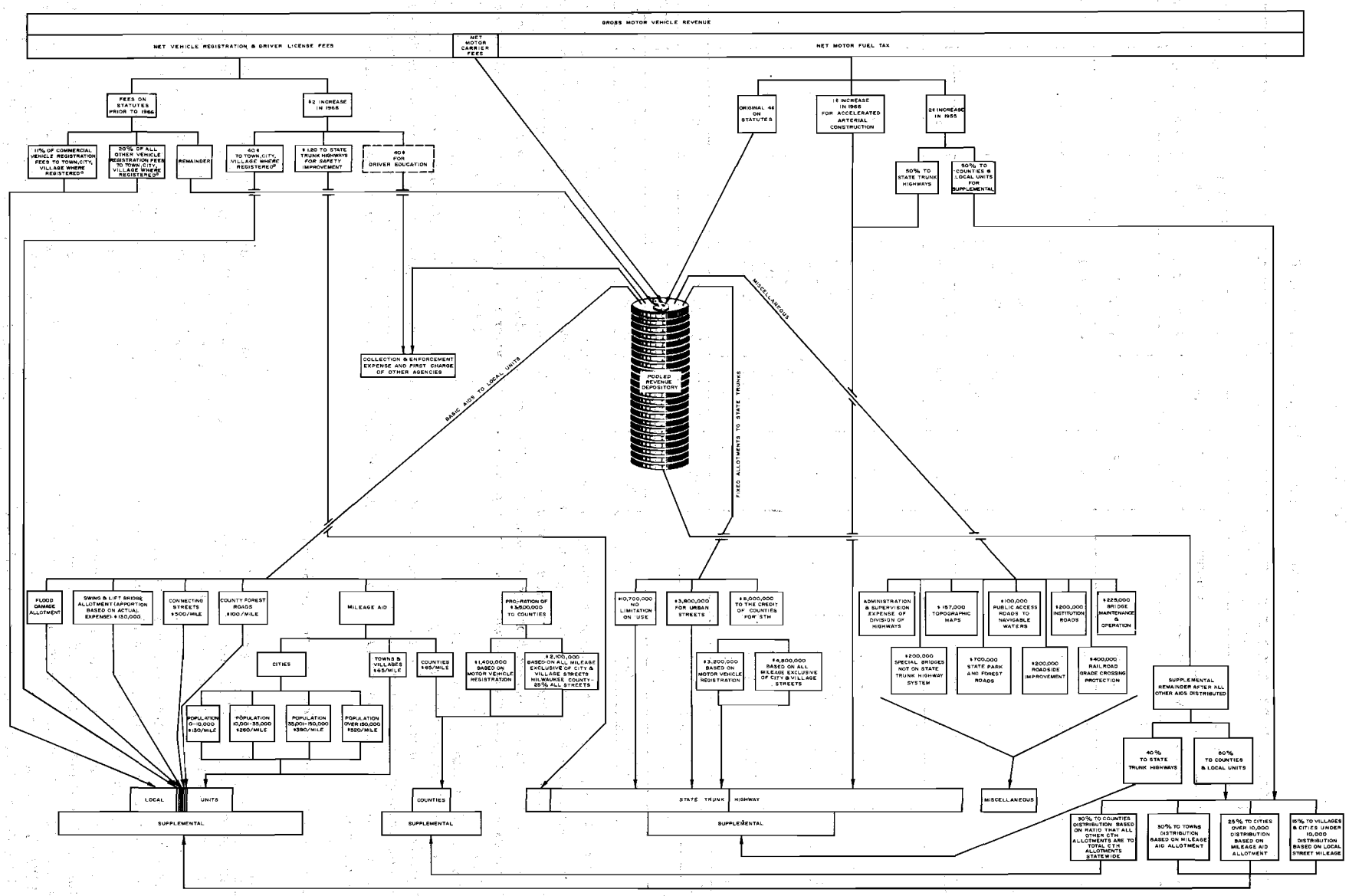
*Source: Wisconsin Department of Transportation and SEWRPC.*

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

Figure 11

## DISTRIBUTION OF TOTAL MOTOR VEHICLE REVENUE IN WISCONSIN: 1973




[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.*

to Kenosha County. It should be noted that these unit costs, in 1973 dollars, range from 14 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 Kenosha 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 also be 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 36. The plan implementation costs are expressed in terms of 1973 unit prices and total approximately $135 million for the entire arterial system, including approximately $113 million for construction and $22 million for maintenance costs. The breakdown of these costs by level of government is set forth in Table 37.

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 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[9] and local[10] streets under good land subdivision practice to the total land area to be converted from rural to urban use within each municipality in Kenosha County over the plan design period. Since there is relatively no difference between collector and local street and county branch 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 Kenosha County, these differences were not considered significant, and the same unit costs were utilized for the aggregate of all urban nonarterial mileage.

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 5 percent of all existing nonarterial facilities would require reconstruction, and the remaining 95 percent of the existing nonarterial mileage would require resurfacing only.

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 5 percent of all existing nonarterial facilities would require reconstruction, and approximately 95 percent of all existing nonarterial facilities would require resurfacing.

The estimated construction and lmaintenance costs for new and existing nonarterial facilities through the 20-year planning period are summarized in Table 36. Expressed in terms of 1973 prices, costs total approximately $44 million, of which $15 million is for construction and $29 million is for maintenance. The breakdown of these costs by level of government is shown in Table 37.

Thus, the total cost of full plan implementation over the 20-year plan implementation period was estimated at $179 million based on 1973 prices, including $128 million for construction and $51 million for maintenance.

Estimated Revenues: Anticipated revenues available for highway purposes within Kenosha County over the plan implementation period were estimated from an analysis of the rate of expenditure for highway and highway-related purposes within Kenosha County from 1964 through 1973. A summary of the 10-year expenditures for highway construction and maintenance within

[9] *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.*

[10] *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 36**

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

| Jurisdictional Subsystem | Plan Implementation Costs | | |
|---|---|---|---|
| | Construction | Maintenance | Total |
| Arterial | | | |
| Type I (State Trunk) . . . . | $ 49,874,200 | $ 9,186,900 | $ 59,061,100 |
| Type II (County Trunk) . . | 52,702,600 | 10,344,700 | 63,047,300 |
| Type III (Local Trunk) . . . | 10,068,400 | 2,808,100 | 12,876,500 |
| Subtotal | $112,645,200 | $22,339,700 | $134,984,900 |
| Nonarterial County Aids | $ 2,657,100 | $ 2,014,400 | $ 4,671,500 |
| Nonarterial | $ 12,220,100 | $26,797,800 | $ 39,017,900 |
| Total Street and Highway System | $127,522,400 | $51,151,900 | $178,674,300 |

*Source: SEWRPC.*

Table 37

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

| Level of Government | Plan Implementation Costs | | |
|---|---|---|---|
| | Construction | Maintenance | Total |
| Arterial System | | | |
| State | | | |
| Type I (State Trunk) | $ 48,591,000 | $ 9,186,900 | $ 57,777,900 |
| Type II (County Trunk) | 14,689,100 | -- | 14,689,100 |
| Type III (Local Trunk) | 4,500 | -- | 4,500 |
| Subtotal | $ 63,284,600 | $ 9,186,900 | $ 72,471,500 |
| County | | | |
| Type II (County Trunk) | $ 35,229,200 | $10,344,700 | $ 45,573,900 |
| City | | | |
| Type I (State Trunk) | $ 1,283,200 | $ -- | $ 1,283,200 |
| Type II (County Trunk) | 2,315,400 | -- | 2,315,400 |
| Type III (Local Trunk) | 10,010,700 | 2,739,300 | 12,750,000 |
| Subtotal | $ 13,609,300 | $ 2,739,300 | $ 16,348,600 |
| Village | | | |
| Type II (County Trunk) | $ 365,400 | $ -- | $ 365,400 |
| Town | | | |
| Type II (County Trunk) | $ 103,500 | $ -- | $ 103,500 |
| Type III (Local Trunk) | 53,200 | 68,800 | 122,000 |
| Subtotal | $ 156,700 | $ 68,800 | $ 225,500 |
| Total | $112,645,200 | $22,339,700 | $134,984,900 |
| Nonarterial System | | | |
| County | $ 2,657,100 | $ 2,014,400 | $ 4,671,500 |
| City | 7,319,700 | 21,466,900 | 28,786,600 |
| Village | 1,877,000 | 2,382,500 | 4,259,500 |
| Town | 3,023,400 | 2,948,400 | 5,971,800 |
| Total | $ 14,877,200 | $28,812,200 | $ 43,689,400 |
| Total Street and Highway System | $127,522,400 | $51,151,900 | $178,674,300 |

*Source: SEWRPC.*

Kenosha County was presented in Table 33 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 $207 million could be expected to become available for highway purposes over the plan implementation period, or an amount equal to the total costs of implementing the street and highway plan, estimated to be $179 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 Kenosha 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 $179 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 $207 million, or about $28 million more than the amount required to fully implement the plan.

It should also be noted 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 in such important factors affecting highway revenues as the general level of economic activity, a shifting of priorities in the expenditure 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 to the changing of corporate limits and concomitant changes of responsibility 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 Kenosha 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.

## Chapter VIII

## PLAN IMPLEMENTATION

### INTRODUCTION

Implementation of the recommended jurisdictional highway system plan described in the preceding chapters of this report would provide Kenosha 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. In addition, it would 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 Kenosha 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 Kenosha 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 periodically update not only the recommended jurisdictional highway system plan itself, but also 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) highway 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 Kenosha County, not only satisfying almost 84 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. In addition, the plan recommends that the existing county trunk highway facilities not required to function as arterial facilities in the plan design year and which would inflict financial hardship on the local unit of government by their reversion be retained as county branch highways. Furthermore, no improvement schedule is proposed for these facilities, since they are not required to provide service of areawide importance.

### PLAN IMPLEMENTATION ORGANIZATIONS

Full implementation of the recommended jurisdictional highway system plan will be dependent upon coordinated action by 15 agencies of government: the U. S. Department of Transportation, Federal Highway Administration; the Wisconsin Department of Transportation; the Kenosha County Board; and the governing bodies of the 12 cities, villages, and towns located within Kenosha 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 Kenosha 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 Kenosha 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, secondary, and urban systems, and the formerly 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 to assure that they 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 1967. 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.

Kenosha 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 governmental 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 within Kenosha 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 Kenosha County Board, upon recommendation of the Kenosha County Highway Committee, formally adopt the recommended jurisdictional highway system plan as a guide to future highway facility development within Kenosha 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 Kenosha County Board, the State Highway Commission formally act to endorse and integrate the recommended jurisdictional highway system plan, including the recommendation 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 Kenosha 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 Kenosha 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 one city common council, three village boards, and eight towns within Kenosha 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 Kenosha 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 they 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 Kenosha 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 Kenosha 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 systemwide 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.

It should be noted that the realignment of the state and county jurisdictional responsibilities as recommended herein will require amendment of the state legislation relating to county highways to permit the establishment of a county branch highway system consisting of non-arterial highways under the jurisdiction of the county. It is herein recommended that such amendment be actively sought and supported by the County Board and State Highway Commission, and that obtaining such amendment be the first step toward plan implementation. The plan further recommends that all other implementation actions be held in abeyance pending the enactment of the required amendment to the state statutes.

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 Kenosha County Board and endorsement by the State Highway Commission, the State Highway Commission act in cooperation with the Kenosha County Board to effect the realignment of the state trunk highway system within Kenosha County.

