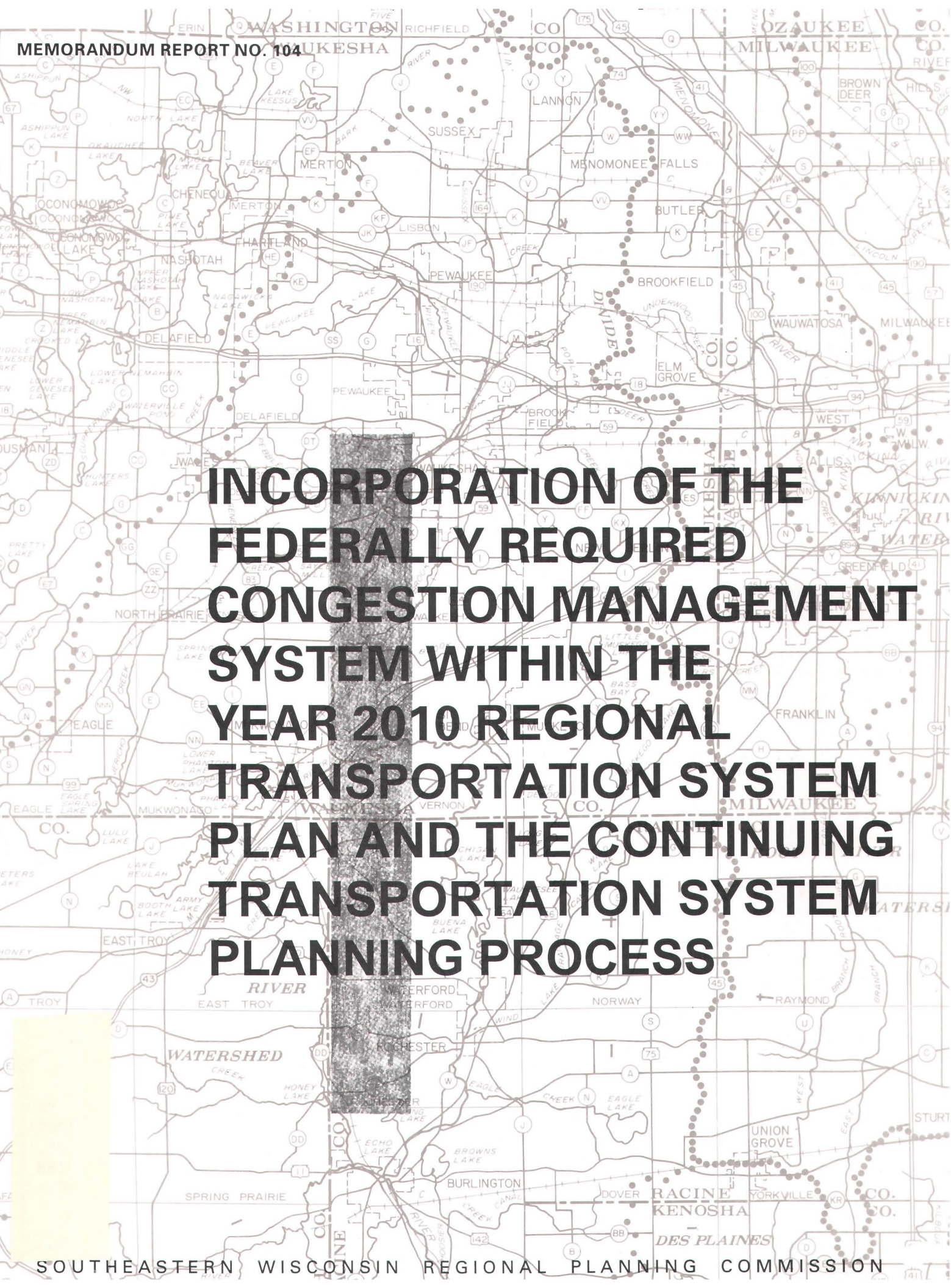
MEMORANDUM REPORT NO. 104



INCORPORATION OF THE FEDERALLY REQUIRED CONGESTION MANAGEMENT SYSTEM WITHIN THE YEAR 2010 REGIONAL TRANSPORTATION SYSTEM PLAN AND THE CONTINUING TRANSPORTATION SYSTEM PLANNING PROCESS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

KENOSHA COUNTY
Leon T. Dreger
Thomas J. Gorlinski
Sheila M. Siegler

RACINE COUNTY
David B. Falstad, Chairman
Martin J. Itzin
Jean M. Jacobson, Secretary

MILWAUKEE COUNTY
Daniel J. Diliberti
William Ryan Drew
Patrick Marchese

WALWORTH COUNTY
John D. Ames
Anthony F. Balestrieri
Allen L. Morrison, Vice-Chairman

OZAUKEE COUNTY
Leroy A. Bley
Thomas H. Buestrin, Treasurer
Elroy J. Schreiner

WASHINGTON COUNTY
Lawrence W. Hillman
Daniel S. Schmidt
Patricia A. Strachota

WAUKESHA COUNTY
Duane H. Bluemke
Robert F. Hamilton
Paul G. Vrakas

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION STAFF

Kurt W. Bauer, PE, AICP, RLS ..... Executive Director
Philip C. Evenson, AICP ..... Assistant Director
Kenneth R. Yunker, PE ..... Assistant Director
Robert P. Biebel, PE ..... Chief Environmental Engineer
Leland H. Kreblin, RLS ..... Chief Planning Illustrator
Elizabeth A. Larsen ..... Administrative Officer
Donald R. Martinson, PE ..... Chief Transportation Engineer
John R. Meland ..... Chief Economic Development Planner
Thomas D. Patterson ..... Geographic Information Systems Manager
Bruce P. Rubin ..... Chief Land Use Planner
Roland O. Tonn, AICP ..... Chief Community Assistance Planner

TECHNICAL COORDINATING AND ADVISORY COMMITTEE ON REGIONAL TRANSPORTATION SYSTEM PLANNING

Patrick Marchese* ..... Commissioner, Southeastern Wisconsin Regional Planning Commission, Chairman
Kurt W. Bauer* ..... Executive Director, Southeastern Wisconsin Regional Planning Commission, Secretary
Edward A. Beimborn ..... Professor of Civil Engineering and Mechanics, University of Wisconsin-Milwaukee
Peter W. Beitzel ..... Vice President of International Trade, Transportation, and Business Development, Metropolitan Milwaukee Association of Commerce
John M. Bennett* ..... City Engineer, City of Franklin
Richard A. Bolte ..... Director of Transportation, Waukesha County
Benjamin J. Coopman, Jr. ..... Highway Commissioner, Walworth County
Tyrone P. Dumas ..... Director of Public Works, Milwaukee County
Joel P. Ettinger ..... Regional Administrator, Region V, U. S. Department of Transportation, Federal Transit Administration
Raymond A. Forgianni, Jr. ..... Director, Department of City Development, City of Kenosha
Michael J. Glasheen ..... Transit Planner, City of Racine
George E. Hall ..... Chief, Boundary Review Section, Bureau of Intergovernmental Relations, Wisconsin Department of Administration
Michael L. Hansen ..... Chairman, Wisconsin Coach Lines, Inc.
Thomas A. Howells ..... President, Wisconsin Motor Carriers Association
Dennis M. Johnson ..... City Engineer, City of West Allis
Robert C. Johnson ..... Transit Coordinator, City of Waukesha
Stephen J. Hiniker ..... Environmental Policy Coordinator, City of Milwaukee
David A. Kuemmel ..... Associate Professor, Civil and Environmental Engineering, Marquette University
Thomas P. Kujawa* ..... Managing Director, Milwaukee County Transit System
Glenn Lampark ..... Deputy Public Works Director, Racine County
Joseph McCarthy ..... Director of Transportation, City of Kenosha
William A. Muth, Jr. ..... Director of Public Works, City of Brookfield
Robert R. Packee* ..... District Director, Wisconsin Department of Transportation, District 2
Frederick J. Patrie ..... Director of Public Works, Kenosha County
James E. St. John* ..... Division Administrator, U. S. Department of Transportation, Federal Highway Administration
William C. Schaefer* ..... Transportation and Land Use Specialist, Citizens for a Better Environment
Franklin B. Scharrer ..... Highway Commissioner, Washington County
Philip J. Scherer ..... Executive Director, Transportation Development Association of Wisconsin
Mariano A. Schifalacqua ..... City Engineer, City of Milwaukee
Roger L. Schrantz ..... Administrator, Division of Planning and Budget, Wisconsin Department of Transportation
Donald F. Theiler ..... Director, Bureau of Air Management, Wisconsin Department of Natural Resources
Rodney Vanden Noven ..... Director of Public Works, City of Waukesha
Sylvester N. Weyker ..... Highway Commissioner, Ozaukee County

*Member, Subcommittee on Public Involvement

MEMORANDUM REPORT
NUMBER 104

INCORPORATION OF THE FEDERALLY REQUIRED CONGESTION MANAGEMENT SYSTEM WITHIN THE YEAR 2010 REGIONAL TRANSPORTATION SYSTEM PLAN AND THE CONTINUING TRANSPORTATION SYSTEM PLANNING PROCESS

Prepared by the

Southeastern Wisconsin Regional Planning Commission
P. O. Box 1607
Old Courthouse
916 N. East Avenue
Waukesha, Wisconsin 53187-1607

The preparation of this publication was financed in part through planning funds provided by the Wisconsin Department of Transportation and the U. S. Department of Transportation, Federal Highway and Federal Transit Administrations.

December 1994

Inside Region $ 5.00
Outside Region $10.00

(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)

INCORPORATION OF THE FEDERALLY REQUIRED CONGESTION MANAGEMENT SYSTEM WITHIN THE YEAR 2010 REGIONAL TRANSPORTATION SYSTEM PLAN AND THE CONTINUING TRANSPORTATION SYSTEM PLANNING PROCESS

INTRODUCTION

The Federal Intermodal Surface Transportation Efficiency Act of 1991 requires that a congestion management system be an integral part of the regional transportation system planning program for the Southeastern Wisconsin Region. The purpose of this memorandum report is to set forth the manner in which the regional transportation planning program provides the congestion management system envisioned in the Federal regulations (49 CFR Part 500) and implementing the Intermodal Surface Transportation Efficiency Act of 1991.

The Intermodal Surface Transportation Efficiency Act of 1991 requires that a congestion management system have five components: definition of performance measures to assess congestion, data collection and analysis to establish existing congestion and monitor future congestion, evaluation and recommendation of actions to resolve existing and future traffic congestion, preparation of implementation plan for recommended actions, and monitoring and evaluation of the effectiveness of recommended actions.

The third-generation regional transportation system planning process was designed so that the preparation of the design year 2010 system plan and the continuing regional transportation system planning program would provide the required congestion management system. As part of the preparation of the system plan, performance measures to assess existing and future traffic congestion within the Region were defined as part of the objectives and standards formulated to guide the design and evaluation of alternative regional transportation system plans. Data collection, analyses, and simulation model studies were conducted as part of the plan preparation to identify existing and anticipated future traffic congestion according to these performance measures. A wide range of transportation system management measures, including traffic management, travel demand management, and transit service improvement, were considered and evaluated as part of alternative regional transportation system plan formulation, test, and evaluation with respect to the potential of the various alternatives considered to reduce traffic congestion. Comment on the desirability and feasibility of these transportation system management measures as an element of the long-range regional transportation system plan was obtained from elected and appointed officials, representatives of business and environmental interests, as well as from the general public. Highway capacity improvement and expansion projects were then considered as an additional element of the alternative regional transportation system plans to address the identified residual traffic congestion. In so doing, improvement and expansion of arterial street and highway capacity was considered as a measure of last resort in the alleviation of existing and future traffic congestion. A recommended plan of proposed transportation system management actions and of transit service and arterial street and highway improvements was developed following extensive public review and comment. An implementation schedule was then established for that recommended system plan.

The adopted design year 2010 regional transportation system plan thus provides three of the five elements of the Federally required congestion management system: definition of performance measures to assess congestion, evaluation and recommendation of actions to resolve existing and probable future traffic congestion, and an implementation schedule for the recommended actions. The remaining elements of a congestion management system which must, then, be provided as part of the continuing regional transportation system planning program are the monitoring of future traffic congestion and the evaluation, upon implementation, of the effectiveness of the recommended actions to alleviate traffic congestion.

The following documents how each element of the Federally required congestion management system has been incorporated into the regional transportation system plan and into the continuing regional transportation system planning process, thereby fully meeting the Federal congestion management system requirements within Southeastern Wisconsin.

DEFINITION OF CONGESTION PERFORMANCE MEASURES

The Federal regulations governing congestion management systems require the formulation of performance measures which, in effect, define traffic congestion. The performance measures are to be used to identify existing and potential future traffic congestion and the level of service provided by the transportation system, to monitor traffic congestion and level of service, and to permit evaluation of alternative actions to alleviate traffic congestion and improve the level of service provided by the transportation system. Traffic congestion and transportation system performance measures were defined as part of the regional transportation system planning objectives and standards formulated to guide the design, evaluation, and selection of the regional transportation system plan.

Nine transportation system development objectives were established to guide the development of the year 2010 regional transportation system plan. The objectives, together with a supporting planning principle and a set of quantifiable standards, are set forth in Chapter VIII, "Objectives, Principles, and Standards," of SEWRPC Planning Report No. 41, A Regional Transportation System Plan for Southeastern Wisconsin: 2010, and are also reproduced in Appendix A of this memorandum report. The transportation system development objectives are concerned with providing a flexible, multi-modal regional transportation system; reducing travel times and delays; improving travel safety; minimizing cost; minimizing disruptive effects upon communities and the natural environment; and promoting implementation of the regional land use plan.

Two of the transportation system development objectives, No. 1 and No. 6, each include a specific standard intended to be used to identify and measure traffic congestion and the level of service provided by the existing and proposed transportation system and to evaluate the effectiveness of alternative and recommended congestion abatement measures. Other standards may also be considered to be measures of traffic congestion and transportation system level of service.

Objective No. 1 proposes development of "a multi-modal transportation system which, through its location, capacity, and design, will effectively serve the existing regional land use pattern and promote the implementation of the regional land use plan, meeting and managing the anticipated travel demand generated by the existing and proposed land uses." One of the supporting standards for this objective is intended to provide a measure of the accessibility provided to various land use activities within the Region, as well as a measure of traffic congestion and level of service:

> "1. The transportation system should provide service by highway and public transit modes within each urbanized area of the Region so that all residents of an urbanized area, without regard to color, race, or national origin, are:
>
> "a. within 30 minutes' overall travel time[1] through travel by personal vehicle on the arterial street and highway system and 45 minutes' overall travel time through travel on the public transit system of 40 percent of that urbanized area's employment opportunities;
>
> "b. within 35 minutes' overall travel time by personal vehicle and transit of three major retail and service centers in the Milwaukee urbanized area and one such center in the Kenosha and Racine urbanized areas;
>
> "c. within 40 minutes' overall travel time by personal vehicle and transit of a major medical center and/or 30 minutes' overall travel time of a hospital and/or medical clinic;
>
> "d. within 40 minutes' overall travel time by personal vehicle and transit of a major park or outdoor recreation area;
>
> "e. within 40 minutes' overall travel time by personal vehicle and transit of a vocational school, college, or university; and
>
> "f. within 60 minutes' overall travel time by personal vehicle and transit of a scheduled air transport terminal."

---

[1] *Overall travel time is defined as the total door-to-door time of travel from origin to destination, including the time required to arrive at the vehicle and leave the vehicle as well as over-the-road travel time.*

Objective No. 6 proposes development of "a transportation system which facilitates the movement of people and goods between component parts of the Region." The standard utilized to assess traffic congestion under this objective states:

> "4. Highway transportation facilities should be located and designed so as to provide adequate capacity, that is, a volume-to-design-capacity ratio[2] equal to, or less than, 1.0, based on 24-hour average weekday traffic volumes, to meet the existing and potential travel demand."

In the assessment of the existing regional transportation system and of alternative and recommended design year 2010 regional transportation system plans, the level of traffic congestion on each arterial street and highway segment was stratified into five volume-to-design-capacity ranges. The five ranges were:

1. "Under design capacity," with a volume-to-design-capacity ratio of 0.00 to 0.90,

2. "At design capacity," with a volume-to-design-capacity ratio of 0.91 to 1.00,

3. "Over design capacity, moderate," with a volume-to-design-capacity ratio of 1.01 to 1.10,

4. "Over design capacity, severe," with a volume-to-design-capacity ratio of 1.11 to 1.30, and

5. "Over design capacity, extreme," with a volume-to-design-capacity ratio of over 1.30.

The volume-to-design-capacity ranges may be related to level of service designations which are used to qualitatively measure the operational characteristics of the arterial street system. There are six levels of service corresponding to letters "A" through "F"; "A" describing free flow, unrestricted traffic conditions, and "F" describing a breakdown in traffic flow. Arterial facilities operating under design capacity with volume to design capacity ratios less than 0.90 exhibit travel conditions representative of levels of service "A" or "B." At this level of service, average freeway speeds would be 55 miles per hour (mph), under a 55 mph speed limit, and there would be no restrictions on lane changes. Urban standard arterials would have average operating speeds of 25 to 40 mph and average signalized intersection delays of five to 15 seconds.

Facilities operating under conditions approaching design capacity with volume to design capacity ratios between 0.91 and 1.0 exhibit travel conditions representative of level of service "C." At this level of service, average freeway speeds would be 55 mph and there may be some restrictions on lane changing during brief periods of the peak hour. Urban standard arterials would have average operating speeds of 25 to 40 mph and average signalized intersection delays of about 15 seconds.

Facilities operating moderately over design capacity, with volume to design capacity ratios of 1.01 to 1.10, exhibit travel conditions representative of level of service "D." At this level of service, average freeway speeds would range from 50 to 55 mph and there would be some restrictions on lane changing. Urban standard arterials would have average operating speeds of 20 to 35 mph and average signalized intersection delays of about 25 seconds.

Facilities operating severely over design capacity, with volume to design capacity ratios of 1.11 to 1.30, exhibit travel conditions representative of levels of service "E". At this level of service, average freeway speeds would range from 35 to 45 mph and there would be restrictions on lane changing. Traffic flow

---

[2]*The volume-to-design-capacity ratio is defined as the relationship between the average weekday traffic volume on a particular section of the arterial system and the design capacity of that section, with volume and design capacity expressed in terms of number of vehicles per average weekday. The design capacity of arterial facilities is set forth in the following table.*

Facility Type	*Average Weekday Traffic Volumes (vehicles per average weekday)*
Urban Freeway	
Four-Lane	*60,000*
Six-Lane	*90,000*
Rural Freeway	
Four-Lane	*52,500*
Six-Lane	*85,000*
Urban Standard Arterial	
Two-Lane	*13,000*
Four-Lane Undivided	*17,000*
Four-Lane Divided	*25,000*
Six-Lane Divided	*35,000*
Eight-Lane Divided	*45,000*
Rural Standard Arterial	
Two-Lane	*7,000*
Four-Lane Divided	*25,000*

approaches instability and is susceptible to changing operation conditions. Urban standard arterials would have average operating speeds of 20 to 30 mph and average signalized intersection delays of about 35 seconds.

Facilities operating extremely over design capacity, with volume to design capacity ratios of 1.31 or higher, exhibit travel conditions representative of level of service "F." Freeways operating over design capacity would have average speeds ranging from 30 mph to 35 mph with significant restrictions on lane changing. Stop-and-go traffic speeds less than 30 mph may occur upstream of over design capacity freeway segments. Urban standard arterial streets operating over design capacity will provide substantial delays at signalized intersections. During peak-traffic periods, vehicles may have to wait through more than one traffic signal red phase. The average delay to each vehicle at controlled intersections will be at least 35 seconds and may approach 120 seconds. The average travel speed along such urban arterials will generally be less than 15 to 20 mph.

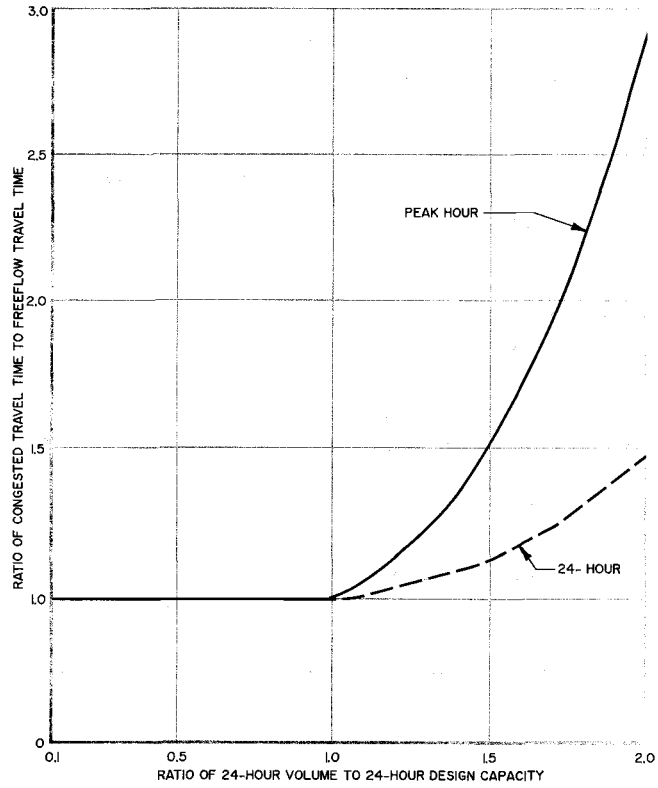
The Commission has developed procedures to estimate average 24-hour and peak-hour travel speeds on arterial streets and highways under existing conditions using the calibrated relationship between travel speeds and the 24-hour traffic volume-to-design-capacity ratio depicted in Figure 1. This relationship has been validated based upon comparison of model-estimated speeds and travel times to actual speeds and travel times as measured on the arterial streets and highways of the Region. The peak-hour and average weekday travel speeds estimated for arterial streets and highways as attendant to each range of traffic volume-to-design-capacity ratios are shown in Table 1. These same performance measures may be utilized to monitor changes in traffic congestion over time as recommended congestion abatement measures are implemented.

DATA COLLECTION AND SYSTEM MONITORING

As part of the regional transportation system plan preparation, the Commission conducted a series of travel inventories, analyses, and simulation model studies which met the requirements of a congestion management system with respect to the identification of existing and potential future traffic congestion. Data collected included travel speeds and

Figure 1

TRAVEL TIME TO VOLUME/CAPACITY RATIO RELATIONSHIPS: 24-HOUR AND PEAK-PERIOD



Source: SEWRPC.

traffic volumes on the arterial street and highway system, arterial street and highway design capacity, and transit system route structure and schedule, including travel times and hours and frequency of service.

Current arterial traffic volumes were compared to the existing arterial design capacity on a segment-by-segment basis. The resultant traffic volume-to-design-capacity ratios, along with travel speed data, were compared to the congestion standards and performance measures to determine the levels of congestion on the existing transportation system. Finally, those portions of each urbanized area of the Region meeting the accessibility travel time standards were identified for the existing transportation system. The findings of this assessment of existing traffic congestion and levels of service on the existing system were presented in Chapter IV, "Inventory of Transportation Facilities and Services," of SEWRPC Planning Report No. 41, A Regional Transportation System Plan for South-

Table 1

RELATIONSHIP OF AVERAGE WEEKDAY 24-HOUR AND PEAK-PERIOD TRAFFIC SPEED TO AVERAGE WEEKDAY TRAFFIC VOLUME-TO-DESIGN-CAPACITY RATIO

Average Weekday Traffic Volume-to-Design-Capacity Ratio	Estimated Average Weekday Traffic Speed[a] (miles per hour)		Estimated Peak-Hour Traffic Speed[a] (miles per hour)	
	Freeway	Surface Arterial	Freeway	Surface Arterial
Under Design Capacity 0.00 to 0.90	55	30	55	30
At Design Capacity 0.91 to 1.00	55	30	54 to 55	29 to 30
Over Design Capacity, Moderate 1.01 to 1.10	54 to 55	29 to 30	51 to 54	28 to 29
Over Design Capacity, Severe 1.11 to 1.30	51 to 54	28 to 29	44 to 50	24 to 28
Over Design Capacity, Extreme More than 1.30	Less than 51	Less than 28	Less than 44	Less than 24

[a]*Average speeds shown for typical freeway with a free-flow speed of 55 miles per hour and typical arterial with a free-flow speed of 30 miles per hour.*

Source: SEWRPC.

eastern Wisconsin: 2010, and are reproduced in Tables 2 through 4 and Maps 1 through 3 of this memorandum report.

As part of the comparison and evaluation of alternative transportation system plans, forecast traffic volumes were compared to facility design capacities in order to determine the volume-to-design-capacity ratio for each segment of the arterial street and highway system under each alternative transportation system plan considered, including the no-build alternative. Estimates of travel speeds were prepared for each arterial street and highway segment under each alternative transportation system plan. Also, the potential of each alternative transportation system plan to meet the arterial street and highway and transit travel time accessibility standards was estimated.

A continuing data collection and system monitoring effort will be required as part of the congestion management system and is proposed to be accomplished as part of the continuing regional transportation system planning program. The continuing data collection and system monitoring effort would provide the basis for measuring the attainment of the system performance measures. This will require the development of definitive data describing the existing arterial street and highway and transit networks, reflecting current physical and operational characteristics, including design capacity, average weekday traffic volume, operational speed, and transit route structure and hours and frequency of service. The necessary data would be collected annually. The first updated base year network data would be collected for the year 1995. The attainment of the system performance measures would be evaluated for 1995 and would be utilized for the update of the regional transportation system plan, and therefore of the congestion management system, in 1997. The updated measurement of the attainment of the performance measures for the year 1995 will be compared to the measurements estimated for the year 1991 and for the year 2010 under the assumed full implementation of the adopted regional transportation system plan. The process would be continued on a three-year cyclical basis.

IDENTIFICATION AND EVALUATION OF ACTIONS TO RESOLVE TRAFFIC CONGESTION

As part of the preparation of the regional transportation plan, a full range of congestion management system measures were considered, evaluated,

Table 2

TRAFFIC CONGESTION ON THE ARTERIAL STREET AND HIGHWAY SYSTEM IN THE REGION BY COUNTY: 1991

County	Under Design Capacity[a]		At Design Capacity[b]		Over Design Capacity						Total Mileage
					Moderate[c]		Severe[d]		Extreme[e]		
	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	
Kenosha	286.0	90.0	8.1	2.5	8.5	2.7	10.4	3.3	4.7	1.5	317.7
Milwaukee	543.2	70.1	67.6	8.7	42.7	5.5	101.4	13.1	20.5	2.6	775.4
Ozaukee	254.2	88.1	10.5	3.6	10.5	3.6	7.0	2.4	6.3	2.3	288.5
Racine	288.7	83.0	16.9	4.9	8.0	2.3	28.3	8.1	6.0	1.7	347.9
Walworth	411.1	95.8	8.4	2.0	6.6	1.5	3.1	0.7	--	--	429.2
Washington	356.5	89.3	20.2	5.1	3.0	0.7	12.5	3.1	7.0	1.8	399.2
Waukesha	591.3	82.5	25.9	3.6	27.1	3.8	54.5	7.6	17.5	2.5	716.3
Total	2,731.0	83.4	157.6	4.8	106.4	3.2	217.2	6.6	62.0	2.0	3,274.2

[a] *Volume-to-design-capacity ratio: 0.00 to 0.90*

[b] *Volume-to-design-capacity ratio: 0.91 to 1.00*

[c] *Volume-to-design-capacity ratio: 1.01 to 1.10*

[d] *Volume-to-design-capacity ratio: 1.11 to 1.30*

[e] *Volume-to-design-capacity ratio: over 1.30*

Source: SEWRPC.

Table 3

URBANIZED AREA POPULATION MEETING TRAVEL TIME STANDARDS TO EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL ON ARTERIAL STREETS AND HIGHWAYS: 1991

Urbanized Area and Activity Center	Urbanized Area Population		Urbanized Area Population Meeting Travel Time Standard on Arterial Streets and Highways: Base Year 1991	
	Existing 1991	2010	Number	Percent
Kenosha Urbanized Area	94,300	107,300	--	--
Employment-Related[a]	--	--	90,900	96.4
Major Retail-Service[b]	--	--	0	0.0
Medical Facility[c]	--	--	94,300	100.0
Major Park[d]	--	--	94,300	100.0
Higher-Education Facility[e]	--	--	94,300	100.0
Scheduled Air Transport[f]	--	--	94,300	100.0
Milwaukee Urbanized Area	1,226,300	1,277,100	--	--
Employment-Related	--	--	1,147,900	93.6
Major Retail-Service	--	--	1,161,400	94.7
Medical Facility	--	--	1,226,300	100.0
Major Park	--	--	1,226,300	100.0
Higher-Education Facility	--	--	1,226,300	100.0
Scheduled Air Transport	--	--	1,226,300	100.0
Racine Urbanized Area	121,800	132,100	--	--
Employment-Related	--	--	121,800	100.0
Major Retail-Service	--	--	32,200	86.4
Medical Facility	--	--	121,800	100.0
Major Park	--	--	121,800	100.0
Higher-Education Facility	--	--	121,800	100.0
Scheduled Air Transport	--	--	121,800	100.0

[a] *Standard: 30 minutes' overall travel time of 40 percent of urbanized area employment opportunities.*

[b] *Standard: 35 minutes' overall travel time of three major retail and service centers.*

[c] *Standard: 40 minutes' overall travel time of a major regional medical center and/or 30 minutes' overall travel time of a hospital or medical clinic.*

[d] *Standard: 40 minutes' overall travel time of a major public outdoor recreation center.*

[e] *Standard: 40 minutes' overall travel time of a vocational school, college, or university.*

[f] *Standard: 60 minutes' overall travel time of a scheduled air transport airport.*

Source: SEWRPC.

Table 4

URBANIZED AREA POPULATION MEETING TRAVEL TIME STANDARDS TO EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL ON TRANSIT: 1991

Urbanized Area and Activity Center	Urbanized Area Population		Urbanized Area Population Meeting Travel Time Standard on Transit: Base Year 1991	
	Base Year 1991	2010	Number	Percent
Kenosha Urbanized Area	94,300	107,300	--	--
Employment-Related[a]	--	--	58,000	61.5
Major Retail-Service[b]	--	--	0	0.0
Medical Facility[c]	--	--	60,600	64.3
Major Park[d]	--	--	12,600	13.4
Higher-Education Facility[e]	--	--	33,200	35.2
Scheduled Air Transport[f]	--	--	0	0.0
Milwaukee Urbanized Area	1,226,300	1,277,100	--	--
Employment-Related	--	--	14,200	1.2
Major Retail-Service[g]	--	--	10,100	0.8
Medical Facility	--	--	700,400	57.1
Major Park	--	--	636,300	51.9
Higher-Education Facility	--	--	775,700	63.2
Scheduled Air Transport	--	--	338,600	27.6
Racine Urbanized Area	121,800	132,100	--	--
Employment-Related	--	--	59,100	48.5
Major Retail-Service	--	--	21,500	17.7
Medical Facility	--	--	53,700	44.1
Major Park	--	--	24,000	19.7
Higher-Education Facility	--	--	79,600	65.4
Scheduled Air Transport	--	--	18,300	15.0

[a] *Standard: 45 minutes' overall travel time of 40 percent of urbanized area employment opportunities.*

[b] *Standard: 35 minutes' overall travel time of one major retail and service center.*

[c] *Standard: 40 minutes' overall travel time of a major regional medical center and/or 30 minutes' overall travel time of a hospital or medical clinic.*

[d] *Standard: 40 minutes' overall travel time of a major public outdoor recreation center.*

[e] *Standard: 40 minutes' overall travel time of a vocational school, college, or university.*

[f] *Standard: 60 minutes' overall travel time of a scheduled air transport airport.*

[g] *Standard: 35 minutes' overall travel time of three major retail and service centers.*

Source: SEWRPC.

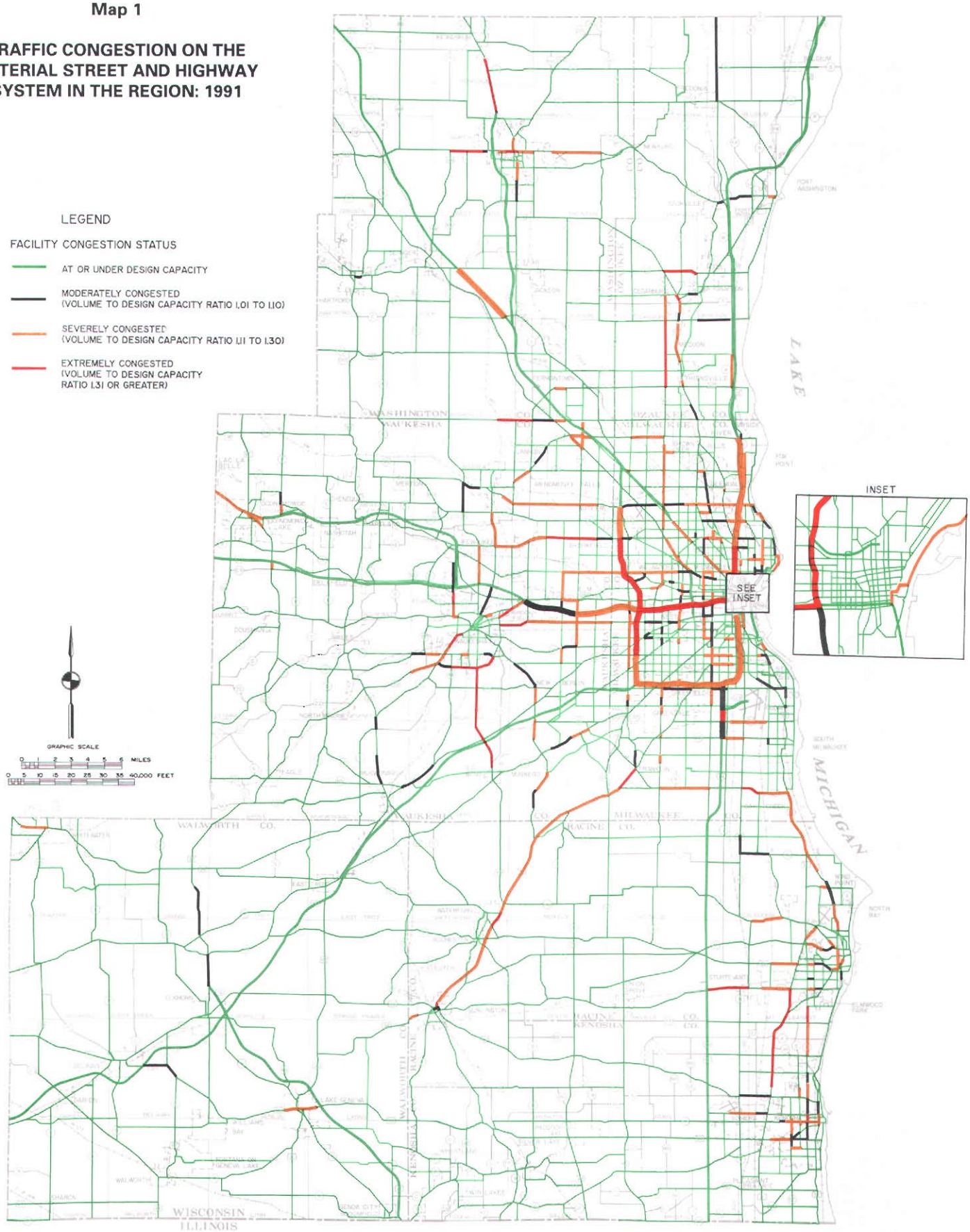
and ultimately recommended for implementation to abate traffic congestion and improve levels of service. Both traffic management and travel demand management measures were considered and evaluated, along with improvement and expansion of the public transit and arterial street and highway systems. Comment on the desirability and feasibility of the inclusion of transportation system management and other measures in the regional system plan was obtained from elected and appointed officials, representatives of business and environmental interests, as well as from the general public.

The traffic management measures considered and incorporated in each alternative plan and in the final recommended plan represented all such measures with the potential of helping to achieve the most efficient use of the existing arterial street and highway system capacity. These traffic management measures included:

- An areawide freeway traffic management system which would provide for more efficient use of freeway capacity through incident management, advisory information, and expanded centrally controlled ramp metering systems

Map 1

TRAFFIC CONGESTION ON THE ARTERIAL STREET AND HIGHWAY SYSTEM IN THE REGION: 1991

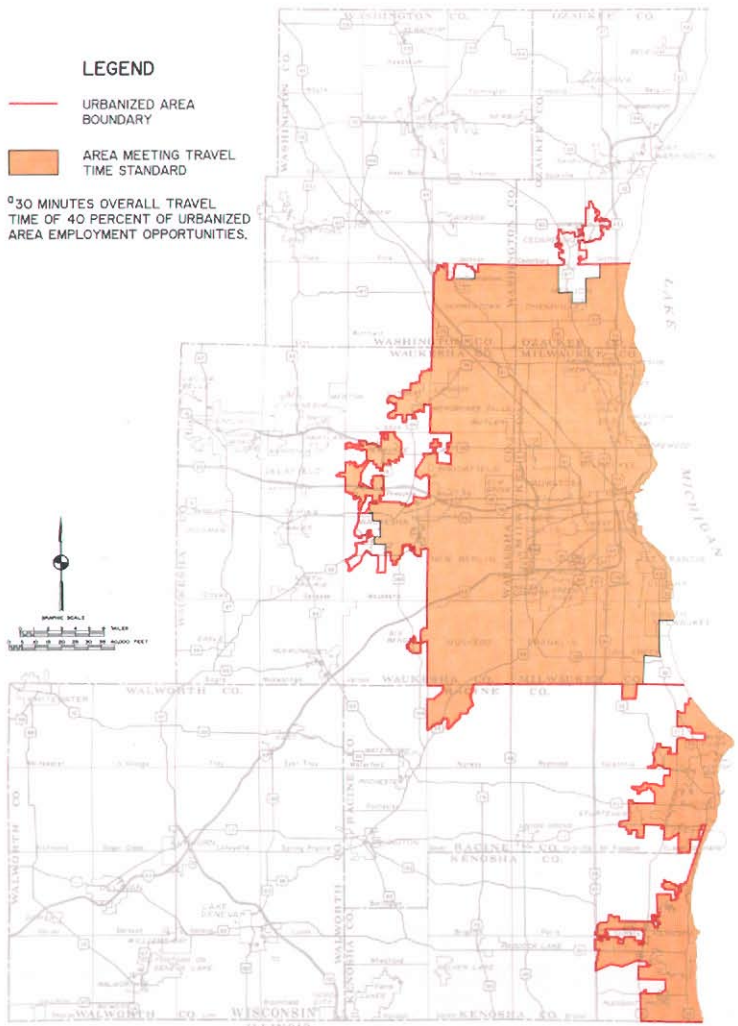


Source: SEWRPC.

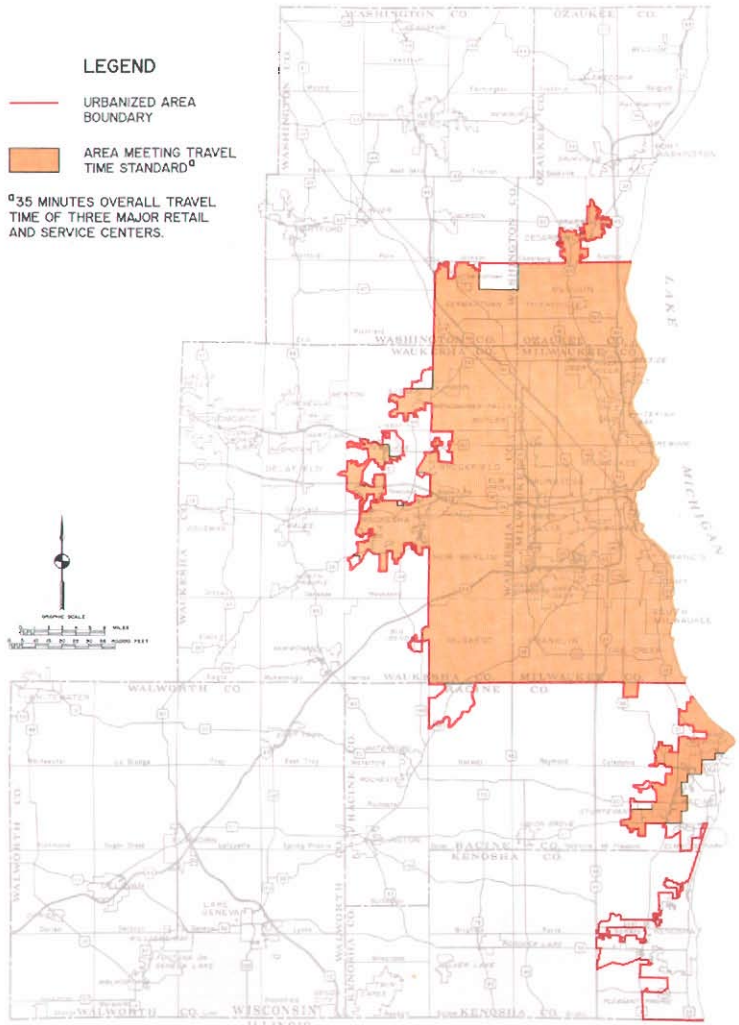
Map 2

AREAS MEETING TRAVEL TIME STANDARDS FOR EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL BY ARTERIAL STREET AND HIGHWAY: 1991

EMPLOYMENT: 1991

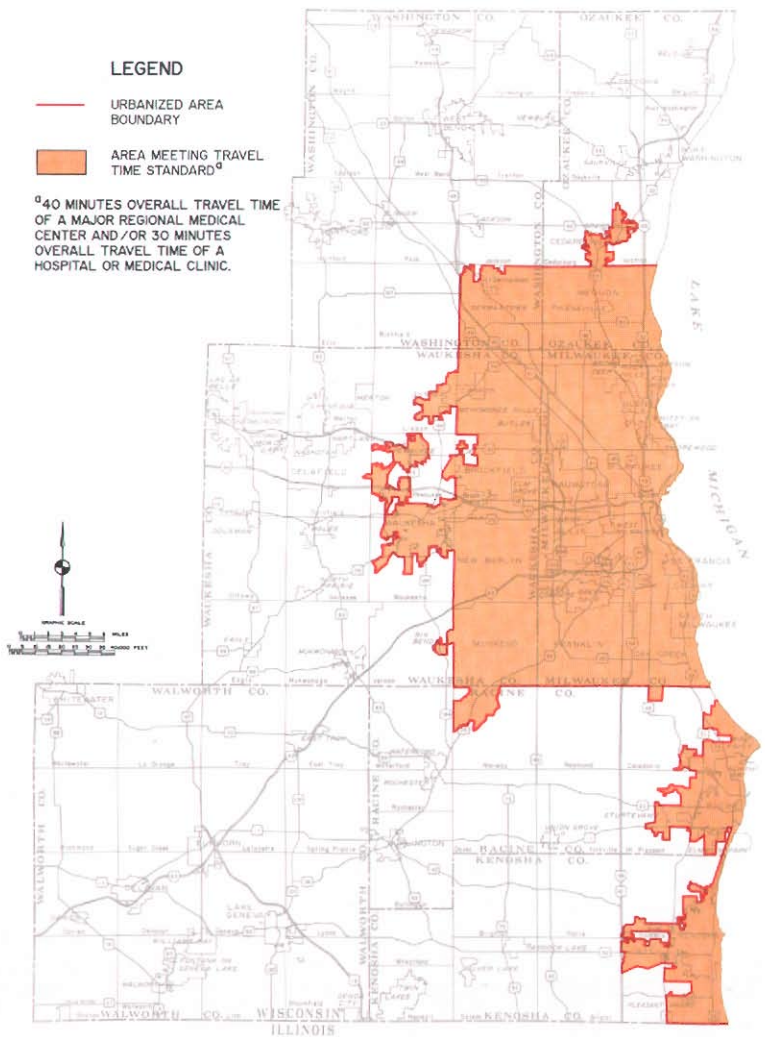


MAJOR RETAIL AND SERVICE CENTERS: 1991

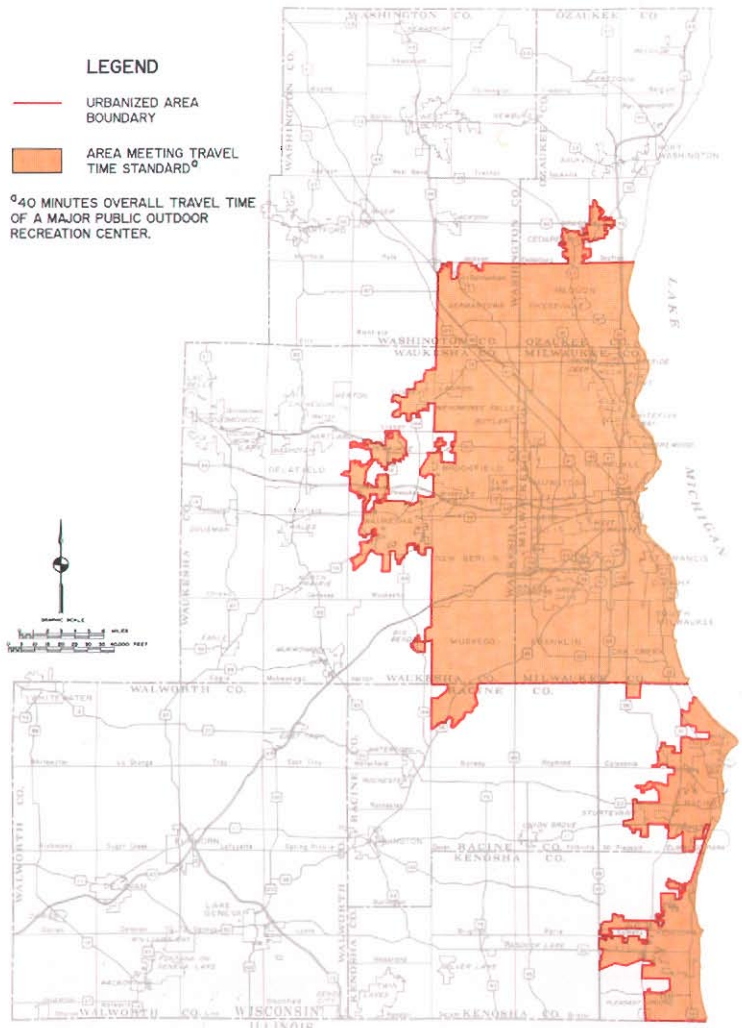


Map 2 (continued)

MAJOR MEDICAL CENTERS: 1991

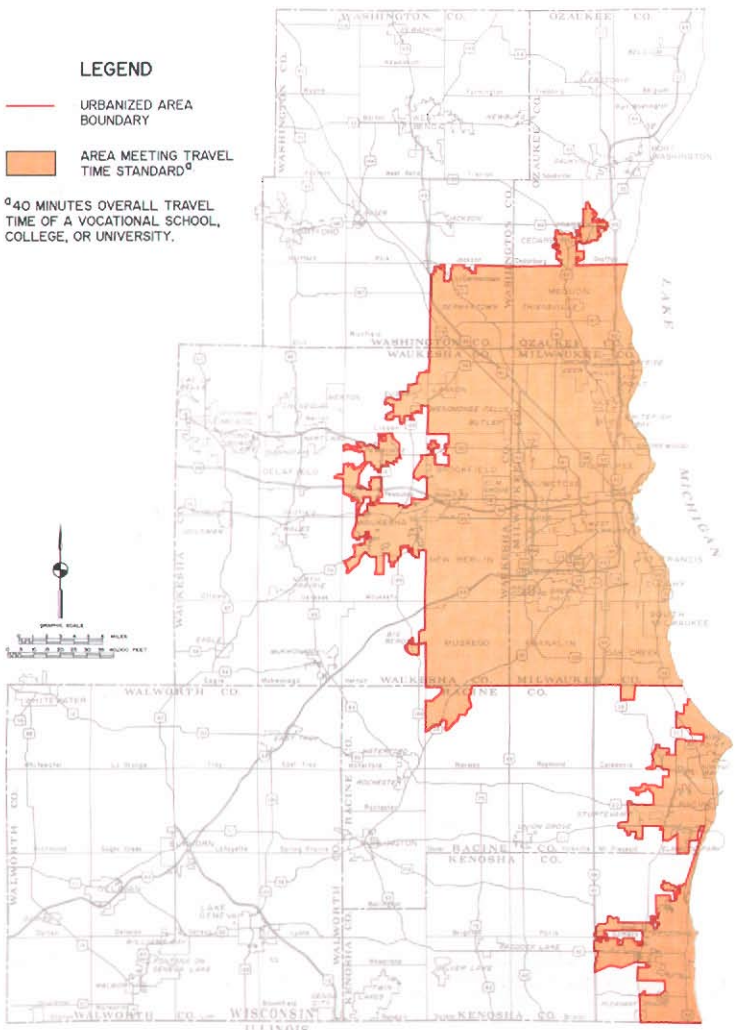


MAJOR RECREATION CENTERS: 1991

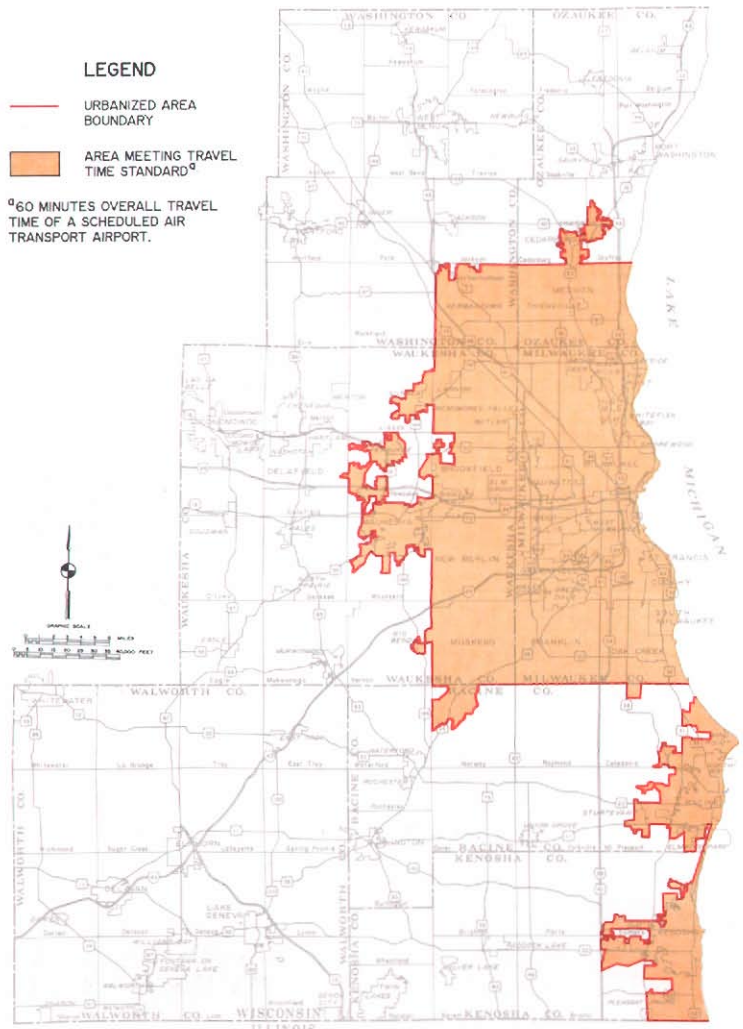


Map 2 (continued)

MAJOR EDUCATIONAL CENTERS: 1991



SCHEDULED AIR TRANSPORT TERMINALS: 1991

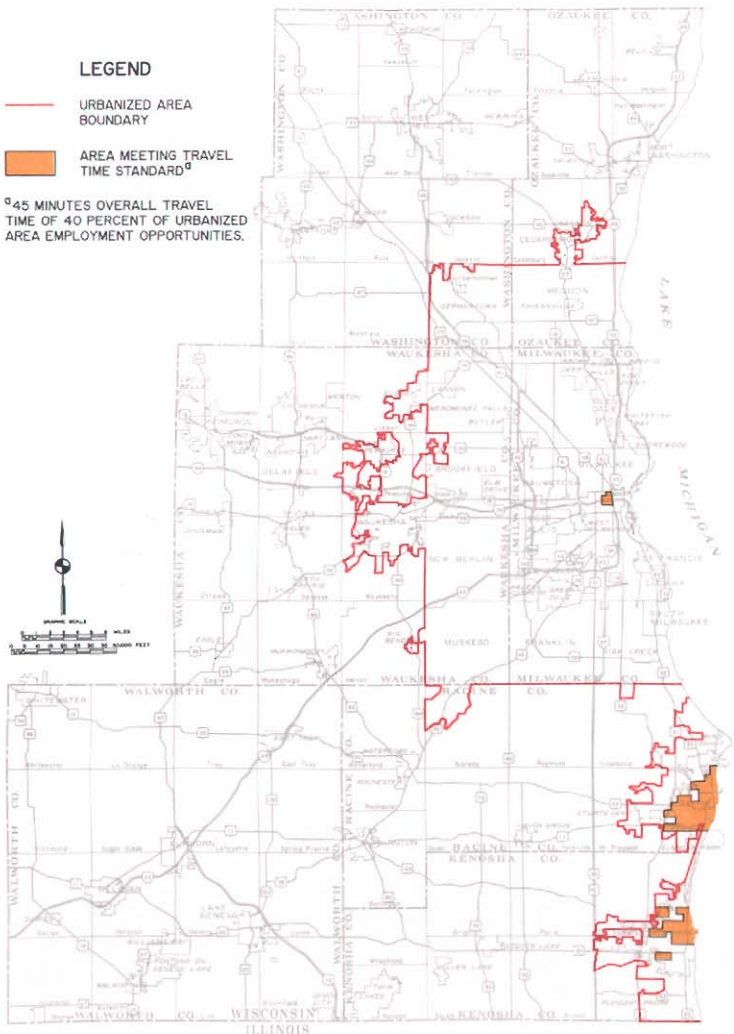


Source: SEWRPC.