It is recommended that the initial action include the specific deletion from the state trunk highway system set forth in Table 38 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 39 and 40 for 1980 and the design year (1990) of the recommended plan. It is further recommended that the initial change in the state trunk highway system be effected by the mutual action of the State Highway Commission of Wisconsin and the Kenosha 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

Table 38

DELETION FROM THE RECOMMENDED TYPE I (STATE TRUNK) ARTERIAL HIGHWAY SYSTEM IN KENOSHA COUNTY: 1975

| Deletion from State Trunk Highway System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| STH 158 . . | Sheridan Road to Sixth Avenue | City of Kenosha | 0.19 |

*Source: SEWRPC.*

Table 39

DELETION FROM THE RECOMMENDED TYPE I (STATE TRUNK) ARTERIAL HIGHWAY SYSTEM IN KENOSHA COUNTY: 1975-1980

| Deletion from State Trunk Highway System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| STH 75. . | Racine County line to STH 50-83 | Village of Paddock Lake and Towns of Salem and Brighton | 7.06 |

*Source: SEWRPC.*

Kenosha County Board and endorsement by the State Highway Commission, the Kenosha County Board act in cooperation with the Highway Commission to effect the realignment of the county trunk highway system within Kenosha 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 41 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 42 and 43 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 Kenosha County Board supported by the State Highway Commission. Subsequent realignments can be effected on a route-by-route basis, as dictated by developing circumstances.

In order to achieve the desired continuity of the state and county trunk highway systems through incorporated municipalities, it is recommended that the Kenosha 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. It is further recommended that the State Highway Commission sponsor amendments to Section 349.13 of the Wisconsin Statutes to explicitly empower the State Highway Com-

Table 40

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

Additions to State Trunk Highway System

| Route | Limits | Municipality | Number of Miles |
|---|---|---|---|
| STH 75 | Existing STH 50 to existing CTH K | Village of Paddock Lake and Town of Salem | 1.02 |
| CTH K | CTH W to CTH EW | Village of Paddock Lake and Towns of Brighton, Salem, and Wheatland | 5.97 |
| New Facility[a] (STH 43) | The intersection of proposed STH 43 and present STH 43 | Town of Somers | 3.18 |
| New Facility (STH 50) | The intersection of CTH K and CTH EW to existing STH 50 | Towns of Salem and Bristol | 1.67 |
| New Facility (STH 50) | Walworth County line to the intersection of CTH K and CTH W | Town of Wheatland | 5.31 |
| New Facility (Lake Freeway) | Racine County line to the Illinois state line | Towns of Somers and Pleasant Prairie | 11.98 |

Deletions from State Trunk Highway System

| Route | Limits | Municipality | Number of Miles |
|---|---|---|---|
| STH 31 | Illinois state line to Racine County line | City of Kenosha and Towns of Pleasant Prairie and Somers | 12.37 |
| STH 43[a] | The intersection of existing STH 43 and the proposed alignment of STH 43 | Town of Somers | 3.06 |
| STH 50 | Walworth County line to the proposed alignment of STH 50 | Villages of Paddock Lake and Silver Lake and the Towns of Bristol, Wheatland, and Salem | 12.71 |
| STH 83 | Existing STH 50 to the proposed alignment of STH 50 | Town of Wheatland | 0.10 |
| STH 158 | IH 94 to Sheridan Road (STH 32) | City of Kenosha and Towns of Pleasant Prairie and Somers | 6.63 |
| STH 174 | STH 31 to 75th Street (STH 50) | City of Kenosha and Town of Pleasant Prairie | 5.74 |
| STH 192 | STH 43 to STH 50 | City of Kenosha and Towns of Somers and Pleasant Prairie | 2.55 |

[a] *As of January 1, 1975, STH 43 was renumbered STH 142.*

*Source: SEWRPC.*

mission 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 and county 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, to the resulting state and county 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

Table 41

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

| Additions to County Trunk Highway System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| 12th Street | CTH G to STH 32 | Town of Somers | 1.39 |
| 60th Street | 51st Avenue to Sheridan Road | City of Kenosha | 2.41 |
| 128th Street | STH 32 to the proposed Lake Freeway | Town of Pleasant Prairie | 2.03 |
| 128th Street | CTH WG to approximately 200th Avenue | Town of Bristol | 0.54 |
| 22nd Avenue | 23rd Street to 75th Street | City of Kenosha | 3.56 |
| 30th Avenue | STH 43 to 75th Street | City of Kenosha | 2.59 |
| 172nd Avenue | Racine County line to CTH A | Town of Paris | 0.96 |
| Wilmot Road | CTH W to the Illinois state line | Town of Randall | 0.25 |

| Deletions from County Trunk Highway System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| CTH T | STH 174 to the northern terminus of CTH T | City of Kenosha and Town of Pleasant Prairie | 2.17 |
| CTH EZ | CTH T to 80th Street | City of Kenosha and Town of Pleasant Prairie | 1.47 |

*Source: SEWRPC.*

Table 42

ADDITIONS TO THE RECOMMENDED TYPE II (COUNTY TRUNK) ARTERIAL HIGHWAY SYSTEM IN KENOSHA COUNTY: 1975-1980

| Additions to County Trunk Highway System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| STH 75 | Racine County line to STH 50-83 | Village of Paddock Lake and Towns of Salem and Brighton | 7.06 |
| 125th Street | Walworth County line to CTH P | Town of Randall | 0.27 |
| 30th Avenue | 75th Street to 80th Street | City of Kenosha | 0.50 |
| New Facility (CTH KD) | The intersection of CTH F and CTH KD to the intersection of CTH Z and CTH EM | Village of Twin Lakes and Town of Randall | 1.69 |
| New Facility | CTH F to the intersection of CTH AH and CTH SA | Village of Silver Lake and Town of Salem | 0.57 |
| New Facility (30th Avenue) | 80th Street to CTH T | City of Kenosha and Town of Pleasant Prairie | 1.50 |
| New Facility (CTH Q) | IH 94 to CTH H | Town of Pleasant Prairie | 2.00 |

*Source: SEWRPC.*

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 with the concurrence of the State Highway Department, so as to serve the goals and objectives of the community, and in urbanizing areas,

Table 43

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

| Additions to County Trunk Highway System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| STH 31 | Illinois state line to Racine County line | City of Kenosha and Towns of Pleasant Prairie and Somers | 12.37 |
| STH 50 | The intersection of existing STH 50 and STH 83 to the proposed alignment of STH 50 | Village of Paddock Lake and the Towns of Bristol, Wheatland, and Salem | 7.99 |
| STH 83 | Existing STH 50 to the proposed alignment of STH 50 | Town of Wheatland | 0.10 |
| STH 158 | IH 94 to STH 32 | City of Kenosha and Town of Somers | 6.63 |
| STH 174 | STH 31 to 75th Street (STH 50) | City of Kenosha and Town of Pleasant Prairie | 5.74 |
| STH 192 | STH 43 to STH 50 | City of Kenosha and Towns of Somers and Pleasant Prairie | 2.55 |
| 31st Street | 392nd Avenue to CTH KD | Town of Wheatland | 1.39 |
| 93rd Street | Walworth County line to CTH P | Town of Randall | 1.27 |
| 264th Avenue | CTH SA to 110th Street | Town of Salem | 0.67 |
| 368th Avenue | Existing STH 50 to the proposed alignment of STH 50 | Town of Wheatland | 0.25 |
| Bain Station Road | CTH C to 85th Street extended | Town of Pleasant Prairie | 1.22 |
| Rock Lake Road | CTH JF to the Illinois state line | Town of Pleasant Prairie | 0.96 |
| New Facility | STH 32 to STH 174 | Town of Pleasant Prairie | 0.82 |

| Deletions from County Trunk Highway System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| STH 75 | STH 50 to CTH K | Village of Paddock Lake and Town of Salem | 1.02 |
| CTH K | CTH W to CTH EW | Village of Paddock Lake and Towns of Brighton, Salem, and Wheatland | 5.97 |
| CTH L | CTH H to CTH G | Town of Somers | 3.54 |
| CTH V | The intersection of existing CTH V with the proposed alignment of CTH V | Town of Bristol | 0.73 |
| CTH EZ | CTH T to the Illinois state line | Town of Pleasant Prairie | 2.92 |
| New Facility (85th Street) | STH 31 to Bain Station Road | Town of Pleasant Prairie | 0.75 |
| New Facility (CTH T) | The intersection of CTH C and CTH HH to the intersection of CTH T and CTH H | Town of Pleasant Prairie | 1.90 |
| New Facility (CTH V) | The intersection of existing CTH V and the proposed alignment of CTH V | Town of Bristol | 0.55 |
| New Facility (30th Avenue) | CTH T to Illinois state line | Town of Pleasant Prairie | 3.03 |
| New Facility | CTH O to CTH F | Village of Twin Lakes and Town of Randall | 0.57 |
| New Facility | 264th Avenue to CTH C | Town of Salem | 0.57 |

*Source: SEWRPC.*

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 Kenosha County. It is recommended that the initial action include the specific additions to the federal aid primary system set forth in Table 44 in order to achieve the first stage (1975) of plan implementation. Subsequent action should effect the specific additions to the federal aid primary system set forth in Table 45 for the design year (1990) of the

Table 44

ADDITIONS TO THE RECOMMENDED FEDERAL AID PRIMARY SYSTEM IN KENOSHA COUNTY: 1975

| Additions to Federal Aid Primary System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| STH 43[a] . . . . . | Racine County line to STH 32 | City of Kenosha and Towns of Somers, Paris, and Brighton | 19.51 |
| STH 83 . . . . . | Racine County line to STH 50 | Town of Wheatland | 2.18 |

[a] *As of January 1, 1975, STH 43 was renumbered STH 142.*

*Source: SEWRPC.*

Table 45

ADDITIONS TO THE RECOMMENDED FEDERAL AID PRIMARY SYSTEM IN KENOSHA COUNTY: 1975-1990

| Additions to Federal Aid Primary System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| STH 75 . . . . . | STH 50 to CTH K | Town of Salem | 1.02 |
| New Facility (Lake Freeway). . . . . | Illinois state line to Racine County line | Towns of Somers and Pleasant Prairie | 11.98 |

*Source: SEWRPC.*

recommended plan. It is recommended that the initial changes in the federal aid primary system be effected by one inclusive action of the State Highway Commission supported by the Kenosha County Board.

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 Kenosha County Board to effect the realignment of the federal aid secondary system within that portion of Kenosha 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 46 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 47 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 Kenosha 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 Kenosha 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 the federal aid urban 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 the federal aid urban 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 urban system be effected by one inclusive action of the State Highway Commission supported by the Kenosha 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 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 Kenosha 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. By correlating jurisdictional responsibility with federal aid importance, implementa-

Table 46

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

| Additions to Federal Aid Secondary System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| CTH B | CTH JB to STH 50 | Towns of Brighton and Salem | 3.02 |
| CTH B | CTH F to Illinois state line | Village of Silver Lake and Town of Salem | 3.37 |
| CTH D | CTH A to STH 43[a] | Town of Paris | 1.75 |
| CTH E | IH 94 to CTH D | Town of Paris | 3.30 |
| CTH J | STH 43[a] to CTH JB | Town of Brighton | 1.15 |
| CTH O | CTH Z to CTH F | Village of Twin Lakes and Town of Randall | 1.41 |
| CTH Q | CTH EZ to CTH H | Town of Pleasant Prairie | 3.01 |
| CTH T | STH 31 to CTH H | Town of Pleasant Prairie | 1.10 |
| CTH V | IH 94 to USH 45 | Town of Bristol | 4.56 |
| CTH Z | CTH O to CTH P | Village of Twin Lakes and Town of Randall | 1.24 |
| CTH AH | CTH SA to CTH B | Village of Silver Lake and Town of Salem | 1.34 |
| CTH AH | STH 83 to USH 45 | Towns of Salem and Bristol | 3.08 |
| CTH HH | STH 158 to CTH C | Towns of Somers and Pleasant Prairie | 2.66 |
| CTH HM | CTH Z to Illinois state line | Town of Randall | 1.24 |
| CTH JB | CTH KD to USH 45 | Towns of Wheatland, Brighton, and Paris | 8.19 |
| CTH KD | CTH JB to CTH F | Towns of Wheatland and Randall | 4.76 |
| CTH KR | USH 45 to STH 32 | Towns of Paris and Somers | 6.15 |
| CTH WG | IH 94 to 128th Street | Town of Bristol | 2.26 |
| 128th Street | STH 32 to 78th Avenue | Town of Pleasant Prairie | 2.03 |
| 128th Street | CTH WG to 200th Street | Town of Bristol | 0.54 |
| 172nd Avenue | Racine County line to CTH A | Town of Paris | 0.96 |

| Deletions from Federal Aid Secondary System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| STH 43[a] | Racine County line to STH 32 | City of Kenosha and Town of Somers | 19.51 |
| STH 158 | Sheridan Road to Sixth Avenue | City of Kenosha | 0.19 |
| CTH G | STH 43[a] to the northern corporate limits of the City of Kenosha | City of Kenosha and Town of Somers | 1.12 |
| CTH K | STH 31 to 51st Avenue | City of Kenosha | 0.75 |
| CTH Y | CTH EE to 23rd Street | City of Kenosha and Town of Somers | 1.51 |
| CTH EZ | 80th Street to 85th Street | City of Kenosha | 0.50 |
| 22nd Avenue | 23rd Street to STH 43[a] | City of Kenosha | 0.99 |
| 30th Avenue | STH 43[a] to 60th Street | City of Kenosha | 1.53 |
| 39th Avenue | STH 50 to 80th Street | City of Kenosha | 0.50 |
| 60th Street | 51st Avenue to STH 32 | City of Kenosha | 2.41 |
| STH 83 | Racine County line to STH 50 | Town of Wheatland | 2.18 |
| CTH EM | Illinois state line to CTH F | Village of Twin Lakes | 3.55 |
| CTH MB | STH 50 to CTH C | Town of Bristol | 2.00 |
| CTH SA | CTH F to CTH AH at 98th Street | Town of Salem | 1.19 |
| 122nd Street | 259th Avenue to 280th Avenue | Town of Salem | 1.40 |
| 280th Avenue | 122nd Street to the Illinois state line | Town of Salem | 0.50 |

[a] *As of January 1, 1975, STH 43 was renumbered STH 142.*

*Source: SEWRPC.*

Table 47

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

| Additions to Federal Aid Secondary System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| STH 50 | The western intersection of STH 83 and existing STH 50 to the proposed alignment of STH 50 | Village of Paddock Lake and Towns of Wheatland, Salem, and Bristol | 7.99 |
| STH 83 | Existing STH 50 to the proposed alignment of STH 50 | Town of Wheatland | 0.10 |
| 31st Street | 392nd Avenue to CTH KD | Town of Wheatland | 1.39 |
| 93rd Street | Walworth County line to CTH P | Town of Randall | 1.27 |
| 125th Street | Walworth County line to CTH P | Town of Randall | 0.27 |
| 264th Avenue | CTH SA to 110th Street | Town of Salem | 0.67 |
| Bain Station Road | CTH C to 85th Street extended | Town of Pleasant Prairie | 1.22 |
| Rock Lake Road | CTH JF to the Illinois state line | Town of Salem | 0.96 |
| New Facility | 264th Avenue to the intersection of 259th Avenue and CTH C | Town of Salem | 0.57 |
| New Facility | STH 31 to Bain Station Road | Town of Pleasant Prairie | 0.75 |
| New Facility | CTH T to the intersection of CTH C and CTH HH | Town of Pleasant Prairie | 1.90 |
| New Facility | CTH H to IH 94 | Town of Pleasant Prairie | 2.00 |
| New Facility | The intersection of CTH KD and CTH F to the intersection of CTH EM and CTH Z | Village of Twin Lakes and Town of Randall | 1.69 |
| New Facility | CTH AH to CTH F | Town of Salem | 0.57 |
| New Facility | The intersection of CTH F and CTH EM to the intersection of CTH F and CTH O | Town of Randall | 0.57 |

| Deletions from Federal Aid Secondary System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| STH 31 | The Racine County line to CTH T | Town of Somers | 9.34 |
| STH 158 | Sheridan Road to the proposed Lake Freeway | City of Kenosha and Town of Somers | 3.72 |
| STH 174 | 52nd Avenue to STH 50 | City of Kenosha and Town of Pleasant Prairie | 4.42 |
| CTH E | STH 32 to CTH EA | Town of Somers | 3.92 |
| CTH K | STH 32 to the proposed Lake Freeway | Town of Somers | 0.68 |
| CTH N | IH 94 to STH 43[a] | Town of Somers | 1.34 |
| CTH Y | CTH EE to Racine County line | Town of Somers | 2.46 |
| CTH EZ | 85th Street to Illinois state line | Town of Pleasant Prairie | 3.92 |
| CTH SA | 264th Avenue to STH 83 | Town of Salem | 1.40 |

[a] *As of January 1, 1975, STH 43 was renumbered STH 142.*

*Source: SEWRPC.*

tion of the recommended jurisdictional highway system plan will achieve the alignment of the federal aid primary system with the Type I (state trunk) arterial highway system, the alignment of the federal aid secondary system with the Type II (county trunk) arterial highway system in that portion of Kenosha County that is not designated an urban area, and the alignment of the federal aid urban system with the Type II (county trunk) arterial highway system and the Type III (local trunk) arterial 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 Kenosha County, including those facilities within incorporated cities and villages. The Kenosha County Board shall similarly assume full operational and maintenance

Table 48

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

| Additions to Federal Aid Urban System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| STH 158 | Sheridan Road to Sixth Avenue | City of Kenosha | 0.19 |
| CTH G | STH 43[a] to the northern corporate limits of the City of Kenosha | City of Kenosha | 1.12 |
| CTH K | STH 31 to 51st Avenue | City of Kenosha | 0.75 |
| CTH T | 79th Street to STH 174 | City of Kenosha and Town of Pleasant Prairie | 2.20 |
| CTH Y | CTH E to 23rd Street | City of Kenosha and Town of Somers | 1.51 |
| CTH EZ | 80th Street to 85th Street | City of Kenosha and Town of Pleasant Prairie | 0.50 |
| Fifth Avenue | 61st Street to 55th Street | City of Kenosha | 0.39 |
| Sixth Avenue | 55th Street to 50th Street | City of Kenosha | 0.36 |
| Seventh Avenue | 79th Street to 59th Place | City of Kenosha | 1.40 |
| Seventh Avenue | 50th Street to Sheridan Road | City of Kenosha | 1.22 |
| Eighth Avenue | 61st Street to 59th Place | City of Kenosha | 0.17 |
| 22nd Avenue | 23rd Street to STH 158 | City of Kenosha | 1.91 |
| 30th Avenue | STH 43[a] to 60th Street | City of Kenosha and Town of Pleasant Prairie | 1.53 |
| 39th Avenue | STH 43[a] to 80th Street | City of Kenosha and Town of Somers | 3.08 |
| 47th Avenue | STH 158 to STH 43[a] | City of Kenosha and Town of Somers | 1.00 |
| 49th Avenue | STH 158 to 60th Street | City of Kenosha and Town of Somers | 0.52 |
| 51st Avenue | 60th Street to 67th Street | City of Kenosha | 0.50 |
| 52nd Avenue | STH 50 to 67th Street | City of Kenosha and Town of Pleasant Prairie | 0.58 |
| 55th Street | 5th Avenue to 6th Avenue | City of Kenosha | 0.05 |
| 56th Street | 22nd Avenue to 6th Avenue | City of Kenosha | 0.88 |
| 59th Place | 7th Avenue to 8th Avenue | City of Kenosha | 0.10 |
| 60th Street | 51st Avenue to 8th Avenue | City of Kenosha | 2.47 |
| 61st Street | 5th Avenue to 7th Avenue | City of Kenosha | 0.18 |
| 63rd Street | Roosevelt Road to Sheridan Road | City of Kenosha | 0.70 |
| 80th Street | 39th Avenue to Sheridan Road | City of Kenosha and Town of Pleasant Prairie | 1.50 |
| Birch Road | Sheridan Road to STH 32 | Town of Somers | 0.20 |
| Pershing Boulevard | STH 174 to CTH T | City of Kenosha | 0.72 |
| Roosevelt Road | STH 50 to 63rd Street | City of Kenosha | 1.27 |
| Sheridan Road | 7th Avenue to Birch Road | City of Kenosha and Town of Somers | 1.13 |

[a] *As of January 1, 1975, STH 43 was renumbered STH 142.*

*Source: SEWRPC.*

responsibilities as hereinafter defined over the recommended county trunk highway system, and shall mark and maintain all county trunk highways within Kenosha County, including those facilities within incorporated cities and villages.

It is recommended that the Rustic Roads Board, upon the application of the Kenosha County Board, designate as rustic roads the facilities identified in Table 15. It is further recommended that the Kenosha County Board, in cooperation with appropriate governmental agencies

Table 49

ADDITIONS TO THE RECOMMENDED FEDERAL AID URBAN SYSTEM IN KENOSHA COUNTY: 1975-1990

| Additions to Federal Aid Urban System | | | |
|---|---|---|---|
| Route | Limits | Municipality | Number of Miles |
| STH 31 | Racine County line to CTH T | Town of Somers | 9.34 |
| STH 158 | Sheridan Road to the proposed Lake Freeway | Town of Somers and City of Kenosha | 3.72 |
| STH 174 | STH 50 to 52nd Avenue | City of Kenosha and Town of Pleasant Prairie | 4.42 |
| CTH E | STH 32 to CTH EA | Town of Somers | 3.92 |
| CTH G | CTH E to the 1973 corporate limits of the City of Kenosha | Town of Somers | 1.31 |
| CTH K | STH 31 to the proposed Lake Freeway | Town of Somers | 0.68 |
| CTH L | CTH G to CTH EA | Town of Somers | 2.52 |
| CTH Q | STH 32 to 56th Avenue | Town of Pleasant Prairie | 2.56 |
| CTH T | STH 31 to STH 174 | Town of Pleasant Prairie | 2.50 |
| CTH Y | CTH EE to the Racine County line | Town of Somers | 2.46 |
| CTH EZ | 85th Street to Illinois state line | Town of Pleasant Prairie | 3.92 |
| 18th Street | CTH G to CTH EE | Town of Somers | 1.05 |
| 116th Street | STH 32 to 47th Avenue | Town of Pleasant Prairie | 2.05 |
| 39th Avenue | CTH E to STH 43[a] | Town of Somers | 2.50 |
| 52nd Avenue | STH 50 to CTH Q | Town of Pleasant Prairie | 3.05 |
| New Facility | CTH T to STH 32 | Town of Pleasant Prairie | 0.82 |
| New Facility (30th Avenue) | Pershing Boulevard to the Illinois state line | Town of Pleasant Prairie | 4.03 |

[a] *As of January 1, 1975, STH 43 was renumbered STH 142.*

*Source: SEWRPC.*

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 designated rustic roads within Kenosha County for such recreational activities as pleasure driving, and to provide access to the sites of cultural, historic, recreational, scenic, and scientific interest within the county.