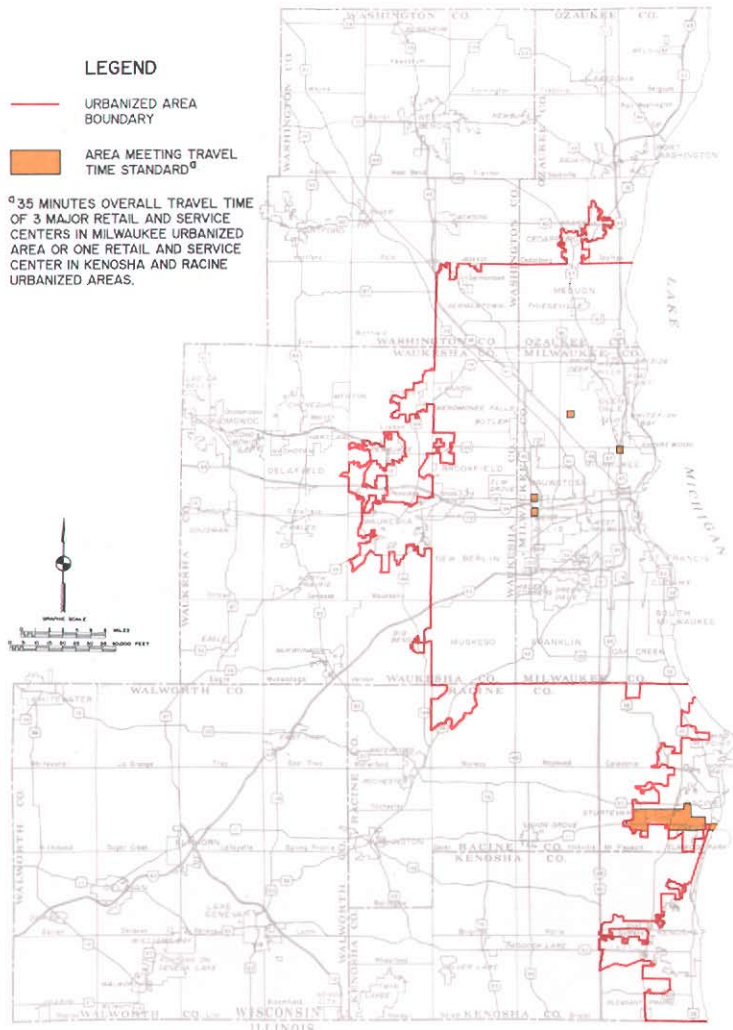
Map 3

AREAS MEETING TRAVEL TIME STANDARD FOR EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL BY TRANSIT: 1991

EMPLOYMENT: 1991

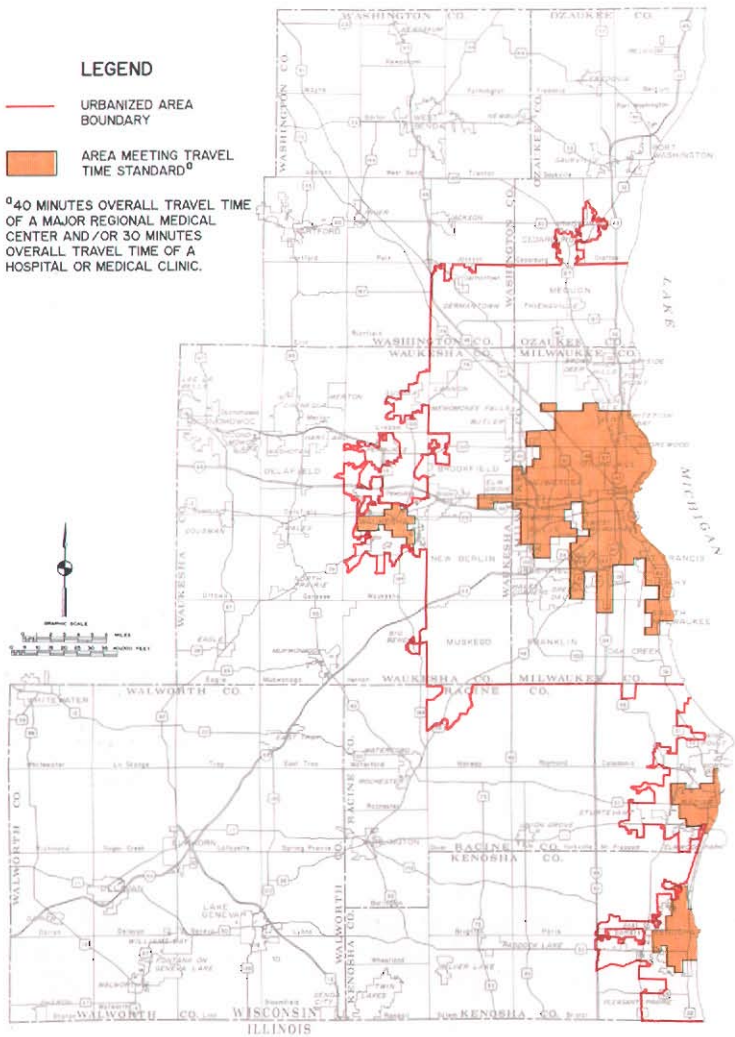


MAJOR RETAIL AND SERVICE CENTERS: 1991

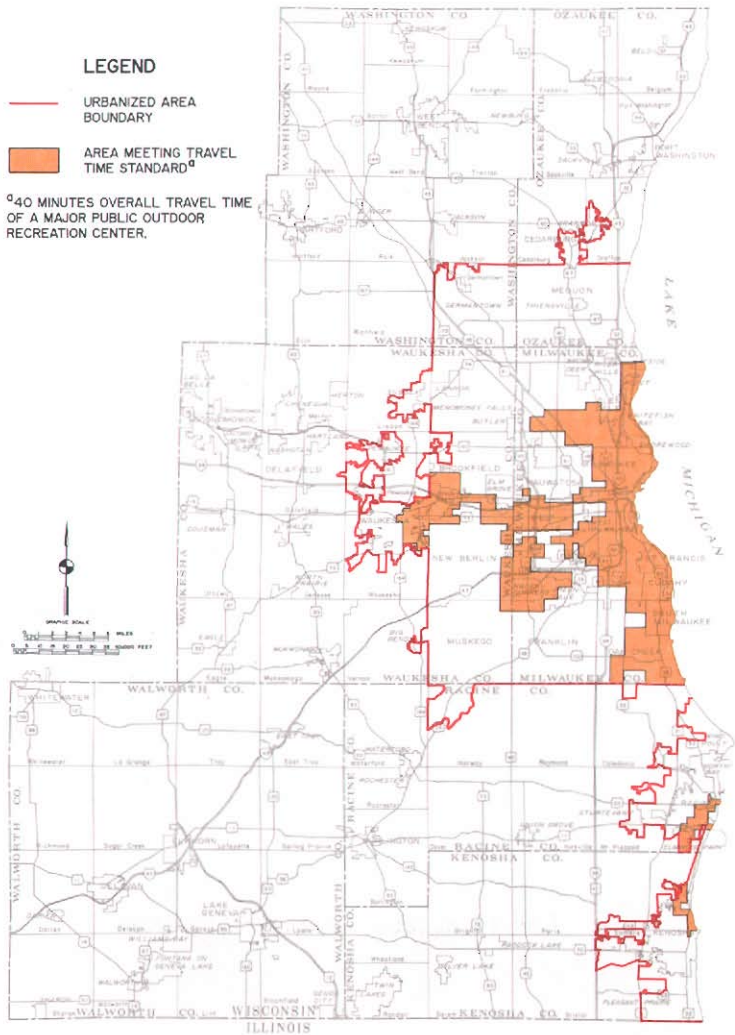


Map 3 (continued)

MAJOR MEDICAL CENTERS: 1991

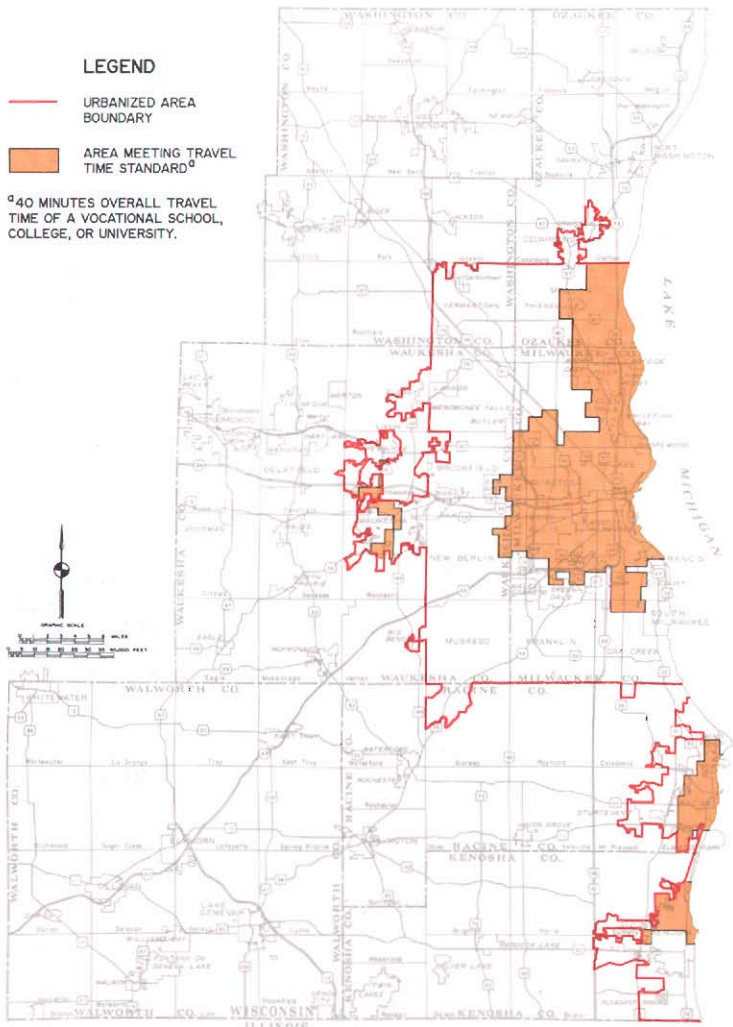


MAJOR RECREATION CENTERS: 1991

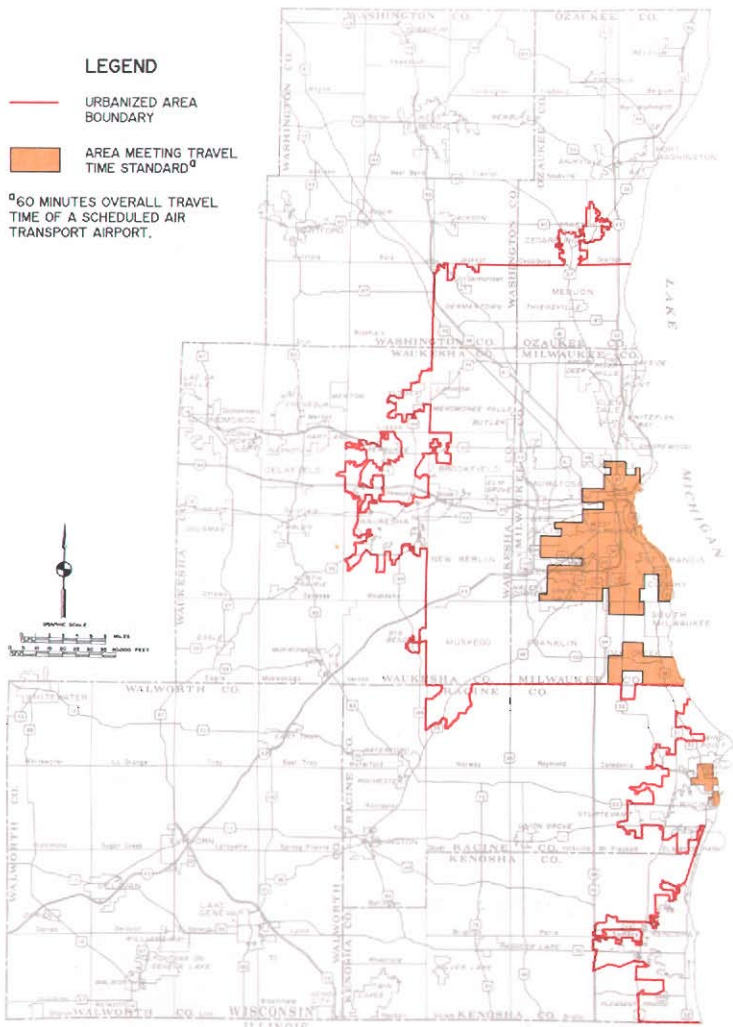


Map 3 (continued)

MAJOR EDUCATIONAL CENTERS: 1991



SCHEDULED AIR TRANSPORT TERMINALS: 1991



Source: SEWRPC.

and which would promote carpool and transit use through provision of bypass lanes at ramp meters for carpool and transit vehicles.

- Continued and expanded peak-period and peak-direction curb-lane parking restrictions on a total of over 400 miles of streets as needed and available to provide additional traffic carrying capacity.

- Application of good traffic engineering practices throughout the Region, including intersection treatments with turn lanes as needed and efficient traffic signalization, including signal progression.

In addition to the traffic management measures considered, a full range of travel demand management measures were also considered. Five categories of travel demand management measures were identified including: 1) pricing, 2) parking control, 3) land use site design, 4) work schedule changes, and 5) other.

Specific measures within each category were identified and evaluated with respect to their potential impact on vehicle trips and vehicle-miles of travel and their probability of implementation, as set forth in Table 5. On the basis of this evaluation of individual travel demand management measures, specific measures were incorporated in the design of three alternative transportation system management plans. In addition, major transit system improvement and expansion actions were incorporated as an element of each plan. Each alternative plan included development of true rapid and express transit systems, but differed with respect to the extent and frequency of the service proposed to be provided. Measured in terms of vehicle-miles of service, Alternative Transportation System Management Plan 1 proposed a 124 percent expansion of transit service by the year 2010; Plan 2, an 81 percent expansion; and Plan 3, a 53 percent expansion. The three plans also differed with respect to the incorporation of travel demand management measures. The measures within the plans included pricing measures, which assumed up to a doubling of the perceived cost of automobile use, and land use site-design measures to facilitate bicycle, pedestrian, and transit travel. In addition, all the transportation system plans were based on the adopted regional land use plan, which assumed a centralized pattern of urban development rather than continued decentralization and which also assumed all new urban development would occur in planned neighborhood units with a mix of land uses.

The three alternative transportation system management plans considered thus consisted of traffic management measures, travel demand management measures, and public transit system improvements and expansion. Table 6 summarizes each of the three alternative transportation system management plans, Alternative Transportation System Management Plans 1 through 3. Alternative Plans 1 through 3 all include the same traffic management measures, but differ significantly with respect to the level of transit improvements and expansion and implementation of travel demand management measures. These three plans, along with the no-build plan,[3] to which they were compared, are fully documented in Chapter IX, "Alternative Regional Transportation System Management Plans," of SEWRPC Planning Report No. 41, A Regional Transportation System Plan for Southeastern Wisconsin: 2010. Forecast design year 2010 travel demand derived from the adopted year 2010 regional land use plan was assigned to each alternative plan and the ability of each transportation system management plan to meet the defined transportation planning objectives and standards, including the congestion performance measures, was evaluated.

With respect to traffic congestion, the evaluation indicated that the extent of congestion under a no-build alternative may be expected to be significantly greater than under the base year 1991 conditions. The number and percentage of arterial system miles which may be expected to operate severely and extremely over design capacity may be expected to increase from 279 miles, or 8.6 percent of the total arterial system in 1991 and to 681 miles, or 19.6 percent, by the year 2010 under a no-build alternative. The three transportation system management plans may be expected to have little impact on the extent of congestion in the year 2010, reducing the mileage of arterials operating severely and extremely over design capacity from 681 miles,

---

[3]*The no-build transportation system consisted almost exclusively of existing facilities and services in place on January 1, 1994. The only highway and public transit improvement or expansion projects considered were those under construction prior to January 1, 1994, along with those projects programmed on construction in the annual element, the element applicable to calendar year 1994 and 1995, of the 1993 through 1998 Federally approved Transportation Improvement Program for Southeastern Wisconsin: 1993-1998.*

Table 5

TRANSPORTATION SYSTEM DEMAND MANAGEMENT MEASURES POTENTIALLY APPLICABLE IN THE SOUTHEASTERN WISCONSIN REGION

Demand Management		Description	Potential Impact On Vehicle Trips and Vehicle Miles Traveled	Actions Required to Implement	Probability of Implementation
Category	Specific Measure				
Pricing	Cash-out of employer-paid parking	Require employers offering free/subsidized parking to employees to give cash value of parking to those employees and to charge those employees the market value of parking. Such a program would apply initially to leased parking and new employer-owned parking. (Such a program could apply to schools and universities)	Potential reduction in vehicle trips through increased use of transit and ridesharing on theory that some employees will "pocket" cash payment and use other mode of travel	Employer cooperation, Federal legislation, and State legislation	Medium; potential resistance by employers
	Pay-as-you-drive auto insurance	Offset of automobile insurance premiums by per-gallon insurance fee collected at the pump. Recognize that portion of risk is related to vehicle use	Potential reduction in vehicle trips and vehicle miles of travel	State legislation	Low; high degree of resistance by insurance companies and retail fuel dealers; potential to purchase cheaper fuel in nonparticipating adjacent jurisdictions
	Public sector parking pricing	Local and county governments can alter the price of off-street parking to discourage long-term commuter-related parking and encourage use of other modes	Limited potential reduction in single-occupancy work-related vehicle-trips	Local and county policies	Low; does not affect cost of parking provided in private sector; potential adverse effect on land use
	Parking excise tax	A State or local parking excise tax would be imposed on all parking spaces. The tax could be increased incrementally and revenues could be used to defray the cost of transportation services	Potential reduction in vehicle-trips and vehicle-miles of travel if fees encourage a reduction in nonwork vehicle-trips	State legislation, county and local policies	Low; potential high degree of resistance from the general public
	Parking pricing for nonwork-related destinations	A charge would be levied through use of Intelligent Vehicle Highway System (IVHS)-related electronic "smart cards." Low-cost sensors which interact with in-vehicle smart cards would be installed on the public right-of-way which abuts driveways to shopping and other activity centers to enable the imposition of modest trip destination charges. Charges could vary depending on location and time of day	Potential reduction in vehicle-miles of travel and nonwork vehicle-trips, particularly if the policy is implemented uniformly on a regionwide basis	State, county and local policies	Low; potential high degree of resistance from the general public
	Road pricing	Users of designated highway segments charged a fee; fees may vary according to time of day and congestion levels	Potential reduction in vehicle-trips and vehicle-miles of travel if alternative routes are not attractive and if more distant land use destinations are not available	State legislation	Low; high degree of resistance from general public; potential adverse effect on land use

Table 5 (continued)

Demand Management		Description	Potential Impact On Vehicle Trips and Vehicle Miles Traveled	Actions Required to Implement	Probability of Implementation
Category	Specific Measure				
Pricing (continued)	Area pricing	Personal vehicles entering designated areas would be required to purchase a permit. Permit fees may be varied by time of day, ambient air quality conditions, and traffic congestion levels	Potential for significant reductions in vehicle-trips to, and within, designated areas	State legislation	Low; enforcement difficulty; potential adverse effects on land use
	Graduated registration fees	A graduated registration fee related to annual miles traveled and vehicle emissions	Potential reduction in trip-making and vehicle-miles of travel	State legislation	Medium
	Motor fuel tax	Per-gallon tax	Potential reduction in trip-making and vehicle-miles of travel	Federal or State legislation	Medium
	ECO/UPASS systems	The ECO Pass is a program that allows employers and institutions to offer low-cost annual bus passes as a benefit to their employees and students. The pass would also include a guaranteed ride home if an employee works late or encounters a personal emergency. The cost of the program varies by the employer's location, number of employees, and level of transit service	Potential reduction in trip-making and vehicle-miles of travel as the cost of transit is reduced	Federal or State legislation	High
Parking Control Measures	Parking management; control of parking supply	The use of local zoning regulations to limit the number of parking spaces provided for new development; the number of spaces provided may be varied depending on the location of the development and alternative transportation options provided to the property. (Parking supply restrictions can also be applied to schools and universities)	Potential reduction in vehicle-trips	Local ordinance	Low; potential adverse effects on land use
	Preferential parking for carpools and vanpools	Reservation of most convenient parking spaces for carpool and vanpool vehicles	Potential reduction in vehicle-trips by encouraging ridesharing	Employer cooperation	High
	Major activity center fringe park-and-ride parking	Parking facilities constructed in locations remote to major activity centers to promote use of other modes	Potential reduction in vehicle-miles of travel	State, county, and local governments policy	High

Table 5 (continued)

Demand Management		Description	Potential Impact On Vehicle Trips and Vehicle Miles Traveled	Actions Required to Implement	Probability of Implementation
Category	Specific Measure				
Land Use Measures	Major activity center and neighborhood site planning	Use of zoning, official mapping, subdivision control, site plan review, and permitting to achieve appropriate urban design that reduces dependence on automobile; provide good circulation systems for bicyclists and pedestrians and associated amenities, a mix of land use activities, higher residential densities, public transit access, and traffic calming	Potential reduction in vehicle-trips and vehicle-miles of travel	Revision of land use regulations, State legislation, changes in funding to provide financial incentives	Medium
	Growth management	The use of land use regulation to direct the extent, timing, rate, and location of new urban development in accord with the adopted regional land use plan	Potential reduction in vehicle-trips and vehicle-miles of travel	Adoption of growth management policy, revision of land use regulations, State regulation or law, changes in funding to provide financial incentives	Medium
Work Schedule Charges	Telecommuting	Employees work at remote locations and avoid trip to central office. The telecommuting office could be at home, at a satellite work center, or a neighborhood work center	Potential reduction in vehicle-trips and vehicle-miles of travel	Employer cooperation	Medium
	Flextime and compressed work week	Flextime allows employees to set work starting and ending times to avoid peak-period congestion and to coordinate with transit scheduling. A compressed work week allows employees to work fewer days per week	Potential reduction in vehicle-trips made during peak hours; may increase off-peak vehicle-trips and vehicle-miles of travel	Employer cooperation	Medium
Other	Trip reduction ordinance	Public land use regulations promoting employer efforts to reduce the number of single-occupancy vehicle-trips made by employees; ordinances may permit increased densities in return for measures to reduce vehicle tripmaking	Potential reduction in trip-making and vehicle-miles of travel	Local ordinance	Medium
	Areawide rideshare	Public coordination of private efforts to encourage ridesharing	Potential reduction in vehicle-rips and vehicle-miles of travel	State, county, and local governments	High
	Transportation management associations	Promotion of geographically related transportation demand management measures; associations may be policy- and/or service-oriented	Potential reduction in vehicle-trips and vehicle-miles of travel	Employer cooperation	High

Table 5 (continued)

Demand Management		Description	Potential Impact On Vehicle Trips and Vehicle Miles Traveled	Actions Required to Implement	Probability of Implementation
Category	Specific Measure				
Other (continued)	Education/marketing	Measures to heighten public interest and knowledge of the Region's transportation and air quality problems to promote *responsible tripmaking* and reduce single-occupancy travel. Possible measures include, but are not limited to, expanded driver education, increased driver license educational requirements, and regular public service announcements	Potential reduction in vehicle-trips and vehicle-miles of travel	State, county, and local government	High
	IVHS advanced transit information systems	IVHS to provide transit and paratransit information regarding departures, arrivals and specialized services designed to help system users better structure their time and reduce waiting time	Limited potential reduction in vehicle-trips and vehicle-miles of travel	State, county, and local policies	Medium

Source: SEWRPC.

or 19.6 percent of the total system by the year 2010 under a no-build alternative; to 601 miles, or 17.3 percent, under alternative Transportation System Management Plan 1; to 628 miles, or 18.1 percent, under Transportation System Management Plan 2; and to 679 miles, or 19.5 percent, under Transportation System Management Plan 3.

Consequently, it was determined that arterial street and highway capacity improvement and expansion should be added to each alternative transportation system management plan to address the identified residual traffic congestion. The resultant alternative regional transportation system plans are described in summary form in Table 7. The addition of the highway capacity improvement and expansion to each transportation system management plan is described in Chapter X, "Alternative Plan Comparison and Evaluation" of SEWRPC Planning Report No. 41, A Regional Transportation System Plan for Southeastern Wisconsin: 2010. This chapter also presents a comprehensive comparative evaluation of these alternative plans. It should be noted that on the basis of this comparative evaluation it was determined that Alternative Plan 2 should be dropped from further consideration. The comparative evaluation of the alternative plans included specific consideration of the congestion management system performance measures. The findings of the evaluation are reproduced in Tables 8 through 12 and Maps 4 through 12 of this memorandum report.

These complete alternative regional transportation system plans were found to reduce traffic congestion significantly. The mileage of arterial facilities expected to remain severely and extremely congested was estimated to be reduced to 44 miles, or 1.2 percent of the total arterial street system, under Plan 1, and to 61 miles, or about 1.7 percent of the total arterial street system, under Plan 3.

It was then determined that Plan 3 should be further refined and detailed and advanced as a preliminary recommended plan to be taken to public review. This decision was based on consideration of the relatively low probability of achieving the significant increases in automobile pricing assumed under Plan 1 within the plan design period, the additional cost of Plan 1 and attendant shortfall of available revenues for plan implementation in the absence of significant increases in nonproperty-tax-based revenues for transportation purposes, and the marginal differences between Plan 1 and Plan 3 with respect to the required arterial street and highway improvement and expansion. The preliminary recommended plan, as described in sum-

Table 6

SUMMARY OF ALTERNATIVE TRANSPORTATION SYSTEM MANAGEMENT PLANS

Plan Elements	Alternative Transportation System Plans		
	Alternative Plan 1	Alternative Plan 2	Alternative Plan 3
Public Transit[a]	Expansion of rapid and express service in all major corridors during weekdays, weekday evenings, and weekends. Expansion of local service throughout urban areas. Provision of weekday evening service throughout local transit service areas. Substantial areawide improvements in frequency of transit service. Transit fares reduced by approximately 25 percent to 1991 level. Estimated 124 percent increase in transit vehicle-miles and 76 percent increase in vehicle-hours of service	Provision of rapid and express service in selected portions of all major travel corridors. Limited weekday evening and weekend rapid and express service. Limited expansion of local service. Improvements in frequency of service limited to major Milwaukee area routes and Kenosha, Racine, and Waukesha transit systems. Estimated 81 percent increase in transit vehicle-miles and 50 percent increase in vehicle-hours of service	Provision of rapid and express service in selected portions of all major travel corridors. No weekday evening and weekend rapid and express service. Minimal expansion in local service. No improvement in frequency of local service. Estimated 53 percent increase in transit vehicle-miles and 28 percent increase in vehicle-hours of service
Travel Demand Management			
Pricing[b]	Increase in perceived cost of operating an automobile from $0.055 per mile to $0.11 per mile	Increase in perceived cost of operating an automobile from $0.055 per mile to $0.0825 per mile	Increase in perceived cost of operating an automobile from $0.055 to an amount necessary to cover anticipated revenue shortfalls to implement the plan[c]
Land Use Site Design	Design of new urban development to promote bicycle and pedestrian travel.[d] Higher residential densities along all transit lines and stations.[e] New urban development in neighborhood units with mix of land uses to encourage pedestrian travel and shorter automobile trips	New urban development in neighborhood units with mix of land uses to encourage bicycle and pedestrian travel and shorter automobile trips	New urban development in neighborhood units with mix of land uses to encourage bicycle and pedestrian travel and shorter automobile trips
Other[f]	Other measure, including areawide ridesharing, telecommuting, and work time rescheduling programs, as well as the promotion of transportation management associations and educational campaigns to encourage ridesharing and transit use	Other measures, including areawide ridesharing, telecommuting, and work time rescheduling programs, as well as the promotion of transportation management associations and educational campaigns to encourage ridesharing and transit use	Other measures, including areawide ridesharing, telecommuting, and work time rescheduling programs, as well as the promotion of transportation management associations and educational campaigns to encourage ridesharing and transit use
Traffic Management[g]	Completion of Milwaukee comprehensive freeway traffic management system; general traffic management activities, including synchronized traffic signalization, the provision of right- and left-hand turn lanes, and proper spacing of driveways and local street intersections; use of intelligent transportation systems technology as such technology becomes applicable	Completion of Milwaukee comprehensive freeway traffic management system; general traffic management activities, including synchronized traffic signalization, the provision of right- and left-hand turn lanes, and proper spacing of driveways and local street intersections; use of intelligent transportation systems technology as such technology becomes applicable	Completion of Milwaukee comprehensive freeway traffic management system; general traffic management activities, including synchronized traffic signalization, the provision of right- and left-hand turn lanes, and proper spacing of driveways and local street intersections; use of intelligent transportation systems technology as such technology becomes applicable

[a]The quality of public transit service is directly incorporated in the automobile ownership and mode choice travel simulation models and improvements in service quality serve to reduce automobile ownership and increase transit ridership.

[b]The cost of automobile travel is directly incorporated in the trip distribution and mode choice models and cost increases serve to reduce trip length and increase transit ridership.

[c]Based upon past similar analysis results, perceived automobile operating costs necessary to cover the revenue shortfall tentatively envisioned under a fully developed plan may be expected to have to increase to $0.06 per mile.

[d]The design of new development to promote bicycle and pedestrian travel is assumed to have the potential to reduce total trip generation by automobile and transit by 5 percent, and model forecast trip generation is accordingly adjusted. All travel forecasts assume implementation of the adopted regional land use plan which proposes that new urban development occur in neighborhood units with a mix of land uses. This would be directly incorporated in the trip distribution model, and may be expected to result in reducing automobile trip length.

[e]The postulated higher-residential density along all transit routes was assumed to reduce all transit walk-access by 33 percent, which was incorporated in the mode choice model and resulted in an increase in transit ridership.

[f]Other measures were assumed to have minimal impact on travel.

[g]Traffic management not assumed to impact travel in this analysis.

Source: SEWRPC.

Table 7

SUMMARY OF MAJOR PLAN ELEMENTS COMPRISING THREE ALTERNATIVE REGIONAL TRANSPORTATION SYSTEM PLANS FOR SOUTHEASTERN WISCONSIN: 2010

Major Plan Element		No-Build Alternative	Alternative Plan 1	Alternative Plan 3
Category	Specific Measure			
Transportation System Management	Traffic management	• Implementation of Milwaukee-area freeway traffic management system • Curb parking restrictions on 291 arterial route-miles during peak travel periods • Application of traffic engineering techniques, e.g., turning lanes, traffic control signals, and coordinated timing of signals	• Implementation of Milwaukee-area freeway traffic management system • Curb parking restrictions on 458 arterial route-miles during peak travel periods • Application of traffic engineering techniques, e.g., turning lanes, traffic control signals, and coordinated timing of signals	• Implementation of Milwaukee-area freeway traffic management system • Curb parking restrictions on 464 arterial route-miles during peak travel periods • Application of traffic engineering techniques, e.g., turning lanes, traffic control signals, and coordinated timing of signals
	Pricing	• No increase in perceived cost of operating an automobile	• Significant increase in perceived cost of automobile operation from 5.5 cents per mile to 11.0 cents per mile; could be achieved by a variety of measures equivalent to motor fuel tax increase of $1.10 per gallon; cost increase intended to reduce automobile travel	• Insignificant increase in perceived cost of operating an automobile from 5.5 cents per mile to 6.0 cents per mile; equivalent to motor fuel tax increase of 10 cents per gallon; cost increase not intended to reduce automobile travel
	Areawide promotional	• Minimal effort to promote ridesharing and transportation management associations	• Aggressive areawide effort to promote ridesharing, transit use, bicycle use, telecommuting, work-time rescheduling, and transportation management associations	• Aggressive areawide effort to promote ridesharing, transit use, bicycle use, telecommuting, work-time rescheduling, and transportation management associations
	Land use	• Modest effort to promote travel by transit and to facilitate bicycle and pedestrian travel through detailed site-specific neighborhood land use planning, including appropriate mixtures of land use	• Aggressive effort to promote travel by transit and to facilitate bicycle and pedestrian travel through detailed site-specific neighborhood land use planning, including provision of appropriate mixtures of land use, efficient and direct pedestrian and bicycle pathways, and higher land use densities along transit lines	• Modest effort to promote travel by transit and to facilitate bicycle and pedestrian travel through detailed site-specific neighborhood land use planning, including appropriate mixtures of land use
Public Transit System Maintenance and Improvement	Rapid transit	• Continue service within Milwaukee County in major corridors and to Milwaukee central business district from Oak Creek, Waukesha, Mukwonago, Oconomowoc, and Menomonee Falls, and from sites in River Hills and Glendale in the IH 43-North Corridor	• Expand service in all major corridors to Milwaukee central business district from Racine, Kenosha, East Troy, Waukesha, Oconomowoc, West Bend, Cedarburg, Grafton, and Port Washington	• Provide service in major corridors to Milwaukee central business district from Racine, Kenosha, Waukesha, Oconomowoc, Mukwonago, Germantown, Cedarburg, and Grafton

Table 7 (continued)

Major Plan Element				
Category	Specific Measure	No-Build Alternative	Alternative Plan 1	Alternative Plan 3
Public Transit System Maintenance and Improvement (continued)	Rapid transit (continued)	• Service Hours[a] Weekdays—6:00 a.m. to 8:30 a.m., 3:30 p.m. to 6:00 p.m.	• Service Hours Weekdays—6:00 a.m. to 6:00 p.m. (evening and weekend service on some routes)	• Service Hours Weekdays—6:00 a.m. to 8:30 a.m., 3:30 p.m. to 6:00 p.m. (midday service over some routes; no weekend or evening service)
		• Headways Peak—15 to 60 minutes	• Headways Peak—five to 30 minutes Off-peak—30 to 60 minutes	• Headways Peak—five to 30 minutes Off-peak—30 to 60 minutes
		• Fares Within Milwaukee County, $1.50; Milwaukee County to limits of Milwaukee urbanized area, $2.00; Milwaukee central business district to outer limits, $2.50	• Fares Within Milwaukee County, $1.25; Milwaukee County to limits of urbanized area, $1.75; Milwaukee central business district to outer limits, $2.50	• Fares Within Milwaukee County, $1.50; Milwaukee County to limits of urbanized area, $2.00; Milwaukee central business district to outer limits, $3.00
	Express transit	• Continue Milwaukee-area central business district-oriented service and special UW-Milwaukee service; service between Oconomowoc, Waukesha, and Milwaukee central business district; and between Milwaukee central business district, Racine, and Kenosha	• Expand Milwaukee-area central business district-oriented service; provide cross-town service in Milwaukee County; provide service between Racine and Kenosha, and to connect Racine and Kenosha with urbanizing areas along IH 94	• Expand Milwaukee central business district-oriented service; provide cross-town service in Milwaukee County; provide service to connect Cities of Racine and Kenosha; no connection of such cities to urbanizing areas along IH 94
		• Service Hours[a] Weekdays—6:00 a.m. to 10:00 p.m. (weekend service on some routes)	• Service Hours Weekdays—6:00 a.m. to 6:00 p.m. (weekdays until 10:00 p.m. and weekends on some routes)	• Service Hours Weekdays—6:00 a.m. to 6:00 p.m. (weekdays until 10:00 p.m. and weekends on some routes)
		• Headways Peak—10 to 15 minutes (60 minutes in Waukesha, Racine, and Kenosha areas) Off-peak—15 to 20 minutes (60 to 120 minutes in Waukesha, Racine, and Kenosha areas)	• Headways Peak—five to 15 minutes (30 minutes in Racine and Kenosha areas) Off-peak—15 to 30 minutes (60 minutes in Racine and Kenosha areas)	• Headways Peak—10 to 15 minutes (30 minutes in Racine and Kenosha areas) Off-peak—20 to 30 minutes (60 minutes in Racine and Kenosha areas)
		• Fares Milwaukee County, $1.25; Milwaukee County to limits of Milwaukee urbanized area, $2.00; Milwaukee central business district to outer limits, $2.50 to $4.00	• Fares Milwaukee County, $1.00; Racine and Kenosha, $0.60	• Fares Milwaukee County, $1.25; Racine and Kenosha, $0.75

Table 7 (continued)

Major Plan Element		No-Build Alternative	Alternative Plan 1	Alternative Plan 3
Category	Specific Measure			
Public Transit System Maintenance and Improvement (continued)	Local transit	• Continue fixed-route service in Milwaukee County and in Cities of Waukesha, Racine, and Kenosha; continue shared-ride taxi service in Cities of Hartford, West Bend, Whitewater, and Port Washington	• Extend fixed-route service to all high- and medium-density development within Milwaukee, Racine, and Kenosha urbanized areas; new service to be provided to northern *and* southern Milwaukee County, southern Ozaukee County, southeastern Washington County, and eastern Waukesha County; continue shared-ride taxi services	• Extend fixed-route service to all high- and medium-density development with densities of five dwelling units per acre or greater; new service to be provided to portions of northern and southern Milwaukee County, and eastern Waukesha County contiguous to existing service areas; continue shared-ride taxi services
		• Headways Peak—10 to 40 minutes in Milwaukee County; 30 to 60 minutes in Waukesha; 30 minutes in Kenosha; 20 to 30 minutes in Racine Off-peak—20 to 45 minutes in Milwaukee County; 30 to 60 minutes outside Milwaukee County	• Headways Peak—10 minutes in central Milwaukee County; 15 to 30 minutes outside central Milwaukee County Off-peak—20 to 60 minutes in Milwaukee County; 30 to 60 minutes outside Milwaukee County	• Headways Peak—10 to 40 minutes in Milwaukee County; 30 minutes in Waukesha; 20 to 30 minutes in Kenosha and Racine Off-peak—30 to 45 minutes in Milwaukee County; 60 minutes outside Milwaukee County
	Total transit	• Average Weekday Round-trip route-miles: 2,440 Vehicle-miles of service: 65,990 Vehicle-hours of service: 5,700 Vehicles required in peak period: 527	• Average Weekday Round-trip route-miles: 4,190 Vehicle-miles of service: 141,900 Vehicle-hours of service: 9,200 Vehicles required in peak period: 915	• Average Weekday Round-trip route-miles: 3,260 Vehicle-miles of service: 96,900 Vehicle-hours of service: 6,700 Vehicles required in peak period: 670
	Rail transit considerations	• No provision of transit service by light rail or commuter rail	• Potential provision of commuter rail service in four travel corridors dependent upon detailed corridor studies • Potential provision of light rail express transit service in six travel corridors dependent upon detailed corridor studies	• Potential provision of commuter rail service in four travel corridors dependent upon detailed corridor studies • Potential provision of light rail express transit service in six travel corridors dependent upon detailed corridor studies
Arterial Street and Highway System Maintenance and Improvement	New facilities			• 124 route-miles of newly constructed facilities
	Widened facilities	• 47 route-miles of widened arterial street and highway facilities	• 382 route-miles of widened arterial street and highway facilities	• 410 route-miles of widened arterial street and highway facilities
	Preserved facilities	• 3,422 route-miles of facilities to be preserved through resurfacing or reconstruction for same capacity	• 3,104 route-miles of facilities to be preserved through resurfacing or reconstruction for same capacity	• 3,075 route-miles of facilities to be preserved through resurfacing or reconstruction for same capacity
	Total facilities	• Total system of 3,480 route-miles of arterial streets and highways	• Total system of 3,598 route-miles of arterial streets and highways	• Total system of 3,609 route-miles of arterial streets and highways

[a]*The Milwaukee County Transit System would continue to operate one freeway flyer rapid transit bus route between the Milwaukee central business district and Northridge Shopping Center during nonpeak periods at 60-minute headways.*

Source: SEWRPC.

Table 8

TRAFFIC CONGESTION ON THE ARTERIAL STREET AND HIGHWAY SYSTEM IN THE REGION BY COUNTY: 2010 NO-BUILD TRANSPORTATION SYSTEM PLAN

County	Under Design Capacity[a]		At Design Capacity[b]		Over Design Capacity						Total Mileage
					Moderate[c]		Severe[d]		Extreme[e]		
	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	
Kenosha	230.1	66.7	70.9	20.5	3.3	1.0	33.4	9.7	7.5	2.1	345.2
Milwaukee	490.0	62.1	120.6	15.3	2.0	0.2	132.4	16.8	44.3	5.6	789.3
Ozaukee	233.9	81.1	19.8	6.9	6.5	2.2	28.3	9.8	--	--	288.5
Racine	241.7	59.3	77.0	18.9	3.5	0.8	62.6	15.4	22.7	5.6	407.5
Walworth	387.2	87.0	31.7	7.1	8.5	1.9	9.2	2.1	8.3	1.9	444.9
Washington	337.7	75.3	54.1	12.1	--	--	49.8	11.1	7.1	1.5	448.7
Waukesha	369.1	48.8	103.8	13.7	7.8	1.1	222.0	29.4	52.9	7.0	755.6
Total	2,289.7	65.8	477.9	13.7	31.6	0.9	537.7	15.5	142.8	4.1	3,479.7

[a] *Volume-to-design-capacity ratio: 0.00 to 0.90*

[b] *Volume-to-design-capacity ratio: 0.91 to 1.00*

[c] *Volume-to-design-capacity ratio: 1.01 to 1.10*

[d] *Volume-to-design-capacity ratio: 1.11 to 1.30*

[e] *Volume-to-design-capacity ratio: over 1.30*

Source: SEWRPC.

Table 9

TRAFFIC CONGESTION ON THE ARTERIAL STREET AND HIGHWAY SYSTEM IN THE REGION BY COUNTY: 2010 ALTERNATIVE TRANSPORTATION SYSTEM PLAN 1

County	Under Design Capacity[a]		At Design Capacity[b]		Over Design Capacity						Total Mileage
					Moderate[c]		Severe[d]		Extreme[e]		
	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	
Kenosha	327.1	91.8	25.8	7.2	--	--	3.3	0.9	--	--	356.2
Milwaukee	673.2	84.7	57.0	7.2	37.9	4.8	21.7	2.7	5.1	0.6	794.9
Ozaukee	308.3	99.3	0.8	0.3	1.4	0.5	--	--	--	--	310.5
Racine	405.0	96.7	12.7	3.0	0.6	0.1	0.7	0.1	--	--	419.0
Walworth	449.8	95.0	11.9	2.5	11.7	2.5	--	--	--	--	473.4
Washington	469.1	99.9	0.7	0.1	--	--	--	--	--	--	469.8
Waukesha	681.5	87.9	45.3	5.8	35.3	4.6	13.0	1.7	--	--	775.1
Total	3,314.0	92.1	154.2	4.3	86.9	2.4	38.7	1.1	5.1	0.1	3,598.9

[a] *Volume-to-design-capacity ratio: 0.00 to 0.90*

[b] *Volume-to-design-capacity ratio: 0.91 to 1.00*

[c] *Volume-to-design-capacity ratio: 1.01 to 1.10*

[d] *Volume-to-design-capacity ratio: 1.11 to 1.30*

[e] *Volume-to-design-capacity ratio: over 1.30*

Source: SEWRPC.

Table 10

TRAFFIC CONGESTION ON THE ARTERIAL STREET AND HIGHWAY SYSTEM IN THE REGION BY COUNTY: 2010 ALTERNATIVE TRANSPORTATION SYSTEM PLAN 3

County	Under Design Capacity[a]		At Design Capacity[b]		Over Design Capacity						Total Mileage
					Moderate[c]		Severe[d]		Extreme[e]		
	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	
Kenosha	310.3	87.1	42.6	12.0	--	--	3.3	0.9	--	--	356.2
Milwaukee	654.5	82.3	56.1	7.1	53.3	6.7	24.2	3.1	6.8	0.8	794.9
Ozaukee	306.2	98.6	2.9	0.9	--	--	--	--	--	--	310.5
Racine	387.8	92.6	25.0	6.0	1.4	0.3	0.7	0.1	--	--	419.0
Walworth	478.0	98.7	6.1	1.3	5.5	--	--	--	--	--	484.1
Washington	469.1	99.9	0.7	0.1	--	--	--	--	--	--	469.8
Waukesha	636.9	82.2	65.3	8.4	47.3	6.1	25.6	3.3	--	--	775.1
Total	3,242.8	89.8	198.7	5.5	107.5	3.0	53.8	1.5	6.8	0.2	3,609.6

[a] *Volume-to-design-capacity ratio: 0.00 to 0.90*

[b] *Volume-to-design-capacity ratio: 0.91 to 1.00*

[c] *Volume-to-design-capacity ratio: 1.01 to 1.10*

[d] *Volume-to-design-capacity ratio: 1.11 to 1.30*

[e] *Volume-to-design-capacity ratio: over 1.30*

Source: SEWRPC.

Table 11

URBANIZED AREA POPULATION MEETING TRAVEL TIME STANDARDS TO EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL ON ARTERIAL STREET AND HIGHWAYS: 1991 AND 2010 NO-BUILD AND ALTERNATIVE TRANSPORTATION SYSTEM PLANS

Urbanized Area and Activity Center	Urbanized Area Population		Urbanized Area Population Meeting Travel Time Standard on Arterial Streets and Highways							
			Base Year 1991		Proposed 2010					
					No-Build Transportation System Plan		Alternative Plan 1		Alternative Plan 3	
	Existing 1991	2010	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha Urbanized Area	94,300	107,300	--	--	--	--	--	--	--	--
Employment-Related[a]	--	--	90,900	96.4	107,300	100.0	107,300	100.0	107,300	100.0
Major Retail-Service[b]	--	--	0	0.0	0	0.0	0	0.0	0	0.0
Medical Facility[c]	--	--	94,300	100.0	107,300	100.0	107,300	100.0	107,300	100.0
Major Park[d]	--	--	94,300	100.0	107,300	100.0	107,300	100.0	107,300	100.0
Higher-Education Facility[e]	--	--	94,300	100.0	107,300	100.0	107,300	100.0	107,300	100.0
Scheduled Air Transport[f]	--	--	94,300	100.0	107,300	100.0	107,300	100.0	107,300	100.0
Milwaukee Urbanized Area	1,226,300	1,277,100	--	--	--	--	--	--	--	--
Employment-Related	--	--	1,147,900	93.6	1,180,500	92.4	1,230,800	94.3	1,230,800	94.3
Major Retail-Service	--	--	1,161,400	94.7	1,277,100	100.0	1,277,100	100.0	1,277,100	100.0
Medical Facility	--	--	1,226,300	100.0	1,277,100	100.0	1,277,100	100.0	1,277,100	100.0
Major Park	--	--	1,226,300	100.0	1,277,100	100.0	1,277,100	100.0	1,277,100	100.0
Higher-Education Facility	--	--	1,226,300	100.0	1,277,100	100.0	1,277,100	100.0	1,277,100	100.0
Scheduled Air Transport	--	--	1,226,300	100.0	1,277,100	100.0	1,277,100	100.0	1,277,100	100.0
Racine Urbanized Area	121,800	132,100	--	--	--	--	--	--	--	--
Employment-Related	--	--	121,800	100.0	132,100	100.0	132,100	100.0	132,100	100.0
Major Retail-Service	--	--	32,200	26.4	132,100	100.0	132,100	100.0	132,100	100.0
Medical Facility	--	--	121,800	100.0	132,100	100.0	132,100	100.0	132,100	100.0
Major Park	--	--	121,800	100.0	132,100	100.0	132,100	100.0	132,100	100.0
Higher-Education Facility	--	--	121,800	100.0	132,100	100.0	132,100	100.0	132,100	100.0
Scheduled Air Transport	--	--	121,800	100.0	132,100	100.0	132,100	100.0	132,100	100.0

[a] *Standard: 30 minutes' overall travel time of 40 percent of urbanized area employment opportunities.*

[b] *Standard: 35 minutes' overall travel time of three major retail and service centers.*

[c] *Standard: 40 minutes' overall travel time of a major regional medical center and/or 30 minutes' overall travel time of a hospital or medical clinic.*

[d] *Standard: 40 minutes' overall travel time of a major public outdoor recreation center.*

[e] *Standard: 40 minutes' overall travel time of a vocational school, college, or university.*

[f] *Standard: 60 minutes' overall travel time of a scheduled air transport airport.*

Source: SEWRPC.

Table 12

URBANIZED AREA POPULATION MEETING TRAVEL TIME STANDARDS TO EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL ON TRANSIT: 1991 AND 2010 NO-BUILD AND ALTERNATIVE TRANSPORTATION SYSTEM PLANS

Urbanized Area and Activity Center	Urbanized Area Population		Urbanized Area Population Meeting Travel Time Standard on Transit							
			Base Year 1991		Proposed 2010					
					No-Build Transportation System Plan		Alternative Plan 1		Alternative Plan 3	
	Base Year 1991	2010	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha Urbanized Area	94,300	107,300	--	--	--	--	--	--	--	--
Employment-Related[a]	--	--	58,000	61.5	51,400	47.9	97,700	91.1	53,200	49.6
Major Retail-Service[b]	--	--	0	0.0	1,400	1.3	9,500	8.9	1,400	1.3
Medical Facility[c]	--	--	60,600	64.3	53,300	49.7	63,600	59.3	53,300	49.7
Major Park[d]	--	--	12,600	13.4	20,700	19.3	77,500	72.2	24,700	23.0
Higher-Education Facility[e]	--	--	33,200	35.2	51,400	47.9	80,800	75.3	68,100	63.5
Scheduled Air Transport[f]	--	--	0	0.0	0	0.0	51,900	48.4	51,900	48.4
Milwaukee Urbanized Area	1,226,300	1,277,100	--	--	--	--	--	--	--	--
Employment-Related	--	--	14,200	1.2	600	0.0	619,900	48.5	243,600	19.1
Major Retail-Service[g]	--	--	10,100	0.8	35,300	2.8	282,800	22.1	66,200	5.2
Medical Facility	--	--	700,400	57.1	648,000	50.7	870,200	68.1	728,900	57.1
Major Park	--	--	636,300	51.9	617,300	48.3	994,200	77.8	701,000	54.9
Higher-Education Facility	--	--	775,700	63.2	740,900	58.0	1,168,000	91.5	931,900	73.0
Scheduled Air Transport	--	--	338,600	27.6	316,800	24.8	776,800	60.8	569,400	44.6
Racine Urbanized Area	121,800	132,100	--	--	--	--	--	--	--	--
Employment-Related	--	--	59,100	48.5	56,400	42.7	107,500	81.4	94,400	71.5
Major Retail-Service	--	--	21,500	17.7	18,300	13.9	52,500	29.7	32,100	24.3
Medical Facility	--	--	53,700	44.1	46,700	35.4	61,300	46.4	49,200	37.2
Major Park	--	--	24,000	19.7	37,000	28.0	59,800	45.3	38,300	29.0
Higher-Education Facility	--	--	79,600	65.4	88,400	66.9	110,700	83.8	102,700	77.7
Scheduled Air Transport	--	--	18,300	15.0	18,600	14.1	63,800	48.3	60,100	45.5

[a] *Standard: 45 minutes' overall travel time of 40 percent of urbanized area employment opportunities.*

[b] *Standard: 35 minutes' overall travel time of one major retail and service center.*

[c] *Standard: 40 minutes' overall travel time of a major regional medical center and/or 30 minutes' overall travel time of a hospital or medical clinic.*

[d] *Standard: 40 minutes' overall travel time of a major public outdoor recreation center.*

[e] *Standard: 40 minutes' overall travel time of a vocational school, college, or university.*

[f] *Standard: 60 minutes' overall travel time of a scheduled air transport airport.*

[g] *Standard: 35 minutes' overall travel time of three major retail and service centers.*

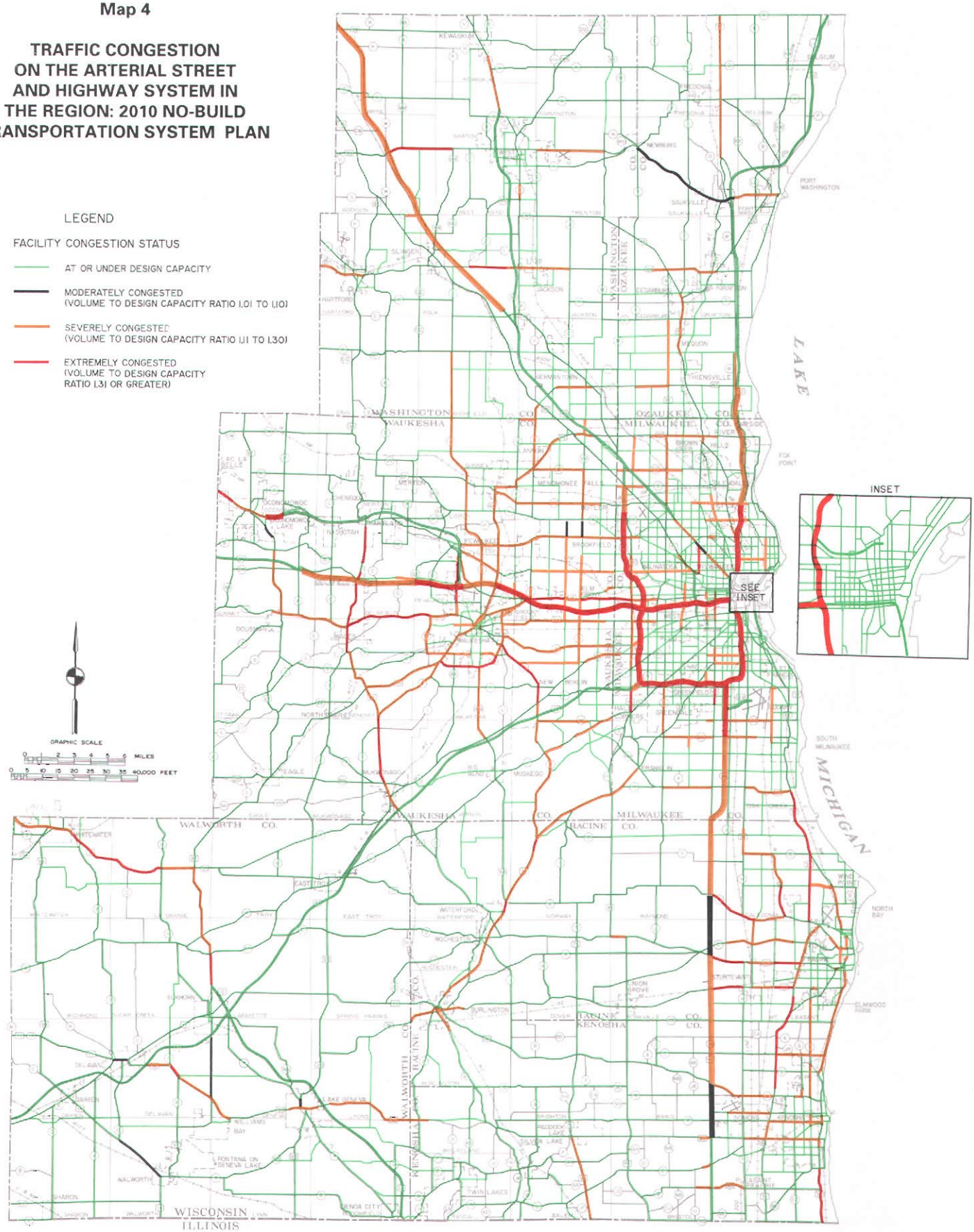
Source: SEWRPC.

mary form in Table 13, was similar to Plan 3 except that the level of transit service proposed to be provided represented approximately a 70 percent increase over the 1991 service levels, rather than the 50 percent increase proposed under Plan 3. The preliminary recommended system plan is fully documented in Chapter XI, "Recommended Year 2010 Regional Transportation System Plan," of SEWRPC Planning Report No. 41, A Regional Transportation System Plan for Southeastern Wisconsin: 2010, along with its evaluation with respect to the transportation planning objectives and standards, including the system performance measures.

The preliminary recommended regional transportation system plan was the subject of a Regional Planning Conference held on June 27, 1994; of a series of public informational meetings and hearings held in each of the seven counties of the Region in July and August of 1994; of meetings of the Commission's Kenosha, Ozaukee, Racine, Walworth, Washington, and Waukesha County Technical Coordinating and Advisory Committees on Jurisdictional Highway System Planning; and of a joint meeting of the Intergovernmental Coordinating and Advisory Committees on Transportation System Planning and Programming for the Kenosha, Mil-

Map 4

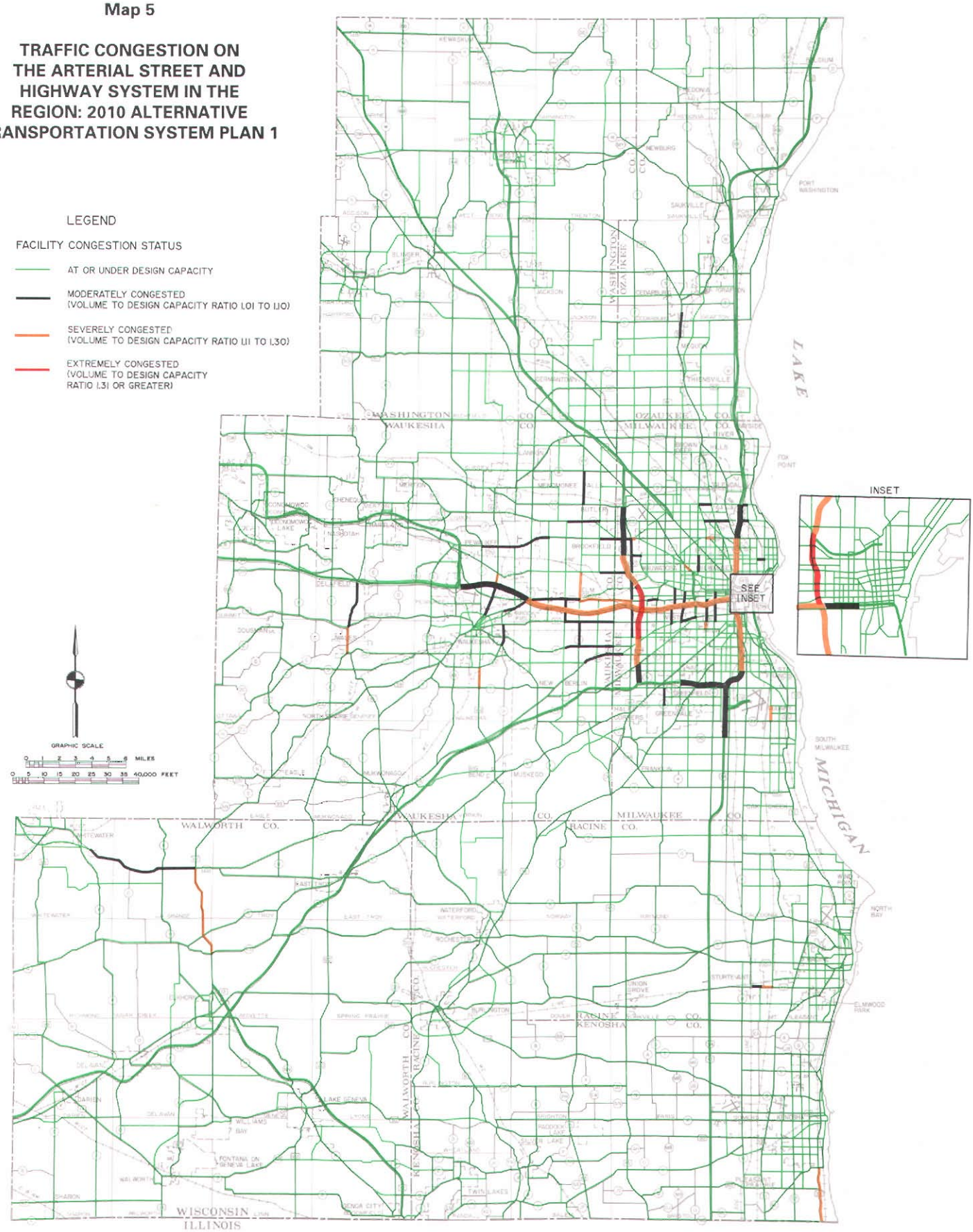
TRAFFIC CONGESTION ON THE ARTERIAL STREET AND HIGHWAY SYSTEM IN THE REGION: 2010 NO-BUILD TRANSPORTATION SYSTEM PLAN



Source: SEWRPC.

Map 5

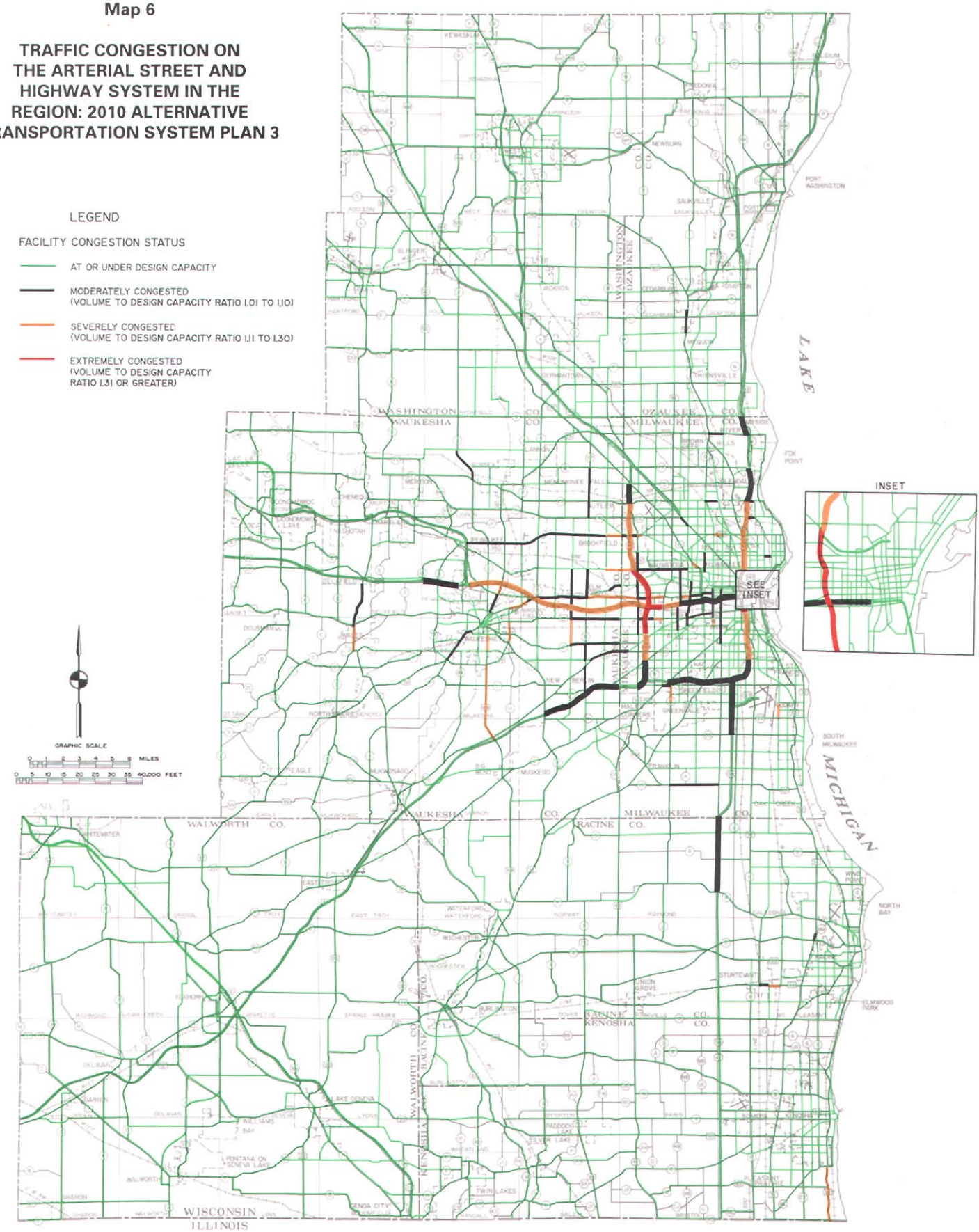
TRAFFIC CONGESTION ON THE ARTERIAL STREET AND HIGHWAY SYSTEM IN THE REGION: 2010 ALTERNATIVE TRANSPORTATION SYSTEM PLAN 1



Source: SEWRPC.

Map 6

TRAFFIC CONGESTION ON THE ARTERIAL STREET AND HIGHWAY SYSTEM IN THE REGION: 2010 ALTERNATIVE TRANSPORTATION SYSTEM PLAN 3

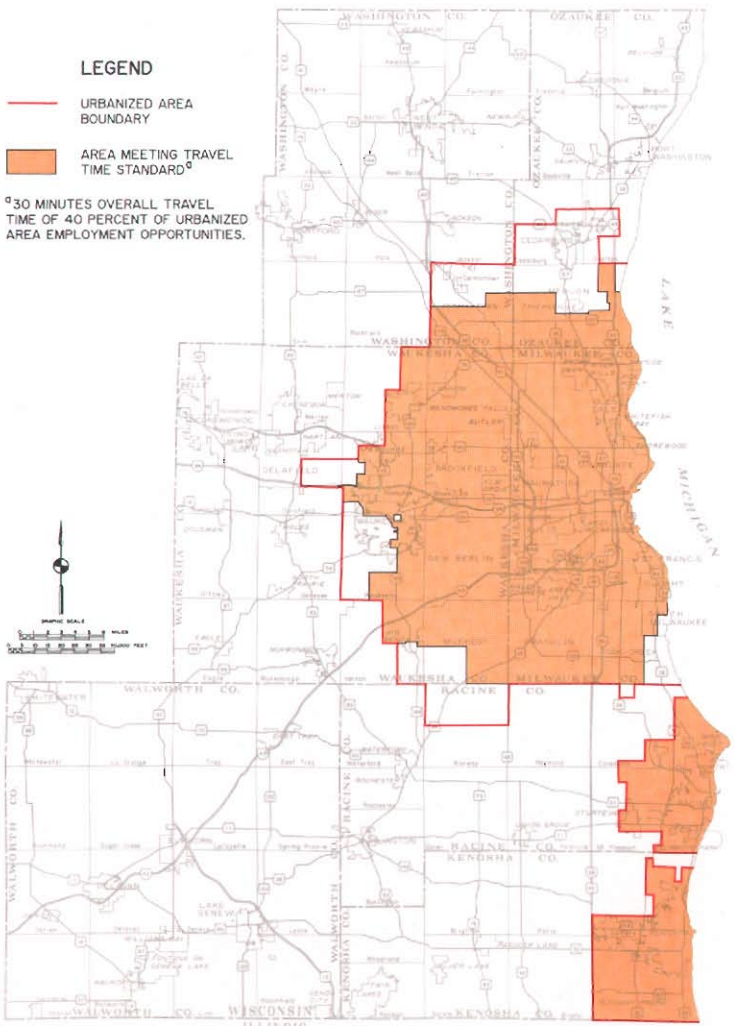


Source: SEWRPC.

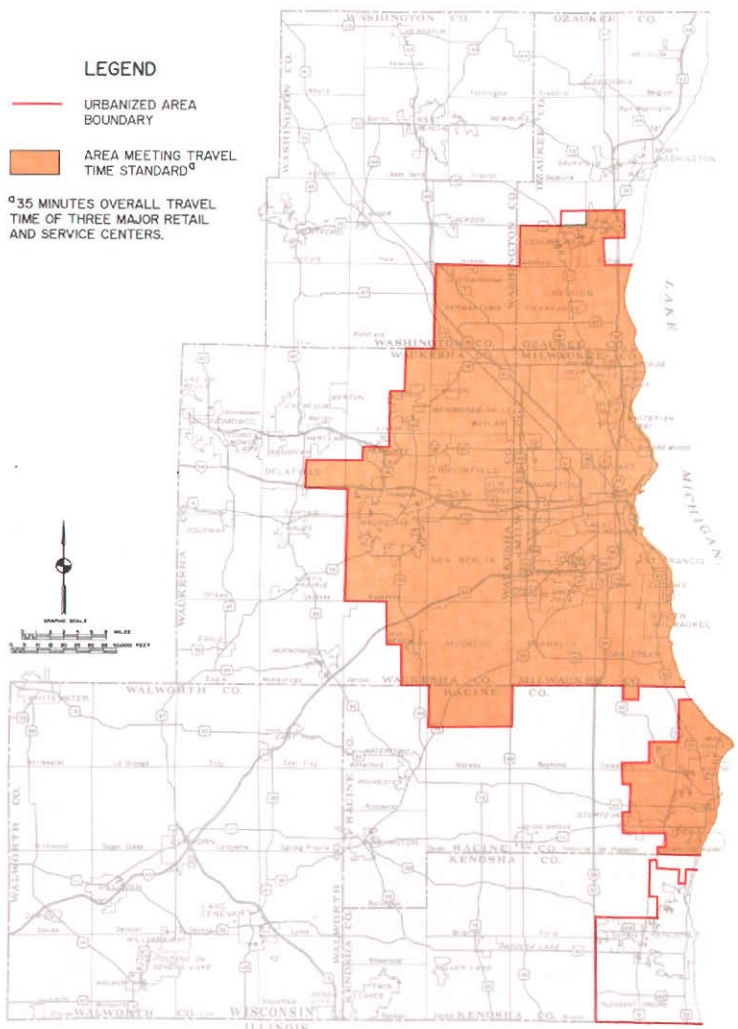
Map 7

AREAS MEETING TRAVEL TIME STANDARDS FOR EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL BY ARTERIAL STREET AND HIGHWAY: 2010 NO-BUILD ALTERNATIVE PLAN

EMPLOYMENT: 2010 NO-BUILD ALTERNATIVE PLAN

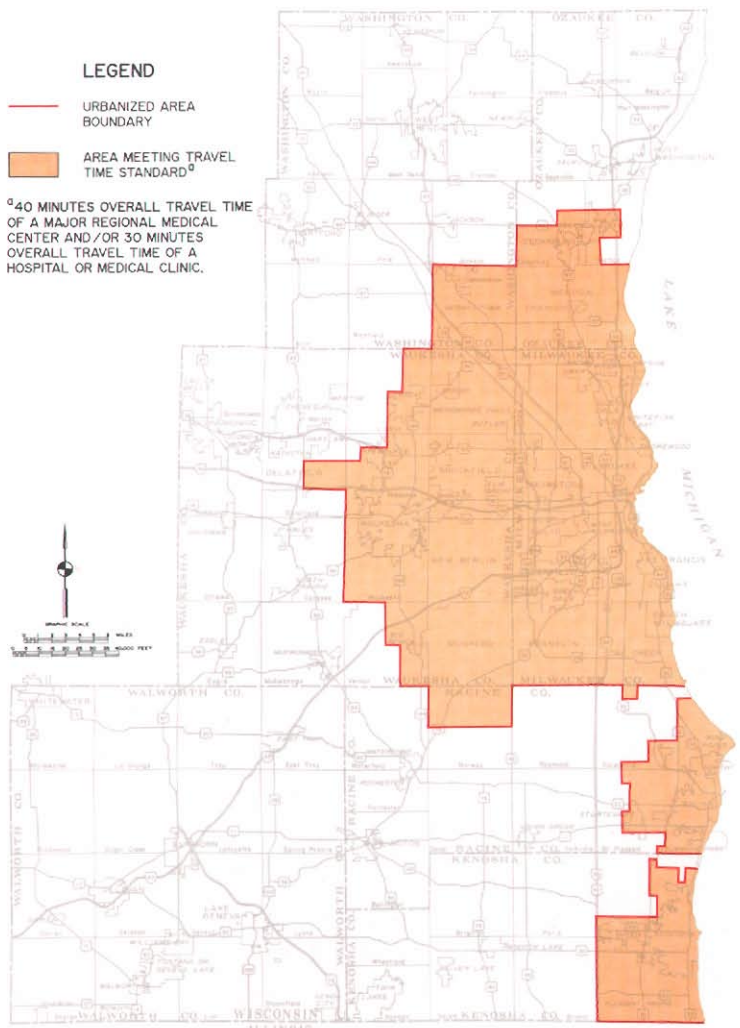


MAJOR RETAIL AND SERVICE CENTERS
2010 NO-BUILD ALTERNATIVE PLAN

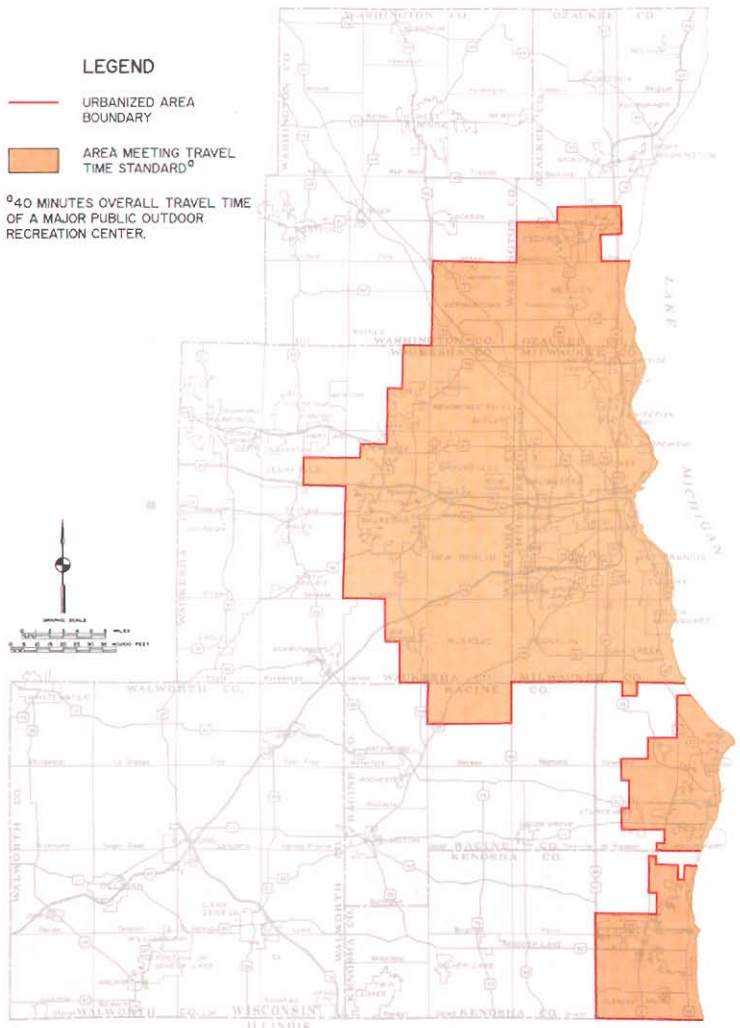


Map 7 (continued)

MAJOR MEDICAL CENTERS: 2010
NO-BUILD ALTERNATIVE PLAN

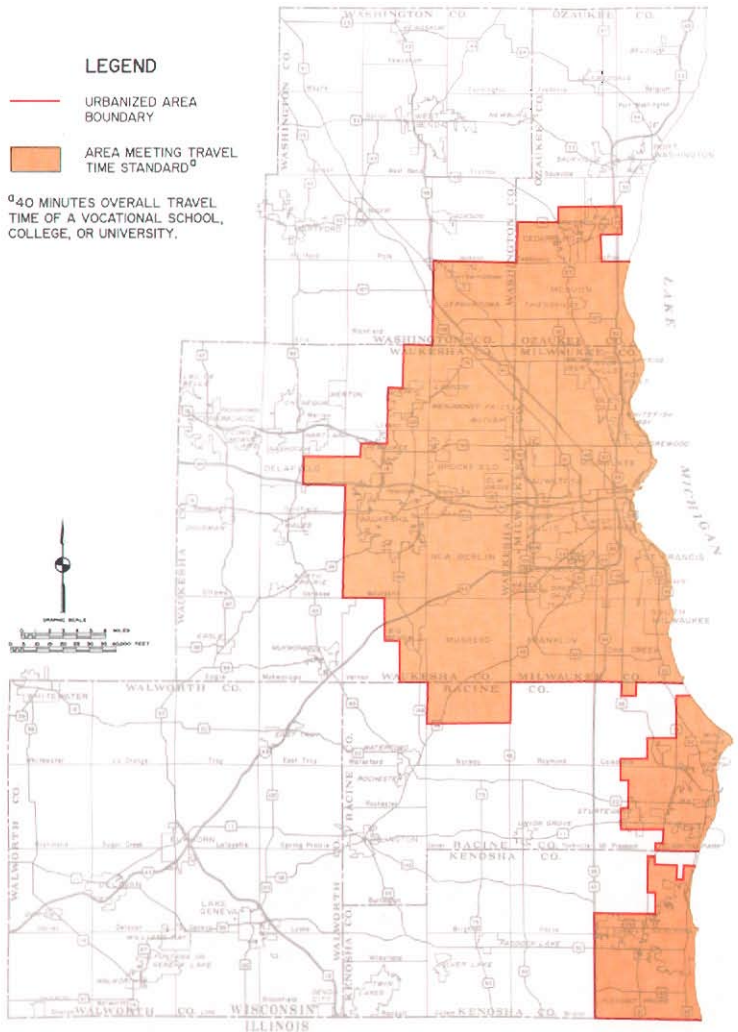


MAJOR RECREATION CENTERS
2010 NO-BUILD ALTERNATIVE PLAN

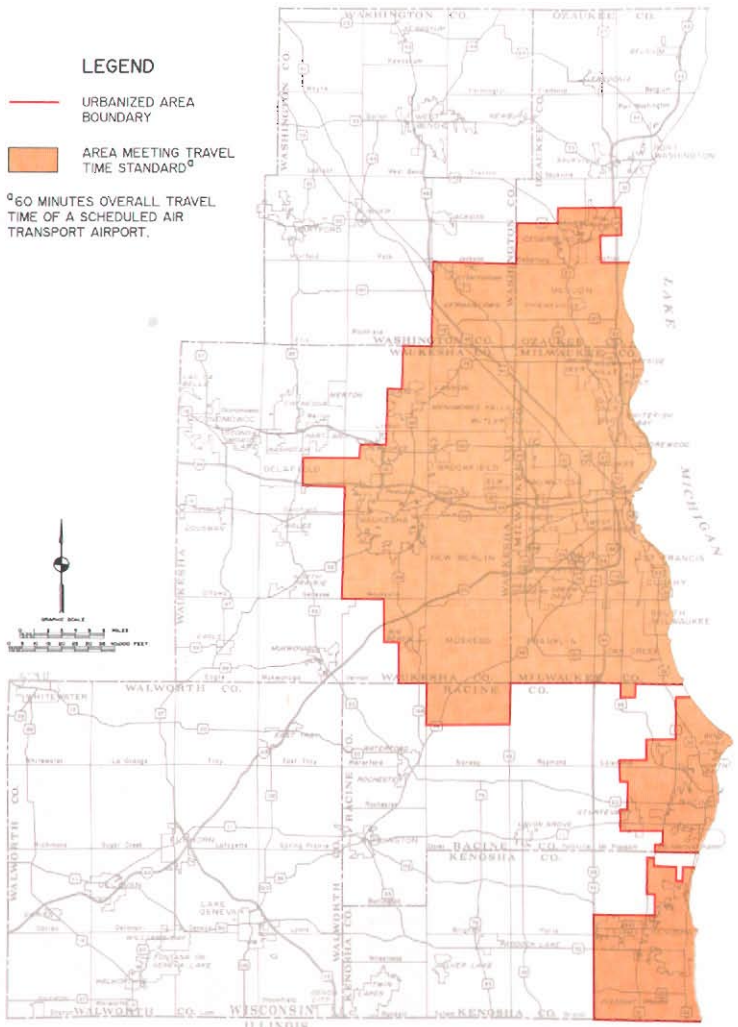


Map 7 (continued)

MAJOR EDUCATIONAL CENTERS
2010 NO-BUILD ALTERNATIVE PLAN



SCHEDULED AIR TRANSPORT TERMINALS
2010 NO-BUILD ALTERNATIVE PLAN

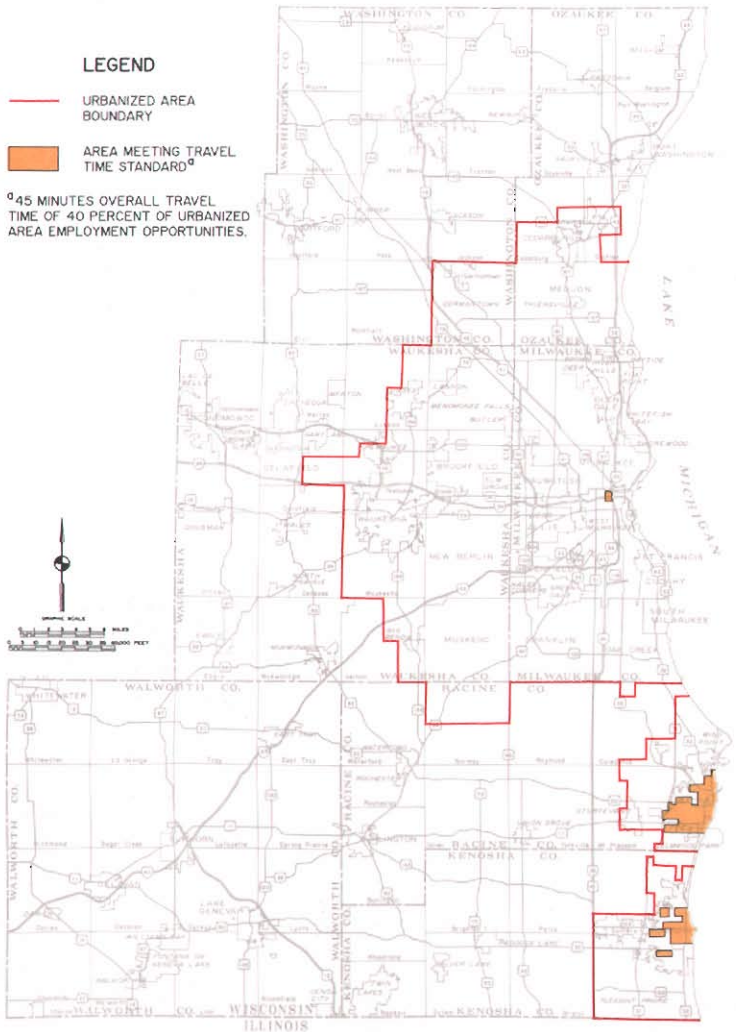


Source: SEWRPC.