It is recommended that the State Highway Commission continue to contract with the Kenosha County Board, pursuant to Section 84.07 of the Wisconsin Statutes, for maintenance of the Type I (state trunk) highway facilities, 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 Kenosha County Board, at 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 Kenosha 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 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 Kenosha 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 Kenosha County Board, pursuant to Section 83.027 of the Wisconsin Statutes, declare all such county trunk highway facilities within Kenosha 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 Com-

mission 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. 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 50 and 51 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

**Table 50**

**RECOMMENDED STAGING OF THE TYPE I (STATE TRUNK) HIGHWAY SYSTEM IMPROVEMENTS IN KENOSHA COUNTY: 1975-1990**

| Time Period | Highway Facility | Limits | Municipality | Number of Miles |
|---|---|---|---|---|
| 1975-1980 | STH 32 | CTH Q to 80th Street | City of Kenosha and Town of Pleasant Prairie | 2.54 |
| | STH 43[a] | STH 75 to IH 94 | Towns of Brighton and Paris | 8.39 |
| | STH 50 (75th Street) | Proposed Lake Freeway to Sheridan Road (STH 32) | City of Kenosha and Town of Pleasant Prairie | 3.61 |
| | STH 75 | CTH K to STH 50 | Village of Paddock Lake and Town of Salem | 1.02 |
| | STH 83 | STH 50 to Illinois state line | Village of Paddock Lake and Town of Salem | 5.15 |
| 1981-1985 | STH 32 | 7th Avenue to Racine County line | City of Kenosha and Town of Somers | 4.33 |
| | USH 45 | Racine County line to Illinois state line | Towns of Paris and Bristol | 12.52 |
| | STH 50 | USH 45 to IH 94 | Town of Bristol | 4.77 |
| 1986-1990 | STH 32 | Illinois state line to CTH Q | Town of Pleasant Prairie | 2.02 |
| | STH 43[a] | IH 94 to proposed Type I facility at approximately 110th Avenue, and proposed Type I facility at approximately STH 31 to 47th Avenue and 30th Avenue to STH 32 | City of Kenosha and Town of Somers | 2.79 |
| | STH 50 | USH 45 to the proposed realignment of STH 50 | Town of Bristol | 0.98 |
| | STH 83 | Racine County line to STH 50 | Town of Wheatland | 2.18 |
| | CTH K | CTH W to CTH EW | Village of Paddock Lake and Towns of Brighton, Salem, and Wheatland | 5.97 |
| | New Facility (Lake Freeway) | Illinois state line to Racine County line | Towns of Somers and Pleasant Prairie | 11.98 |
| | New Facility (STH 43[a]) | The intersection of existing STH 43 and the proposed alignment of STH 43 | Town of Somers | 3.18 |
| | New Facility (STH 50) | Walworth County line to CTH W, and CTH EW to the intersection of existing and proposed STH 50 | Village of Paddock Lake and Towns of Wheatland, Brighton, Salem, and Bristol | 6.98 |

[a] *As of January 1, 1975, STH 43 was renumbered STH 142.*

*Source: SEWRPC.*

Table 51

## RECOMMENDED STAGING OF THE TYPE II (COUNTY TRUNK) HIGHWAY SYSTEM IMPROVEMENTS IN KENOSHA COUNTY: 1975-1990

| Time Period | Highway Facility | Limits | Municipality | Number of Miles |
|---|---|---|---|---|
| 1975-1980 | CTH C | CTH W to CTH B | Town of Salem | 0.44 |
| | CTH F | Proposed Type II facility to CTH W | Village of Silver Lake and Town of Salem | 1.39 |
| | CTH G | CTH E to STH 43[a] | City of Kenosha and Town of Somers | 2.43 |
| | CTH H | Proposed STH 43[a] to present STH 43[a] and STH 50 to Bain Station Road | Towns of Somers and Pleasant Prairie | 1.59 |
| | CTH J | Racine County line to STH 43[a] and 18th Street to CTH JB | Town of Brighton | 2.02 |
| | CTH K | IH 94 to the proposed Lake Freeway | Towns of Somers and Pleasant Prairie | 2.82 |
| | CTH N | 180th Avenue to IH 94 | Town of Paris | 3.82 |
| | CTH Y | Racine County line to 18th Street | Town of Somers | 2.95 |
| | CTH Z | CTH HM to the intersection of CTH Z and CTH EM | Village of Twin Lakes and Town of Randall | 1.86 |
| | CTH JB | CTH EW to CTH J | Town of Brighton | 5.10 |
| | CTH WG | USH 41 to USH 45 | Town of Bristol | 2.08 |
| | 22nd Avenue | STH 158 to 60th Street | City of Kenosha | 0.50 |
| | 30th Avenue | CTH K to 80th Street | City of Kenosha | 1.56 |
| | New Facility | The intersection of CTH KD and CTH F to the intersection of CTH EM and CTH Z | Village of Twin Lakes and Town of Randall | 1.69 |
| | New Facility (CTH Q) | IH 94 to CTH H | Town of Pleasant Prairie | 2.00 |
| | New Facility (30th Avenue) | 85th Street to CTH T | City of Kenosha | 1.00 |
| | New Facility | Present CTH F to the intersection of CTH SA and CTH AH | Village of Silver Lake and Town of Salem | 0.57 |
| 1981-1985 | STH 31 | Racine County line to Illinois state line | City of Kenosha and Towns of Pleasant Prairie and Somers | 12.37 |
| | STH 158 | IH 94 to STH 31 | Town of Somers | 3.60 |
| | STH 174 | CTH Q to 87th Place | Town of Pleasant Prairie | 2.19 |
| | CTH E | STH 31 to CTH H | Town of Somers | 1.97 |
| | CTH F | CTH W to CTH EM | Towns of Salem and Randall | 3.70 |
| | CTH H | CTH KR to CTH E | Town of Somers | 1.99 |
| | CTH T | CTH H to present STH 174 | Town of Pleasant Prairie | 3.60 |
| | CTH V | USH 45 to the proposed realignment of CTH V | Town of Bristol | 0.82 |
| | CTH HH | STH 158 to CTH C | Towns of Somers and Pleasant Prairie | 2.66 |
| | CTH JB | CTH W to CTH J | Town of Wheatland | 0.50 |
| | CTH KR | CTH Y to IH 94 | Town of Somers | 2.97 |
| | 31st Street | 392nd Avenue to CTH KD | Town of Wheatland | 1.39 |
| | Wilmot Road | CTH W to the Illinois state line | Town of Randall | 0.25 |
| | New Facility (CTH T) | The intersection of present STH 174 and CTH T to STH 32 | Town of Pleasant Prairie | 0.82 |
| | New Facility (CTH V) | The intersection of existing CTH V and the proposed alignment of CTH V | Town of Bristol | 0.55 |
| | New Facility (CTH F) | The intersection of present CTH F with CTH EW to the intersection of present CTH F with CTH O | Village of Twin Lakes and Town of Randall | 0.57 |

Table 51 (continued)

| Time Period | Highway Facility | Limits | Municipality | Number of Miles |
|---|---|---|---|---|
| 1986-1990 | STH 50 | STH 75 to the intersection of existing and proposed STH 50 | Village of Paddock Lake and Town of Salem | 2.40 |
| | STH 192 | STH 50 to existing STH 43 | Towns of Pleasant Prairie and Somers | 2.55 |
| | CTH B | CTH AH to CTH JB | Village of Silver Lake and Towns of Salem and Brighton | 5.92 |
| | CTH C | IH 94 to CTH H | Town of Pleasant Prairie | 2.39 |
| | CTH E | STH 32 to STH 31 | Town of Somers | 2.96 |
| | CTH H | Existing STH 43 to the proposed realignment of STH 43, and STH 50 to Bain Station Road | Towns of Pleasant Prairie and Somers | 1.59 |
| | CTH O | Main Street to Holy Hill Road | Village of Twin Lakes | 0.65 |
| | CTH Q | STH 32 to CTH H | Town of Pleasant Prairie | 4.54 |
| | CTH Z | CTH O to CTH P | Village of Twin Lakes and Town of Randall | 1.24 |
| | CTH AH | CTH B to CTH SA, and CTH SA to USH 45 | Village of Silver Lake and Towns of Bristol and Salem | 6.04 |
| | CTH JF | Rock Lake Road to CTH C | Town of Salem | 0.30 |
| | CTH KD | CTH F to the proposed alignment of STH 50 | Towns of Wheatland and Randall | 2.65 |
| | CTH SA | CTH AH to 264th Avenue | Town of Salem | 1.09 |
| | 93rd Street | Walworth County line to CTH P | Town of Randall | 1.27 |
| | Rock Lake Road | CTH JF to Illinois state line | Town of Salem | 0.96 |
| | 264th Avenue | CTH SA to 110th Street | Town of Salem | 0.67 |
| | New Facility | 264th Avenue to CTH C | Town of Salem | 0.57 |
| | New Facility (85th Street) | STH 31 to Bain Station Road | Town of Pleasant Prairie | 0.75 |
| | New Facility (30th Avenue) | CTH T to Illinois state line | City of Kenosha and Town of Pleasant Prairie | 3.03 |
| | New Facility | CTH C to CTH H | Town of Pleasant Prairie | 1.90 |

[a] *As of January 1, 1975, STH 43 was renumbered STH 142.*

*Source: SEWRPC.*

demands and on consideration of necessary system continuity, existing structural condition, and feasible project limits.

Facility Construction: In connection with facility construction, it is recommended that the State Highway Commission and the Kenosha County Board adopt common, uniform construction aid formulae and policies providing for a fixed local contribution of 15 percent of the cost of 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 connection to storm sewer mains; construction of storm sewer mains necessary for pavement and right-of-way drainage; and engineering services. Freeway projects on federal aid routes in Kenosha County 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 Kenosha 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 greatly serve 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 economies, but also to avoid future disruption, dislocation, discontent, and great expense 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 Kenosha County Board and endorsement by the State Highway Commission, the Kenosha County Board in cooperation with the one city, three villages, and eight towns in Kenosha 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 one city, three villages, and eight towns within the county approve the county map prepared in accordance with the adopted jurisdictional highway system plan.

It is further recommended 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, established 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 one city, three villages, and eight 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 one city, three villages, and eight 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 Kenosha County Board; and the governing

bodies of the one city, three villages, and eight 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 Kenosha 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 Kenosha 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 Kenosha County.

4. Review the status of controlled-access highways within Kenosha County and declare all such state trunk highways within Kenosha 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 Kenosha County.

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

1. Act to endorse the recommended jurisdictional highway system plan for Kenosha 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

Kenosha County Board: It is recommended that the Kenosha County Board, upon recommendation of the Kenosha 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 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 Kenosha County.

4. Proceed, in cooperation with the appropriate agencies and organizations, to establish and designate a system of scenic drives and to apply to the Rustic Roads Board for the designation of the rustic roads to be marked and signed for routing within Kenosha 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 and county

aid highways consistent with similar formulae and policies for state trunk highways in Kenosha 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, one city common council, three village boards, and eight town boards within Kenosha 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 one city common council, three village boards, and eight town boards within Kenosha 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 one city common council, three village boards, and eight town boards within Kenosha 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.

4. Proceed with right-of-way acquisition and facility construction as necessary to complete the recommended jurisdictional highway system plan.

In addition, it is recommended that the State Highway Commission and the Kenosha 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, and furthermore, to support state legislation to permit the implementation of the county branch highway system.

## 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 Kenosha County Board of Supervisors adopted the plan on June 11, 1968, after careful consideration and upon the recommendation of the Kenosha 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 Kenosha 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 Kenosha 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 Kenosha County, adjust the existing jurisdictional highway systems to changes in land use development along their alignment, assure the continued existence of 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 actively involve these local units of government in the planning process. This was done by the formation of a Technical and Intergovernmental Coordinating and Advisory Committee, with representation for the U. S. Department of Transportation, Federal Highway Administration; the Wisconsin Department of Transportation, Division of Highways; the Southeastern Wisconsin Regional Planning Commission; Kenosha County; and 16 local public officials and citizen members who collectively represented the interests of the one city, three villages, and eight towns within Kenosha 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 public resources in the provision of highway transportation, focusing the appropriate resources and capabilities in 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 Kenosha 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 Kenosha 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 Kenosha 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 Kenosha County as proposed in the adopted regional transportation plan, and were 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 870 miles of streets and highways open to traffic within Kenosha County. Of this total, 283 miles, or approximately 33 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 14 units of government—the state, the county, and 12 local municipalities. Approximately 123 miles, or 44 percent, of the arterial network were under state jurisdiction, being comprised of state trunk highways and connecting streets. About 128 miles, or 45 percent, were under county jurisdiction, being comprised of county trunk highways; and about 32 miles, or 11 per-

cent, were under city, village, and town jurisdiction, being comprised of local arterial streets and highways. An additional 138 miles of county trunk highways existed within the county in 1973 but were routed over nonarterial facilities.

Superimposed on the state, county, and local trunk highways were 274 miles of federal aid routes, of which 12 miles, or 4 percent, were a federal aid interstate route, 68 miles, or 25 percent, were federal aid primary routes, 175 miles, or 64 percent, were federal aid secondary routes, and 19 miles, or 7 percent, were TOPICS or federal aid urban routes.

The location and configuration of these jurisdictional highway systems and supporting aid routes were the result of a 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 Kenosha 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 Kenosha 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 Kenosha County Board, to recommend changes necessary to reclassify and regroup these networks into complete, fully coordinated, and continuous jurisdictional systems able to meet the present and expected future arterial highway traffic demands within Kenosha County at an adequate level of service.

## THE RECOMMENDED PLAN

The jurisdictional highway system plan prepared for Kenosha 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 Kenosha 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 Kenosha County to the plan design year 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 Kenosha County through the plan design year 1990 totals approximately 363 route-miles of facilities, or about 32 percent of the estimated 1,116 route-miles of facilities expected to comprise the total street and highway system within the county in 1990. Of this total arterial system, 102 route-miles, or about 28 percent, are proposed to comprise the Type I system, a decrease of 21 route-miles over the present system. This Type I system may be expected to carry approximately 62 percent of the arterial travel demand and approximately 56 percent of the total travel demand expected to be generated within Kenosha County by the year 1990. The Type I system as recommended includes all of the 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 221 route-miles, or an additional 61 percent of the total arterial mileage required to serve the county in the plan design year of 1990. The recommended county trunk highway system represents a decrease of 45 route-miles over the present system. The recommended county trunk highway system 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 28 percent of the arterial travel demand and 26 percent of the total travel demand expected to be generated within Kenosha County by the year 1990.

Historically, Kenosha County has maintained as county trunk highways nearly all[1] of the "nonsubdivision" collector and land access streets located in the rural portions

[1] *In 1973, there were a total of 582.19 miles of streets and highways open to traffic in the unincorporated areas of the county. Of this total, 159.00 miles consisted of collector and land access streets located within platted subdivisions, and 201.22 miles consisted of collector and local access streets and highways in essentially rural areas. Of the latter, the county maintains 134.27 miles, or 66.7 percent, as county trunk highways.*

of the county. Consequently, the county over the years has developed a very high maintenance capability, with staff, equipment, and physical plant able to maintain 266 miles of facilities. Abandonment of this policy would necessitate expansion, and in some cases the development of entirely new maintenance capabilities and facilities by the local units of government, and therefore a duplication of the organization, equipment, and physical plant of the county Highway Department. Such a duplication of highway maintenance capabilities and facilities at the local level would constitute an unnecessary expenditure of public funds. The plan, therefore, proposes retaining on a new "county branch" highway system 111 miles of existing state and county trunk highways which do not now serve and are not anticipated to be required to serve an arterial function in the plan design year of 1990. The total miles of facilities for which the county would have responsibility, including both Type II (county trunk) arterial facilities and county branch highway totals 332 route-miles, representing an increase of 66 route-miles over the present system.

Type III (Local Trunk) Highway System

The plan further recommends a Type III (local trunk) highway system consisting of the remaining 40 route-miles of arterial facilities, or about 11 percent, of the total arterial mileage proposed to serve Kenosha 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 eight route-miles over the present system and is intended to serve primarily local arterial street and highway needs.

Finally, the plan recommends the marking and signing, by the county, of a system of scenic drives and rustic roads within the county. The recommended scenic drive and rustic road system would consist of three basic drives: the designated Wisconsin Bikeway, the Fox River Scenic Drive, and the proposed Kenosha Scenic Drive, which would provide access to the rivers, lakes, and marshes in Kenosha County, with additional interconnecting links to provide access to the scenic, cultural, historical, natural, scientific, and recreational sites located throughout Kenosha County. The plan recommends that of the 136 miles of facilities comprising the system of scenic drives and rustic roads, six miles, because of the natural beauty of the landscape traversed and of the roadside itself, be designated, pursuant to Section 83.43 of the Wisconsin Statutes, as rustic roads, and maintained in their present attractive state.

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 arterial facilities, were estimated at $179 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 come about upon expiration of the massive interstate highway construction program. Based upon current rates of expenditure for highway purposes within Kenosha County, anticipated revenues for highway purposes over the plan implementation period were estimated at $207 million, or approximately $28 million more than 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 in 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 in Kenosha 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 Kenosha County Board and the Southeastern Wisconsin Regional Planning Commission, and endorsement by the State Highway Commission; active support by the Kenosha County Board and the State Highway Commission of an amendment of state legislation relating to county highways to permit the establishment of a county branch highway system; the staged realignment, over time, of the state trunk, county trunk, and supporting federal aid systems to conform with the recommended jurisdictional highway system plan through the cooperative actions of the Kenosha 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 State Highway Commission and the Kenosha County Highway Department; and adoption of common, uniform construction aid formulae and policies for all state and county trunk highways within Kenosha County. Additional recommendations inclue 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 Kenosha County Board and the governing bodies of the 12 municipalities comprising the county.

## 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 Kenosha 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.

(This page intentionally left blank)

# APPENDICES

(This page intentionally left blank)

## Appendix A

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

| | |
|---|---|
| Leo J. Wagner<br>Chairman | County Highway Commissioner, Kenosha County |
| Kurt W. Bauer | Executive Director, SEWRPC |
| Howard Blackmon | Chairman, Town of Somers |
| George E. Bovee | Chairman, Town of Randall |
| Wallace E. Burkee | Mayor, City of Kenosha |
| Thomas R. Clark | Chief Planning Engineer, District 2, Division of Highways, Wisconsin Department of Transportation |
| Phillip Dunek | President, Village of Paddock Lake |
| Thomas Grady | Chairman, Town of Wheatland |
| Thomas J. Haley | Citizen Member, City of Kenosha |
| Richard Harrison | President, Village of Silver Lake |
| Donald K. Holland | Director of Public Works, City of Kenosha |
| Earl W. Hollister | Chairman, Town of Bristol |
| Merlin Jahns | Trustee, Village of Twin Lakes |
| Thomas R. Kinsey | District Engineer, District 2, Division of Highways, Wisconsin Department of Transportation |
| Robert F. Kolstad | City Planner, City of Kenosha |
| Maurice Lake | Chairman, Town of Salem |
| John J. Maurer | Chairman, Town of Pleasant Prairie |
| Glenn L. Miller | Chairman, Town of Brighton |
| Roger Prange | Town Clerk, Town of Pleasant Prairie |
| Virginia Taylor | Citizen Member, City of Kenosha |
| Thomas M. Wahtola | Planning and Research Engineer, U. S. Department of Transportation, Federal Highway Administration, Madison |
| August Zirbel, Jr. | Chairman, Town of Paris |

## Appendix B

## DETAILED DATA—KENOSHA COUNTY JURISDICTIONAL HIGHWAY SYSTEM PLAN

### Table B-1

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

| Civil Division | Construction Cost Estimates | | | | | | Maintenance Cost Estimates | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arterial | | | Nonarterial | | | Arterial | | Nonarterial | | | | |
| | Type I (Nonfreeway) | Type II | Type III | County Branch | Existing Local Collector | Subtotal | Type II | Type III | County Branch | New Local/ Collector[b] | Existing Local Collector | Subtotal | |
| City | | | | | | | | | | | | | |
| Kenosha | $1,283,200 | $ 2,315,400 | $10,010,700 | $ -- | $ 7,319,700 | $20,929,000 | $ -- | $2,739,300 | $ -- | $7,363,900 | $14,103,000 | $24,206,200 | $ 45,135,200 |
| Subtotal | $1,283,200 | $ 2,315,400 | $10,010,700 | $ -- | $ 7,319,700 | $20,929,000 | $ -- | $2,739,300 | $ -- | $7,363,900 | $14,103,000 | $24,206,200 | $ 45,135,200 |
| Villages | | | | | | | | | | | | | |
| Paddock Lake | $ -- | $ 115,700 | $ -- | $ -- | $ 674,200 | $ 789,900 | $ -- | $ -- | $ -- | $ 247,200 | $ 668,200 | $ 915,400 | $ 601,500 |
| Silver Lake | -- | 159,500 | -- | -- | 487,900 | 647,400 | -- | -- | -- | 143,700 | 484,800 | 628,500 | 857,500 |
| Twin Lakes | -- | 90,200 | -- | -- | 714,900 | 805,100 | -- | -- | -- | 104,900 | 733,700 | 838,600 | 215,600 |
| Subtotal | $ -- | $ 365,400 | $ -- | $ -- | $ 1,877,000 | $ 2,242,400 | $ -- | $ -- | $ -- | $ 495,800 | $ 1,886,700 | $ 2,382,500 | $ 779,400 |
| Towns | | | | | | | | | | | | | |
| Brighton | $ -- | $ -- | $ -- | $ -- | $ 340,300 | $ 340,300 | $ -- | $ -- | $ -- | $ -- | $ 261,200 | $ 261,200 | $ 601,500 |
| Bristol | -- | -- | -- | -- | 489,600 | 489,600 | -- | -- | -- | -- | 367,900 | 367,900 | 857,500 |
| Paris | -- | -- | -- | -- | 122,000 | 122,000 | -- | -- | -- | -- | 93,600 | 93,600 | 215,600 |
| Pleasant Prairie | -- | -- | 29,400 | -- | 244,100 | 273,500 | -- | 54,400 | -- | 32,000 | 419,900 | 505,900 | 779,400 |
| Randall | -- | 27,200 | -- | -- | 268,700 | 295,900 | -- | -- | -- | -- | 221,900 | 221,900 | 490,600 |
| Salem | -- | 76,300 | -- | -- | 965,900 | 993,100 | -- | -- | -- | -- | 778,900 | 778,900 | 1,772,000 |
| Somers | -- | -- | 23,800 | -- | 217,800 | 317,900 | -- | 14,800 | -- | 172,200 | 289,600 | 476,600 | 793,900 |
| Wheatland | -- | -- | -- | -- | 375,000 | 375,000 | -- | -- | -- | -- | 311,200 | 311,200 | 686,200 |
| Subtotal | $ -- | $ 103,500 | $ 53,200 | $ -- | $ 3,023,400 | $ 3,180,100 | $ -- | $ 68,800 | $ -- | $ 204,200 | $ 2,744,200 | $ 3,017,200 | $ 6,197,300 |
| Kenosha County | $ -- | $35,229,200 | $ -- | $2,657,100 | $ -- | $37,886,300 | $10,344,700 | $ -- | $2,014,400 | $ -- | $ -- | $12,359,100 | $ 50,245,400 |
| Total | $1,283,200 | $38,013,500 | $10,063,900 | $2,657,100 | $12,220,100 | $64,237,800 | $10,344,700 | $2,808,100 | $2,014,400 | $8,063,900 | $18,733,900 | $41,965,000 | $106,202,800 |