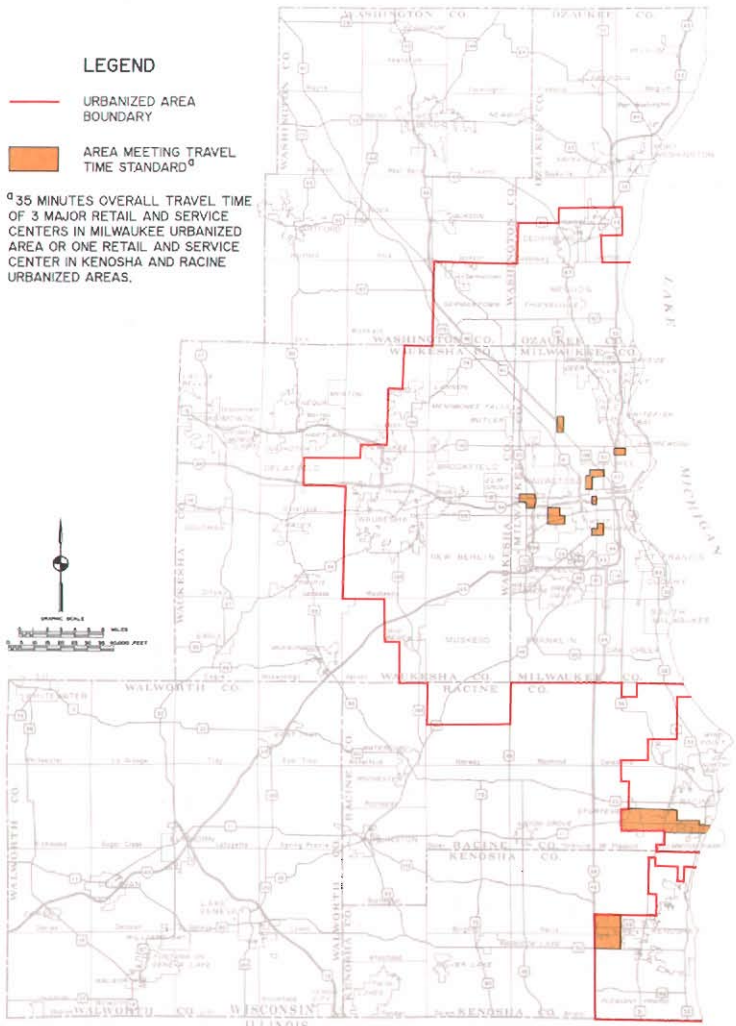
Map 8

AREAS MEETING TRAVEL TIME STANDARDS FOR EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL BY TRANSIT: 2010 NO-BUILD ALTERNATIVE PLAN

EMPLOYMENT: 2010 NO-BUILD ALTERNATIVE PLAN

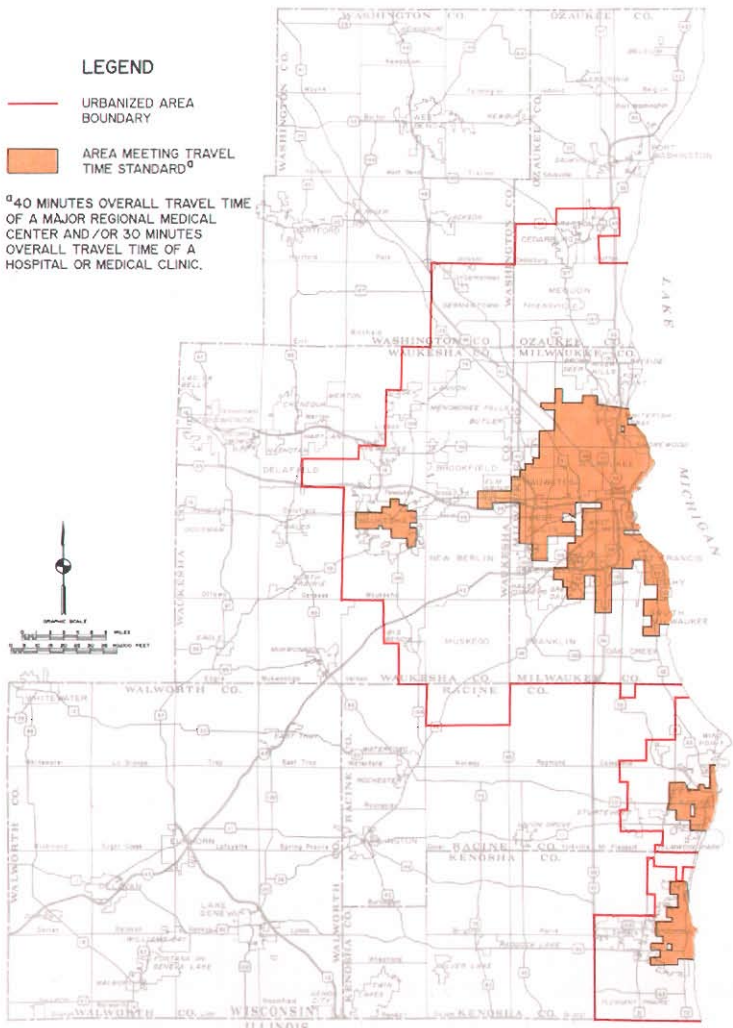


MAJOR RETAIL AND SERVICE CENTERS
2010 NO-BUILD ALTERNATIVE PLAN

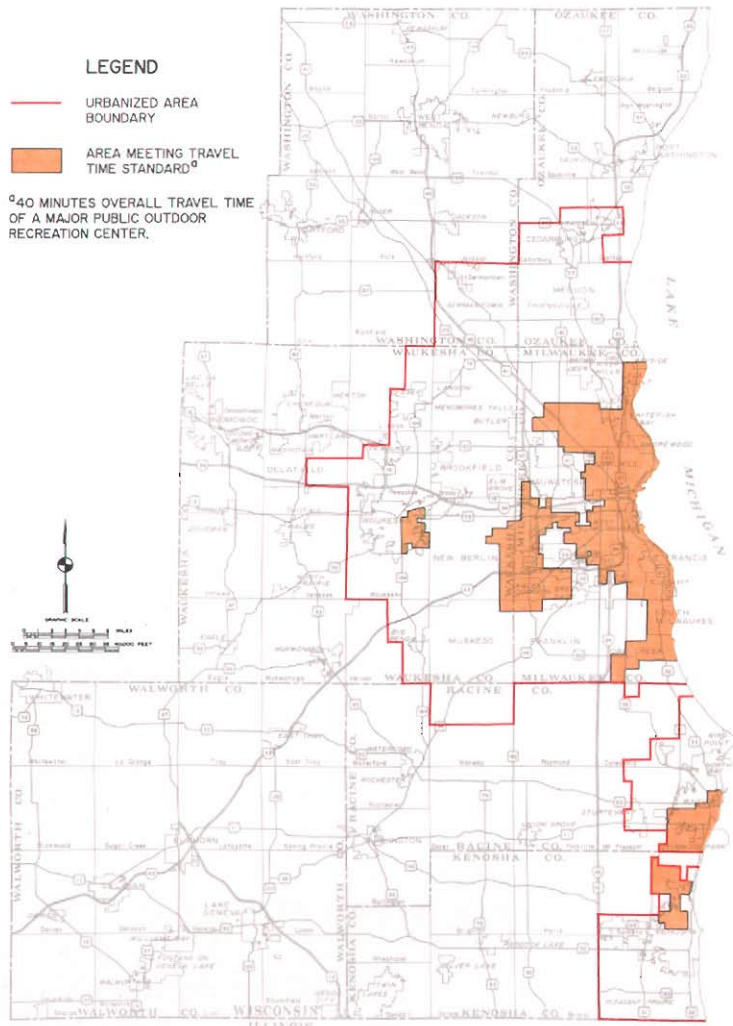


Map 8 (continued)

MAJOR MEDICAL CENTERS
2010 NO-BUILD ALTERNATIVE PLAN

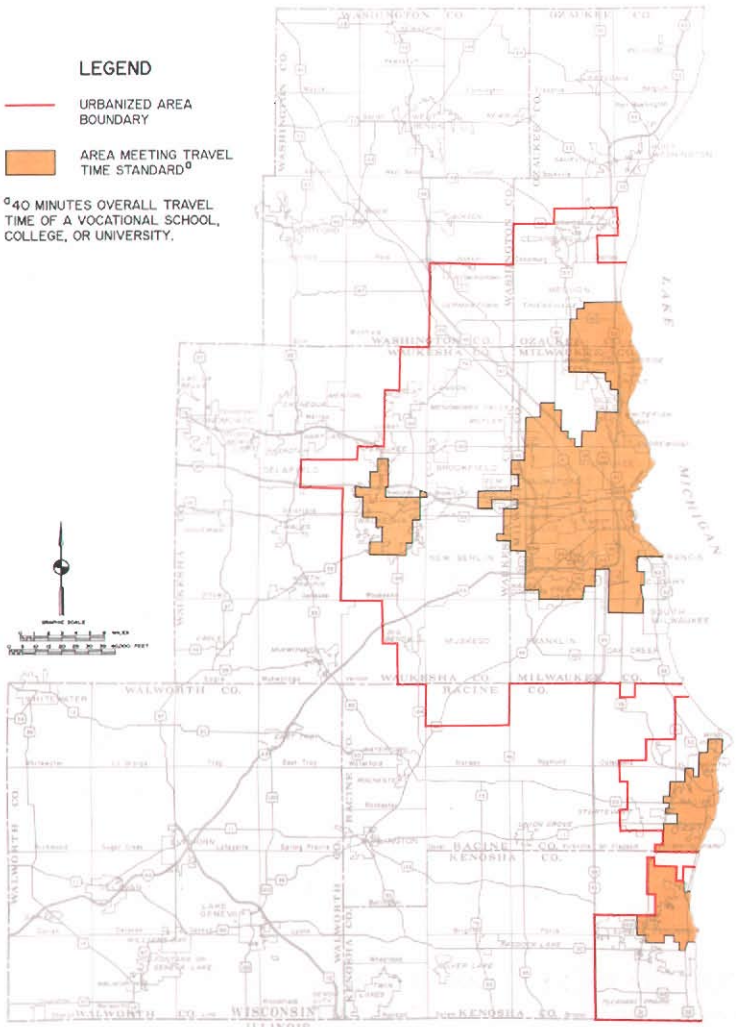


MAJOR RECREATION CENTERS
2010 NO-BUILD ALTERNATIVE PLAN

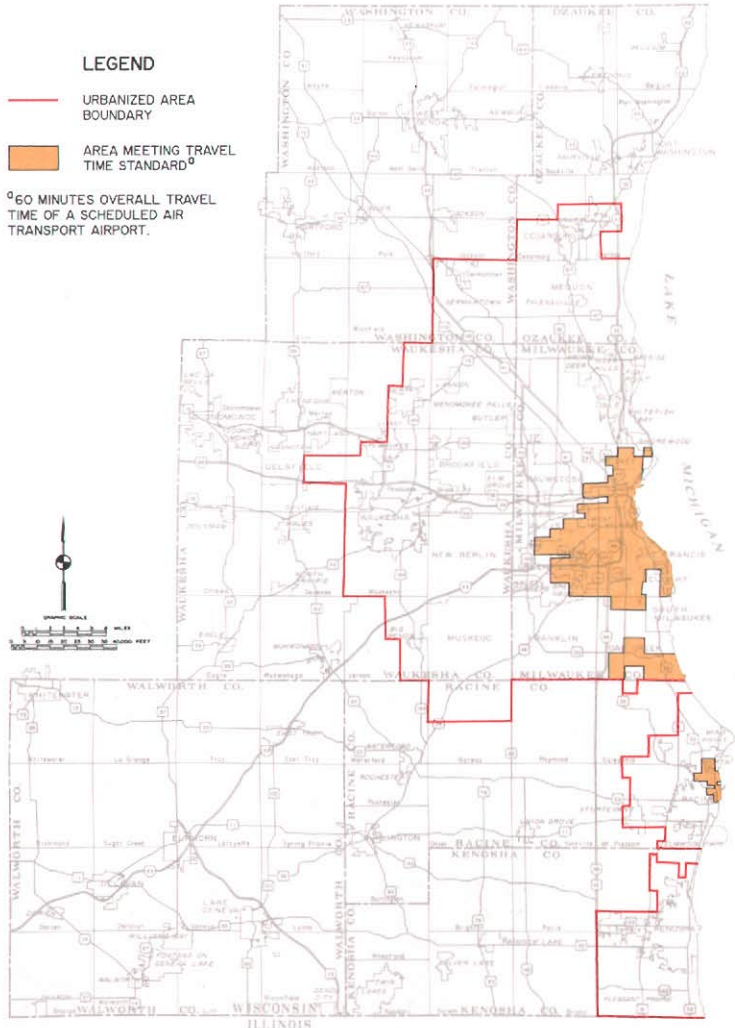


Map 8 (continued)

MAJOR EDUCATIONAL CENTERS
2010 NO-BUILD ALTERNATIVE PLAN



SCHEDULED AIR TRANSPORT TERMINALS
2010 NO-BUILD ALTERNATIVE PLAN

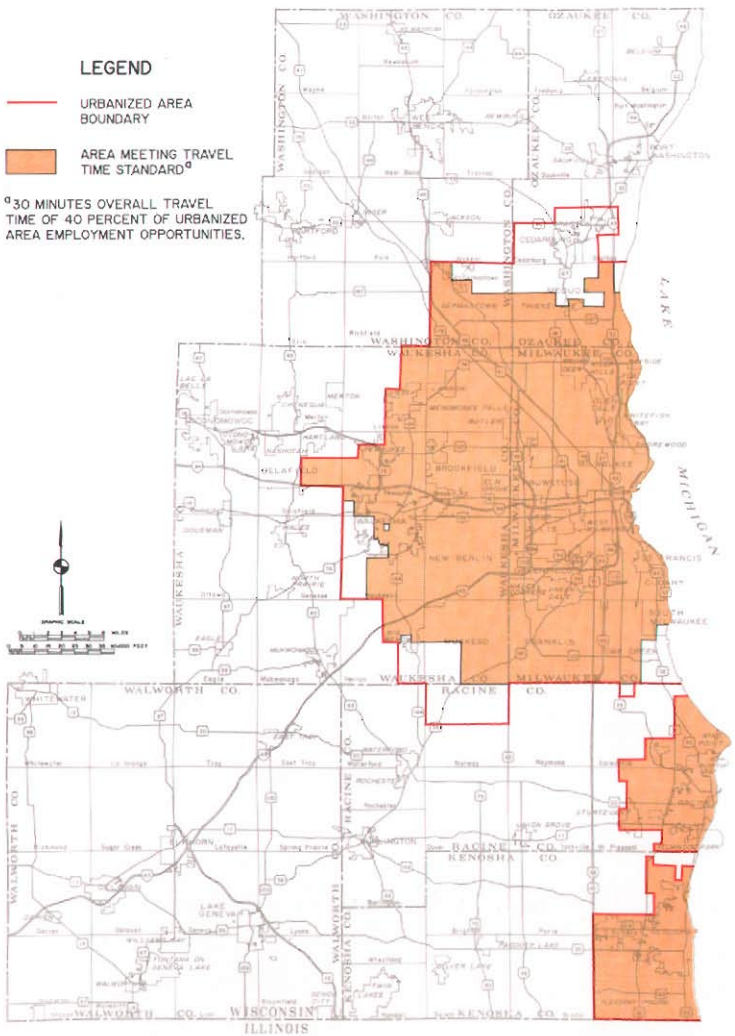


Source: SEWRPC.

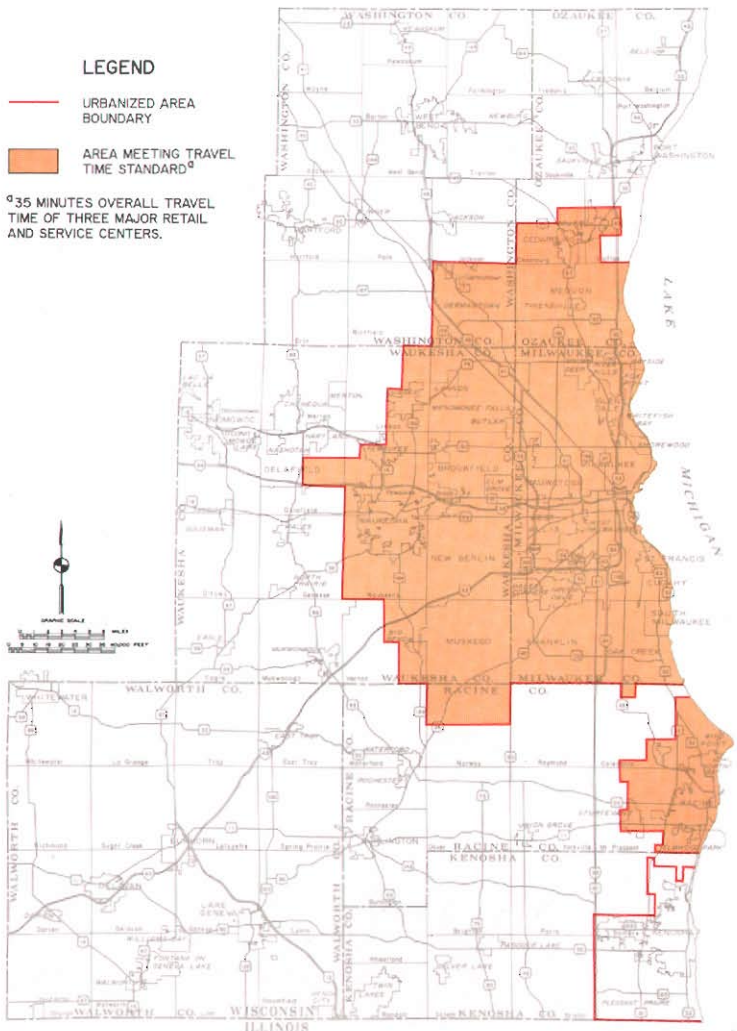
Map 9

AREAS MEETING TRAVEL TIME STANDARDS FOR EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL BY ARTERIAL STREET AND HIGHWAY: 2010 ALTERNATIVE PLAN 1

EMPLOYMENT: 2010 ALTERNATIVE PLAN 1

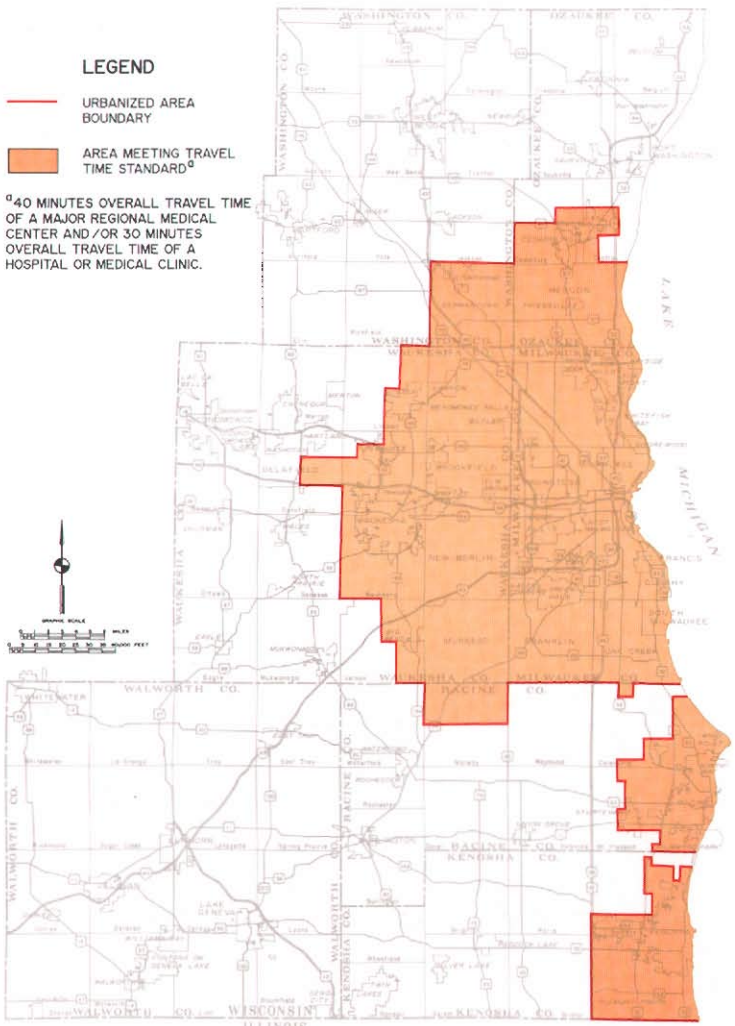


MAJOR RETAIL AND SERVICE CENTERS: 2010 ALTERNATIVE PLAN 1

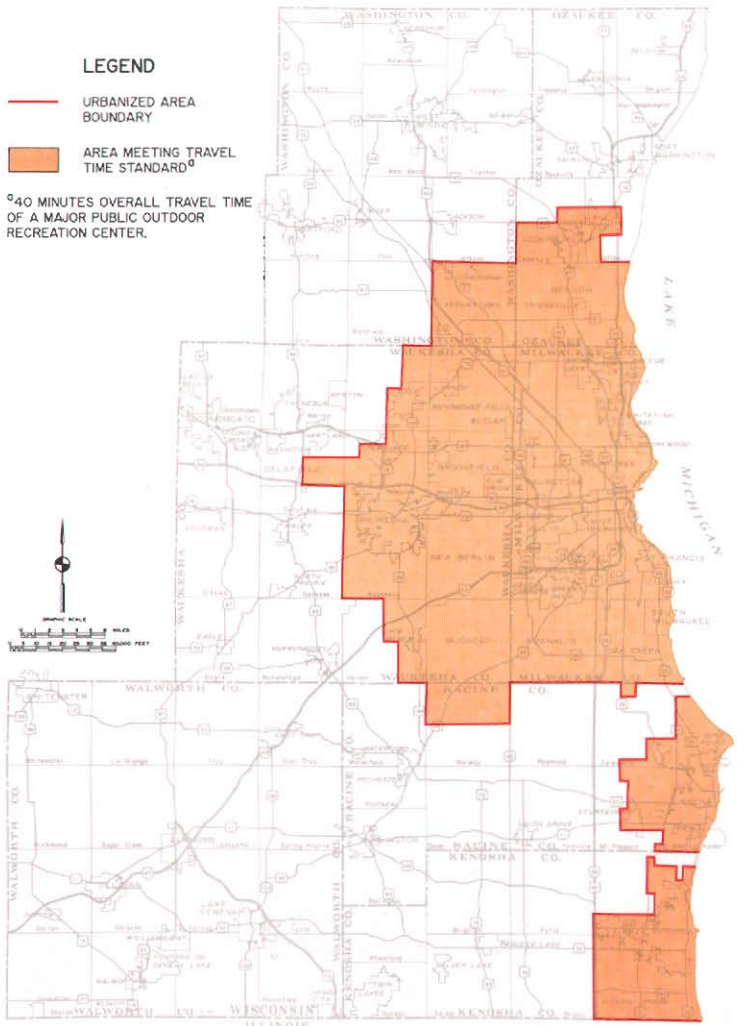


Map 9 (continued)

MAJOR MEDICAL CENTERS: 2010 ALTERNATIVE PLAN 1

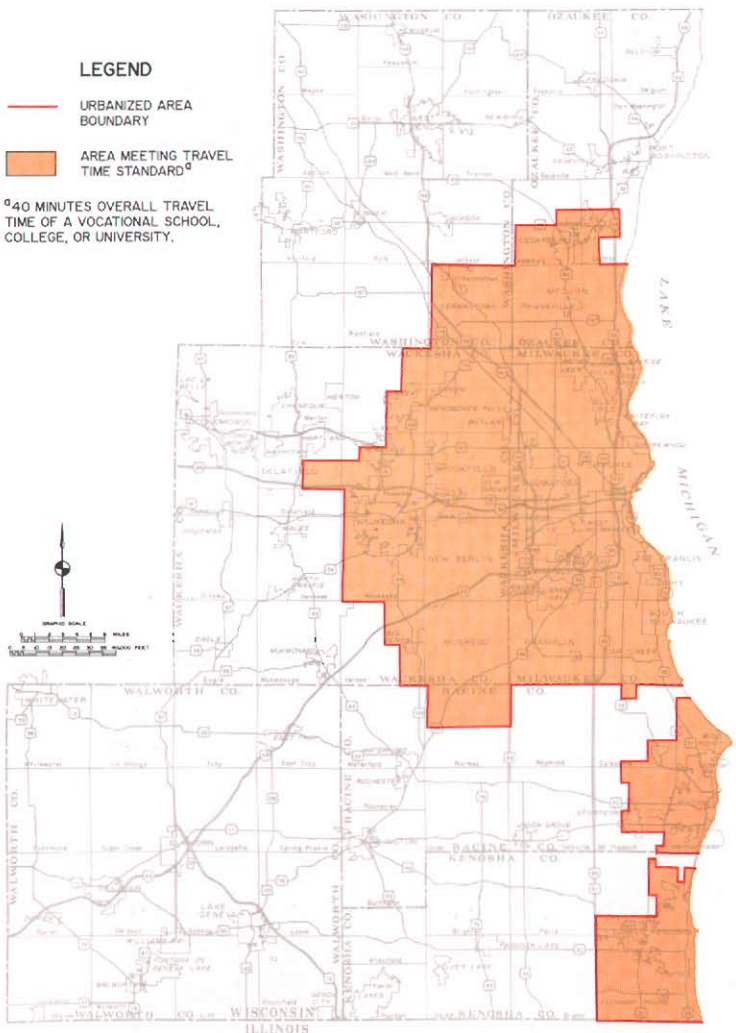


MAJOR RECREATION CENTERS: 2010 ALTERNATIVE PLAN 1

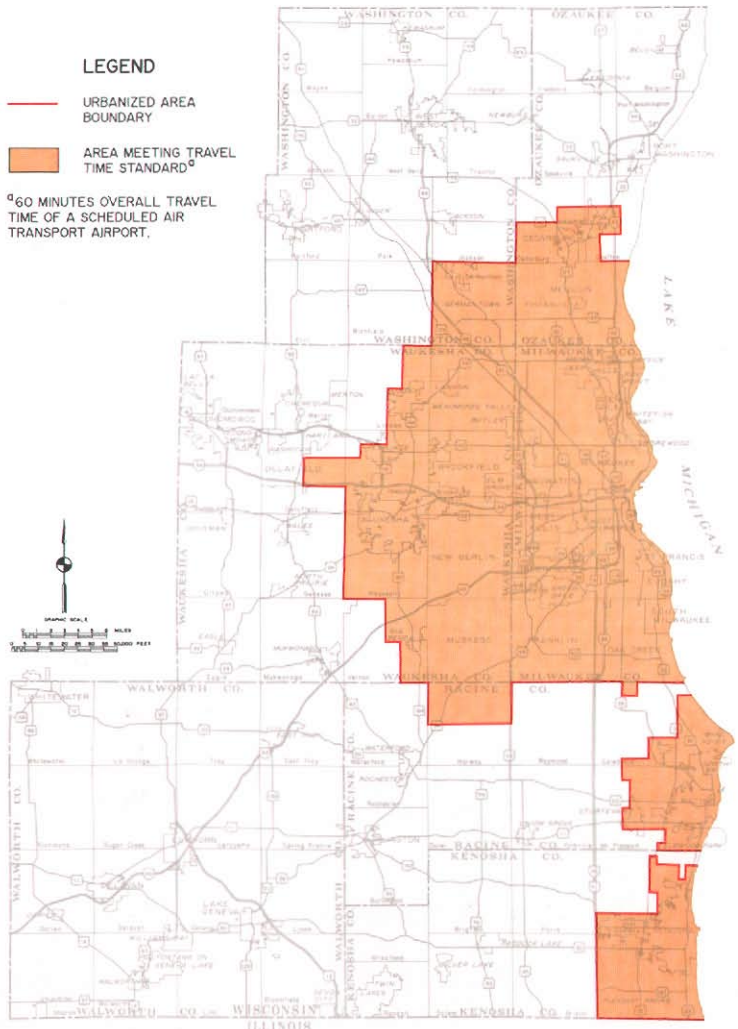


Map 9 (continued)

MAJOR EDUCATIONAL CENTERS: 2010 ALTERNATIVE PLAN 1



SCHEDULED AIR TRANSPORT TERMINALS: 2010 ALTERNATIVE PLAN 1

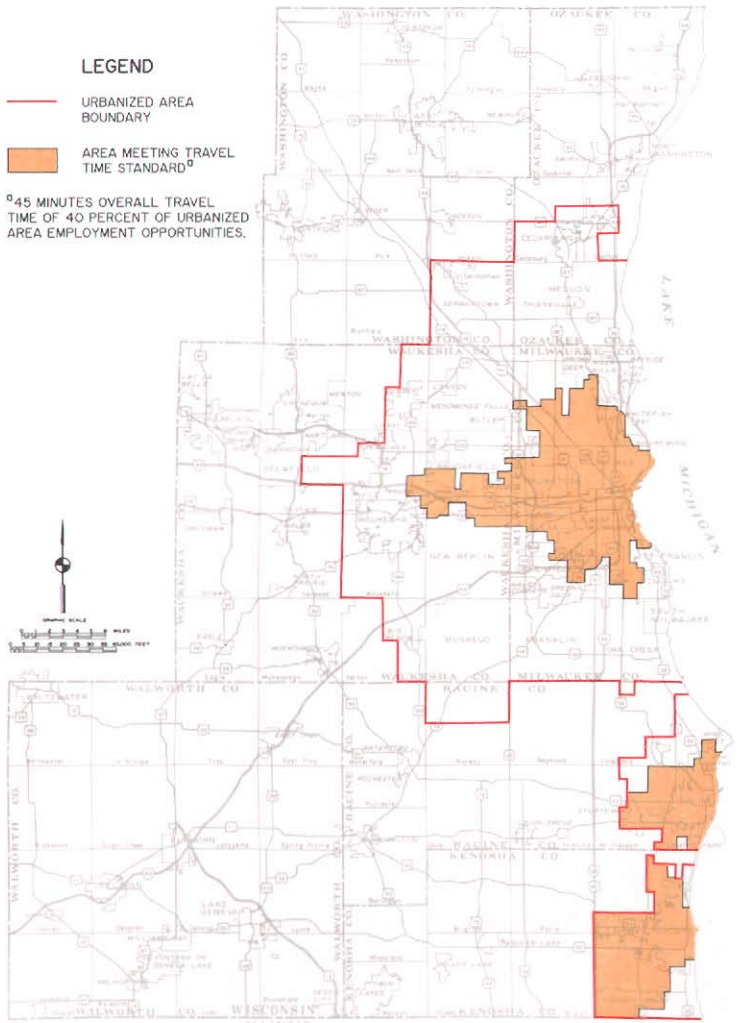


Source: SEWRPC.

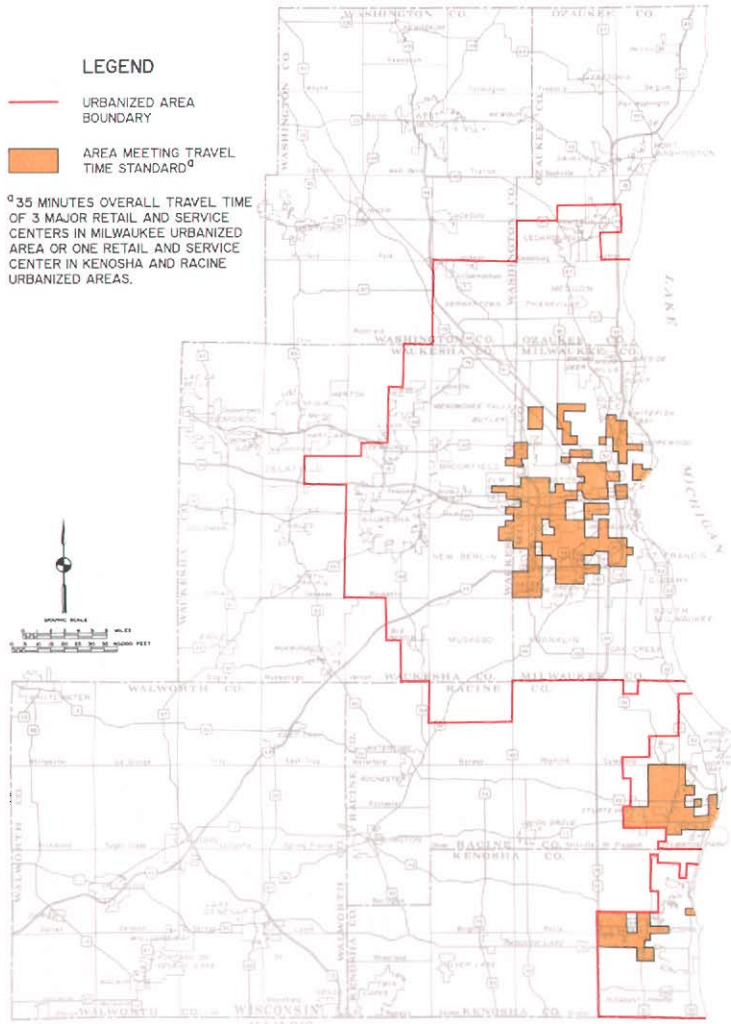
Map 10

AREAS MEETING TRAVEL TIME STANDARDS FOR EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL BY TRANSIT: 2010 ALTERNATIVE PLAN 1

EMPLOYMENT: 2010 ALTERNATIVE PLAN 1

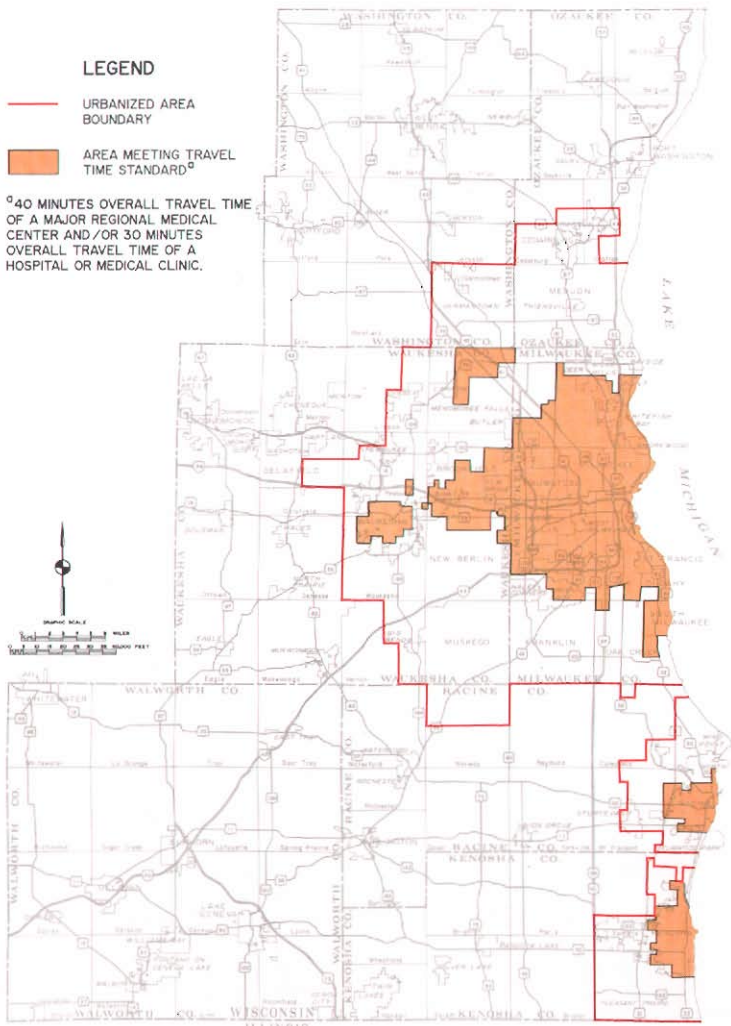


MAJOR RETAIL AND SERVICE CENTERS: 2010 ALTERNATIVE PLAN 1

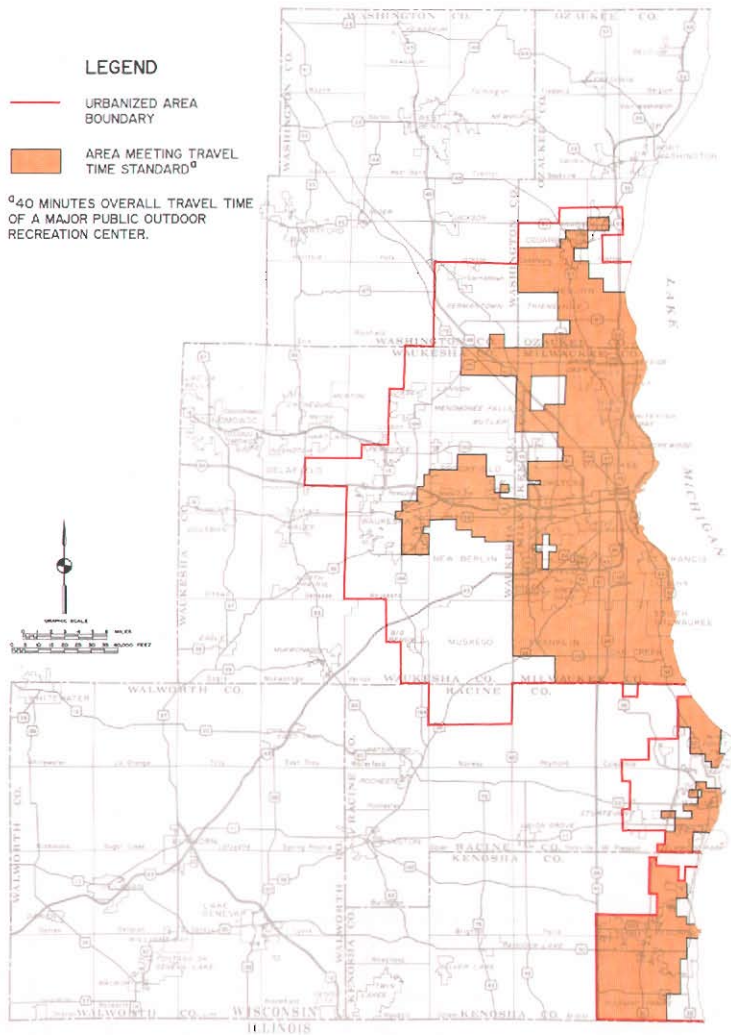


Map 10 (continued)

MAJOR MEDICAL CENTERS: 2010 ALTERNATIVE PLAN 1

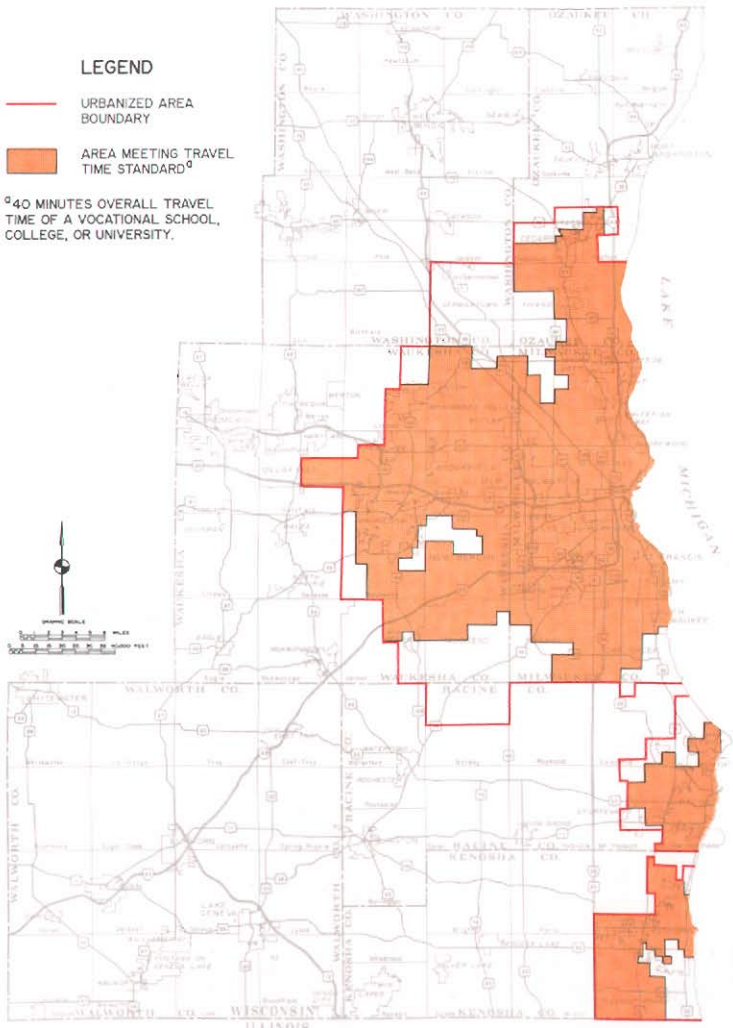


MAJOR RECREATION CENTERS: 2010 ALTERNATIVE PLAN 1

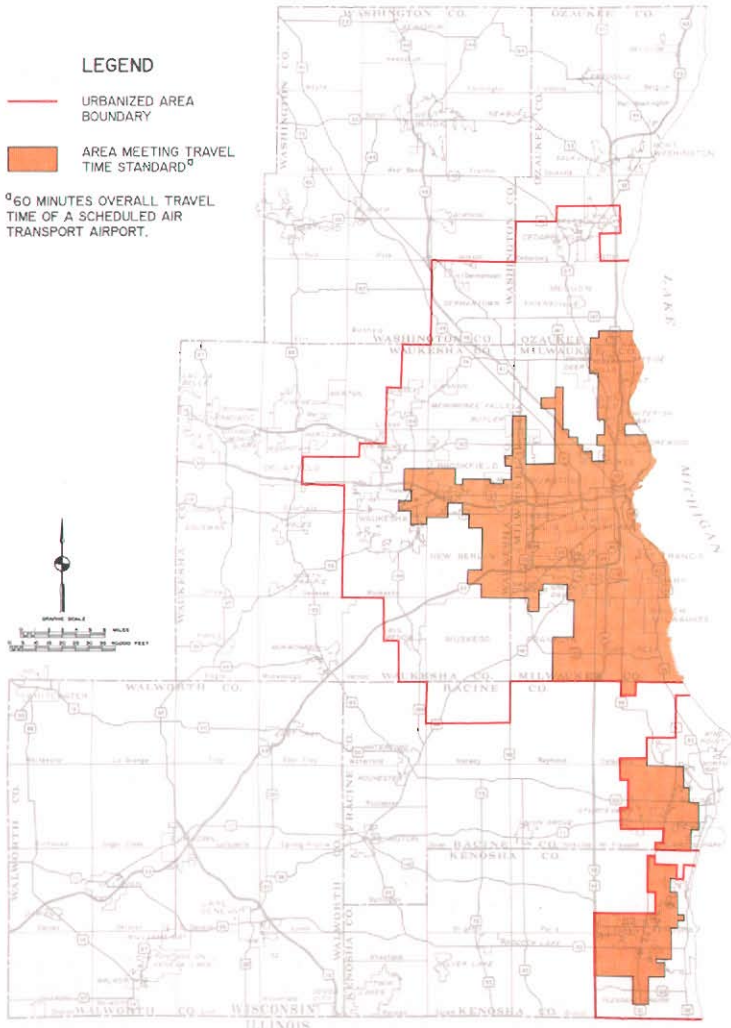


Map 10 (continued)

MAJOR EDUCATIONAL CENTERS: 2010 ALTERNATIVE PLAN 1



SCHEDULED AIR TRANSPORT TERMINALS: 2010 ALTERNATIVE PLAN 1

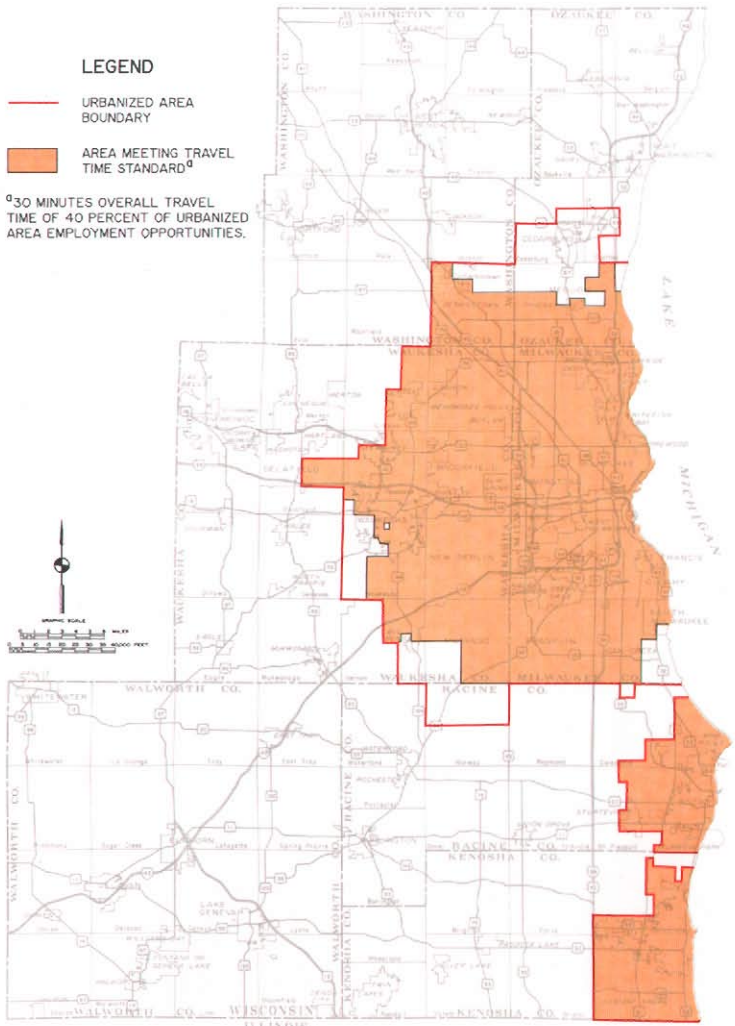


Source: SEWRPC.

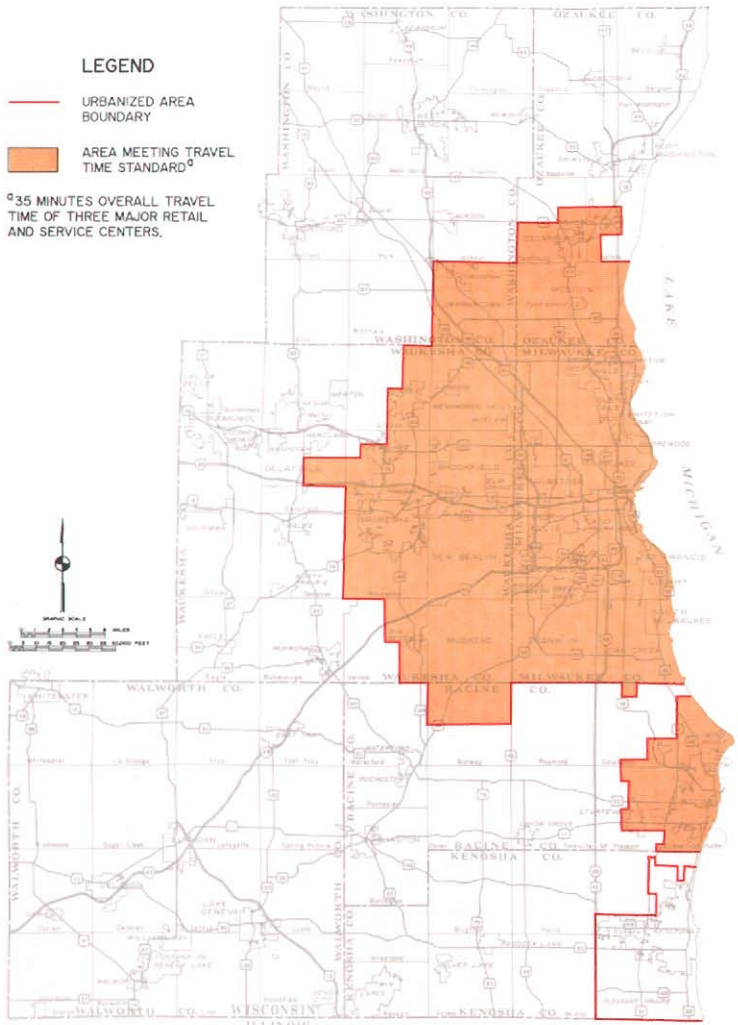
Map 11

AREAS MEETING TRAVEL TIME STANDARDS FOR EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL BY ARTERIAL STREET AND HIGHWAY: 2010 ALTERNATIVE PLAN 3

EMPLOYMENT: 2010 ALTERNATIVE PLAN 3

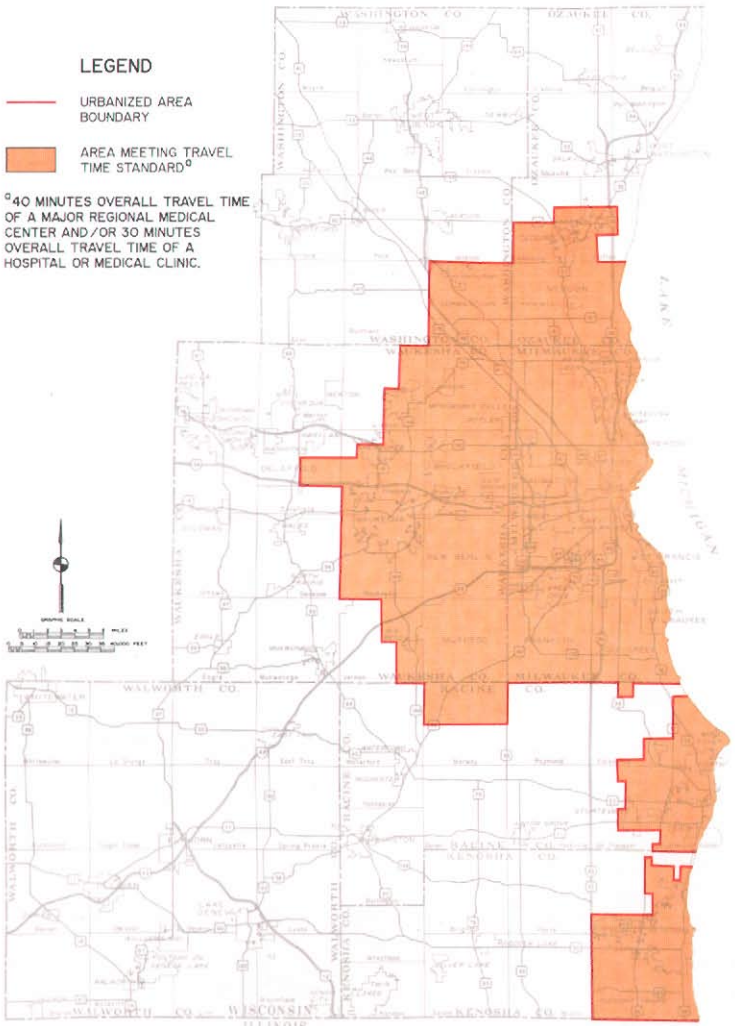


MAJOR RETAIL AND SERVICE CENTERS: 2010 ALTERNATIVE PLAN 3

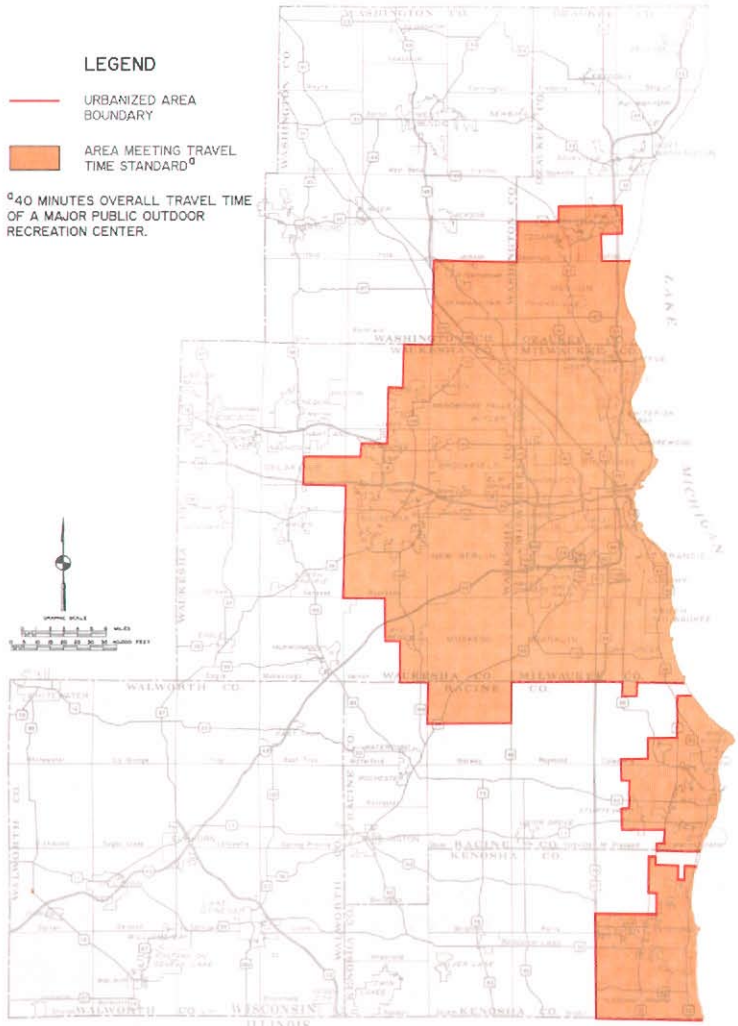


Map 11 (continued)

MAJOR MEDICAL CENTERS: 2010 ALTERNATIVE PLAN 3

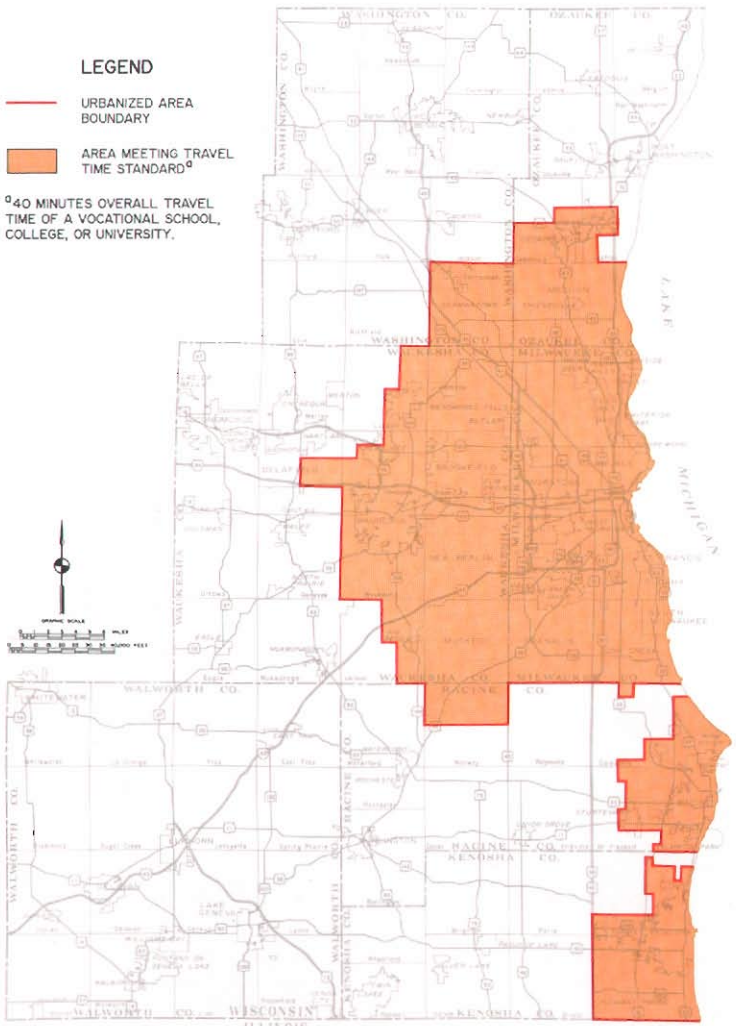


MAJOR RECREATION CENTERS: 2010 ALTERNATIVE PLAN 3

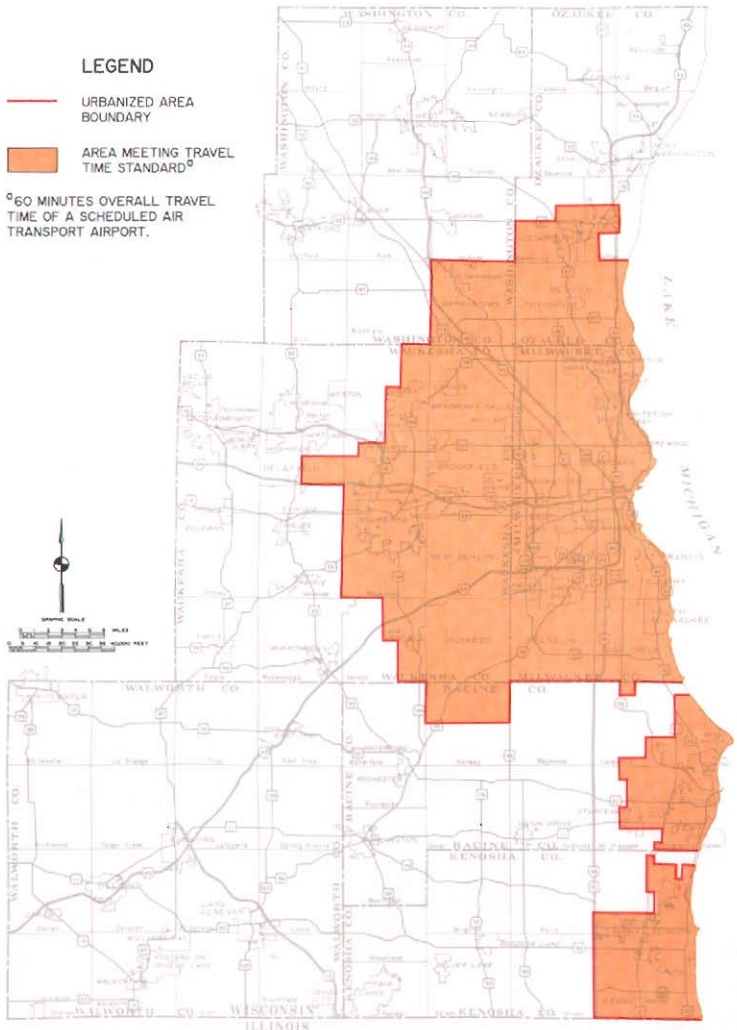


Map 11 (continued)

MAJOR EDUCATIONAL CENTERS: 2010 ALTERNATIVE PLAN 3



SCHEDULED AIR TRANSPORT TERMINALS: 2010 ALTERNATIVE PLAN 3

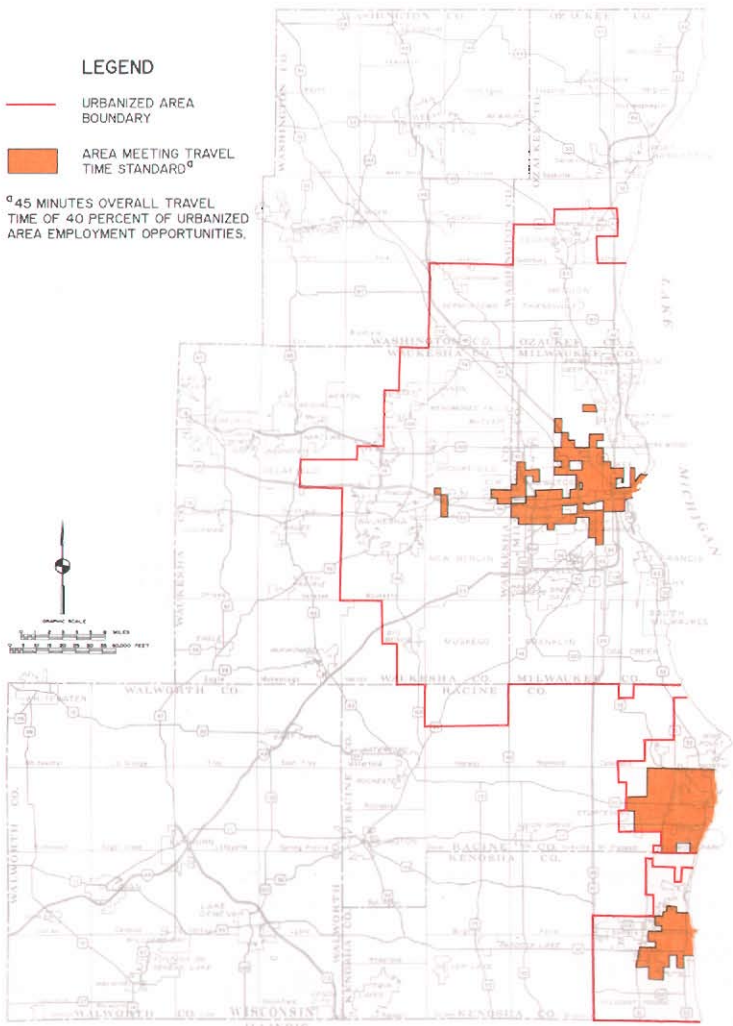


Source: SEWRPC.

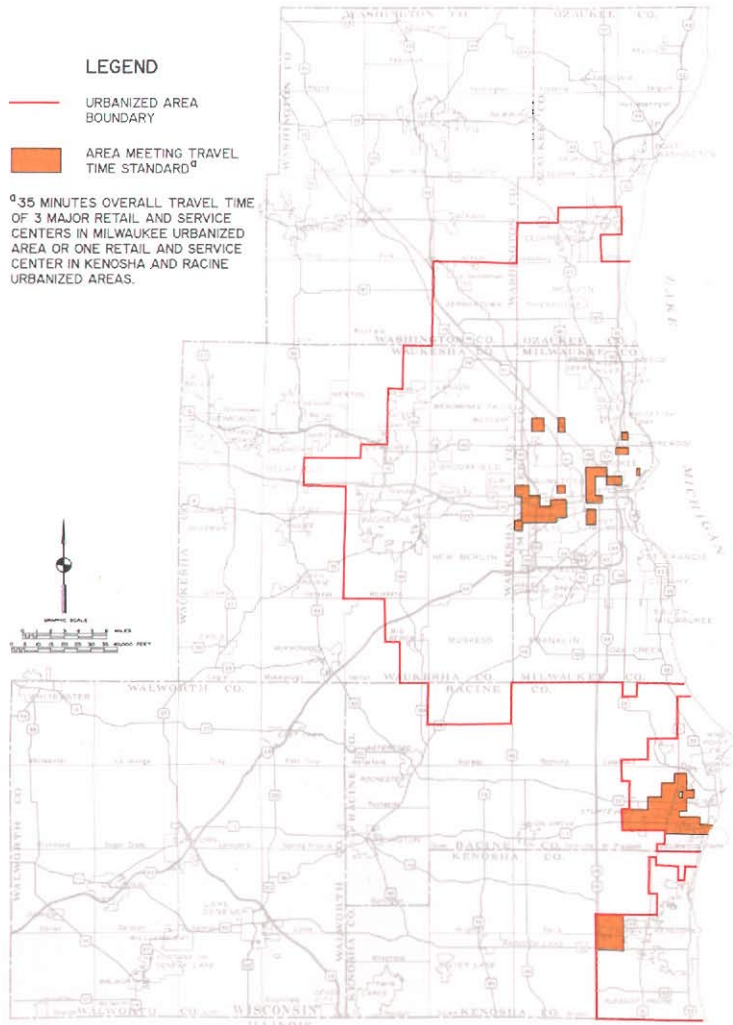
Map 12

AREAS MEETING TRAVEL TIME STANDARDS FOR EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL BY TRANSIT: 2010 ALTERNATIVE PLAN 3

EMPLOYMENT: 2010 ALTERNATIVE PLAN 3

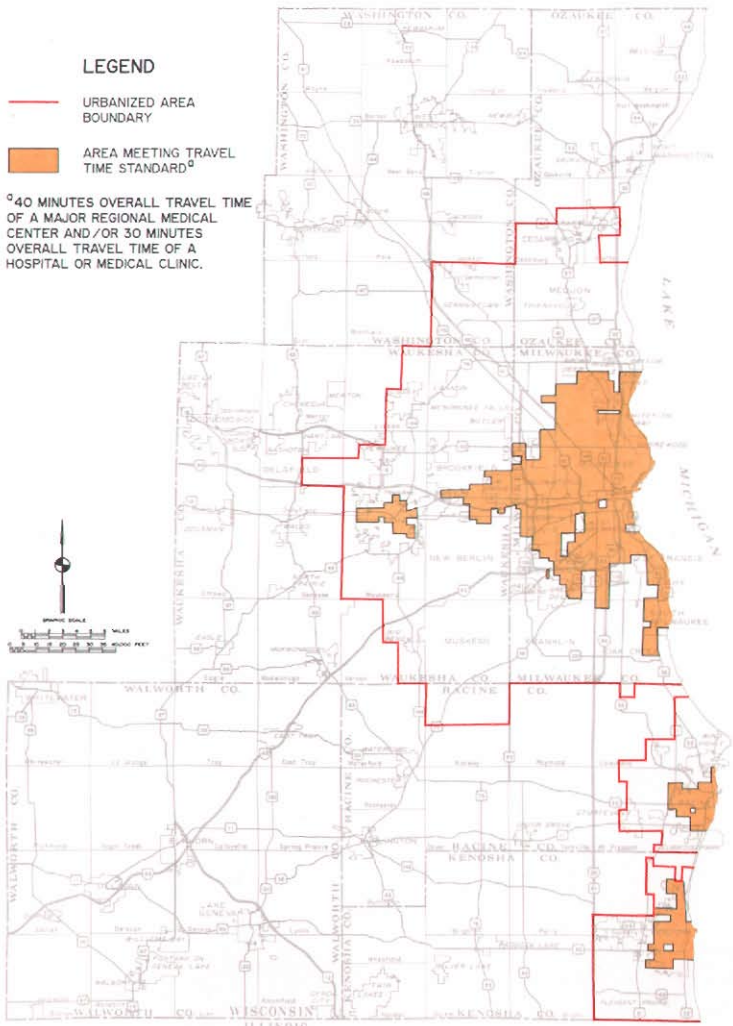


MAJOR RETAIL AND SERVICE CENTERS: 2010 ALTERNATIVE PLAN 3

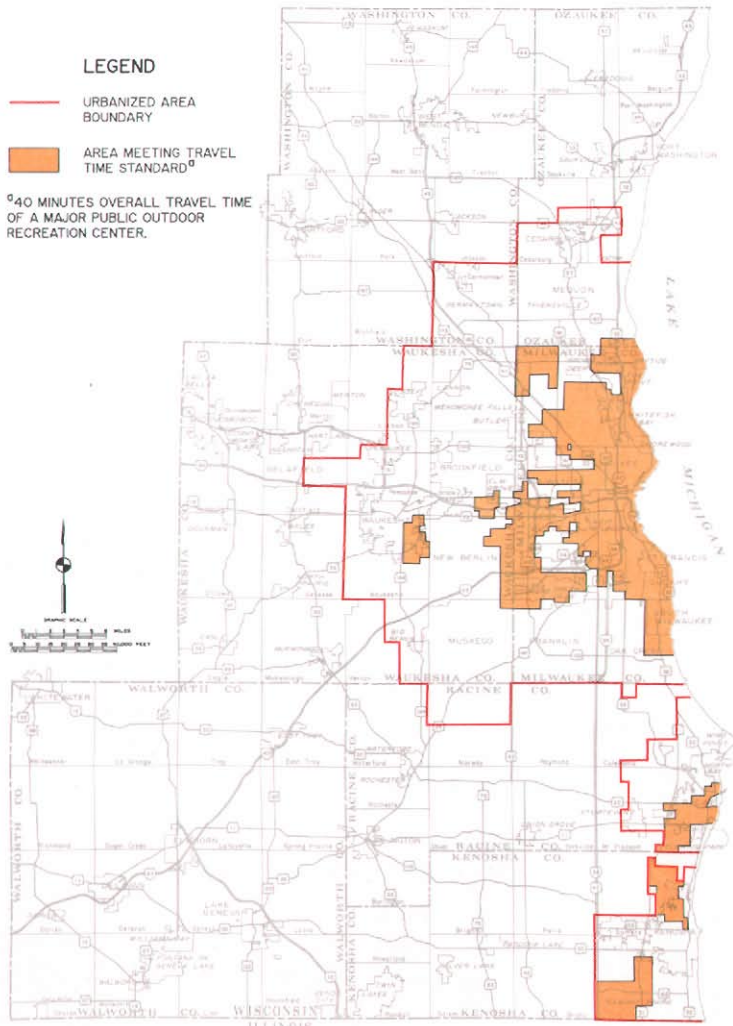


Map 12 (continued)

MAJOR MEDICAL CENTERS: 2010 ALTERNATIVE PLAN 3

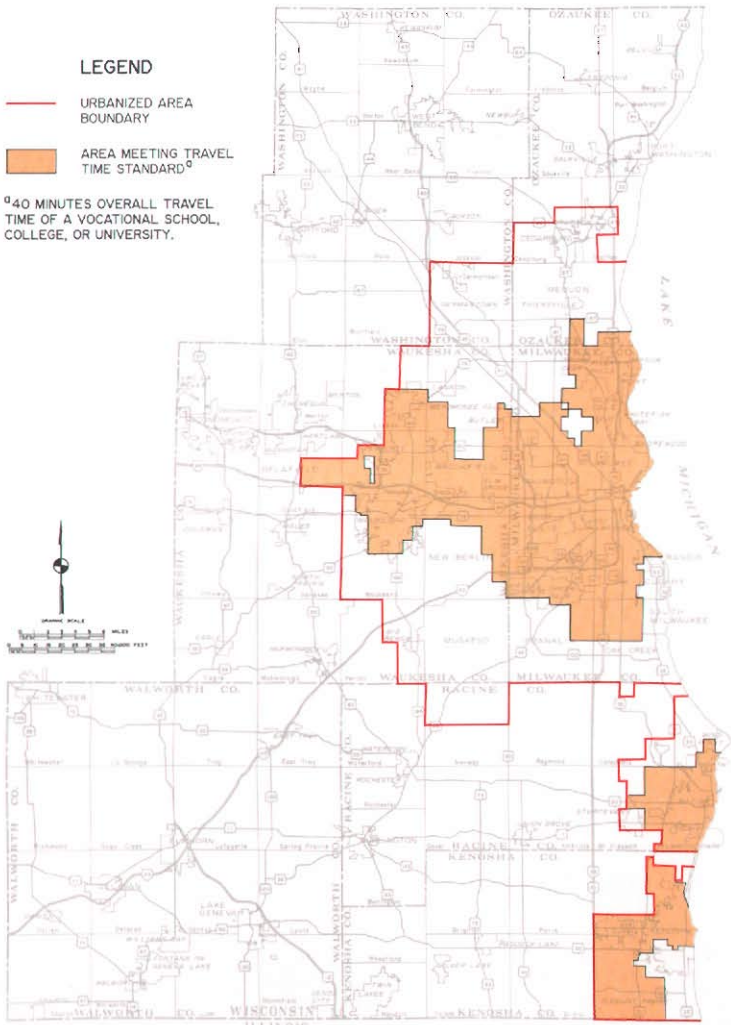


MAJOR RECREATION CENTERS: 2010 ALTERNATIVE PLAN 3

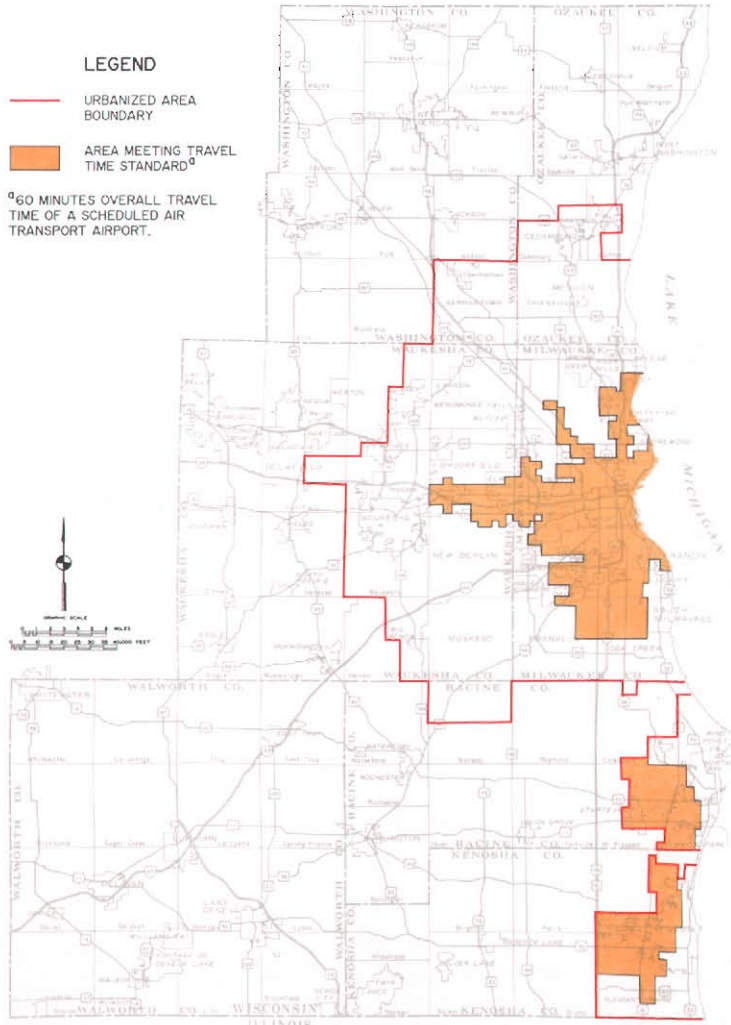


Map 12 (continued)

MAJOR EDUCATIONAL CENTERS: 2010 ALTERNATIVE PLAN 3



SCHEDULED AIR TRANSPORT TERMINALS: 2010 ALTERNATIVE PLAN 3



Source: SEWRPC.

Table 13

THE PRELIMINARY RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN FOR SOUTHEASTERN WISCONSIN AT A GLANCE: 2010

Major Plan Element		Preliminary Recommended Plan
Category	Specific Measure	
Transportation System Management	Traffic management	• Implementation of Milwaukee-area freeway traffic management system • Curb parking restrictions on 464 arterial route-miles during peak travel periods • Application of traffic engineering techniques, e.g., turning lanes, traffic control signals, and synchronized traffic signalization
	Pricing	• No specific increase in the perceived cost of operating an automobile was postulated in an attempt to reduce automobile travel; the forecast of future travel demand does reflect, however, an assumed increase in the motor fuel tax of 11 cents per gallon to raise the additional revenue needed to implement the plan
	Areawide promotional	• Areawide effort to promote ridesharing, transit use, bicycle use, telecommuting, work-time rescheduling, and transportation management associations
	Land use	• Areawide effort to promote travel by transit and to facilitate bicycle and pedestrian travel through detailed site-specific neighborhood land use planning, including appropriate mixtures of land use, efficient and direct pedestrian and bicycle pathways, and higher land use densities along transit lines
Public Transit System Maintenance and Improvement	Rapid transit	• Provide service in major corridors to Milwaukee central business district from Racine, Kenosha, Waukesha, Oconomowoc, Mukwonago, Germantown, Cedarburg, and Grafton; service over busway facility in east-west travel corridor • Service Hours Weekdays—6:00 a.m. to 8:30 a.m., 3:30 p.m. to 6:00 p.m. (midday service over some routes; no weekend or evening service) • Headways Peak—five to 30 minutes Off-peak—30 to 60 minutes • Fares Within Milwaukee County, $1.50; Milwaukee County to limits of urbanized area, $2.00; Milwaukee central business district to outer limits, $3.00
	Express transit	• Expand Milwaukee central business district-oriented service; provide cross-town service in Milwaukee County; provide service to connect Cities of Racine and Kenosha; light rail service in east-west and northeast corridors • Service Hours Weekdays—6:00 a.m. to 6:00 p.m. (weekdays until 10:00 p.m. and weekends on some routes) • Headways Peak—10 to 15 minutes (30 minutes in Racine and Kenosha areas) Off-peak—20 to 30 minutes (60 minutes in Racine and Kenosha areas) • Fares Milwaukee County, $1.25; Racine and Kenosha, $0.75

Table 13 (continued)

Major Plan Element		Preliminary Recommended Plan
Category	Specific Measure	
Public Transit System Maintenance and Improvement (continued)	Local transit	• Extend fixed-route service to all high- and medium-density development with densities of five dwelling units per acre or greater and to selected additional areas with lower residential density and job locations; new service to be provided to portions of northern and southern Milwaukee County, eastern Waukesha County, and around the Cities of Waukesha, Racine, and Kenosha contiguous to existing service areas; continue shared-ride taxi services • Headways Peak—10 minutes on most routes in central Milwaukee County; 15 to 30 minutes on remaining routes in Milwaukee County; 30 minutes in Waukesha; 15 to 30 minutes in Kenosha and Racine Off-peak—20 to 30 minutes on most routes in central Milwaukee County; 30 to 60 minutes on remaining routes in Milwaukee County; 30 to 60 minutes outside Milwaukee County
	Total transit	• Average Weekday Round-trip route-miles: 3,460 Vehicle-miles of service: 108,600 Vehicle-hours of service: 7,400 Vehicles required in peak period: 760
	Additional busway and rail transit considerations	• Potential provision of commuter rail service in four travel corridors dependent upon detailed corridor studies • Potential provision of busway facilities in five additional travel corridors dependent upon detailed corridor studies • Potential provision of light rail express transit service in four additional travel corridors dependent upon detailed corridor studies
Arterial Street and Highway System Maintenance and Improvement	New facilities	• 128 route-miles of newly constructed facilities providing 331 additional lane-miles
	Widened facilities	• 418 route-miles of widened arterial street and highway facilities, representing a total of 1,713 lane-miles after widening
	Preserved facilities	• 3,068 route-miles of facilities, representing 8,164 lane-miles, to be preserved through resurfacing or reconstruction for same capacity
	Total facilities	• Total system of 3,614 route-miles of arterial streets and highways, providing 10,208 lane-miles

Source: SEWRPC.

waukee, and Racine Urbanized Areas. The conference and public hearings were attended by a total of 760 persons; 143 letters were received for the record following the public hearings. Membership of the jurisdictional highway system planning committees totaled 157 persons; membership of the three transportation system planning and programming committees totaled 42 persons. It is important to note that every local unit of government within a county, as well as the county government, is represented on the county jurisdictional highway planning committees.

For use in connection with the meetings and hearings, the Commission prepared and widely distributed three SEWRPC Newsletters. These included Vol. 33, No. 5, September-October 1993, "Work Begins on a New Regional Transportation System Plan"; Vol. 34, No. 2, March-April 1994, "Alternative Regional Transportation System Plans Designed and Evaluated"; and Vol. 34, No. 3, May-June 1994, "New Regional Transportation System Plan Readied for Public Review." Together, these Newsletters provide background information on the transportation system planning process and the existing

transportation system, descriptive and evaluative information on the alternative plans considered, and a summary description of the preliminary recommended plan. In addition, copies were made available of SEWRPC Newsletter, Vol. 32, No. 2, March-April 1992, which describes in summary form the design year 2010 regional land use plan that formed the basis for the new regional transportation system plan.

Through the Newsletters, the Regional Planning Conference, the public hearings, and the various Advisory Committee meetings, information on the findings of the inventories and analyses, the descriptions and comparative evaluations of the alternative plans, and the description and evaluation of the preliminary plan were provided in considerable depth and detail to the elected officials of each county and local unit of government within the Region, as well as to officials of the State and Federal governments, representatives of business and industry, and interested citizens. The planning work received substantial attention from the mass media in the form of numerous newspaper articles and editorials and radio and television announcements, some based upon Commission news releases. The record of the public hearings, together with attendant correspondence and supporting materials, was published by the Commission and provided for review to each member of the Commission Technical Coordinating and Advisory Committee on Regional Transportation System Planning guiding the plan preparation and to each member of the Regional Planning Commission. The full record is documented in Record of Public Informational Meetings and Public Hearings, Preliminary New Regional Transportation System Plan for Southeastern Wisconsin: 2010, July 11 through August 3, 1994.

As part of the preparation of the final recommended plan, a response was prepared to each public comment to the preliminary recommended regional transportation system plan as expressed at the county jurisdictional highway system planning advisory committee meetings, at the joint transportation system planning and programming advisory committee meetings, and at the public hearings, including the written comments received by the Commission following the hearings.

The final recommended regional transportation system plan and the findings of the evaluation of its performance with respect to the transportation planning objectives and standards, including the congestion and system performance measures, is documented in Chapter XI, "Recommended Year 2010 Regional Transportation System Plan," of SEWRPC Planning Report No. 41, A Regional Transportation System Plan for Southeastern Wisconsin: 2010. On the basis of the results of the public review process, the final plan, described in summary form in Table 14, including transportation system management measures, incorporated some changes with respect to the preliminary recommended plan. The arterial street and highway element of the final recommended plan is described on Maps 13 through 19, and in Tables 15 through 21. The public transit element of the final recommended plan is described on Maps 20 and 21, and in Table 22. The final plan further recommends actions be taken to assure existing highway capacity and all recommended additions to highway capacity are efficiently utilized and promote single-occupant vehicle travel demand reduction where appropriate. Such plan recommendations include implementation of a freeway traffic management system throughout Southeastern Wisconsin. The freeway traffic management system would use ramp-metering, advisory information, and incident management systems to assure efficient use of the existing freeway system, and include high-occupancy vehicle bypasses of ramp meters to promote carpools and transit use. The final plan also recommends application of good traffic engineering practices, including traffic signal timing and coordination, intersection channelization, and access management, as well as restriction of curb-lane parking as needed on surface arterials. Tables 23 and 24 and Maps 22 through 24 present the findings of the performance evaluation of the recommended final transportation system plan with respect to the congestion and system performance measures. It should be noted that, beyond the transportation systems management actions recommended in the final regional transportation system plan, other such measures have been recommended by the Commission, including bicycle and pedestrian facility improvements, as documented in SEWRPC Planning Report No. 43, A Regional Bicycle and Pedestrian Facilities System Plan for Southeastern Wisconsin: 2010.

IMPLEMENTATION SCHEDULE OF ACTIONS TO RESOLVE TRAFFIC CONGESTION PROBLEMS

An implementation schedule for the regional plan was also recommended and is documented in Chapter XII, "Plan Implementation," of SEWRPC Planning Report No. 41, A Regional Transportation System Plan for Southeastern Wisconsin: 2010, and

Table 14

THE ADOPTED REGIONAL TRANSPORTATION SYSTEM PLAN FOR SOUTHEASTERN WISCONSIN AT A GLANCE: 2010

Major Plan Element		Recommendation
Category	Specific Measure	
Transportation System Management	Traffic management	• Implementation of Milwaukee-area freeway traffic management system • Curb-lane parking restrictions as necessary on 442 arterial route-miles during peak travel periods • Application of traffic engineering techniques, e.g., turning lanes, traffic control signals, and synchronized traffic signalization • Application of Intelligent Transportation System technology as it becomes available
	Travel demand management promotion	• Areawide effort to promote ridesharing, transit use, bicycle use, telecommuting, work-time rescheduling, and transportation management associations
	Detailed land use planning and site design	• Areawide effort to promote travel by transit and to facilitate bicycle and pedestrian travel through detailed, site-specific neighborhood land use planning, including appropriate mixes of land use, efficient and direct pedestrian and bicycle pathways, and higher land use densities along transit lines
	Transit system management and service enhancement	• Undertaking by transit agencies of activities to enhance quality of service and facilitate transit use including: improving transit information systems, transfer, and waiting facilities and bicycle storage facilities at stops; conducting marketing and educational campaigns; improving vehicle design and transit security
Public Transit System Maintenance and Improvement	Rapid transit	• Provide service in major corridors to Milwaukee central business district from Racine, Kenosha, Waukesha, Oconomowoc, Mukwonago, West Bend, Cedarburg, Grafton, and Port Washington; service over busway facility in east-west travel corridor • Service Hours Weekdays–6:00 a.m. to 8:30 a.m., 3:30 p.m. to 6:00 p.m. (midday service over some routes; no weekend or evening service) • Headways Peak–five to 30 minutes • Fares Within Milwaukee County, $1.50; Milwaukee County to limits of urbanized area, $2.00; Milwaukee central business district to outer limits, $3.00
	Express transit	• Expand Milwaukee central business district-oriented service; provide crosstown service in Milwaukee County; provide service to connect Cities of Racine and Kenosha; light-rail service in east-west and northeast corridors • Service Hours Weekdays–6:00 a.m. to 6:00 p.m. (weekdays until 10:00 p.m. and weekends on some routes) • Headways Peak–five to 15 minutes (30 minutes in Racine and Kenosha areas) Off-peak–10 to 30 minutes (60 minutes in Racine and Kenosha areas) • Fares Milwaukee County, $1.25; Racine and Kenosha, $0.75

Table 14 (continued)

Major Plan Element		Recommendation
Category	Specific Measure	
Public Transit System Maintenance and Improvement (continued)	Local transit	• Extend fixed-route service to all high- and medium-density development with densities of five dwelling units per acre or greater and to selected additional areas with lower residential density and job locations; new service to be provided to portions of northern and southern Milwaukee County, eastern Waukesha County, and around the Cities of Waukesha, Racine, and Kenosha contiguous to existing service areas; continue shared-ride taxi services • Headways Peak–10 minutes on most routes in central Milwaukee County, 15 to 30 minutes on remaining routes in Milwaukee County, 30 minutes in Waukesha, 15 to 30 minutes in Kenosha and Racine Off-peak–20 to 30 minutes on most routes in central Milwaukee County; 30 to 60 minutes on remaining routes in Milwaukee County; 30 to 60 minutes outside Milwaukee County
	Total transit	• Average Weekday Round-trip route-miles: 3,640 Vehicle-miles of service: 110,600 Vehicle-hours of service: 7,600 Vehicles required in peak period: 779
	Additional busway and rail transit considerations	• Potential provision of commuter-rail service in six travel corridors dependent upon detailed corridor studies • Potential provision of busway facilities in four additional travel corridors, depending upon detailed corridor studies • Potential provision of light-rail express transit service in three additional travel corridors, depending upon detailed corridor studies
Arterial Street and Highway System Maintenance and Improvement	New facilities	• 131 route-miles of newly constructed facilities, providing 337 additional lane-miles
	Widened facilities	• 448 route-miles of widened arterial street and highway facilities, representing a total of 1,877 lane-miles after widening
	Preserved facilities	• 3,028 route-miles of facilities, representing 8,089 lane-miles, to be preserved through resurfacing or reconstruction for same capacity
	Total facilities	• Total system of 3,607 route-miles of arterial streets and highways, providing 10,303 lane-miles

Source: SEWRPC.

in SEWRPC Memorandum Report 103, Assessment of Conformity of the Year 2010 Regional Transportation System Plan and the 1995-1997 Transportation Improvement Program with Respect to the State of Wisconsin Air Quality Implementation Plan. The implementation schedule identifies the needed transportation system improvement projects, which should be completed and open for service by the years 1996, 2001, 2007, and 2010. The arterial street and highway and public transit implementation schedules are set forth in Tables 25 through 28. As noted earlier in this report, the regional transportation system plan recommends that the implementing agencies for the highway system element of the plan undertake actions to achieve maximum effective utilization of highway capacity, including application of traffic engineering measures and curb-lane parking restrictions on surface arterial streets, and implementation of a traffic management system for the regional freeway system.

EVALUATION OF EFFECTIVENESS OF IMPLEMENTED ACTIONS

The evaluation of effectiveness of the recommended actions to resolve traffic congestion as these actions are actually implemented would be monitored under the continuing regional transportation planning program, as an integral part of the Commission data collection efforts. Federal regulations require that the Commission review and, as may be found necessary, revise the transportation system plan every three years, the first such review to be completed in 1997. As part of that review, an assessment of the transportation system performance based upon the current physical and operational characteristics of the system will be conducted and the results compared to both historic 1991 and the planned year 2010 transportation system performance. The results of this review will guide the transportation system plan and congestion management system reevaluation. If the implemented actions are found not to have the intended effect of resolving the identified traffic congestion problems concerned, that finding would be taken into account in the system plan review to be completed in 1997. At that point, a set of new proposals to resolve such deficiencies may be advanced.

With regard to the evaluation of the effectiveness of actions to resolve traffic congestion problems, it should be noted that the resolution or lack of resolution of a traffic congestion problem may not be capable of being directly attributed to a specific transportation measure. Thus, the effectiveness of the various recommended actions may need to be evaluated on a corridor, or even systemwide, basis, rather than on an individual problem basis. It should also be noted that there are many events beyond the scope of the areawide transportation system planning process that may affect the ultimate performance of a given transportation facility or interrelated set of facilities. Such events include, among many others, unforeseen changes in major employment concentrations and major changes in transportation pricing.

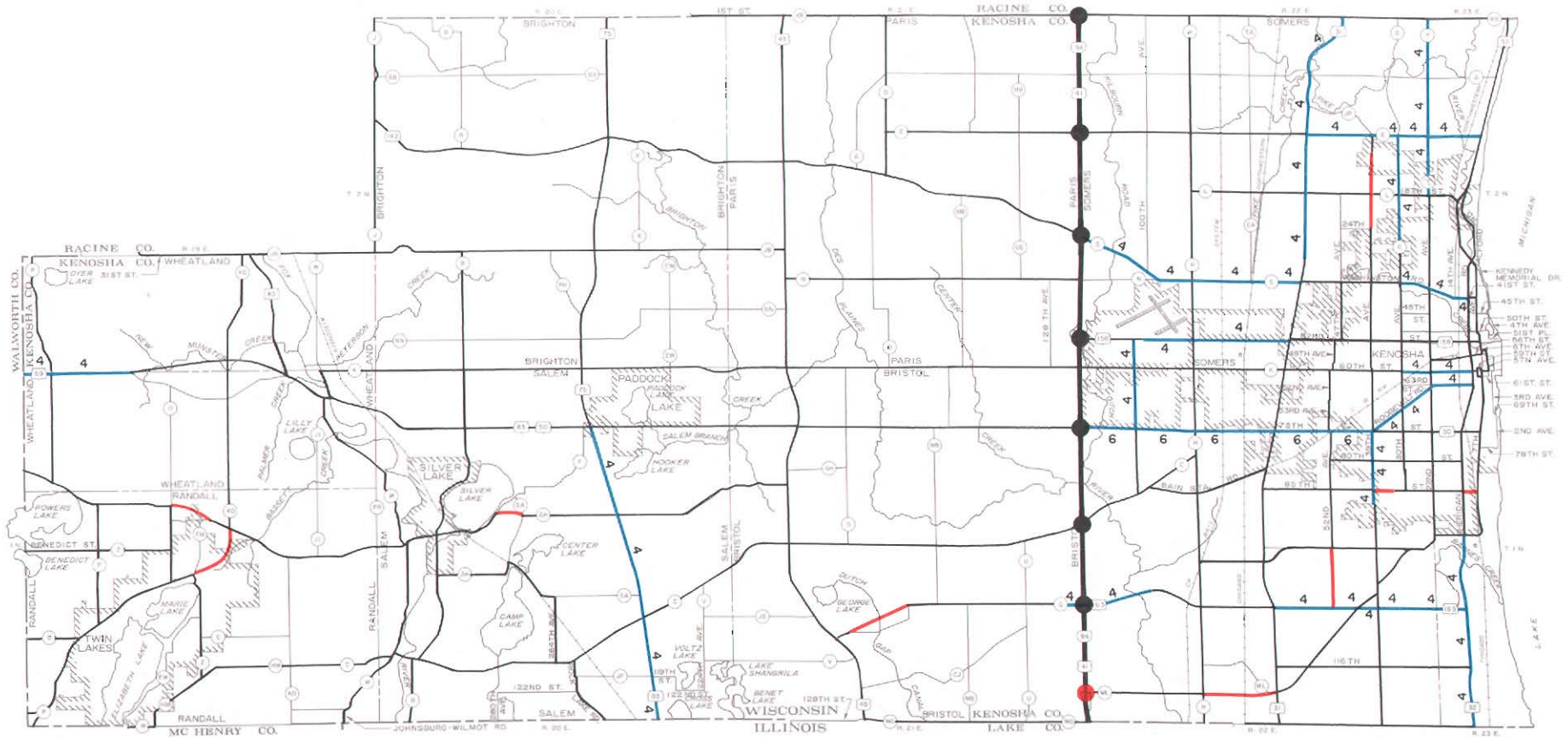
Further, it should be noted that because of the complex nature of travel within a large metropolitan area such as Southeastern Wisconsin, the implementation of many interrelated transportation improvement proposals may be necessary to resolve transportation system traffic congestion. The implementation of any one proposal may not translate directly into the resolution of specifically identified traffic congestion problems. Finally, it should be noted that the resolution of traffic congestion is not the only objective toward the attainment of which a transportation system plan is directed. While an important goal, the resolution of traffic congestion must be balanced against other important and essential transportation development objectives. Accordingly, determination of the effectiveness of implemented actions will require adequate data collection, careful analysis, and the exercise of experienced judgement in the light of all the factors concerned.

SUMMARY

This memorandum report documents the manner in which the third-generation, design year 2010, regional transportation system planning and the continuing regional transportation planning process in Southeastern Wisconsin provides, as intended, the congestion management system envisioned in Federal regulations (49 CFR Part 500). The Federally required congestion management system is comprised of five components: definition of performance measures to assess congestion, data collection and analysis to establish existing congestion and monitor future congestion, evaluation and recommendation of actions to resolve traffic congestion preparation of implementation plan for recommended actions, and monitoring and evaluation of the effectiveness of recommended actions.

Map 13

FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN KENOSHA COUNTY: 2010 FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN



LEGEND

ARTERIAL STREET OR HIGHWAY

- NEW
- WIDENING AND/OR OTHER IMPROVEMENT TO PROVIDE SIGNIFICANT ADDITIONAL CAPACITY
- RESURFACING OR RECONSTRUCTION TO PROVIDE ESSENTIALLY THE SAME CAPACITY
- 4 NUMBER OF TRAFFIC LANES FOR NEW OR WIDENED AND/OR IMPROVED FACILITY (2 LANES WHERE UNNUMBERED)

Source: SEWRPC.

Table 15

FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN KENOSHA COUNTY UNDER THE FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN: 2010

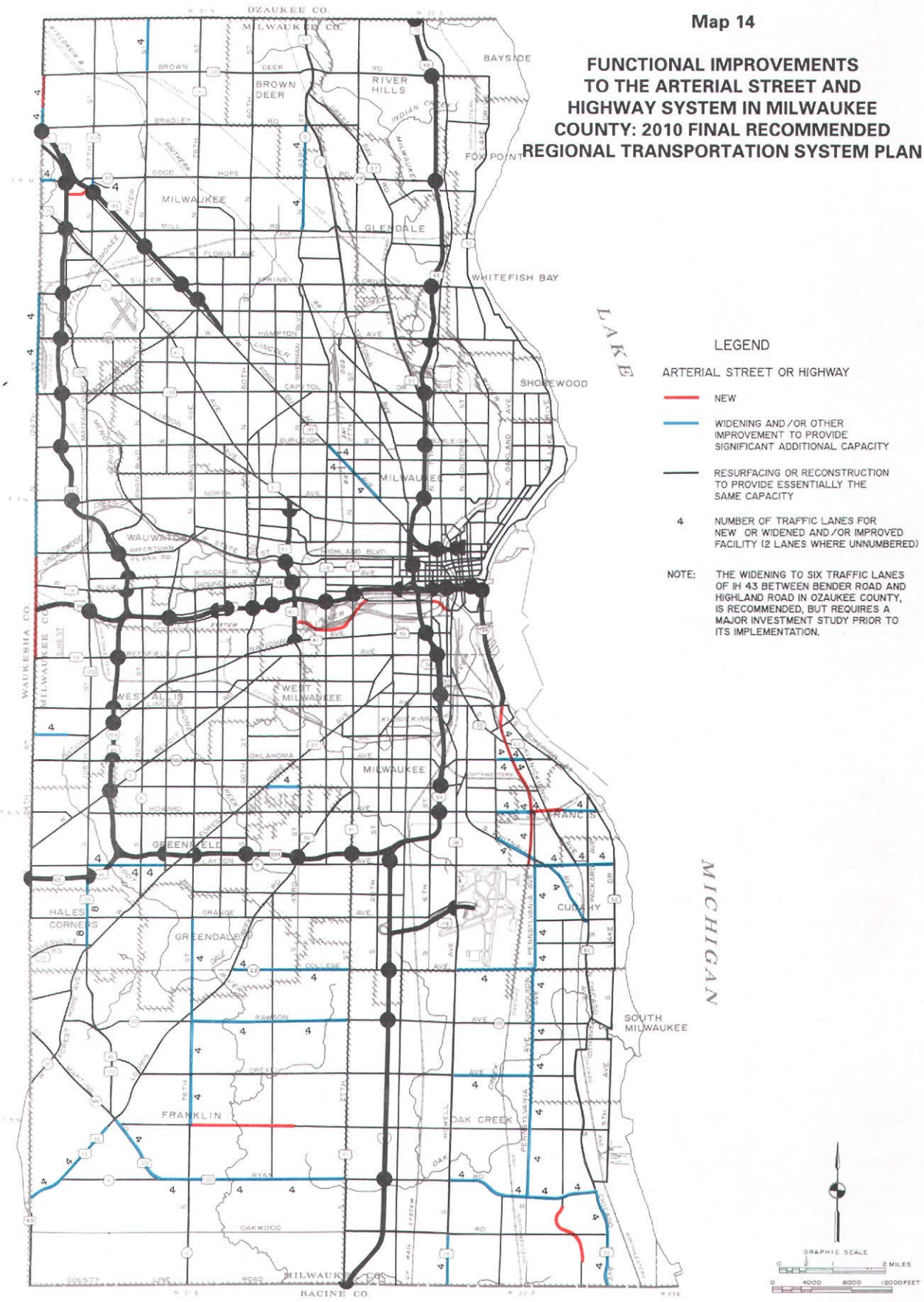
Recommended Jurisdiction	Improvement Type	Facility	Termini	Improvement Description
State	Widening	STH 31	31st Street to CTH KR	Widen from two to four traffic lanes
		STH 32	128th Street to CTH T	Widen from two to four traffic lanes
		STH 50	Walworth county line to 381st Avenue	Widen from two to four traffic lanes
		STH 50	IH 94-USH 41 to 39th Avenue	Widen from four to six traffic lanes
		STH 83	128th Street to STH 50	Widen from two to four traffic lanes
		STH 158	104th Avenue to STH 31	Widen from two to four traffic lanes
		STH 165	CTH H to STH 31	Widen from two to four traffic lanes
		STH 165	STH 31 to STH 32	Widen from two to four traffic lanes
		STH 165	IH 94-USH 41 to a point approximately one mile west of CTH H	Widen from two to four traffic lanes
		63rd Street	22nd Avenue to STH 32	Widen from two to four traffic lanes
		Roosevelt Road	39th Avenue to 63rd Street	Widen from two to four traffic lanes
County	Widening	CTH E	STH 31 to STH 32	Widen from two to four traffic lanes
		30th Avenue	27th Street to CTH E	Widen from two to four traffic lanes
		60th Avenue	39th Avenue to STH 32	Widen from two to four traffic lanes
		CTH S	IH 94-USH 41 to STH 31	Widen from two to four traffic lanes
		22nd Avenue	CTH L to E	Widen from two to four traffic lanes
		22nd Avenue	CTH E to CTH KR	Widen from two to four traffic lanes
		Washington Road	39th Avenue to STH 32	Widen from two to four traffic lanes
	Expansion	IH 94-USH 41	CTH ML	Construct new interchange
		CTH AH extension	CTH F to CTH SA	Construct two lanes on new alignment
		CTH F extension	CTH O to 89th Street	Construct two lanes on new alignment
		CTH KD extension	CTH EM to CTH F	Construct two lanes on new alignment
		CTH ML extension	CTH H to STH 31	Construct two lanes on new alignment
		CTH Q extension	184th Street extended to 168th Street	Construct two lanes on new alignment
Local	Widening	39th Avenue	Van Buren Road to STH 50	Widen from two to four traffic lanes
		104th Avenue	STH 50 to STH 158	Widen from two to four traffic lanes
	Expansion	39th Avenue extension	24th Street to 15th Street	Construct two lanes on new alignment
		51st Avenue extension	93rd Street to STH 165	Construct two lanes on new alignment
		85th Street extension	39th Avenue to 32nd Avenue	Construct two lanes on new alignment
		85th Street extension	Sheridan Road to 7th Avenue	Construct two lanes on new alignment

Source: SEWRPC.