[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

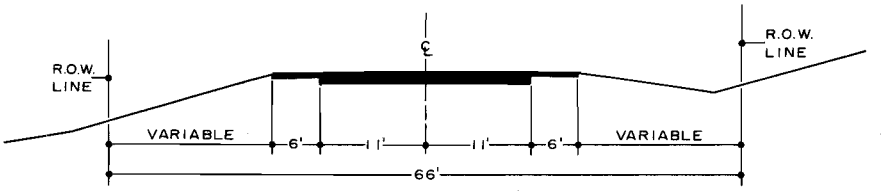
The typical rural and urban street and highway cross sections developed under the Kenosha County jurisdictional highway system planning program and utilized in the preparation of the Kenosha County jurisdictional highway system plan are shown in Figure B-1. The cross sections presented include, for two, 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 Kenosha County and in areas of the state similar to Kenosha County. While these cost estimates thus provide an average project cost for all proposed arterial highway improvements within Kenosha 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

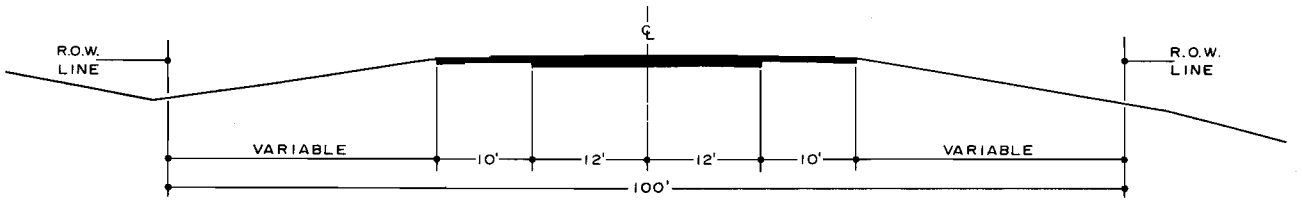



GRAVEL BASE VARIES
22' HIGH TYPE PAVEMENT, 66' R.O.W.
ESTIMATED COST PER MILE:
CONSTRUCTION = $ 226,000
RESURFACE = $ 23,000
MAINTENANCE = $ 1,400(ANNUAL)

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

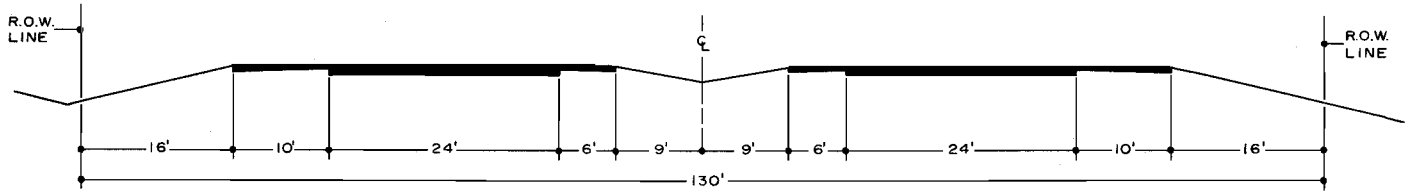



GRAVEL BASE VARIES
24' HIGH TYPE PAVEMENT, 100' R.O.W.
ESTIMATED COST PER MILE:
CONSTRUCTION =$270,000
RESURFACE =$ 28,100
MAINTENANCE =$ 1,700 (ANNUAL)

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

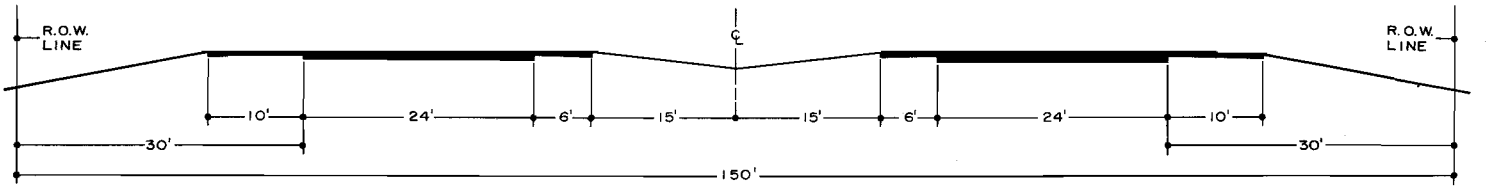



GRAVEL BASE VARIES
DUAL 24' HIGH TYPE PAVEMENT, 130' R.O.W.
ESTIMATED COST PER MILE:
CONSTRUCTION = $623,000
RESURFACE = $ 56,100
MAINTENANCE = $ 3,400 (ANNUAL)

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

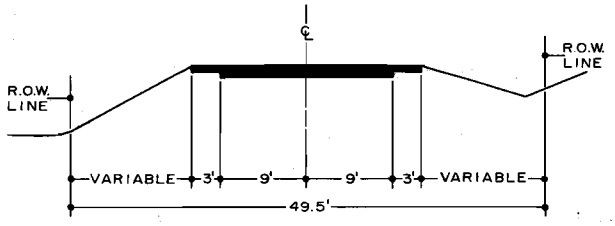



GRAVEL BASE VARIES
DUAL 24' HIGH TYPE PAVEMENT, 150' R.O.W.
ESTIMATED COST PER MILE:
CONSTRUCTION = $721,000
RESURFACE = $ 59,400
MAINTENANCE = $ 3,700 (ANNUAL)

CAPACITY RANGE:

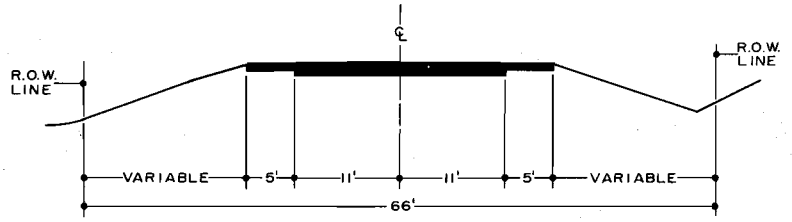
| LEVEL OF SERVICE | MAXIMUM SERVICE VOLUME |
|---|---|
| B | 8,700 VEH./DAY |
| C | 13,400 VEH./DAY |

RURAL AREA
TYPICAL CROSS SECTION
MINIMUM TWO LANE
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[a]

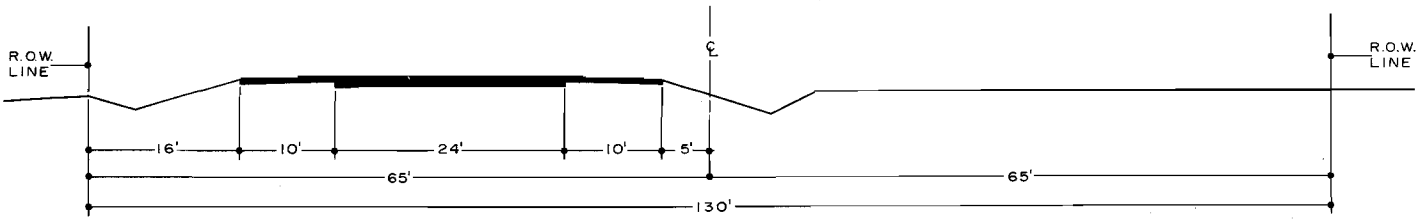



GRAVEL BASE VARIES — 22' BITUMINOUS PAVEMENT — 66' R.O.W.

ESTIMATED COST PER MILE FOR RURAL, NON-ARTERIAL STREETS:
CONSTRUCTION = $226,000 (AVERAGE)
RESURFACE = $ 14,000 (AVERAGE)
MAINTENANCE = $ 900 (ANNUAL AVERAGE)

[a] *Town road standards as established in section 86.26, Wisconsin statutes.*

URBANIZING AREA
TYPICAL CROSS SECTION NO. 5
DESIRABLE TWO LANE ARTERIAL
(INITIAL STAGE OF FUTURE FOUR LANE ARTERIAL)



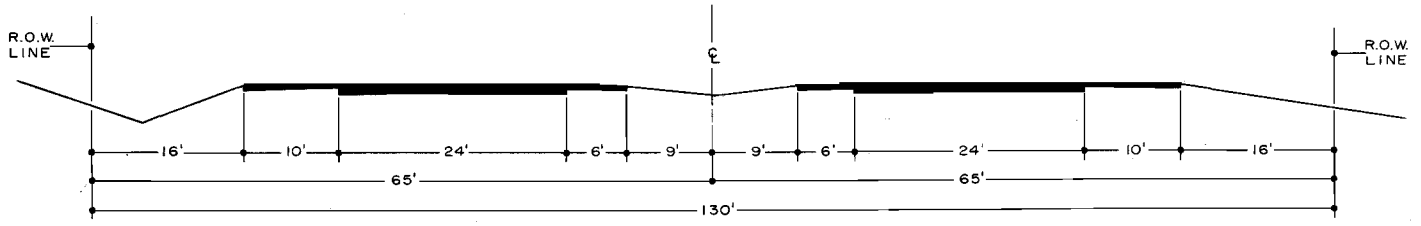

GRAVEL BASE VARIES
24' HIGH TYPE PAVEMENT, 130' R.O.W.

ESTIMATED COST PER MILE:
CONSTRUCTION = $ 512,000
RESURFACE = $ 30,400
MAINTENANCE = $ 2,000(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



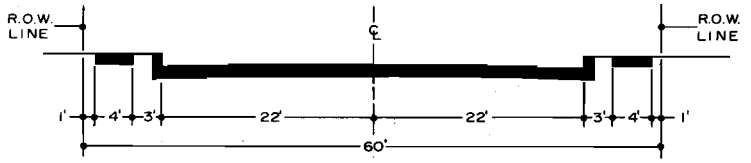

GRAVEL BASE VARIES
DUAL 24' HIGH TYPE PAVEMENT, 130' R.O.W.