The third-generation, design year 2010, regional transportation system planning process was so designed that the preparation of the regional transportation system plan itself and the conduct of the continuing regional transportation system planning program would provide the required congestion management system. As part of the preparation of the system plan, performance measures to define and identify existing and probable future traffic congestion were formulated. These measures are an integral part of the objectives and standards formulated to guide the design and evaluation of the recommended regional transportation system plans and of alternatives thereto. Data collection and analyses were conducted as part of the plan preparation process to identify existing and anticipated future traffic congestion, using these performance measures. A wide range of transportation system management measures, including traffic management, travel demand management, and transit service improvements, were considered in the design of alternative regional transportation system plans and were evaluated as to their potential to reduce traffic congestion. Highway capacity improvement and expansion projects were then considered as an additional element of these alternative regional transportation system plans to address the identified residual traffic congestion. Thus, the arterial street and highway facility improvement and expansion were considered as measures of last resort in the alleviation of existing and anticipated future traffic congestion. A recommended plan of transportation system management actions and arterial street and highway capacity

Map 14

FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN MILWAUKEE COUNTY: 2010 FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN



Source: SEWRPC.

Table 16

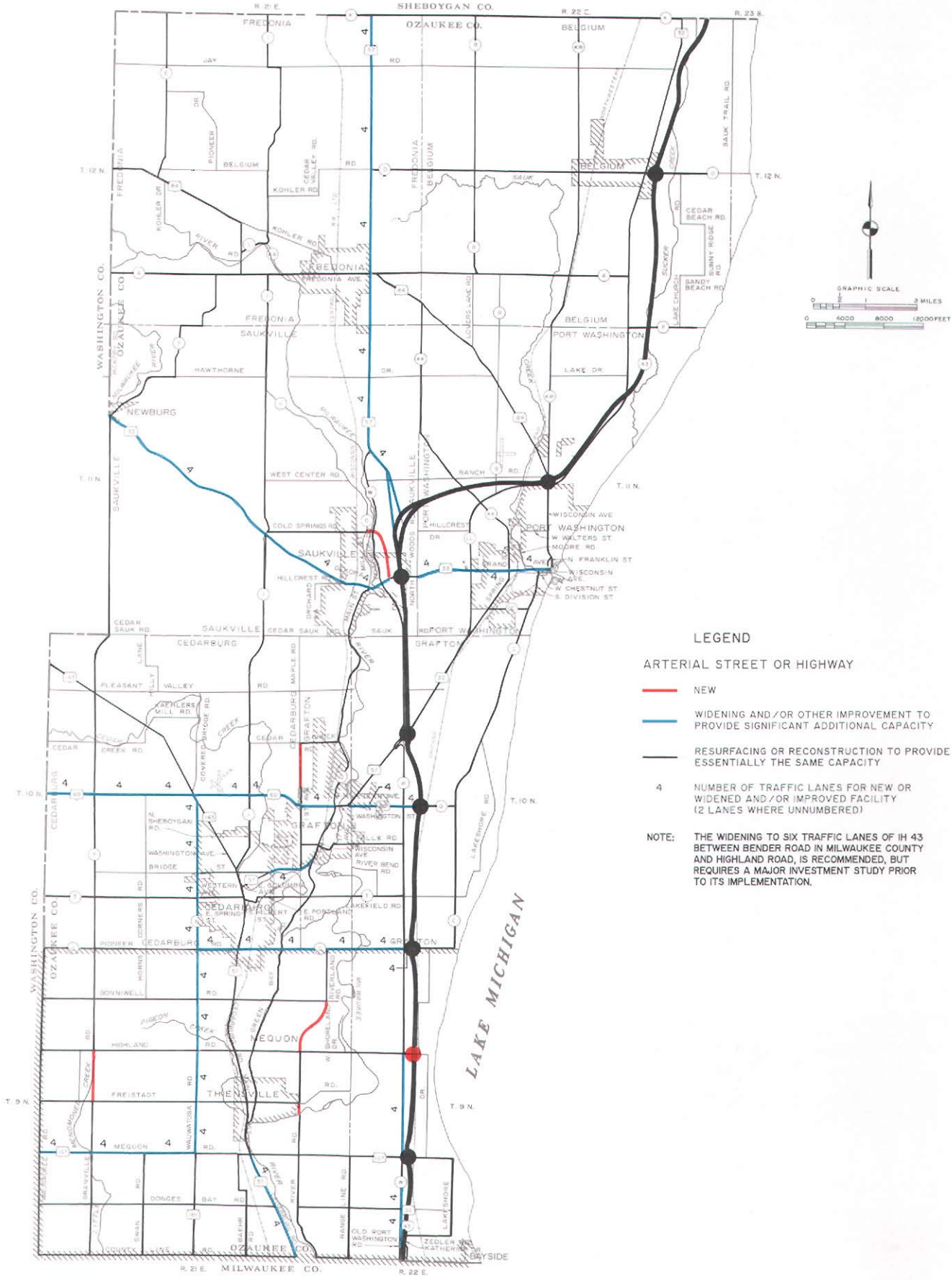
FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN MILWAUKEE COUNTY UNDER THE FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN: 2000

Recommended Jurisdiction	Improvement Type	Facility	Termini	Improvement Description
State	Widening	USH 45-STH 36	Waukesha County line to STH 100	Widen from two to four traffic lanes
		STH 32	County Line Road to STH 100	Widen from two to four traffic lanes
		STH 38	County Line Road to Oakwood Road	Widen from two to four traffic lanes
		STH 100	IH 43 to STH 24	Widen from six to eight traffic lanes
		STH 100	CTH H to USH 41	Widen from two to four traffic lanes
		STH 100	STH 36 to CTH H	Widen from two to four traffic lanes
		STH 100	STH 38 to STH 32	Widen from two to four traffic lanes
		CTH BB	CTH U to USH 41	Widen from two to four traffic lanes
		Fond du Lac Avenue	35th Street to 20th Street	Widen from two to four traffic lanes
		Pennsylvania Avenue	College Avenue to Layton Avenue	Widen from two to four traffic lanes
		Pennsylvania Avenue	Rawson Avenue to College Avenue	Widen from two to four traffic lanes
		124th Street	STH 145 to USH 41/45	Widen from two to four traffic lanes
	Expansion	Lake Parkway	Lincoln Avenue to CTH Y	Construct four lanes on new alignment
County	Widening	107th Street	Good Hope Road to STH 145	Widen from two to four traffic lanes
		CTH U	Grange Avenue to Rawson Avenue	Widen from two to four traffic lanes
		CTH U	Rawson Avenue to Puetz Road	Widen from two to four traffic lanes
		CTH Y	Pennsylvania Avenue to STH 32	Widen from two to four traffic lanes
		CTH ZZ	STH 36 to USH 41	Widen from two to four traffic lanes
		CTH ZZ	STH 38 to Pennsylvania Avenue	Widen from two to four traffic lanes
		Cleveland Avenue	Waukesha County line to 113th Street	Widen from two to four traffic lanes
		Good Hope Road	Waukesha County line to USH 41/45	Widen from two to four traffic lanes
		Layton Avenue	108th Street to 84th Street	Widen from two to four traffic lanes
		Oklahoma Avenue	Clement Avenue to Kinnickinnic Avenue	Widen from two to four traffic lanes
		124th Street	STH 190 to Hampton Avenue	Widen from two to four traffic lanes
		124th Street	Hampton Avenue to CTH VV	Widen from two to four traffic lanes
		124th Street	North Avenue to Watertown Plank Road	Widen from two to four traffic lanes
	Expansion	Puetz Road extension	CTH U to Hunting Park Drive	Construct two lanes on new alignment
		124th Street extension	STH 100 to STH 145	Construct four lanes on new alignment
		124th Street extension	Watertown Plank Road to STH 59	Construct two lanes on new alignment
Local	Widening	CTH G	Mill Road to Bradley Road	Widen from two to four traffic lanes
		Drexel Avenue	STH 38 to Pennsylvania Avenue	Widen from two to four traffic lanes
		Howard Avenue	Thompson Avenue to STH 32	Reconstruction of two traffic lanes
		Howard Avenue	Clement Avenue to Lake Parkway	Widen from two to four traffic lanes
		Morgan Avenue	Forest Home Avenue to 43rd Street	Widen from two to four traffic lanes
		Pennsylvania Avenue	STH 100 to Drexel Avenue	Widen from two to four traffic lanes
		Pennsylvania Avenue	Drexel Avenue to Rawson Avenue	Widen from two to four traffic lanes
		Whitnall Avenue	CTH Y to Packard Avenue	Widen from two to four traffic lanes
		Whitnall Avenue	Clement Avenue to Pennsylvania Avenue	Widen from two to four traffic lanes
		84th Street	Whitaker Avenue to Howard Avenue	Widen from two to four traffic lanes
		91st Street	Ozaukee County line to STH 100	Widen from two to four traffic lanes
	Expansion	Canal Street extension	6th Street to 2nd Street	Construct two lanes on new alignment
		Canal Street extension	USH 41 to 21st Street	Construct two lanes on new alignment
		Howard Avenue extension	Thompson Avenue to Kansas Avenue	Construct four lanes on new alignment
		15th Avenue extension	STH 100 to Elm Road	Construct two lanes on new alignment
		Metro Boulevard	115th Street to 107th Street	Construct two lanes on new alignment

Source: SEWRPC.

Map 15

FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN OZAUKEE COUNTY: 2010 FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN



Source: SEWRPC.

Table 17

FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN OZAUKEE COUNTY UNDER THE FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN: 2000

Recommended Jurisdiction	Improvement Type	Facility	Termini	Improvement Description
State	Widening	STH 32	Spring Street to Franklin Street	Widen from two to four traffic lanes
		STH 33	Washington county line to Progress Drive	Widen from two to four traffic lanes
		STH 33	Progress Drive to Foster Street	Widen from two to four traffic lanes
		STH 33	IH 43 to Spring Street	Widen from two to four traffic lanes
		STH 57	IH 43 to Sheboygan county line	Widen from two to four traffic lanes
		STH 57	Milwaukee county line to STH 167	Widen from two to four traffic lanes
		STH 60	STH 143 to STH 57	Widen from two to four traffic lanes
		STH 60	STH 57 to IH 43	Widen from two to four traffic lanes
		STH 60	Washington county line to STH 143	Widen from two to four traffic lanes
		STH 143	CTH N to STH 60	Widen from two to four traffic lanes
		STH 167	Washington county line to Wauwatosa Road	Widen from two to four traffic lanes
		CTH N/Wauwatosa Road	STH 143 to STH 167	Widen from two to four traffic lanes
	Expansion	IH 43	Highland Road	Construct new interchange
County	Widening	CTH C/Pioneer Road	CTH N to McKinley Boulevard	Widen from two to four traffic lanes
		CTH C/Pioneer Road	McKinley Boulevard to IH 43	Widen from two to four traffic lanes
		CTH W	Port Washington Lane to a point about 0.5 mile north of Donges Bay Road	Widen from two to four traffic lanes
		CTH W	STH 167 to Highland Road	Widen from two to four traffic lanes
	Expansion	Granville Road	Highland Road to Freistadt Road	Construct two lanes on new alignment
Local	Widening	STH 57	Bridge Street to Chateau Drive	Widen from two to four traffic lanes
	Expansion	Cold Springs Road extension	CTH O to STH 33	Construct two lanes on new alignment
		Maple Road extension	Cedar Creek Road to Rose Street at the Village of Grafton north city limits	Construct two lanes on new alignment
		River Road extension	Bonniwell Road to Highland Road	Construct two lanes on new alignment
		River Road extension	Freistadt Road to Grace Avenue	Construct two lanes on new alignment

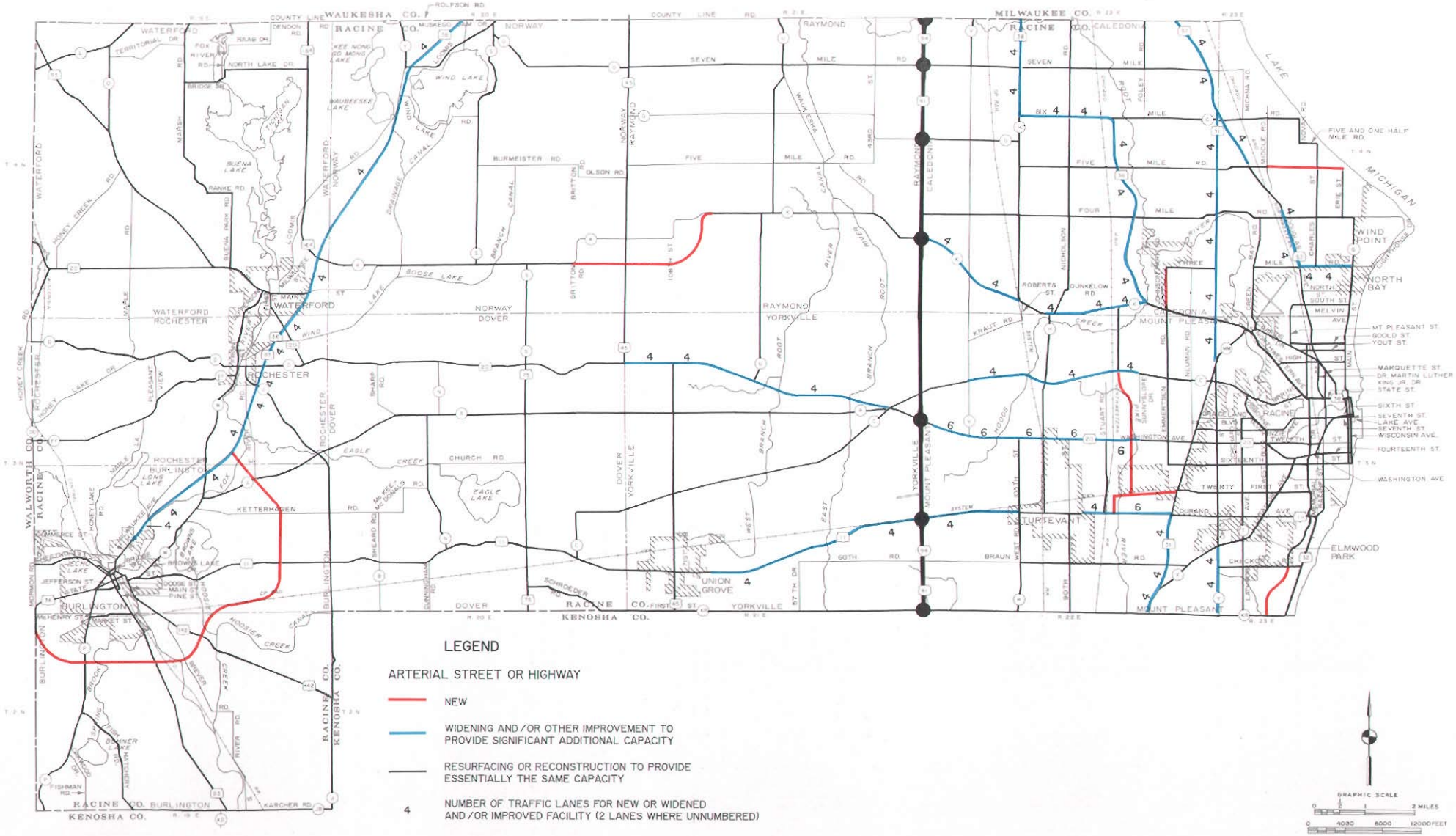
Source: SEWRPC.

improvement and expansion projects was developed after extensive technical evaluation and public review and comment and an implementation schedule was established for that recommended plan.

The first of the five components of the congestion management system consists of the measures to be used in the identification of congestion and in the evaluation of the performance of the system. The performance measures were formulated to permit the sound identification of areas of existing and probable future congestion and the assessment of the performance of the transportation system, including of the level of service provided by that system. Those measures are intended to be used not only to define existing and potential future traffic congestion and level of service, but also to evaluate alternative actions intended to abate traffic congestion and improve the level of service provided by the transportation system. Specifically, these measures include travel time accessibility measures and volume-to-design-capacity traffic congestion measures.

Map 16

FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN RACINE COUNTY: 2010 FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN



Source: SEWRPC.

Table 18

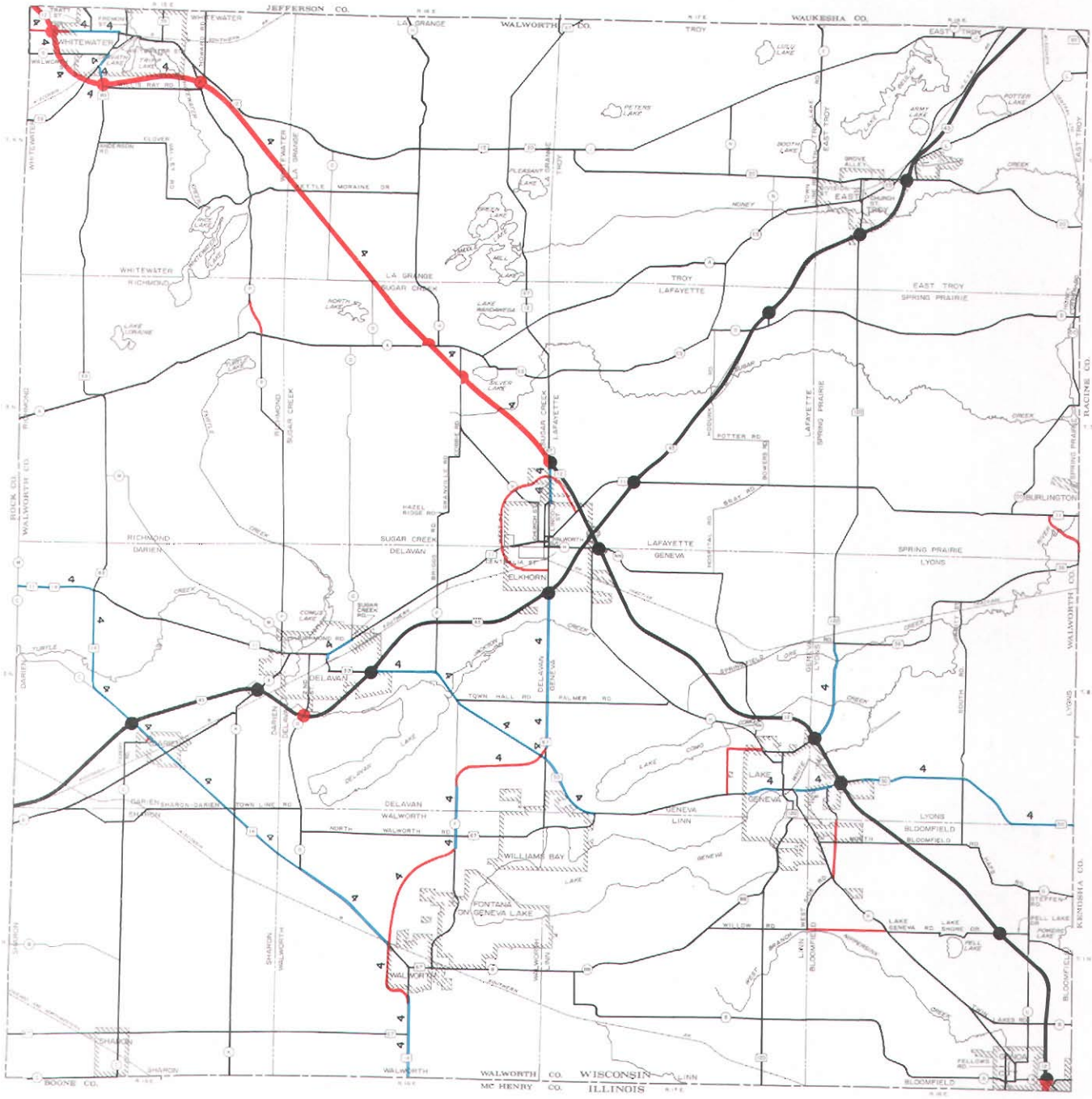
FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN RACINE COUNTY UNDER THE FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN: 2000

Recommended Jurisdiction	Improvement Type	Facility	Termini	Improvement Description
State	Widening	STH 20	IH 94-USH 41 to Sunnyslope Drive	Widen from four to six traffic lanes
		STH 20	USH 45 to a point 0.73 mile west of CTH C	Widen from two to four traffic lanes
		STH 31	CTH KR to STH 11	Widen from two to four traffic lanes
		STH 31	CTH MM to STH 32	Widen from two to four traffic lanes
		STH 32	Milwaukee County to Five Mile Road	Widen from two to four traffic lanes
		STH 32	A point about 0.3 mile north of CTH G to Three Mile Road	Widen from two to four traffic lanes
		STH 36/83	Wegge Road to STH 20	Widen from two to four traffic lanes
		STH 36	STH 20 to Waukesha County	Widen from two to four traffic lanes
		STH 38	Milwaukee County to CTH K	Widen from two to four traffic lanes
		CTH K	IH 94 to CTH H	Widen from two to four traffic lanes
		CTH K	Kraut Road to STH 38	Widen from two to four traffic lanes
		STH 11	71st Street in the Village of Union Grove to IH 94	Widen from two to four traffic lanes
		STH 11	IH 94 to CTH H	Widen from two to four traffic lanes
		STH 11	86th Street in the Village of Sturtevant to Willow Road	Widen from two to four traffic lanes
		STH 11	Willow Road to STH 31	Widen from four to six traffic lanes
	Expansion	Burlington bypass	STH 36 (Milwaukee Avenue) to STH 11	Construct two lanes on new alignment
		Burlington bypass	STH 11 to STH 36 (State Street)	Construct two lanes on new alignment
		CTH K extension	Britton Road to 108th Street	Construct two lanes on new alignment
County	Widening	CTH C	CTH V to Airline Road	Widen from two to four traffic lanes
		CTH C	Airline Road to Sunnyslope Road	Widen from two to four traffic lanes
		CTH Y	CTH KR to CTH X	Widen from two to four traffic lanes
		Three Mile Road	STH 32 to CTH G	Widen from two to four traffic lanes
Local	Expansion	21st Street extension	STH 31 to Oakes Road	Construct two lanes on new alignment
		Emmertsen Road extension	Three Mile Road to STH 38	Construct two lanes on new alignment
		Five Mile Road extension	STH 32 to Erie Street	Construct two lanes on new alignment
		Memorial Drive extension	Chicory Road to CTH KR	Construct two lanes on new alignment
		Oakes Road extension	STH 11 to 16th Street	Construct two lanes on new alignment
		Oakes Road extension	STH 20 to Airline Road	Construct two lanes on new alignment

Source: SEWRPC.

Map 17

FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN WALWORTH COUNTY: 2010 FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN



LEGEND

ARTERIAL STREET OR HIGHWAY

- NEW
- WIDENING AND/OR OTHER IMPROVEMENT TO PROVIDE SIGNIFICANT ADDITIONAL CAPACITY
- RESURFACING OR RECONSTRUCTION TO PROVIDE ESSENTIALLY THE SAME CAPACITY
- 4 NUMBER OF TRAFFIC LANES FOR NEW OR WIDENED AND/OR IMPROVED FACILITY (2 LANES WHERE UNNUMBERED)

Source: SEWRPC.

Table 19

FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN WALWORTH COUNTY UNDER THE FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN: 2010

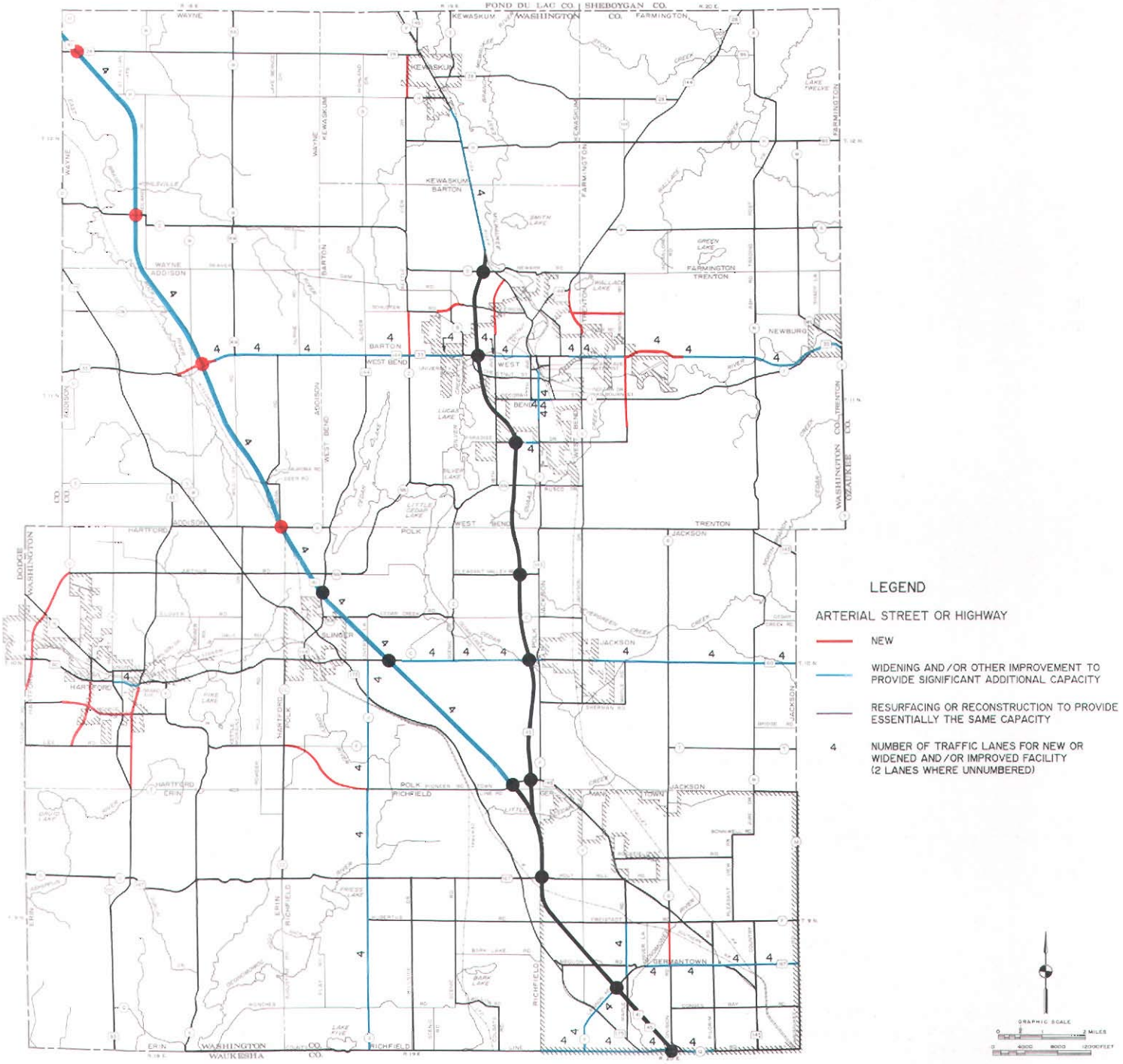
Recommended Jurisdiction	Improvement Type	Facility	Termini	Improvement Description
State	Widening	USH 12 (Main Street)	Frontage Road to Fremont Street	Widen from two to four traffic lanes
		USH 14	CTH O to proposed STH 67 bypass	Widen from two to four traffic lanes
		USH 14	Proposed STH 67 bypass to McHenry county line	Widen from two to four traffic lanes
		USH 14	Rock county line to CTH O	Widen from two to four traffic lanes
		STH 50	STH 11 to Wisconsin Street	Widen from two to four traffic lanes
		STH 50	IH 43 to STH 67	Widen from two to four traffic lanes
		STH 50	STH 67 to Geneva Street	Widen from two to four traffic lanes
		STH 50	Pearson Drive to Madison Street	Widen from two to four traffic lanes
		STH 50	CTH H to Edwards Boulevard	Widen from two to four traffic lanes
		STH 50	USH 12 to the Kenosha county line	Widen from two to four traffic lanes
		STH 67	IH 43 to the proposed STH 67 bypass at STH 50	Widen from two to four traffic lanes
		STH 67	USH 12 to Lincoln Avenue	Widen from two to four traffic lanes
		STH 89	Willis Ray Road to Whitewater Street	Widen from two to four traffic lanes
		STH 120	STH 36 to USH 12	Widen from two to four traffic lanes
	Expansion	IH 43	CTH O	Construct new interchange
		USH 12 freeway	Whitewater to Elkhorn[a]	Construct four lanes on new alignment
		USH 12 freeway	CTH H to McHenry county line	Construct four lanes on new alignment
		STH 67 bypass (Walworth, Fontana, and Williams Bay)	Existing STH 67 at Village of Walworth south corporate limits to existing STH 67 at STH 50	Construct four lanes on generally new alignment
		STH 120 bypass	Townline Road to existing STH 120 at Willow Road	Construct two lanes on existing and new alignment
		Burlington bypass	STH 11 to Mormon Road	Construct two lanes on generally new alignment
County	Widening	STH 11	CTH O to 7th Street	Widen from two to four traffic lanes
	Expansion	Willow Road extension	West Side Road to CTH H	Construct two lanes on new alignment
		CTH P realignment	Territorial Road to CTH A	Construct two lanes on new alignment
		New facility	CTH H east to STH 67	Construct two lanes on new alignment
Local	Expansion	Grant Street extension	CTH H to STH 50 in Lake Geneva	Construct two lanes on new alignment
		Main Street extension	Frontage Road to Rock county line	Construct two lanes on new alignment
		New facility	STH 67 south to STH 11 west	Construct two lanes on new alignment
		New facility	STH 11 north to CTH H	Construct two lanes on new alignment
		New facility	STH 67 north to STH 11 east	Construct two lanes on new alignment

[a]The initial segment of the USH 12 freeway between the City of Whitewater and the City of Elkhorn is anticipated to be the segment bypassing the City of Whitewater from existing USH 12 at approximately Howard Road southeast of the City to existing USH 12 at approximately Cold Spring Road northwest of the City. Initially, only two travel lanes are anticipated to be constructed and are anticipated to be open to traffic by the year 2001.

Source: SEWRPC.

Map 18

FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN WASHINGTON COUNTY: 2010 FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN



Source: SEWRPC.

Table 20

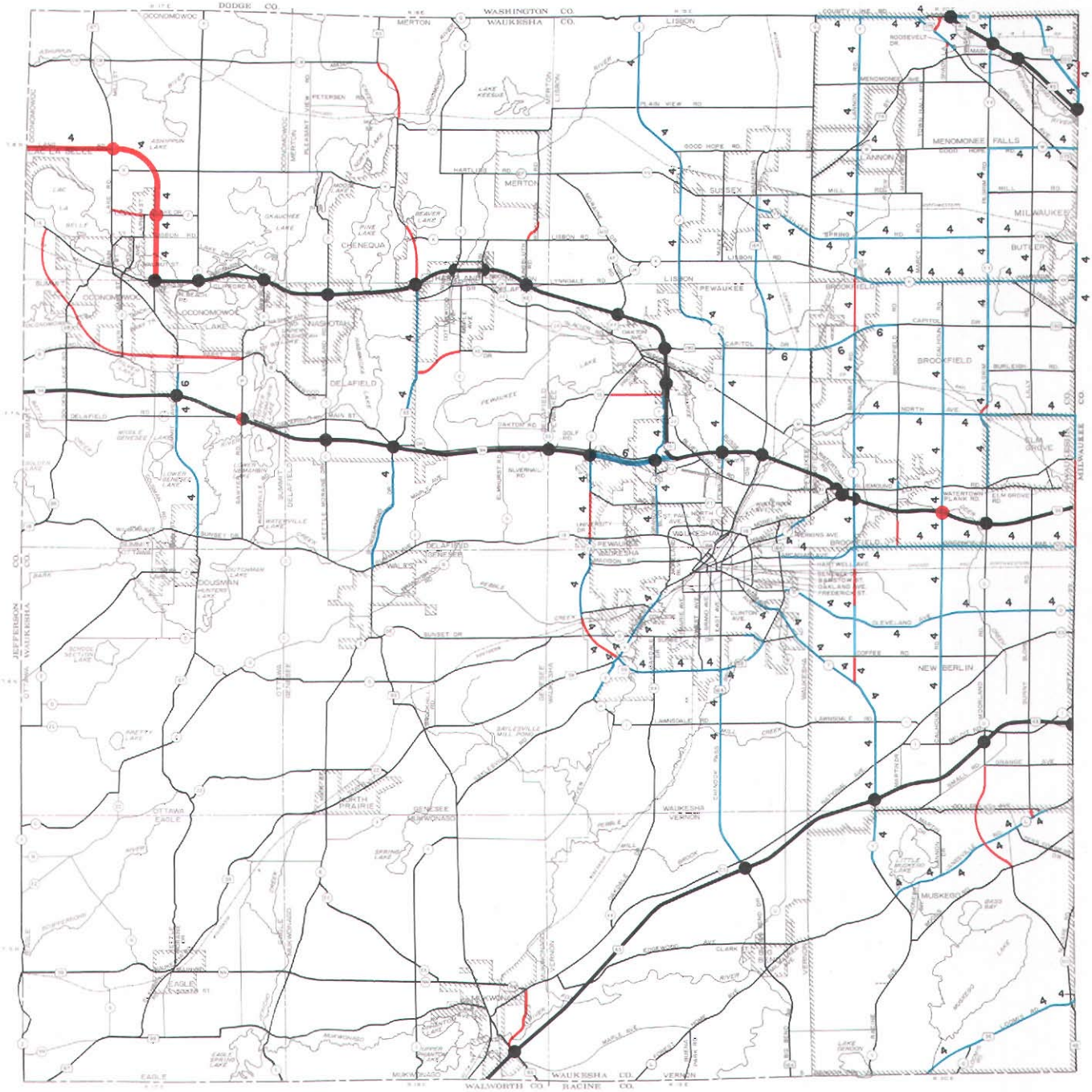
FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN WASHINGTON COUNTY UNDER THE FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN: 2010

Recommended Jurisdiction	Improvement Type	Facility	Termini	Improvement Description
State	Widening	USH 41	STH 145 to Dodge County	Convert expressway to freeway
		USH 45	CTH D to Prospect Drive	Widen from two to four traffic lanes
		STH 33	USH 41 to CTH Z	Widen from two to four traffic lanes
		STH 33	CTH Z to Valley Avenue	Widen from two to four traffic lanes
		STH 33	18th Avenue to STH 144	Widen from two to four traffic lanes
		STH 33	Schmidt Road to Trenton Road	Widen from two to four traffic lanes
		STH 33	Oakes Road to Ozaukee county line	Widen from two to four traffic lanes
		STH 60	STH 83 to Wilson Avenue	Widen from two to four traffic lanes
		STH 60	USH 41 to CTH P	Widen from two to four traffic lanes
		STH 60	Wilshire Drive to Ozaukee county line	Widen from two to four traffic lanes
		STH 167	River Lane to Pilgrim Road	Widen from two to four traffic lanes
		STH 167	Pilgrim Road to Ozaukee county line	Widen from two to four traffic lanes
		CTH J	CTH Q to STH 60	Widen from two to four traffic lanes
	Expansion	USH 41	CTH K	Construct new interchange
		USH 41	STH 33	Construct new interchange
		USH 41	CTH D	Construct new interchange
		USH 41	STH 28	Construct new interchange
		STH 33	Trenton Road to Oakes Road	Construct four lanes on new alignment
		STH 33	Newplat Street to USH 41	Construct two lanes on new alignment
		STH 83	CTH E to Monroe Avenue	Construct two lanes on new alignment
		STH 83	Monroe Avenue to STH 60	Construct two lanes on new alignment
County	Widening	CTH Q	Division Road to Pilgrim Road	Widen from two to four traffic lanes
		CTH Q	CTH V to STH 175	Widen from two to four traffic lanes
		CTH Q	STH 175 to USH 41/45	Widen from two to four traffic lanes
		CTH Y	CTH Q to USH 41/45	Widen from two to four traffic lanes
		Decorah Road	7th Avenue to Indiana Avenue	Widen from two to four traffic lanes
		Main Street	Vine Street to Walnut Street	Widen from two to four traffic lanes
		Paradise Drive	A point 1,250 feet east of USH 45 to Main Street	Widen from two to four traffic lanes
	Expansion	Arthur Road extension	CTH N to Arthur Road	Construct two lanes on new alignment
		Division Road extension	STH 167 to Freistadt Road	Construct two lanes on new alignment
		Kettleview Road extension	CTH H to STH 28	Construct two lanes on new alignment
		Kettleview Road extension	STH 33 to Schuster Drive	Construct two lanes on new alignment
		Pioneer Road extension	CTH J to CTH CC	Construct two lanes on new alignment
Local	Widening	Maple Road	STH 167 to Freistadt Road	Widen from two to four traffic lanes
	Expansion	Independence Avenue extension	STH 60 to CTH N	Construct two lanes on new alignment
		Jefferson Street extension	Trenton Road to N. River Road	Construct two lanes on new alignment
		Monroe Avenue extension	Monroe Avenue to Pond Road	Construct two lanes on new alignment
		River Crest Drive extension	CTH Q to Waukesha county line	Construct two lanes on new alignment
		N. River Road extension	N. River Road to STH 144	Construct two lanes on new alignment
		Schuster Drive extension	Schuster Drive to Beaver Dam Road	Construct two lanes on new alignment
		Taylor Road extension	Pond Road to STH 60	Construct two lanes on new alignment
		Trenton Road extension	STH 33 to Maple Road	Construct two lanes on new alignment
		Wacker Drive extension	STH 60 to Lee Road	Construct two lanes on new alignment
		18th Avenue extension	Park Avenue to Jefferson Street	Construct two lanes on new alignment
		18th Avenue extension	Jefferson Street to CTH D	Construct two lanes on new alignment

Source: SEWRPC.

Map 19

FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN WAUKESHA COUNTY: 2010 FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN



LEGEND

ARTERIAL STREET OR HIGHWAY

- NEW
- WIDENING AND/OR OTHER IMPROVEMENT TO PROVIDE SIGNIFICANT ADDITIONAL CAPACITY
- RESURFACING OR RECONSTRUCTION TO PROVIDE ESSENTIALLY THE SAME CAPACITY
- 4 NUMBER OF TRAFFIC LANES FOR NEW OR WIDENED AND/OR IMPROVED FACILITY (2 LANES WHERE UNNUMBERED)

GRAPHIC SCALE

Source: SEWRPC.

Table 21

FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET AND HIGHWAY SYSTEM IN WAUKESHA COUNTY UNDER THE FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN: 2010

Recommended Jurisdiction	Improvement Type	Facility	Termini	Improvement Description
State	Widening	IH 94	CTH G to STH 16	Widen from four to six traffic lanes
		STH 36	Racine county line to Milwaukee county line	Widen from two to four traffic lanes
		STH 59	CTH X to Sunset Drive	Widen from two to four traffic lanes
		STH 59	STH 164 to Moorland Road	Widen from two to four traffic lanes
		STH 59	Moorland Road to Milwaukee county line	Widen from two to four traffic lanes
		STH 67	CTH B to IH 94	Widen from four to six traffic lanes
		STH 67	IH 94 to USH 18	Widen from two to four traffic lanes
		STH 83	CTH KE extension to USH 16	Widen from two to four traffic lanes
		STH 83	Mariner Drive to CTH KE extension	Widen from two to four traffic lanes
		STH 83	IH 94 to USH 18	Widen from two to four traffic lanes
		STH 145	Milwaukee county line to Washington county line	Widen from two to four traffic lanes
		STH 164	STH 74 to STH 190	Widen from two to four traffic lanes
		STH 164	STH 59 to CTH ES	Widen from two to four traffic lanes
		STH 190	STH 164 to CTH Y	Widen from four to six traffic lanes
		STH 190	CTH Y to Brookfield Road	Widen from four to six traffic lanes
		CTH J	Rockwood Drive to CTH M	Widen from two to four traffic lanes
		CTH J	CTH M to Washington county line	Widen from two to four traffic lanes
		CTH TT	MacArthur Road to USH 18	Widen from two to four traffic lanes
		Meadowbrook Road	Northview Road to IH 94	Widen from two to four traffic lanes
		124th Street	STH 145 to USH 41/45	Widen from two to four traffic lanes
	Expansion	IH 94	Calhoun Road	Construct new interchange
		IH 94	CTH P	Construct new interchange
		STH 16/67 bypass	Wisconsin Avenue to Jefferson county line	Construct four lanes on new alignment
		STH 83	STH 16 to Thompson Lane	Construct two lanes on new alignment
		STH 83	Kilbourne Road to CTH CW	Construct two lanes on new alignment
		Mukwonago bypass	IH 43 to CTH ES	Construct two lanes on new alignment
		Waukesha west bypass	CTH X to Macarthur Road	Construct four lanes on new alignment
		Waukesha west bypass	Northview Road to USH 18	Construct four lanes on new alignment
County	Widening	STH 164	Moreland Boulevard to IH 94	Widen from four to six traffic lanes
		STH 175	Roosevelt Drive to CTH Q	Widen from two to four traffic lanes
		CTH D	STH 59/164 to Moorland Road	Widen from two to four traffic lanes
		CTH D	Moorland Road to Milwaukee county line	Widen from two to four traffic lanes
		CTH K	CTH Y to Calhoun Road	Widen from two to four traffic lanes
		CTH L	CTH Y to CTH HH	Widen from two to four traffic lanes
		CTH Q	CTH V to STH 175	Widen from two to four traffic lanes
		CTH Q	Division Road to Pilgrim Road	Widen from two to four traffic lanes
		CTH T	Northview Road to Silvernail Road	Widen from two to four traffic lanes
		CTH T	Golf Road to proposed CTH SS extension	Widen from two to four traffic lanes
		CTH W	Pilgrim Road to STH 175	Widen from two to four traffic lanes
		CTH W	STH 175 to Milwaukee county line	Widen from two to four traffic lanes
		CTH X	CTH H to STH 59	Widen from two to four traffic lanes
		CTH X	STH 59 to Moreland Boulevard	Widen from two to four traffic lanes
		CTH Y	Hillendale Drive to CTH HH	Widen from two to four traffic lanes
		CTH Y	IH 43 to Coffee Road	Widen from two to four traffic lanes
		CTH Y	STH 59/164 to Coffee Road	Widen from two to four traffic lanes
		CTH Y	STH 59 to USH 18	Widen from two to four traffic lanes
		CTH Y	North Avenue to STH 190	Widen from two to four traffic lanes
		CTH Y	USH 18 to North Avenue	Widen from two to four traffic lanes
		CTH Y	CTH K to STH 74	Widen from two to four traffic lanes
		CTH Y	STH 74 to CTH Q	Widen from two to four traffic lanes
		CTH VV	STH 164 to CTH Y	Widen from two to four traffic lanes

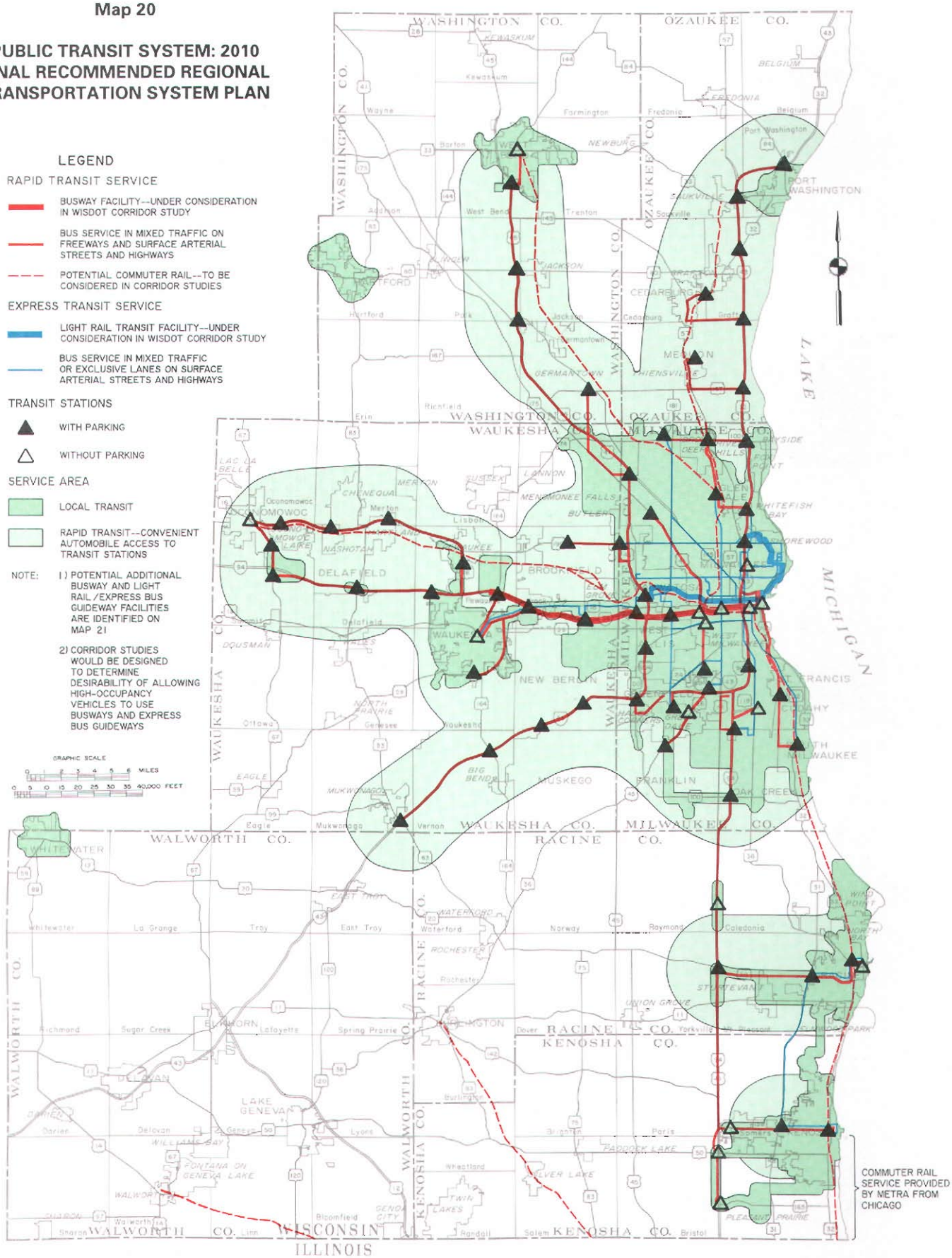
Table 21 (continued)

Recommended Jurisdiction	Improvement Type	Facility	Termini	Improvement Description
County	Widening (continued)	CTH VV	CTH Y to Betty Drive	Widen from two to four traffic lanes
		CTH YY	Lisbon Road to CTH VV	Widen from two to four traffic lanes
		CTH YY	CTH VV to CTH W	Widen from two to four traffic lanes
		Calhoun Road	CTH ES to CTH D	Widen from two to four traffic lanes
		Calhoun Road	CTH D to STH 59	Widen from two to four traffic lanes
		Calhoun Road	STH 59 to Gebhardt Road	Widen from two to four traffic lanes
		Calhoun Road	Gebhardt Road to North Avenue	Widen from two to four traffic lanes
		Calhoun Road	North Avenue to STH 190	Widen from two to four traffic lanes
		Grandview Boulevard	USH 18 to Northview Road	Widen from two to four traffic lanes
		Hampton Road	Lisbon Road to 132nd Street	Widen from two to four traffic lanes
		Johnson Road	Coffee Road to Lincoln Avenue	Widen from two to four traffic lanes
		Johnson Road	A point about 2,000 feet south of STH 59 to STH 59	Widen from two to four traffic lanes
		Lisbon Road	Calhoun Road to Hampton Road	Widen from two to four traffic lanes
		North Avenue	Barker Road to 147th Street	Widen from two to four traffic lanes
		North Avenue	Lilly Road to 124th Street	Widen from two to four traffic lanes
		Pilgrim Road	STH 175 to USH 41/45	Widen from two to four traffic lanes
		Pilgrim Road	USH 41/45 to Washington county line	Widen from two to four traffic lanes
		Pilgrim Road	USH 18 to North Avenue	Widen from two to four traffic lanes
		Pilgrim Road	A point about 700 feet north of North Avenue to Lisbon Road	Widen from two to four traffic lanes
		124th Street	STH 190 to Hampton Avenue	Widen from two to four traffic lanes
		124th Street	Hampton Avenue to CTH VV	Widen from two to four traffic lanes
		124th Street	North Avenue to Watertown Plank Road	Widen from two to four traffic lanes
	Expansion	CTH Y extension	STH 190 to CTH K	Construct four lanes on new alignment
		CTH KE extension	CTH E to STH 83	Construct two lanes on new alignment
		CTH KE realignment	CTH K to a point about 800 feet north	Construct two lanes on new alignment
		CTH SS extension	CTH G to CTH T	Construct two lanes on new alignment
		Johnson Road extension	A point about 2,000 feet north of STH 59 to Lincoln Avenue	Construct four lanes on new alignment
		Johnson Road extension	Coffee Road to CTH Y	Construct four lanes on new alignment
		Lake Drive extension	Lapham Street to STH 67	Construct four lanes on new alignment
		Moorland Road extension	Woods Road to CTH L	Construct two lanes on new alignment
		Moorland Road extension	CTH L to IH 43	Construct two lanes on new alignment
		Pilgrim Road realignment	North Avenue to a point about 700 feet north	Construct two lanes on new alignment
		124th Street extension	STH 100 to STH 145	Construct four lanes on new alignment
		124th Street extension	Watertown Plank Road to STH 59	Construct two lanes on new alignment
Local	Widening	Brookfield Road	USH 18 to a point approximately 1,000 feet north	Widen from two to four traffic lanes
		Main Street	STH 164 to USH 18	Widen from two to four traffic lanes
		Racine Avenue	Downing Drive to STH 59/164	Widen from two to four traffic lanes
		Sunset Drive	Tenny Avenue to STH 59/164	Widen from two to four traffic lanes
	Expansion	Brookfield Road extension	Davidson Road to STH 59	Construct two lanes on new alignment
		Oconomowoc Parkway	STH 16 to CTH Z	Construct two lanes on new alignment
		Oconomowoc Parkway	CTH Z to STH 67	Construct two lanes on new alignment
		River Crest Drive extension	Shady Lane to Washington county Line	Construct two lanes on new alignment
		Shady Lane extension	St. Thomas Drive to STH 175	Construct two lanes on new alignment
		Sunnyslope Road extension	CTH HH to CTH L	Construct two lanes on new alignment
		Valley Road	STH 67 to CTH P	Construct two lanes on new alignment

Source: SEWRPC.