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



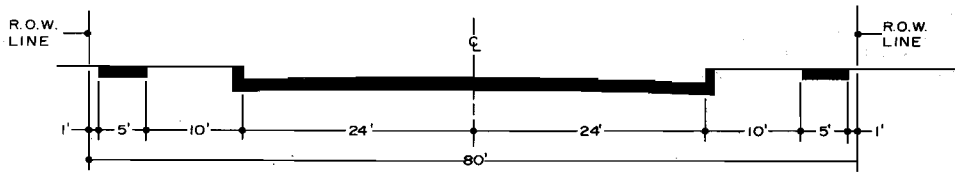

6" GRAVEL BASE
44' HIGH TYPE PAVEMENT, 60' R.O.W.
SIDEWALK, STREET LIGHTING

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



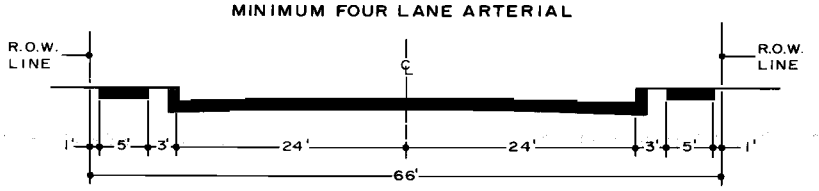

6" GRAVEL BASE
48' HIGH TYPE PAVEMENT, 80' R.O.W.
(ADDITIONAL R.O.W. MAY BE RESERVED IN UNDEVELOPED AREAS)
SIDEWALK, STREET LIGHTING

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



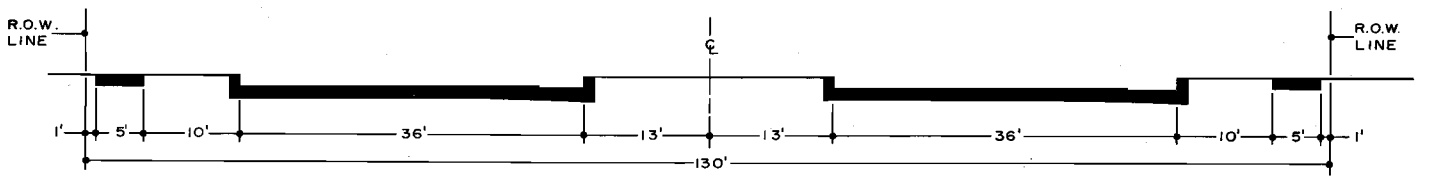

6" GRAVEL BASE
48' HIGH TYPE PAVEMENT, 66' R.O.W.
SIDEWALK, STREET LIGHTING

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



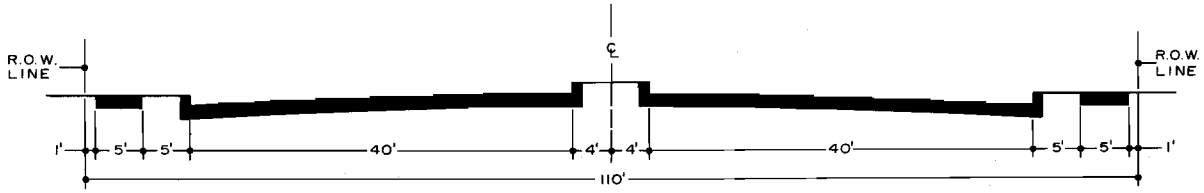

6" GRAVEL BASE
DUAL 36' HIGH TYPE PAVEMENT, 130' R.O.W.
SIDEWALK, STREET LIGHTING

ESTIMATED COST PER MILE:
CONSTRUCTION = $1,067,000
RESURFACE = $ 40,800
MAINTENANCE = $ 7,500 (ANNUAL)

CAPACITY RANGE:

| LEVEL OF SERVICE | MAXIMUM SERVICE VOLUME |
|---|---|
| B | 16,400 VEH./DAY |
| C | 17,400 VEH./DAY |
| D | 19,900 VEH./DAY |

URBAN AREA
TYPICAL CROSS SECTION NO. 11
MINIMUM SIX LANE ARTERIAL



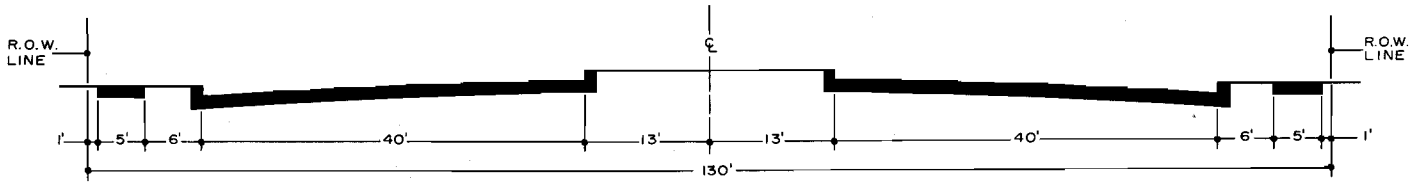

6" GRAVEL BASE
DUAL 40' HIGH TYPE PAVEMENT, 110' R.O.W.
SIDEWALK, STREET LIGHTING

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



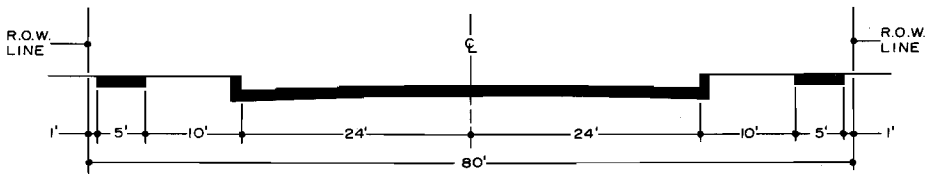

6" GRAVEL BASE
DUAL 40' HIGH TYPE PAVEMENT, 130' R.O.W.
SIDEWALK, STREET LIGHTING

ESTIMATED COST PER MILE:
CONSTRUCTION = $1,117,000
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 |

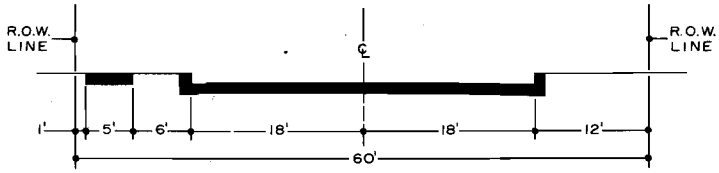
URBAN AREA
TYPICAL CROSS SECTION
COLLECTOR STREET




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)

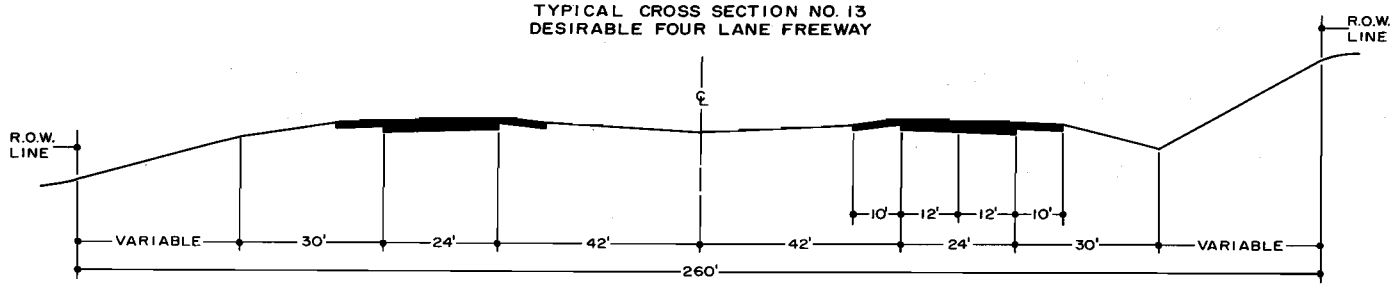
URBAN AREA
TYPICAL CROSS SECTION
MINOR STREET




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.

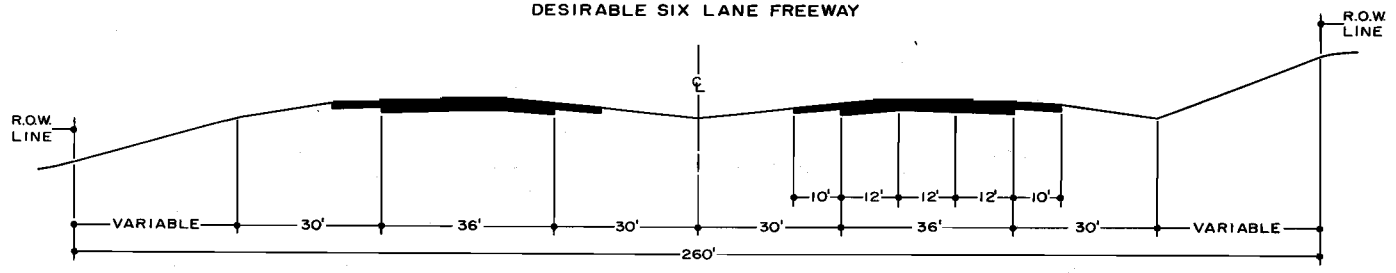
ESTIMATED COST PER MILE:

| | |
|---|---|
| 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.

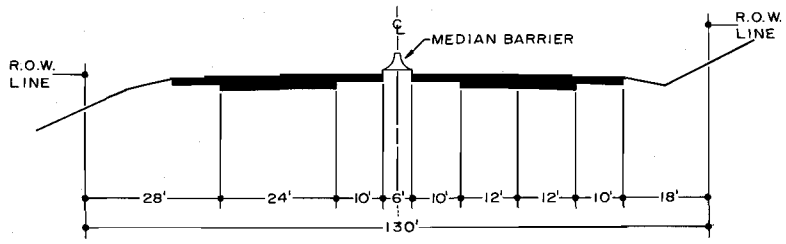
ESTIMATED COST PER MILE:

| | |
|---|---|
| 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



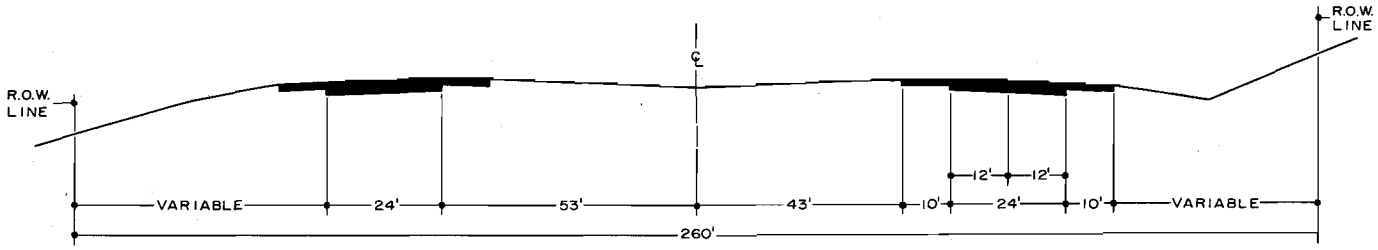

DUAL 24' HIGH TYPE PAVEMENT, 130' R.O.W.

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



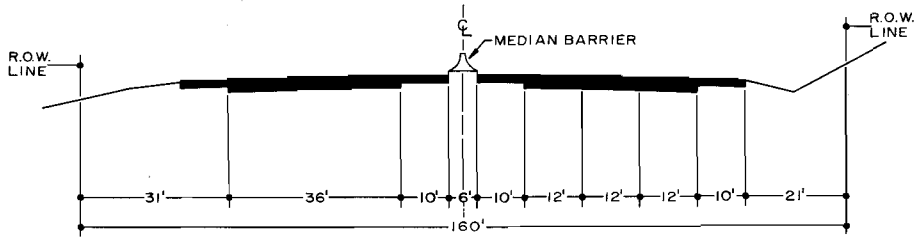

DUAL 24' HIGH TYPE PAVEMENT, 260' R.O.W.

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



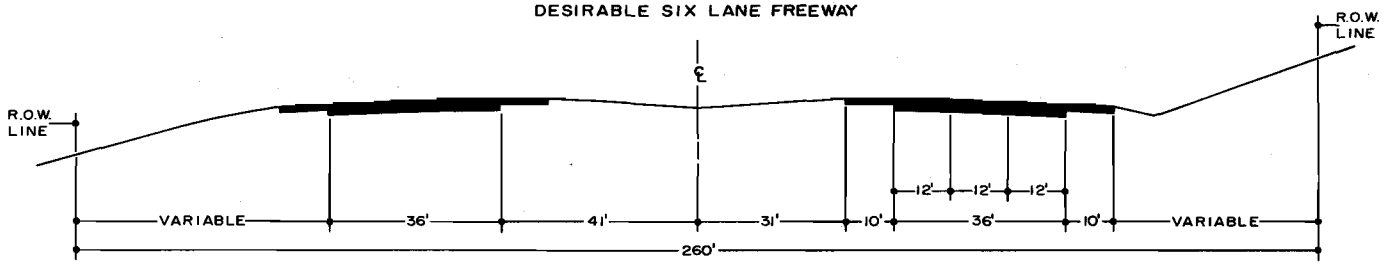

DUAL 36' HIGH TYPE PAVEMENT, 160' R.O.W.

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.

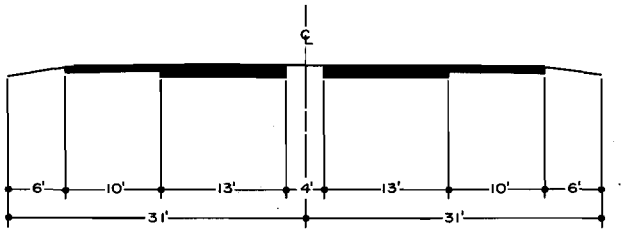
ESTIMATED COST PER MILE:

| | | |
|---|---|---|
| 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 |

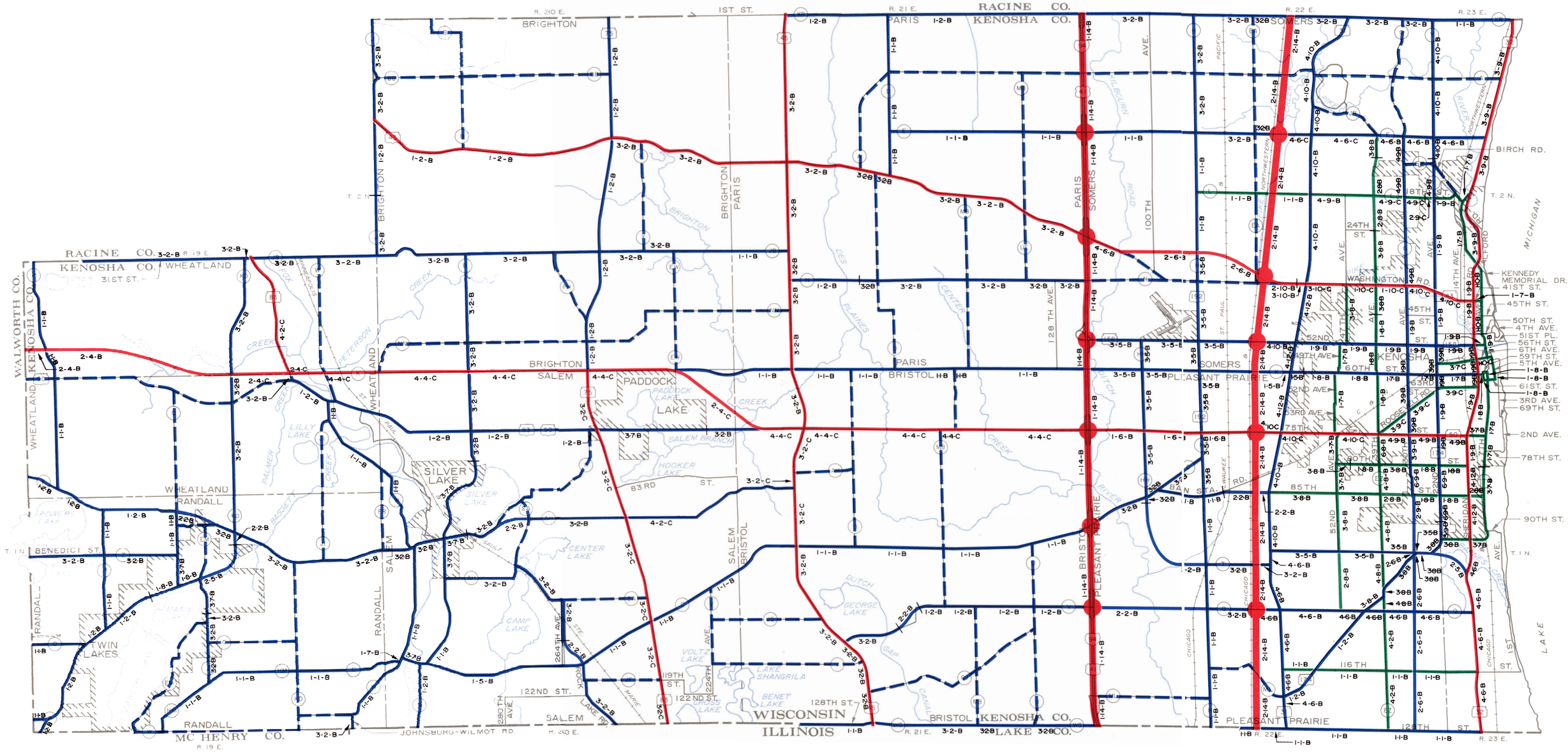
TYPICAL TRANSITWAY CROSS SECTION




FOR FUTURE DEVELOPMENT WITHIN FREEWAY MEDIAN

# MAP B-1

# RECOMMENDED JURISDICTIONAL HIGHWAY SYSTEM PLAN FOR KENOSHA COUNTY - 1990




## LEGEND

### JURISDICTIONAL CLASSIFICATION

- TYPE I (FREEWAY)
- TYPE I (STANDARD ARTERIAL)
- TYPE II (STANDARD ARTERIAL)
- TYPE III (STANDARD ARTERIAL)
- FREEWAY-STANDARD ARTERIAL INTERCHANGE
- COUNTY BRANCH (NONARTERIAL)

### DESIGN CLASSIFICATION

8 LEVEL OF SERVICE
1 TYPICAL CROSS SECTION
2 TYPE OF IMPROVEMENT
1
4

SEE ACCOMPANYING KEY TO NUMBER AND LETTER CODES

**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) | 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. |
| 3 Reconstruction With Same Capacity | 3 Four-Lane Arterial (Minimum-Rural 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. |
| 4 Reconstruction for Additional Capacity | 4 Four-Lane Arterial (Desirable-Rural 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. |
| 5 Special Project | 5 Two-Lane Arterial (Desirable-Urbanizing 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. |
| 6 No Work Required | 6 Four-Lane Arterial (Desirable-Urbanizing 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. |
| | 7 Two-Lane Arterial (Minimum-Urban Area) | |
| | 8 Two-Lane Arterial (Desirable-Urban Area) | |
| | 9 Four-Lane Arterial (Minimum-Urban Area) | |
| | 10 Four-Lane Arterial (Desirable-Urban Area)* | |
| | 11 Six-Lane Arterial (Minimum-Urban Area) | |
| | 12 Six-Lane Arterial (Desirable-Urban Area) | |
| | 13 Four-Lane Freeway (Desirable-Rural Area) | |
| | 14 Six-Lane Freeway (Desirable-Rural Area) | |
| | 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.

GRAPHIC SCALE

0 1/2 1 2 3 MILES

0 4000 8000 12000 16000 20000 FEET

*Source: SEWRPC.*

(This page intentionally left blank)

## Appendix C

## SUGGESTED MODEL RESOLUTION FOR ADOPTION OF THE KENOSHA 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 has 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 Kenosha County Highway Commissioner, acting pursuant to a directive of the Kenosha County Board of Supervisors, dated June 11, 1968 requested the guidance, cooperation, and assistance of the Commission in the preparation of a jurisdictional highway system plan for Kenosha County; and

WHEREAS, a Technical and Intergovernmental Coordinating and Advisory Committee for Jurisdictional Highway Planning in Kenosha 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, Kenosha County, municipalities within Kenosha 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 Kenosha County and of a competent interagency staff, all research studies undertaken for the accomplishment of a jurisdictional highway system plan for Kenosha County have been concluded, including: 1) the preparation and printing of a map setting forth the proposed jurisdictional highway system in Kenosha County, as projected to the calendar year 1990; and 2) the preparation and publication of SEWRPC Planning Report No. 24, entitled A Jurisdictional Highway System Plan for Kenosha County, published in April 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 Kenosha 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 Kenosha 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 Kenosha 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 Kenosha County, together with the aforementioned SEWRPC Planning Report No. 24, 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 Kenosha 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 Kenosha 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 Kenosha County jurisdictional highway system plan previously adopted by the Commission as set forth in SEWRPC Planning Report No. 24 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)

(This page intentionally left blank)

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

Leo J. Wagner, Chairman — County Highway Commissioner, Kenosha County

Kurt W. Bauer — Executive Director, SEWRPC

Howard Blackmon — Chairman, Town of Somers

George E. Bovee — Chairman, Town of Randall

Wallace E. Burkee — Mayor, City of Kenosha

Thomas R. Clark — Chief Planning Engineer, District 2, Division of Highways, Wisconsin Department of Transportation

Phillip Dunek — President, Village of Paddock Lake

Thomas Grady — Chairman, Town of Wheatland

Thomas J. Haley — Citizen Member, City of Kenosha

Richard Harrison — President, Village of Silver Lake

Donald K. Holland — Director of Public Works, City of Kenosha

Earl W. Hollister — Chairman, Town of Bristol

Merlin Jahns — Trustee, Village of Twin Lakes

Thomas R. Kinsey — District Engineer, District 2, Division of Highways, Wisconsin Department of Transportation

Robert F. Kolstad — City Planner, City of Kenosha

Maurice Lake — Chairman, Town of Salem

John J. Maurer — Chairman, Town of Pleasant Prairie

Glenn L. Miller — Chairman, Town of Brighton

Roger Prange — Town Clerk, Town of Pleasant Prairie

Virginia Taylor — Citizen Member, City of Kenosha

Thomas M. Wahtola — Division Engineer, U. S. Department of Transportation, Federal Highway Administration, Madison

August Zirbel, Jr. — Chairman, Town of Paris

**INTERAGENCY STAFF KENOSHA COUNTY JURISDICTIONAL HIGHWAY STUDY**

Kurt W. Bauer, P.E. — Executive Director, SEWRPC

Susan B. Bruss — Civil Engineer, District 9, Division of Highways, Wisconsin Department of Transportation

Thomas R. Clark, P.E. — Chief Planning Engineer, District 2, Division of Highways, Wisconsin Department of Transportation

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

Charles E. Hillman — 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

Donald R. Martinson — Senior Transportation Planner, SEWRPC

Leo J. Wagner — County Highway Commissioner, Kenosha County