Map 20

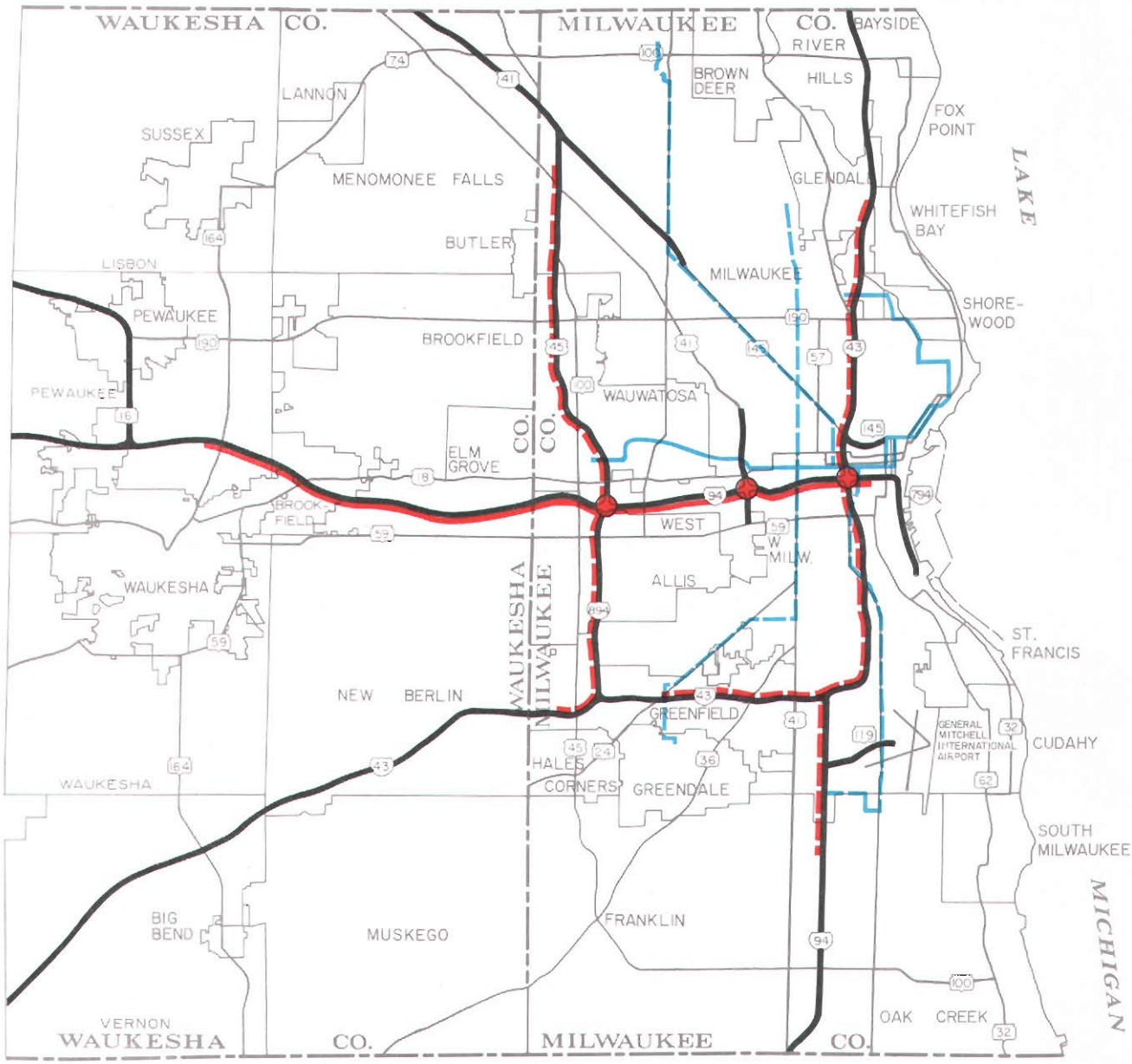
PUBLIC TRANSIT SYSTEM: 2010 FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN



Source: SEWRPC.

Map 21

EXTENT OF POTENTIAL BUSWAY AND LIGHT-RAIL/EXPRESS BUS GUIDEWAY FACILITIES IN THE MILWAUKEE AREA: 2010 FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN



LEGEND

- BUSWAY FACILITY--UNDER CONSIDERATION IN WISDOT CORRIDOR STUDY
- BUSWAY FACILITY--TO BE CONSIDERED IN ADDITIONAL CORRIDOR STUDIES
- LIGHT RAIL TRANSIT FACILITY--UNDER CONSIDERATION IN WISDOT CORRIDOR STUDY
- LIGHT RAIL/BUS GUIDEWAY FACILITY--TO BE CONSIDERED IN ADDITIONAL CORRIDOR STUDIES
- MAJOR INTERCHANGE RECONSTRUCTION DESIGNED TO ACCOMMODATE BUSWAY FACILITY
- RESURFACING/RECONSTRUCTION OF FREEWAY TO PROVIDE SAME CAPACITY; INCLUDES STRUCTURE RECONSTRUCTION TO ACCOMODATE BUSWAY ONLY IN THE EAST-WEST CORRIDOR

NOTE:
1) PRELIMINARY RECOMMENDED PLAN INCLUDES ONLY THE BUSWAY AND LIGHT RAIL FACILITIES AND THEIR ATTENDANT COSTS AS DEVELOPED IN THE WISDOT EAST-WEST CORRIDOR STUDY

2) BUSWAY AND LIGHT RAIL/BUS GUIDEWAY FACILITY ALIGNMENTS SHOWN ON MAP ARE CONCEPTUAL; CORRIDOR STUDIES WOULD BE DESIGNED TO SELECT A PREFERRED ALIGNMENT

3) CORRIDOR STUDIES WOULD BE DESIGNED TO DETERMINE DESIRABILITY OF ALLOWING HIGH-OCCUPANCY VEHICLES TO USE BUSWAYS AND EXPRESS BUS GUIDEWAYS

GRAPHIC SCALE
0 1 2 3 MILES
0 5000 10,000 15,000 20,000 FEET

Source: SEWRPC.

Table 22

TRANSIT SYSTEM OPERATING CHARACTERISTICS IN THE REGION: 1991 AND 2010 PRELIMINARY RECOMMENDED PLAN

Transit Service	Base Year 1991	Planned Increment		2010
		Number	Percent	
Round-Trip Route Length (miles)				
Rapid Routes	449	911	202.9	1,360
Express Routes	393	27	6.9	420
Local Routes				
Kenosha Urbanized Area	171	39	22.8	210
Milwaukee Urbanized Area	1,112	338	197.7	1,450
Racine Urbanized Area	171	29	17.0	200
Subtotal	1,454	406	27.9	1,860
Total	2,296	1,344	58.5	3,640
Average Weekday Vehicle Requirements[a]				
Peak Period	530	249	47.0	779
Midday Off-Peak Period	285	65	22.8	350
Revenue Vehicle-Miles (average weekday)				
Rapid	3,400	13,500	397.1	16,900
Express	3,300	18,100	548.5	21,400
Local	56,600	15,700	27.7	72,300
Total	63,300	47,300	74.7	110,600
Revenue Vehicle-Hours (average weekday)				
Rapid	170	530	311.8	700
Express	170	930	547.1	1,100
Local	4,880	920	18.9	5,800
Total	5,220	2,380	45.6	7,600

[a]*Represents only the vehicles required for daily system operation. Excludes vehicles needed as spare or backup.*

Source: SEWRPC.

The second of the five components of the congestion management system consists of the data collection and monitoring efforts needed to evaluate the performance of the transportation system on a continuing basis. Data collected as part of the regional transportation system plan preparation to determine existing traffic congestion and the level of service provided by the transportation system included, among others, for each link in the total arterial street and highway system, existing travel speeds, traffic volumes, and design capacities. For the transit system, the route structure and operating schedules, including travel times and hours and frequency of service, were analyzed. Data related to the physical and operating characteristics of the arterial street and highway system and the public transit systems is collected annually to monitor traffic congestion and transportation system level of service. Analyses of these data, including an assessment of traffic congestion and of the level of service actually provided by the transportation system, will be done in 1996 as a part of the next Federally mandated three-year regional transportation system plan and congestion management system review and update cycle, with an initial updated base year of 1995. The performance indicators for the 1995 base year will be compared to the system performance in 1991 and under anticipated design year 2010 conditions, to assess not only progress towards implementation, but also the effectiveness of the congestion abatement recommendations contained in the adopted plan.

Table 23

TRAFFIC CONGESTION ON THE ARTERIAL STREET AND HIGHWAY SYSTEM IN THE REGION: 2010 FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN

County	Under Design Capacity[a]		At Design Capacity[b]		Over Design Capacity						Total Mileage
					Moderate[c]		Severe[d]		Extreme[e]		
	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	
Kenosha	309.2	87.1	42.6	12.0	--	--	3.3	0.9	--	--	355.1
Milwaukee	653.2	82.0	54.2	6.8	42.9	5.4	22.2	3.1	24.6	0.8	797.0
Ozaukee	292.7	96.2	8.2	2.7	3.5	1.1	--	--	--	--	304.4
Racine	390.7	92.2	26.9	6.3	5.5	1.3	0.7	0.2	--	--	423.8
Walworth	478.0	98.7	6.1	1.3	--	--	--	--	--	--	484.1
Washington	467.6	99.9	0.7	0.1	--	--	--	--	--	--	468.3
Waukesha	632.4	81.7	79.4	10.3	30.0	3.9	21.3	2.8	11.1	1.5	774.2
Total	3,223.7	89.4	218.1	6.0	81.9	2.3	47.5	1.3	35.7	1.0	3,606.9

[a] *Volume-to-design-capacity ratio: 0.00 to 0.90*

[b] *Volume-to-design-capacity ratio: 0.91 to 1.00*

[c] *Volume-to-design-capacity ratio: 1.01 to 1.10*

[d] *Volume-to-design-capacity ratio: 1.11 to 1.30*

[e] *Volume-to-design-capacity ratio: over 1.30*

Source: SEWRPC.

Table 24

COMPARISON OF URBANIZED AREA POPULATION MEETING THE TRAVEL TIME STANDARDS TO EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL ON TRANSIT AND ARTERIAL STREETS AND HIGHWAYS: 2010 NO-BUILD AND FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLANS

Urbanized Area and Activity Center	Anticipated Area Population	Urbanized Area Population Meeting Travel Time Standards							
		By Arterial Streets				By Transit			
		No-Build Plan		Recommended Plan		No-Build Plan		Recommended Plan	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha Urbanized Area	107,300	--	--	--	--	--	--	--	--
Employment-Related[a]	--	107,300	100.0	107,300	100.0	51,400	47.9	93,100	86.7
Major Retail Service[b]	--	0	0.0	0	0.0	1,400	1.3	6,700	6.2
Medical Facility[c]	--	107,300	100.0	107,300	100.0	53,300	49.7	57,400	53.5
Major Park[d]	--	107,300	100.0	107,300	100.0	20,700	19.3	24,700	23.0
Higher-Education Facility[e]	--	107,300	100.0	107,300	100.0	51,400	47.9	68,100	63.5
Scheduled Air Transport[f]	--	107,300	100.0	107,300	100.0	0	0.0	51,900	48.4
Milwaukee Urbanized Area	1,277,100	--	--	--	--	--	--	--	--
Employment-Related	--	1,180,500	92.4	1,230,800	94.3	600	0.0	277,500	21.7
Major Retail-Service	--	1,277,100	100.0	1,277,100	100.0	35,300	2.8	78,600	6.2
Medical Facility	--	1,277,100	100.0	1,277,100	100.0	648,000	50.7	747,000	58.5
Major Park	--	1,277,100	100.0	1,277,100	100.0	617,300	48.3	759,900	59.5
Higher-Education Facility	--	1,277,100	100.0	1,277,100	100.0	740,900	58.0	959,700	75.1
Scheduled Air Transport	--	1,277,100	100.0	1,277,100	100.0	316,800	24.8	630,100	49.3
Racine Urbanized Area	132,100	--	--	--	--	--	--	--	--
Employment-Related	--	132,100	100.0	132,100	100.0	56,400	42.7	105,900	80.2
Major Retail-Service	--	132,100	100.0	132,100	100.0	18,300	13.9	32,100	24.3
Medical Facility	--	132,100	100.0	132,100	100.0	46,700	35.4	53,000	40.1
Major Park	--	132,100	100.0	132,100	100.0	37,000	28.0	57,000	43.1
Higher-Education Facility	--	132,100	100.0	132,100	100.0	88,400	66.9	102,700	77.7
Scheduled Air Transport	--	132,100	100.0	132,100	100.0	18,600	14.1	60,100	45.5

[a] *Standard: 30 minutes' overall travel time of 40 percent of urbanized area employment opportunities (45 minutes by transit).*

[b] *Standard: 35 minutes' overall travel time of three major retail and service centers in the Milwaukee urbanized area and one major retail and service center in the Kenosha and Racine urbanized areas.*

[c] *Standard: 40 minutes' overall travel time of a major regional medical center and/or 30 minutes' overall travel time of a hospital or medical clinic.*

[d] *Standard: 40 minutes' overall travel time of a major public outdoor recreation center.*

[e] *Standard: 40 minutes' overall travel time of a vocational school, college, or university.*

[f] *Standard: 60 minutes' overall travel time of a scheduled air transport airport.*

Source: SEWRPC.

Map 22

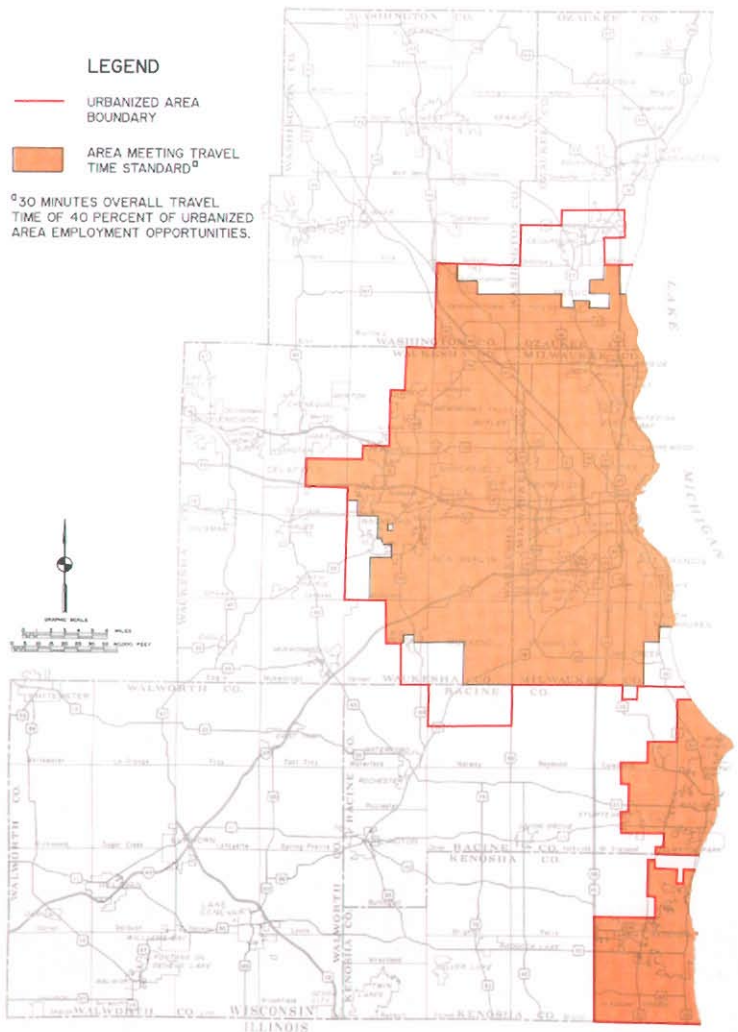
TRAFFIC CONGESTION ON THE ARTERIAL STREET AND HIGHWAY SYSTEM IN THE REGION: 2010 PRELIMINARY RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN

Source: SEWRPC.

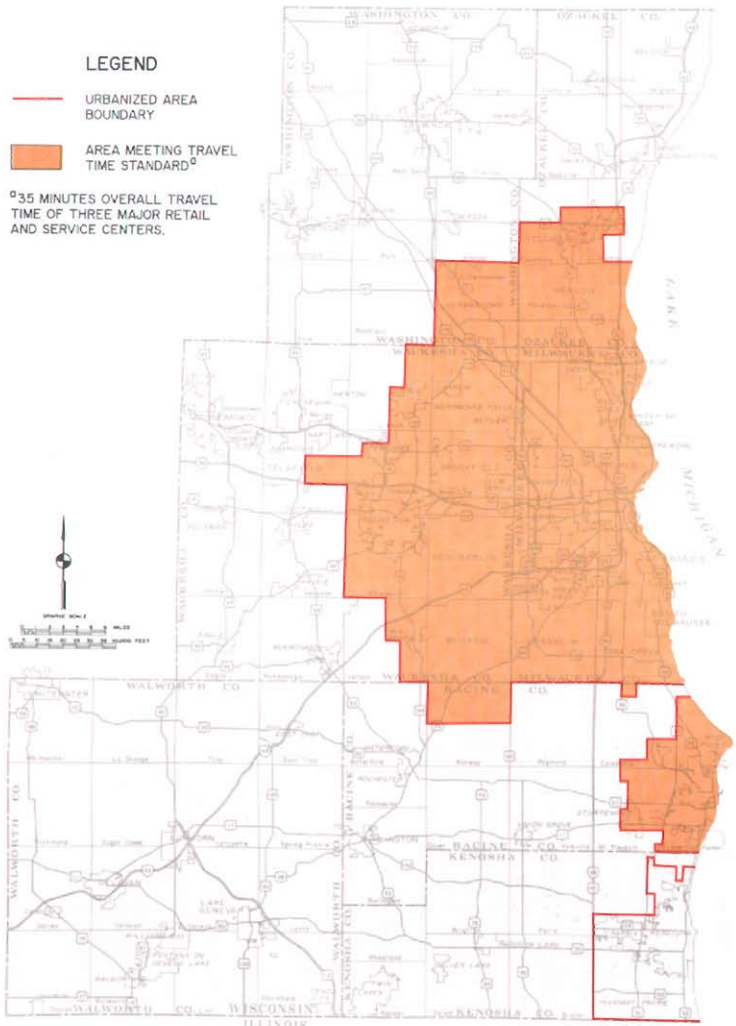
Map 23

AREAS MEETING TRAVEL TIME STANDARDS FOR EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH BY ARTERIAL STREET AND HIGHWAY: 2010 FINAL RECOMMENDED PLAN

EMPLOYMENT: 2010 FINAL RECOMMENDED PLAN

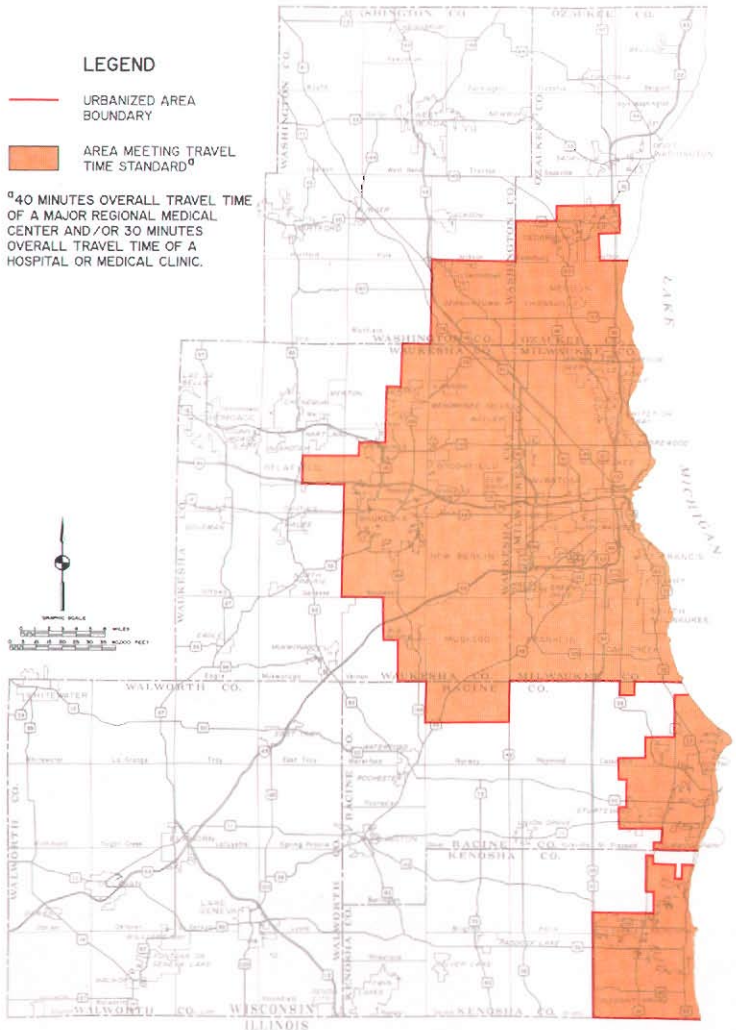


MAJOR RETAIL AND SERVICE CENTERS
2010 FINAL RECOMMENDED PLAN

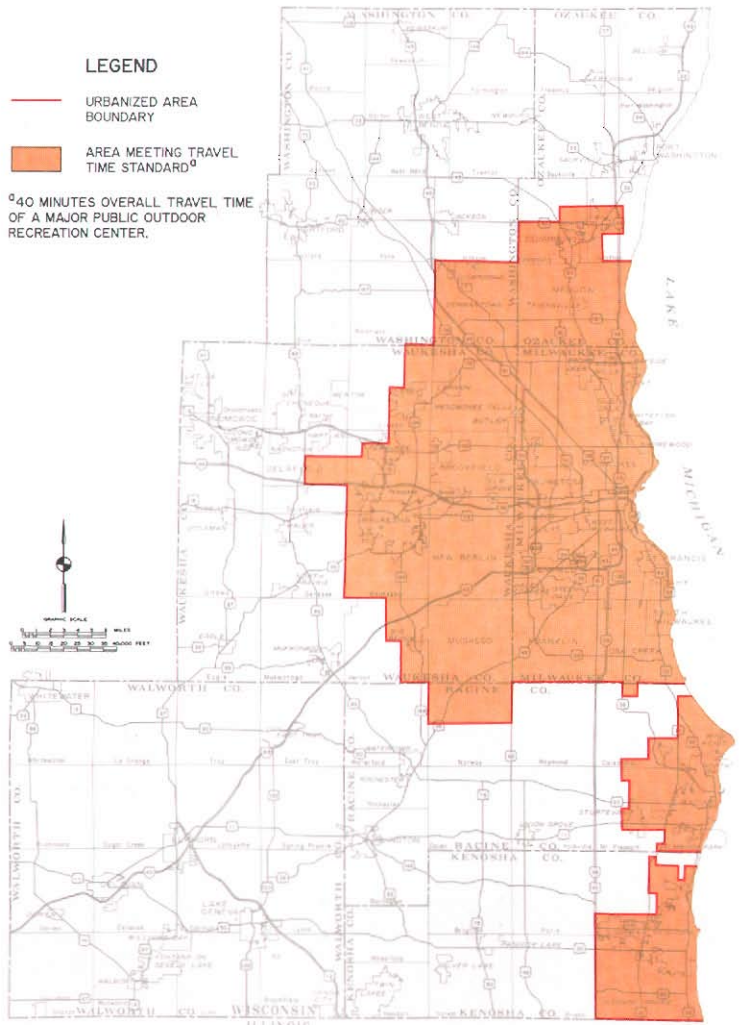


Map 23 (continued)

MAJOR MEDICAL CENTERS
2010 FINAL RECOMMENDED PLAN

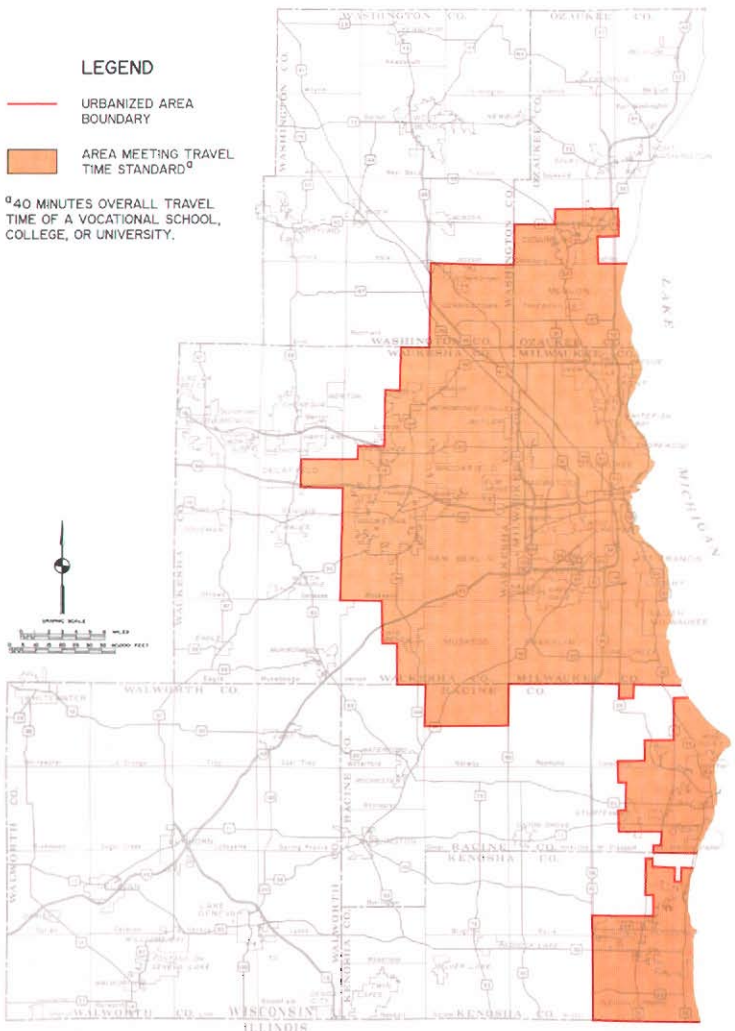


MAJOR RECREATION CENTERS
2010 FINAL RECOMMENDED PLAN

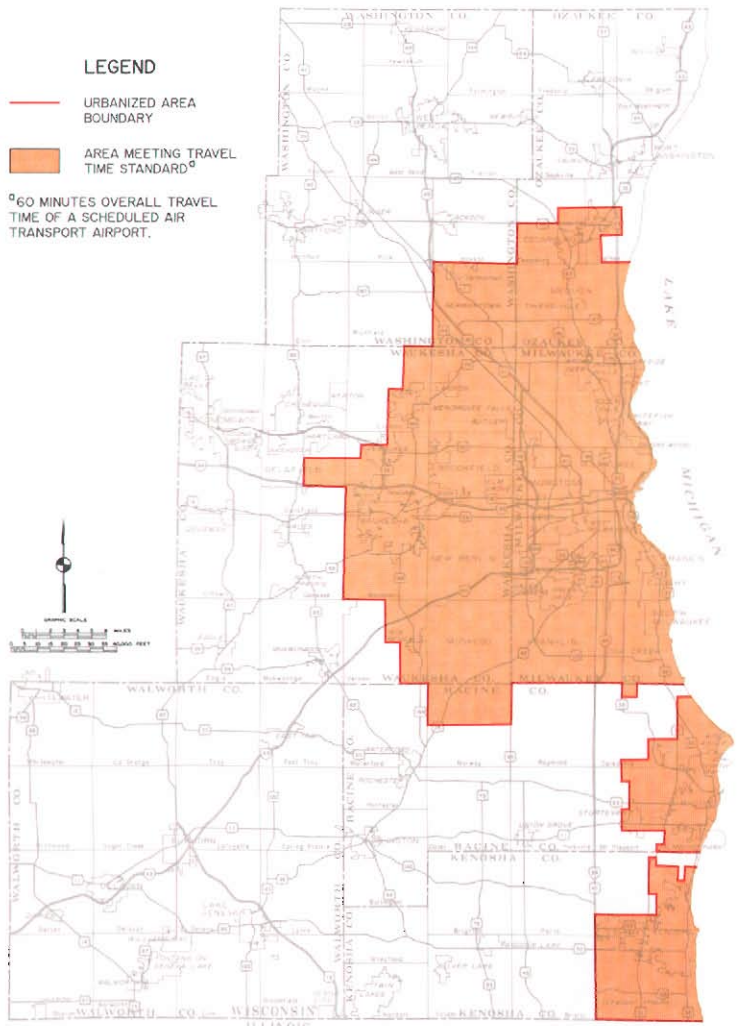


Map 23 (continued)

MAJOR EDUCATIONAL CENTERS
2010 FINAL RECOMMENDED PLAN



SCHEDULED AIR TRANSPORT TERMINALS
2010 FINAL RECOMMENDED PLAN

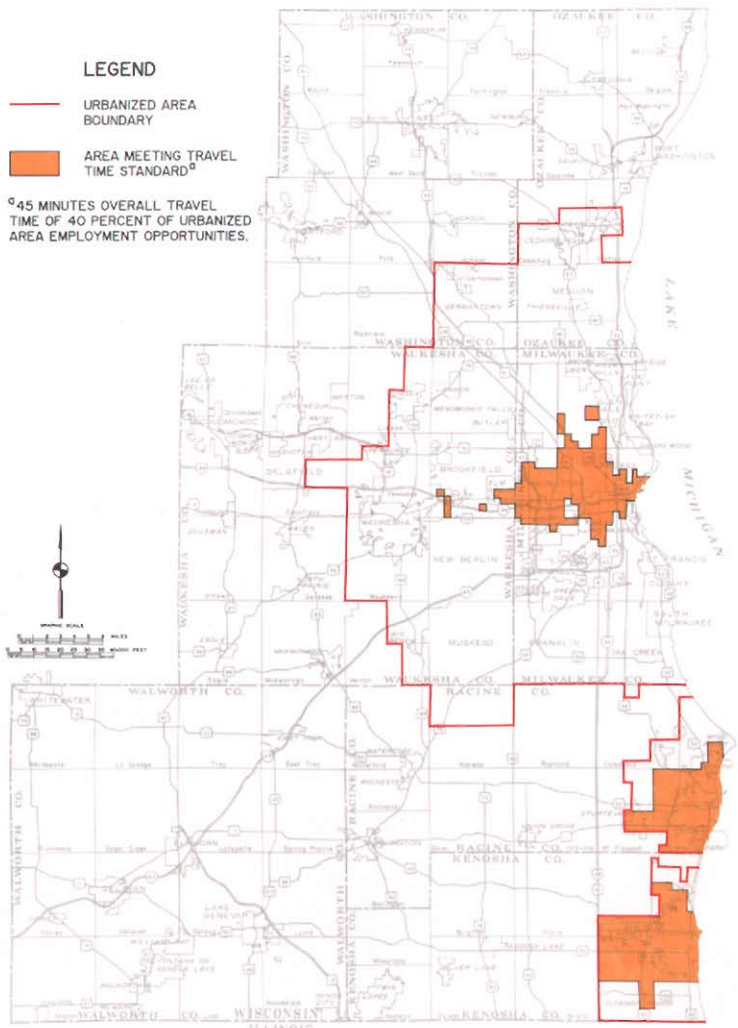


Source: SEWRPC.

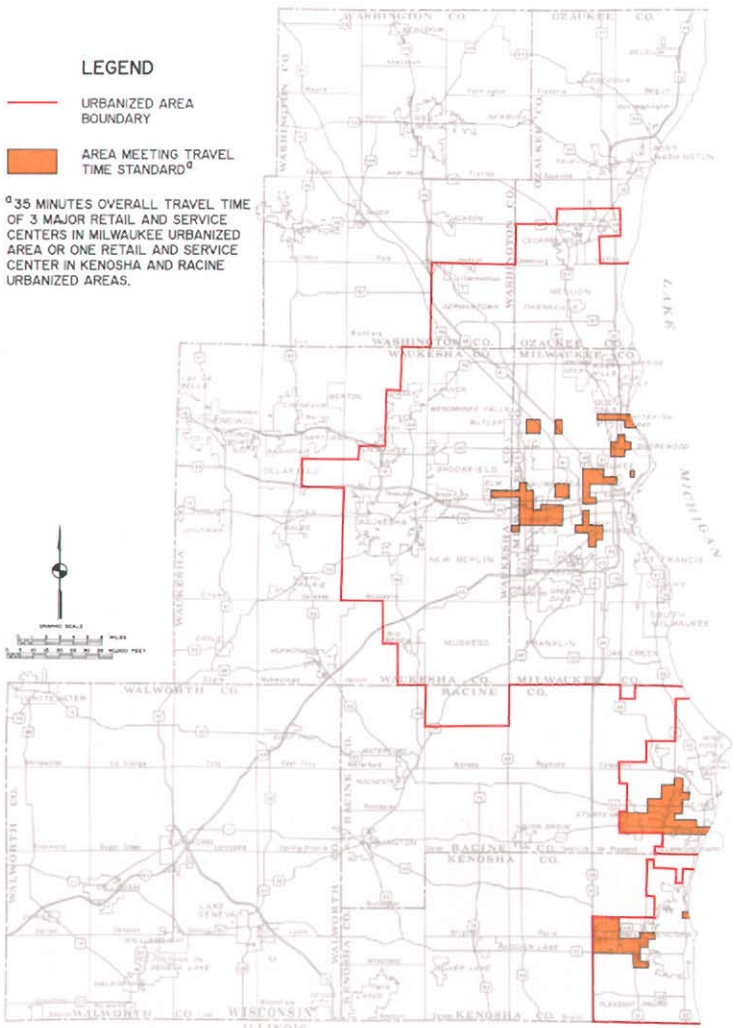
Map 24

AREAS MEETING TRAVEL TIME STANDARDS FOR EMPLOYMENT AND SELECTED ACTIVITY CENTERS THROUGH TRAVEL BY TRANSIT: 2010 FINAL RECOMMENDED PLAN

EMPLOYMENT: 2010 FINAL RECOMMENDED PLAN

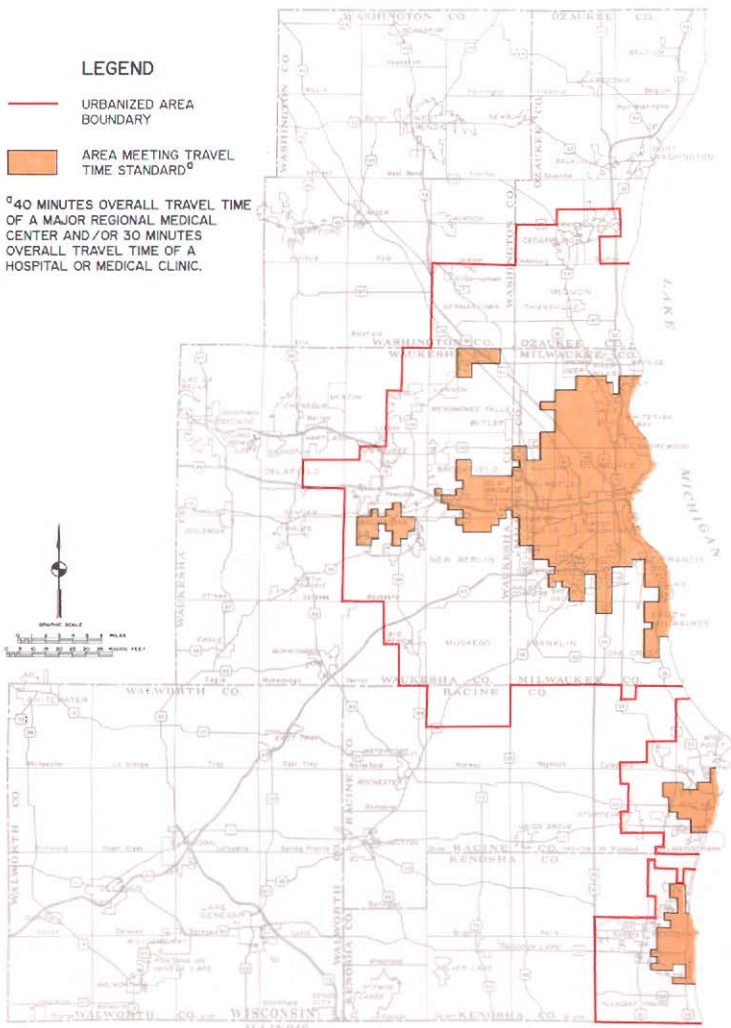


MAJOR RETAIL AND SERVICE CENTERS
2010 FINAL RECOMMENDED PLAN

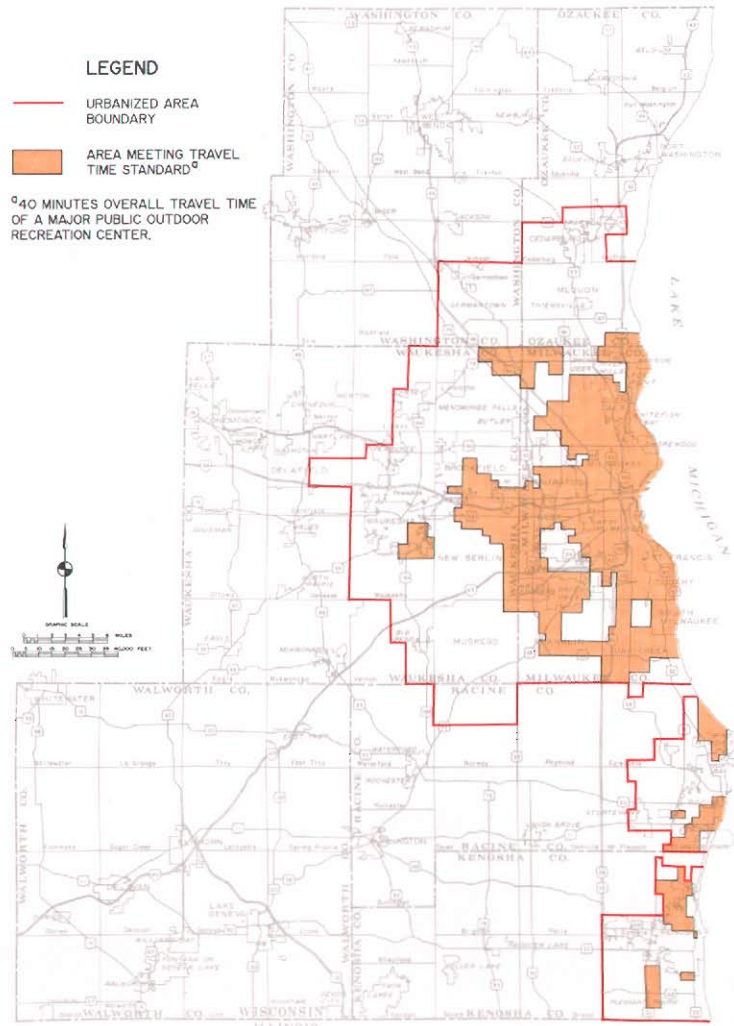


Map 24 (continued)

MAJOR MEDICAL CENTERS
2010 FINAL RECOMMENDED PLAN

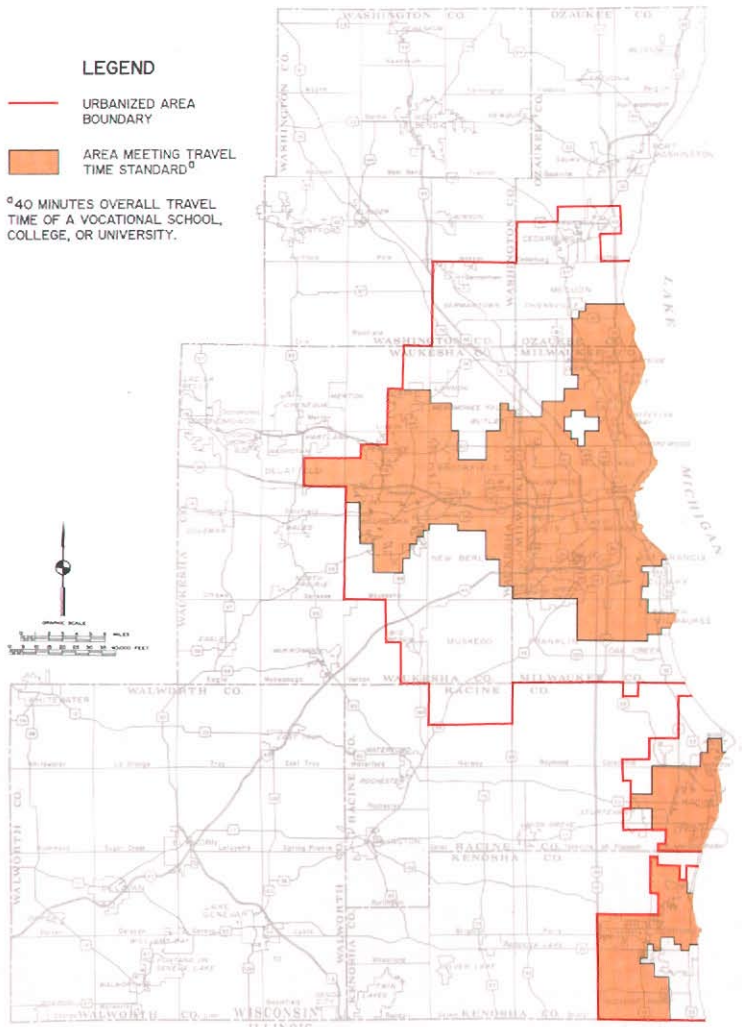


MAJOR RECREATION CENTERS
2010 FINAL RECOMMENDED PLAN

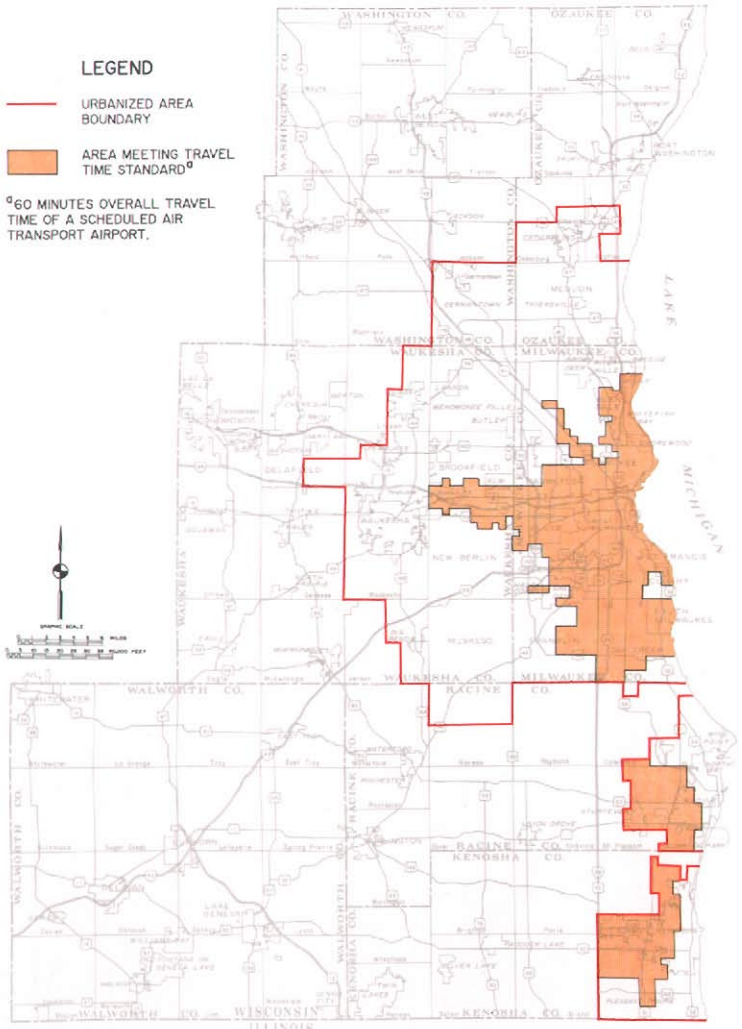


Map 24 (continued)

MAJOR EDUCATIONAL CENTERS
2010 FINAL RECOMMENDED PLAN



SCHEDULED AIR TRANSPORT TERMINALS
2010 FINAL RECOMMENDED PLAN



Source: SEWRPC.

Table 25

NUMBER AND PERCENT OF ADDITIONAL LANE-MILES OF ARTERIAL STREETS AND HIGHWAYS IN THE REGION BY COUNTY AND IMPLEMENTATION PRIORITY SCHEDULE: 1996, 2001, 2007, AND 2010

County	Proposed State Trunk Highway Incremental Arterial Lane-Miles									
	1996		2001		2007		2010		Total	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Kenosha	2	4	18	32	20	36	16	28	56	100
Milwaukee	4	6	29	46	14	22	16	26	63	100
Ozaukee	--	--	24	30	33	40	24	30	81	100
Racine	--	--	48	36	23	17	64	47	135	100
Walworth	3	2	25	14	24	13	128	71	180	100
Washington	6	6	17	18	44	46	28	30	95	100
Waukesha	9	6	33	23	73	50	31	21	146	100
Region	24	3	194	26	231	30	307	41	756	100

County	Proposed County and Local Trunk Highway Incremental Arterial Lane-Miles									
	1996		2001		2007		2010		Total	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Kenosha	--	--	10	19	16	30	27	51	53	100
Milwaukee	14	20	17	25	20	29	18	26	69	100
Ozaukee	--	--	12	55	10	45	--	--	22	100
Racine	--	--	2	7	9	32	17	61	28	100
Walworth	--	--	--	--	4	21	15	79	19	100
Washington	2	4	13	25	11	22	25	49	51	100
Waukesha	15	8	26	13	54	28	98	51	193	100
Region	31	7	80	18	124	29	200	46	435	100

County	Proposed Total Incremental Arterial Lane-Miles									
	1996		2001		2007		2010		Total	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Kenosha	2	2	28	26	36	33	43	39	109	100
Milwaukee	18	14	46	34	34	26	34	26	132	100
Ozaukee	--	--	36	35	43	42	24	23	103	100
Racine	--	--	50	31	32	19	81	50	163	100
Walworth	3	1	25	13	28	14	143	72	199	100
Washington	8	5	30	21	55	38	53	36	146	100
Waukesha	24	7	59	17	127	38	129	38	339	100
Region	55	5	274	23	355	30	507	42	1,191	100

Source: SEWRPC.

Table 26

RECOMMENDED ARTERIAL HIGHWAY CAPACITY IMPROVEMENT AND EXPANSION PROJECTS IN THE FINAL RECOMMENDED REGIONAL TRANSPORTATION SYSTEM PLAN: 2010

Year Open to Traffic	County	Improvement Type	Facility	Termini	Description
1996[a]	Milwaukee	Widening	CTH G	Mill Road to Bradley Road	Widen from two to four traffic lanes
1996[a]			CTH U	Grange Avenue to Rawson Avenue	Widen from two to four traffic lanes
1996[a]			CTH Y	Pennsylvania Avenue to STH 32	Widen from two to four traffic lanes
1996[a]			Cleveland Avenue	Waukesha County line to 113th Street	Widen from two to four traffic lanes
1996[a]			Drexel Avenue	STH 38 to Pennsylvania Avenue	Widen from two to four traffic lanes
1996[a]			Howard Avenue	Thompson Avenue to STH 32	Widen from two to four traffic lanes
1996[a]			Howard Avenue	A point east of Iowa Avenue to Lake Parkway	Widen from two to four traffic lanes
1996[a]			Pennsylvania Avenue	College Avenue to Layton Avenue	Widen from two to four traffic lanes
1996[a]			124th Street	Hampton Avenue to CTH VV	Widen from two to four traffic lanes
1996[a]		Expansion	Howard Avenue extension	Lake Parkway to Thompson Avenue	Construct four lanes on new alignment
1996[a]	Racine	Expansion	21st Street extension	STH 31 to Oakes Road	Construct two lanes on new alignment
1996[a]			Oakes Road extension	21st Street to 16th Street	Construct two lanes on new alignment
1996	Walworth	Widening	Main Street (USH 12)	Frontage Road to Fremont Street	Widen from two to four traffic lanes
1996[a]	Washington	Widening	STH 33	CTH Z to Valley Avenue	Widen from two to four traffic lanes
1996[a]			STH 60	STH 83 to Wilson Avenue	Widen from two to four traffic lanes
1996[a]		Expansion	USH 41	CTH K	Construct new interchange
1996[a]			USH 41	CTH D	Construct new interchange
1996[a]			USH 41	STH 28	Construct new interchange
1996[a]			STH 83	Monroe Avenue to STH 60	Construct two lanes on new alignment
1996[a]			18th Avenue extension	Park Avenue to Jefferson Street	Construct two lanes on new alignment
1996[a]	Waukesha	Widening	IH 94	CTH T to STH 16	Widen from four to six traffic lanes
1996[a]			STH 164	STH 74 to STH 190	Widen from two to four traffic lanes
1996[a]			CTH W	Pilgrim Road to STH 175	Widen from two to four traffic lanes
1996[a]			CTH W	STH 175 to Milwaukee County line	Widen from two to four traffic lanes
1996[a]			Brookfield Road	USH 18 to a point approximately 1,000 feet north	Widen from two to four traffic lanes
1996[a]			Calhoun Road	Gebhardt Road to North Avenue	Widen from two to four traffic lanes
1996[a]			Pilgrim Road	STH 175 to USH 41/45	Widen from two to four traffic lanes
1996[a]			124th Street	Hampton Avenue to CTH VV	Widen from two to four traffic lanes
1996[a]		Expansion	CTH SS extension	CTH G to CTH T	Construct two lanes on new alignment
1996			Brookfield Road extension	Davidson Road to STH 59	Construct two lanes on new alignment
1996[a]			Moorland Road extension	CTH L to IH 43	Construct two lanes on new alignment
1996[a]			Shady Lane extension	St. Thomas Drive to STH 175	Construct two lanes on new alignment
2001	Kenosha	Widening	STH 31	CTH S to CTH KR	Widen from two to four traffic lanes
2001			STH 32	128th Street to CTH T	Widen from two to four traffic lanes
2001[a]			STH 50	Walworth County line to 381st Avenue	Widen from two to four traffic lanes
2001			30th Avenue	27th Street to CTH E	Widen from two to four traffic lanes
2001			39th Avenue	Van Buren Road to STH 50	Widen from two to four traffic lanes
2001			104th Avenue	STH 50 to STH 158	Widen from two to four traffic lanes
2001		Expansion	IH 94/USH 41	CTH ML	Construct new interchange
2001			85th Street extension	39th Avenue to 32nd Avenue	Construct two lanes on new alignment
2001[a]	Milwaukee	Widening	USH 45/STH 36	Waukesha County line to STH 100	Widen from two to four traffic lanes
2001			107th Street	Good Hope Road to STH 145	Widen from two to four traffic lanes
2001			CTH BB	CTH U to USH 41	Widen from two to four traffic lanes
2001			CTH ZZ	STH 38 to Pennsylvania Avenue	Widen from two to four traffic lanes
2001			Fond du Lac Avenue	35th Street to 20th Street	Widen from two to four traffic lanes
2001[a]			Good Hope Road	Waukesha County line to USH 41/45	Widen from two to four traffic lanes
2001			Howard Avenue	Clement Avenue to a point east of Iowa Avenue	Widen from two to four traffic lanes
2001			Layton Avenue	108th Street to 84th Street	Widen from two to four traffic lanes
2001			Oklahoma Avenue	Clement Avenue to Kinnickinnic Avenue	Widen from two to four traffic lanes
2001			Puetz Road	Shepard Avenue to Pennsylvania Avenue	Widen from two to four traffic lanes
2001			Teutonia Avenue	Ruby Avenue to Villard Avenue	Widen from two to four traffic lanes
2001			Whitnall Avenue	CTH Y to Packard Avenue	Widen from two to four traffic lanes
2001			91st Street	Ozaukee County line to STH 100	Widen from two to four traffic lanes
2001			124th Street	STH 145 to USH 41/45	Widen from two to four traffic lanes
2001[a]		Expansion	Lake Arterial	Lincoln Avenue to CTH Y	Construct four lanes on new alignment
2001			Puetz Road extension	CTH U to Hunting Park Drive	Construct two lanes on new alignment
2001			124th Street extension	STH 100 to STH 145	Construct four lanes on new alignment
2001			Metro Boulevard	115th Street to 107th Street	Construct two lanes on new alignment
2001	Ozaukee	Widening	STH 57	IH 43 to Sheboygan County line	Widen from two to four traffic lanes
2001			STH 57	Bridge Street to Chateau Drive	Widen from two to four traffic lanes
2001			STH 60	STH 57 to IH 43	Widen from two to four traffic lanes
2001			Pioneer Road (CTH C)	CTH N to McKinley Boulevard	Widen from two to four traffic lanes
2001			CTH W	Port Washington Lane to a point about 0.5 mile north of Donges Bay Road	Widen from two to four traffic lanes

Table 26 (continued)

Year Open to Traffic	County	Improvement Type	Facility	Termini	Description
2001	Racine	Widening	STH 31	CTH KR to STH 11	Widen from two to four traffic lanes
2001[a]			STH 31	CTH MM to STH 32	Widen from two to four traffic lanes
2001			STH 32	A point about 0.3 mile north of CTH G to Three Mile Road	Widen from two to four traffic lanes
2001[a]			STH 36/83	Wegge Road to STH 20	Widen from two to four traffic lanes
2001[a]			STH 36	STH 20 to Waukesha County	Widen from two to four traffic lanes
2001			STH 11	IH 94 to CTH H	Widen from two to four traffic lanes
2001			Three Mile Road	STH 32 to CTH G	Widen from two to four traffic lanes
2001	Walworth	Widening	STH 50	STH 67 to Geneva Street	Widen from two to four traffic lanes
2001			STH 50	CTH H to Edwards Boulevard	Widen from two to four traffic lanes
2001[a]			STH 50	USH 12 to the Kenosha County line	Widen from two to four traffic lanes
2001			STH 67	USH 12 to Lincoln Avenue	Widen from two to four traffic lanes
2001		Expansion	STH 120 bypass	Townline Road to existing STH 120 at Willow Road	Construct two lanes on existing and new alignment
2001[a]	Washington	Widening	USH 41	STH 145 to Dodge County	Convert expressway to freeway
2001			USH 45	CTH D to Prospect Drive	Widen from two to four traffic lanes
2001[a]			STH 33	18th Avenue to STH 144	Widen from two to four traffic lanes
2001[a]			STH 167	River Lane to Pilgrim Road	Widen from two to four traffic lanes
2001[a]			CTH Q	CTH V to STH 175	Widen from two to four traffic lanes
2001			Maple Road	STH 167 to Freistadt Road	Widen from two to four traffic lanes
2001			Paradise Drive	A point 1,250 feet east of USH 45 to Main Street	Widen from two to four traffic lanes
2001[a]		Expansion	USH 41	STH 33	Construct new interchange
2001			STH 33	Rock River to USH 41	Construct two lanes on new alignment
2001			River Crest Drive extension	CTH Q to Waukesha County line	Construct two lanes on new alignment
2001			N. River Road extension	N. River Road to STH 144	Construct two lanes on new alignment
2001[a]	Waukesha	Widening	STH 36	Racine County line to Milwaukee County line	Widen from two to four traffic lanes
2001[a]			STH 59	CTH X to Sunset Drive	Widen from two to four traffic lanes
2001[a]			STH 59	Calhoun Road to Milwaukee County line	Widen from two to four traffic lanes
2001			STH 83	IH 94 to USH 18	Widen from two to four traffic lanes
2001			STH 164	Moreland Boulevard to IH 94	Widen from four to six traffic lanes
2001			STH 164	STH 59 to CTH ES	Widen from two to four traffic lanes
2001[a]			STH 175	Roosevelt Drive to CTH Q	Widen from two to four traffic lanes
2001			CTH J	Rockwood Drive to CTH M	Widen from two to four traffic lanes
2001			CTH Q	CTH V to STH 175	Widen from two to four traffic lanes
2001			CTH X	CTH H to STH 59	Widen from two to four traffic lanes
2001			CTH Y	STH 59 to USH 18	Widen from two to four traffic lanes
2001			CTH YY	CTH VV to CTH W	Widen from two to four traffic lanes
2001			Main Street	STH 164 to USH 18	Widen from two to four traffic lanes
2001			Pilgrim Road	USH 41/45 to Washington County line	Widen from two to four traffic lanes
2001			124th Street	STH 145 to USH 41/45	Widen from two to four traffic lanes
2001		Expansion	CTH KE extension	CTH E to STH 83	Construct two lanes on new alignment
2001			Oconomowoc Parkway	CTH Z to STH 67	Construct two lanes on new alignment
2001[a]			Pilgrim Road realignment	North Avenue to a point about 700 feet north	Construct four lanes on new alignment
2001			River Crest Drive extension	Shady Lane to Washington County line	Construct two lanes on new alignment
2001			124th Street extension	STH 100 to STH 145	Construct two lanes on new alignment
2007	Kenosha	Widening	STH 50	IH 94/USH 41 to 39th Avenue	Widen from four to six traffic lanes
2007			STH 158	104th Avenue to STH 31	Widen from two to four traffic lanes
2007			STH 165	IH 94/USH 41 to a point approximately one mile west of CTH H	Widen from two to four traffic lanes
2007			60th Avenue	39th Avenue to STH 32	Widen from two to four traffic lanes
2007			22nd Avenue	CTH L to E	Widen from two to four traffic lanes
2007			63rd Street	22nd Avenue to STH 32	Widen from two to four traffic lanes
2007			Roosevelt Road	39th Avenue to 63rd Street	Widen from two to four traffic lanes
2007			Washington Road	39th Avenue to STH 32	Widen from two to four traffic lanes
2007		Expansion	CTH F extension	CTH O to 89th Street	Construct two lanes on new alignment
2007			CTH ML extension	CTH H to STH 31	Construct two lanes on new alignment
2007			51st Avenue extension	93rd Street to STH 165	Construct two lanes on new alignment
2007			85th Street extension	Sheridan Road to 7th Avenue	Construct two lanes on new alignment
2007	Milwaukee	Widening	STH 100	81st Street to 60th Street	Widen from two to four traffic lanes
2007			STH 100	60th Street to USH 41	Widen from two to four traffic lanes
2007			STH 100	STH 38 to STH 32	Widen from two to four traffic lanes
2007			CTH U	Rawson Avenue to Puetz Road	Widen from two to four traffic lanes
2007			CTH ZZ	STH 36 to USH 41	Widen from two to four traffic lanes
2007			Whitnall Avenue	Clement Avenue to Pennsylvania Avenue	Widen from two to four traffic lanes
2007			124th Street	STH 190 to Hampton Avenue	Widen from two to four traffic lanes
2007		Expansion	Canal Street extension	6th Street to 2nd Street	Construct two lanes on new alignment
2007			Canal Street extension	USH 41 to 21st Street	Construct two lanes on new alignment

Table 26 (continued)

Year Open to Traffic	County	Improvement Type	Facility	Termini	Description
2007	Ozaukee	Widening	STH 33	Progress Drive to Foster Street	Widen from two to four traffic lanes
2007			STH 57	Milwaukee County line to STH 167	Widen from two to four traffic lanes
2007			STH 60	STH 143 to STH 57	Widen from two to four traffic lanes
2007			STH 143	CTH N to STH 60	Widen from two to four traffic lanes
2007			STH 167	Washington County line to Wauwatosa Road	Widen from two to four traffic lanes
2007			Wauwatosa Road (CTH N)	STH 167 to STH 60	Widen from two to four traffic lanes
2007			Pioneer Road (CTH C)	McKinley Boulevard to IH 43	Widen from two to four traffic lanes
2007			CTH W	STH 167 to Highland Road	Widen from two to four traffic lanes
2007		Expansion	IH 43	Highland Road	Construct new interchange
2007			Cold Springs Road extension	CTH O to STH 33	Construct two lanes on new alignment
2007			River Road extension	Freistadt Road to Grace Avenue	Construct two lanes on new alignment
2007	Racine	Widening	STH 20	IH 94/USH 41 to Sunnyslope Drive	Widen from four to six traffic lanes
2007			STH 20	USH 45 to a point 0.73 mile west of CTH C	Widen from two to four traffic lanes
2007			STH 11	86th Street in the Village of Sturtevant to Willow Road	Widen from two to four traffic lanes
2007			STH 11	Willow Road to STH 31	Widen from four to six traffic lanes
2007		Expansion	Memorial Drive extension	Chicory Road to CTH KR	Construct two lanes on new alignment
2007			Oakes Road extension	STH 11 to 21st Street	Construct two lanes on new alignment
2007			Oakes Road extension	STH 20 to Airline Road	Construct two lanes on new alignment
2007	Walworth	Widening	USH 14	Proposed STH 67 bypass to McHenry County line	Widen from two to four traffic lanes
2007			STH 50	IH 43 to STH 67	Widen from two to four traffic lanes
2007			STH 67	IH 43 to the proposed STH 67 bypass at STH 50	Widen from two to four traffic lanes
2007			STH 120	STH 36 to USH 12	Widen from two to four traffic lanes
2007		Expansion	IH 43	CTH O	Construct new interchange
2007			New facility	CTH H east to STH 11	Construct two lanes on new alignment
2007	Washington	Widening	STH 33	USH 41 to CTH Z	Widen from two to four traffic lanes
2007			STH 33	Schmidt Road to Trenton Road	Widen from two to four traffic lanes
2007			STH 60	USH 41 to CTH P	Widen from two to four traffic lanes
2007			STH 167	Pilgrim Road to Ozaukee County line	Widen from two to four traffic lanes
2007			CTH J	CTH Q to STH 60	Widen from two to four traffic lanes
2007			CTH Q	Division Road to Pilgrim Road	Widen from two to four traffic lanes
2007			Decorah Road	7th Avenue to Indiana Avenue	Widen from two to four traffic lanes
2007			Main Street	Vine Street to Walnut Street	Widen from two to four traffic lanes
2007		Expansion	STH 83	CTH E to Monroe Avenue	Construct two lanes on new alignment
2007			Arthur Road extension	CTH N to Arthur Road	Construct two lanes on new alignment
2007			Monroe Avenue extension	Monroe Avenue to Pond Road	Construct two lanes on new alignment
2007			18th Avenue extension	Jefferson Street to CTH D	Construct two lanes on new alignment
2007	Waukesha	Widening	STH 59	STH 164 to Calhoun Road	Widen from two to four traffic lanes
2007			STH 67	IH 94 to USH 18	Widen from two to four traffic lanes
2007			STH 83	Mariner Drive to CTH KE extension	Widen from two to four traffic lanes
2007			STH 190	CTH Y to Brookfield Road	Widen from four to six traffic lanes
2007			CTH D	Moorland Road to Milwaukee County line	Widen from two to four traffic lanes
2007			CTH L	CTH Y to CTH HH	Widen from two to four traffic lanes
2007			CTH J	CTH M to Washington County line	Widen from two to four traffic lanes
2007			CTH Q	Division Road to Pilgrim Road	Widen from two to four traffic lanes
2007			CTH X	STH 59 to Moreland Boulevard	Widen from two to four traffic lanes
2007			CTH Y	Hillendale Drive to CTH HH	Widen from two to four traffic lanes
2007			CTH Y	STH 59/164 to Coffee Road	Widen from two to four traffic lanes
2007			CTH Y	USH 18 to North Avenue	Widen from two to four traffic lanes
2007			CTH TT	MacArthur Road to USH 18	Widen from two to four traffic lanes
2007			CTH VV	CTH Y to Betty Drive	Widen from two to four traffic lanes
2007			CTH YY	Lisbon Road to CTH VV	Widen from two to four traffic lanes
2007			Calhoun Road	CTH D to STH 59	Widen from two to four traffic lanes
2007			Meadowbrook Road	Northview Road to IH 94	Widen from two to four traffic lanes
2007			North Avenue	Barker Road to 147th Street	Widen from two to four traffic lanes
2007			Pilgrim Road	USH 18 to North Avenue	Widen from two to four traffic lanes
2007			Racine Avenue	Downing Drive to STH 59/164	Widen from two to four traffic lanes
2007			Sunset Drive	Tenny Avenue to STH 59/164	Widen from two to four traffic lanes
2007			124th Street	STH 190 to Hampton Avenue	Widen from two to four traffic lanes
2007		Expansion	IH 94	CTH P	Construct new interchange
2007			STH 16/67 bypass	Wisconsin Avenue to Jefferson County line	Construct four lanes on new alignment
2007			CTH Y extension	STH 190 to CTH K	Construct four lanes on new alignment
2007			Mukwonago bypass	IH 43 to CTH ES	Construct two lanes on new alignment
2007			Lake Drive extension	Lapham Street to STH 67	Construct two lanes on new alignment
2007			Valley Road	STH 67 to CTH P	Construct two lanes on new alignment
2007			Waukesha west bypass	Northview Road to USH 18	Construct four lanes on new alignment
2010	Kenosha	Widening	STH 83	128th Street to STH 50	Widen from two to four traffic lanes
2010			STH 165	STH 31 to STH 32	Widen from two to four traffic lanes
2010			CTH E	STH 31 to STH 32	Widen from two to four traffic lanes
2010			CTH S	IH 94/USH 41 to STH 31	Widen from two to four traffic lanes
2010			22nd Avenue	CTH E to CTH KR	Widen from two to four traffic lanes

Table 26 (continued)

Year Open to Traffic	County	Improvement Type	Facility	Termini	Description
2010	Kenosha	Expansion	CTH AH extension	CTH F to CTH SA	Construct two lanes on new alignment
2010			CTH KD extension	CTH EM to CTH F	Construct two lanes on new alignment
2010			CTH Q extension	184th Street extended to 168th Street	Construct two lanes on new alignment
2010			39th Avenue extension	24th Street to 15th Street	Construct two lanes on new alignment
2010	Milwaukee	Widening	STH 32	County Line Road to STH 100	Widen from two to four traffic lanes
2010			STH 38	County Line Road to Oakwood Road	Widen from two to four traffic lanes
2010			STH 100	IH 43 to STH 24	Widen from six to eight traffic lanes
2010			STH 100	STH 36 to 81st Street	Widen from two to four traffic lanes
2010			Morgan Avenue	Forest Home Avenue to 43rd Street	Widen from two to four traffic lanes
2010			Pennsylvania Avenue	STH 100 to Drexel Avenue	Widen from two to four traffic lanes
2010			Pennsylvania Avenue	Drexel Avenue to College Avenue	Widen from two to four traffic lanes
2010			124th Street	North Avenue to Watertown Plank Road	Widen from two to four traffic lanes
2010		Expansion	15th Avenue extension	STH 100 to Elm Road	Construct two lanes on new alignment
2010			124th Street extension	Watertown Plank Road to STH 59	Construct two lanes on new alignment
2010	Ozaukee	Widening	STH 32	Spring Street to Franklin Street	Widen from two to four traffic lanes
2010			STH 33	Washington County line to Progress Drive	Widen from two to four traffic lanes
2010			STH 33	IH 43 to Spring Street	Widen from two to four traffic lanes
2010			STH 60	Washington County line to STH 143	Widen from two to four traffic lanes
2010		Expansion	Granville Road	Highland Road to Freistadt Road	Construct two lanes on new alignment
2010			Maple Road extension	Cedar Creek Road to Rose Street at the Village of Grafton north city limits	Construct two lanes on new alignment
2010			River Road extension	Bonniwell Road to Highland Road	Construct two lanes on new alignment
2010	Racine	Widening	STH 32	Milwaukee County to Five Mile Road	Widen from two to four traffic lanes
2010			STH 38	Milwaukee County to CTH K	Widen from two to four traffic lanes
2010			CTH C	CTH V to Airline Road	Widen from two to four traffic lanes
2010			CTH C	Airline Road to Sunnyslope Road	Widen from two to four traffic lanes
2010			CTH K	IH 94 to CTH H	Widen from two to four traffic lanes
2010			CTH K	Kraut Road to STH 38	Widen from two to four traffic lanes
2010			CTH Y	CTH KR to CTH X	Widen from two to four traffic lanes
2010			STH 11	71st Street in the Village of Union Grove to IH 94	Widen from two to four traffic lanes
2010		Expansion	Burlington bypass	(STH 36) Milwaukee Avenue to STH 11	Construct two lanes on new alignment
2010			Burlington bypass	STH 11 to STH 36 (State Street)	Construct two lanes on new alignment
2010			CTH K extension	Britton Road to 108th Street	Construct two lanes on new alignment
2010			Emmertsen Road extension	Three Mile Road to STH 38	Construct two lanes on new alignment
2010			Five Mile Road extension	STH 32 to Erie Street	Construct two lanes on new alignment
2010	Walworth	Widening	STH 11	CTH O to 7th Street	Widen from two to four traffic lanes
2010			USH 14	CTH O to proposed STH 67 bypass	Widen from two to four traffic lanes
2010			USH 14	Rock County line to CTH O	Widen from two to four traffic lanes
2010			STH 50	STH 11 to Wisconsin Street	Widen from two to four traffic lanes
2010			STH 50	Pearson Drive to Madison Street	Widen from two to four traffic lanes
2010			STH 89	Willis Ray Road to Whitewater Street	Widen from two to four traffic lanes
2010		Expansion	USH 12 freeway	Whitewater to Elkhorn[b]	Construct four lanes on new alignment
2010			USH 12 freeway	CTH H to McHenry County line	Construct four lanes on new alignment
2010			STH 67 bypass (Walworth, Fontana, and Williams Bay)	Existing STH 67 at Village of Walworth south corporate limits to existing STH 67 at STH 50	Construct four lanes on generally new alignment
2010			Burlington bypass	STH 11 to Mormon Road	Construct two lanes on generally new alignment
2010			Willow Road extension	West Side Road to CTH H	Construct two lanes on new alignment
2010			CTH P realignment	Territorial Road to CTH A	Construct two lanes on new alignment
2010			Grant Street extension	CTH H to STH 50 in Lake Geneva	Construct two lanes on new alignment
2010			Main Street extension	Frontage Road to Rock County line	Construct two lanes on new alignment
2010			New facility	STH 67 west to STH 11	Construct two lanes on new alignment
2010			New facility	STH 11 north to CTH H	Construct two lanes on new alignment
2010	Washington	Widening	STH 33	Oakes Road to Ozaukee County line	Widen from two to four traffic lanes
2010			STH 60	Wilshire Drive to Ozaukee County line	Widen from two to four traffic lanes
2010			CTH Y	CTH Q to USH 41/45	Widen from two to four traffic lanes
2010		Expansion	STH 33	Trenton Road to Oakes Road	Construct four lanes on new alignment
2010			Division Road extension	STH 167 to Freistadt Road	Construct two lanes on new alignment
2010			Independence Avenue extension	STH 60 to CTH N	Construct two lanes on new alignment
2010			Jefferson Street extension	Trenton Road to N. River Road	Construct two lanes on new alignment
2010			Kettleview Road extension	CTH H to STH 28	Construct two lanes on new alignment
2010			Kettleview Road extension	STH 33 to Schuster Drive	Construct two lanes on new alignment
2010			Pioneer Road extension	CTH J to CTH CC	Construct two lanes on new alignment
2010			Schuster Drive extension	Schuster Drive to Beaver Dam Road	Construct two lanes on new alignment
2010			Taylor Road extension	Pond Road to STH 60	Construct two lanes on new alignment
2010			Trenton Road extension	STH 33 to Maple Road	Construct two lanes on new alignment
2010			Wacker Drive extension	STH 60 to Lee Road	Construct two lanes on new alignment

Table 26 (continued)

Year Open to Traffic	County	Improvement Type	Facility	Termini	Description
2010	Waukesha	Widening	IH 94	CTH G to CTH T	Widen from four to six traffic lanes
2010			STH 67	CTH B to IH 94	Widen from four to six traffic lanes
2010			STH 83	CTH KE extension to STH 16	Widen from two to four traffic lanes
2010			STH 145	Milwaukee County line to Washington County line	Widen from two to four traffic lanes
2010			STH 190	STH 164 to CTH Y	Widen from four to six traffic lanes
2010			CTH D	STH 59/164 to Moorland Road	Widen from two to four traffic lanes
2010			CTH K	CTH Y to Calhoun Road	Widen from two to four traffic lanes
2010			CTH T	Northview Road to Silvernail Road	Widen from two to four traffic lanes
2010			CTH T	Golf Road to proposed CTH SS extension	Widen from two to four traffic lanes
2010			CTH Y	IH 43 to Coffee Road	Widen from two to four traffic lanes
2010			CTH Y	North Avenue to STH 190	Widen from two to four traffic lanes
2010			CTH Y	CTH K to STH 74	Widen from two to four traffic lanes
2010			CTH Y	STH 74 to CTH Q	Widen from two to four traffic lanes
2010			CTH VV	STH 164 to CTH Y	Widen from two to four traffic lanes
2010			Calhoun Road	CTH ES to CTH D	Widen from two to four traffic lanes
2010			Calhoun Road	STH 59 to Gebhardt Road	Widen from two to four traffic lanes
2010			Calhoun Road	North Avenue to STH 190	Widen from two to four traffic lanes
2010			Grandview Boulevard	USH 18 to Northview Road	Widen from two to four traffic lanes
2010			Hampton Road	Lisbon Road to 132nd Street	Widen from two to four traffic lanes
2010			Johnson Road	Coffee Road to Lincoln Avenue	Widen from two to four traffic lanes
2010			Johnson Road	A point about 2,000 feet south of STH 59 to STH 59	Widen from two to four traffic lanes
2010			Lisbon Road	Calhoun Road to Hampton Road	Widen from two to four traffic lanes
2010			North Avenue	Lilly Road to 124th Street	Widen from two to four traffic lanes
2010			Pilgrim Road	A point about 700 feet north of North Avenue to Lisbon Road	Widen from two to four traffic lanes
2010			124th Street	North Avenue to Watertown Plank Road	Widen from two to four traffic lanes
2010		Expansion	IH 94	Calhoun Road	Construct new interchange
2010			STH 83	STH 16 to Thompson Lane	Construct two lanes on new alignment
2010			STH 83	Kilbourne Road to CTH CW	Construct two lanes on new alignment
2010			CTH KE realignment	CTH K to a point about 800 feet north	Construct two lanes on new alignment
2010			Johnson Road extension	A point about 2,000 feet north of STH 59 to Lincoln Avenue	Construct four lanes on new alignment
2010			Johnson Road extension	Coffee Road to CTH Y	Construct four lanes on new alignment
2010			Moorland Road extension	Woods Road to CTH L	Construct two lanes on new alignment
2010			Oconomowoc Parkway	STH 16 to CTH Z	Construct two lanes on new alignment
2010			Sunnyslope Road extension	CTH HH to CTH L	Construct two lanes on new alignment
2010			Waukesha west bypass	CTH X to Macarthur Road	Construct four lanes on new alignment
2010			124th Street extension	Watertown Plank Road to STH 59	Construct two lanes on new alignment

[a] *Transportation improvement project is included in the baseline transportation system.*

[b] *The initial segment of the USH 12 freeway between the City of Whitewater and the City of Elkhorn is anticipated to be the segment bypassing the City of Whitewater from existing USH 12 at approximately Howard Road southeast of the City to existing USH 12 at approximately Cold Spring Road northwest of the City. Initially, only two travel lanes are anticipated to be constructed and are anticipated to be open to traffic by the year 2001.*

Source: SEWRPC.

The third of the five components of the congestion management system plan consists of the formulation, evaluation, and recommendation of alternative actions to abate identified traffic congestion and improve the level of service provided by the system. A full range of congestion abatement measures was considered and evaluated in the design of the adopted year 2010 regional transportation system plan and of alternatives thereto, including traffic and travel demand management measures. Those traffic demand management measures with the potential to help achieve the most efficient use of the existing arterial street and highway system, along with a range of travel demand management measures with the potential to reduce vehicle trips and vehicle-miles of travel, were incorporated into the design of the recommended system plan, as well as in alternatives thereto considered. An element common to all of the alternative plans considered, as well as to the recommended plan, were major transit system improvements varying with respect to extent and frequency of service provided and geographic coverage. No highway system capacity improvements or expansion were considered in the initial design and evaluation of these alternative transportation system management plans.

Table 27

NUMBER AND PERCENT OF ADDITIONAL REVENUE VEHICLE-MILES OF TRANSIT SERVICE IN THE REGION BY TYPE OF SERVICE AND IMPLEMENTATION PRIORITY SCHEDULE: 1991, 2001, 2007, AND 2010

Transit Service Type	Existing Transit Vehicle-Miles of Revenue Service: 1991	Proposed Incremental Transit Vehicle-Miles of Revenue Service									
		1996		2001		2007		2010		Total	
		Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Rapid	3,400	-300	-2.2	5,000	37.0	6,100	45.2	2,700	20.0	13,500	100.0
Express ...	3,300	2,700	14.9	3,500	19.3	5,800	32.1	6,100	33.7	18,100	100.0
Local	56,600	200	1.3	7,700	49.0	7,800	49.7	--	--	15,700	100.0
Total	63,300	2,600	5.5	16,200	34.3	19,700	41.6	8,800	18.6	47,300	100.0

Source: SEWRPC.

Following evaluation of the transportation system management plans, it was determined that selected highway system capacity improvement and expansion projects should be considered to address the residual congestion remaining even after full implementation of the traffic and travel demand measures and transit system improvements and expansion set forth in each transportation system management plan. Following evaluation of these alternative regional transportation system management plans, a preliminary recommended regional transportation system plan was prepared for public review and comment.

Following an extensive public involvement and comment period, a final recommended regional transportation system plan was prepared. This plan included the traffic and travel demand management measures determined to promote the most efficient use of the existing arterial street and highway system capacity and to have the greatest potential for reducing vehicle trips and vehicle-miles of travel as well as having good potential for implementation. The final plan includes significant transit system improvements and expansion. Finally, as a measure of last resort, to reduce residual congestion and improve transportation system level of service, the final plan included highway system capacity improvement and expansion.

The fourth of the five components of a congestion management system plan consists of an implementation schedule for the specific actions recommended in the adopted system plan. The final recommended regional transportation system plan includes an implementation schedule which identifies the transit and highway system capacity improvement and expansion projects which should be completed and open for service by the years 1996, 2001, 2007, and 2010.

The fifth and final component of a congestion management system plan consists of an evaluation of the effectiveness of implemented congestion abatement measures. Such an evaluation is an integral part of the continuing regional transportation system planning program and of the Commission data and system monitoring efforts. As part of the review and reevaluation of the regional transportation system plan, current transportation system performance in 1995, based upon the defined congestion identification and system performance measures, will be compared to those measures for both the adopted system plan base year 1991 and for the 2010 transportation system plan and progress toward plan implementation and attendant system performance assessed. The findings of this analysis with respect to trends in traffic congestion and level of service and the effectiveness of implemented congestion abatement measures will be utilized in the reevaluation of the regional transportation system plan and the attendant reevaluation of congestion management system recommendations for congestion abatement.

Table 28

POTENTIAL STAGES OF FINAL RECOMMENDED TRANSIT PLAN ELEMENT: 1996, 2001, 2007, AND 2010

Transit Service Element	Year			
	1996	2001	2007	2010
Rapid Transit[a]	Continue existing service within Milwaukee County and between Milwaukee and Waukesha Counties	Expand service to the City of Milwaukee central business district by adding new routes, including: • From STH 36 and CTH BB in the Village of Franklin via STH 36, IH 43, and IH 94 • From IH 94 and STH 100 in the City of Oak Creek via IH 94 • From 13th Avenue and 54th Street in the City of Kenosha via STH 158 and IH 94 • From 5th Street and Main Street in the City of Racine via STH 20 and IH 94 Restructure existing express route from Main Street and Wisconsin Avenue in the City of Oconomowoc to the City of Milwaukee central business district to provide rapid service via STH 16 and IH 94	Implement new rapid busway facility between IH 94 and STH 164 in Waukesha County and the City of Milwaukee central business district Expand service to the City of Milwaukee central business district by adding new routes, including: • From Clinton Street and Broadway Street in the City of Waukesha via STH 164 and IH 94 busway, serving all busway stations • From S. 43rd Street and Morgan Avenue in the City of Milwaukee via S. 43rd Street and IH 94 busway • From 13th Avenue and E. Rawson Avenue in the City of Oak Creek via E. Rawson Avenue Pennsylvania Avenue, Lake Arterial, and IH 794 • From S. 1st Avenue and Wisconsin Avenue in the Village of Grafton via STH 57, CTH C, and IH 43 • From Cedarburg Road and Highland Road in the City of Mequon via STH 57, STH 167, and IH 43 • From Capitol Drive and Calhoun Road in the City of Brookfield via Capitol Drive, USH 45, and IH 94 busway • From the IH 94 busway at Moorland Road in the City of Brookfield via IH 94 busway • From STH 59 and S. West Avenue in the City of Waukesha via STH 59, Moreland Boulevard and Ih 94 busway • From the LakeView Corporate Park in the Village of Pleasant Prairie via STH 165 and IH 94 Restructure existing service from the Village of Menomonee Falls to the City of Milwaukee central business district to extend route to STH 167 and Pilgrim Road in the Village of Germantown Operate all rapid services in both directions of travel	Expand service to the City of Milwaukee central business district by adding new routes, including: • From IH 43 and STH 32/84 in the Town of Port Washington via IH 43 • From N. Main Street and W. Washington Street in the City of West Bend via Main Street, Paradise Drive, USH 45, and IH 94 busway Modify routes between the City of Milwaukee central business district and the Cities of Racine and Kenosha to include stop at IH 94 and CTH K in Racine County to serve industrial development along IH 94 Modify route between the City of Milwaukee central business district and the City of Oconomowoc via IH 94 to serve Pabst Farms development north of IH 94 and east of STH 67 in Waukesha County

Table 28 (continued)

Transit Service Element	Year			
	1996	2001	2007	2010
Express Transit[b]	Continue existing service within Milwaukee County, between Milwaukee and Waukesha Counties, and between Milwaukee, Racine, and Kenosha Counties	Expand Milwaukee urbanized area service by adding new routes, including: • From Clinton Street and Broadway Street in the City of Waukesha to the University of Wisconsin-Milwaukee via Moreland Boulevard, Blue Mound Road, Wisconsin Avenue, Prospect/Farwell Avenue, and Downer Avenue • From the transit station at N. Teutonia Avenue and Florist Avenue in the City of Glendale to the transit station at W. Loomis Road and IH 43 in the City of Greenfield via 27th Street Restructure existing service between the City of Milwaukee central business district and the Cities of Racine and Kenosha to eliminate service north of the City of Racine central business district, and to provide service between the Racine and Kenosha central business districts via STH 20, STH 31, and STH 158	Implement service over new light-rail transit facility between IH 43 and E. Hampton Avenue in the City of Glendale to the Milwaukee County Research Park located west of the Zoo freeway and south of Watertown Plank Road Expand Milwaukee urbanized area service by adding new routes, including: • From the Bayshore Shopping Center at E. Silver Spring Drive and N. Port Washington Road in the City of Glendale to the transit station at IH 94 and College Avenue in the City of Milwaukee via Port Washington Road, 6th and 7th Streets, S. Howell Avenue, and W. College Avenue • From the transit station at 13th Avenue and E. Rawson Avenue in the City of Oak Creek to the City of Milwaukee central business district via E. Rawson Avenue, Chicago/Packard Avenue, Kinnickinnic Avenue, and S. 1st Street • From the transit station at N. 124th Street and W. Capitol Drive in the City of Brookfield to the University of Wisconsin-Milwaukee via Capitol Drive and Downer Avenue	Expand Milwaukee urbanized area service by adding new routes, including: • From the Mayfair Shopping Center at W. North Avenue and N. Mayfair Road in the City of Wauwatosa to the University of Wisconsin-Milwaukee via North Avenue and Downer Avenue • From the Northridge Shopping Center at W. Brown Deer Road and N. 76th Street in the City of Milwaukee to the Southridge Shopping Center at W. Edgerton Avenue and S. 76th Street in the Village of Greendale via 76th Street and the Milwaukee Regional Medical Center • From the transit station at S. 76th Street and the IH 94 busway in the City of West Allis to the City of Milwaukee central business district via S. 76th Street, National Avenue, S. 2nd Street
Local Transit[c]	Continue existing fixed-route service within Milwaukee and Waukesha Counties and within the Cities of Kenosha, Racine, and Waukesha Continue existing shared-ride taxi services in the Cities of Hartford, Port Washington, West Bend, and Whitewater	Extend fixed-route service to medium-density development and industrial areas in: • Northern and southern Milwaukee County • The Village of Butler and the Cities of New Berlin and Waukesha in Waukesha County • The west side of City of Racine • The west side of City of Kenosha Make modest route realignments and reduce peak and off-peak headways on selected routes in Milwaukee County Continue existing shared-ride taxi services and expand to new areas as warranted	Continue extending fixed-route service to medium-density development and industrial areas in: • Northern and southern Milwaukee County • The Villages of Butler and Menomonee Falls and the Cities of New Berlin and Waukesha areas in Waukesha County • The eastern portion of the Town of Caledonia and developing areas along IH 94 in eastern Racine County • The Village of Pleasant Prairie and developing areas along IH 94 in eastern Kenosha County Reduce headways on major routes in Milwaukee County outside express corridors to provide 10-minute peak and 20-minute midday off-peak service Reduce headways on major routes in the Cities of Racine and Kenosha to provide 15-minute peak service Add weekday and Saturday evening service until 10:00 p.m. in the Cities of Kenosha, Racine, and Waukesha Continue existing shared-ride taxi services and expand to new areas as warranted	Expand fixed-route service to provide collection-distribution service within commercial, office, and industrial development in: • The area of IH 94 and CTH K in Racine County • The Pabst Farms development north of IH 94 and east of STH 67 in Waukesha County • The area of IH 94 and STH 83 in Waukesha County

Footnotes to Table 28

[a]All rapid transit routes would provide service on weekdays from 6:00 a.m. until 8:30 a.m. and from 3:30 p.m. until 6:00 p.m. Service would also be provided over selected routes during weekday midday periods. No service would be provided over rapid routes on weekday evenings or weekends. Operating headways on rapid routes would range from five to 30 minutes during morning and afternoon peak period, and from 30 to 60 minutes during the midday period.

[b]All express transit routes would provide service on weekdays from 6:00 a.m. until 6:00 p.m. Service would also be provided over selected routes during weekday evenings and on weekends. Operating headways on express routes would range from five to 15 minutes during morning and afternoon peak periods, from 10 to 30 minutes during the weekday midday period, and from 20 to 30 minutes during weekday evenings and on weekends.

[c]Operating headways on new local transit routes would be similar to existing local service headways. During the morning and afternoon peak periods local headways would range from 10 to 30 minutes in Milwaukee County, 15 to 30 minutes in Kenosha and Racine, and 30 minutes in Waukesha. During off-peak periods local headways would range from 20 to 60 minutes in Milwaukee County, 30 to 60 minutes in Kenosha and Racine, and 60 minutes in Waukesha.

Source: SEWRPC.

(This page intentionally left blank)

APPENDIX

(This page intentionally left blank)

Appendix A

TRANSPORTATION SYSTEM DEVELOPMENT OBJECTIVES, PRINCIPLES, AND STANDARDS

OBJECTIVE NO. 1

A multi-modal transportation system which, through its location, capacity, and design, will effectively serve the existing regional land use pattern and promote the implementation of the regional land use plan, meeting and managing the anticipated travel demand generated by the existing and proposed land uses.

PRINCIPLE

An integrated multi-modal regional transportation system connects major land use activities within the Region, providing the accessibility essential to the support of these activities. Through its effect on accessibility, the regional transportation system can be used to induce development in desirable locations and to discourage development in undesirable locations.

STANDARDS

1. The transportation system should provide service by highway and public transit modes within each urbanized area of the Region so that all residents of an urbanized area, without regard to color, race, or national origin, are:

   a. within 30 minutes' overall travel time[a] through travel by personal vehicle on the arterial street and highway system and 45 minutes' overall travel time through travel on the public transit system of 40 percent of that urbanized area's employment opportunities;

   b. within 35 minutes' overall travel time of three major retail and service centers in the Milwaukee urbanized area and one such center in the Kenosha and Racine urbanized areas;

   c. within 40 minutes' overall travel time of a major medical center and/or 30 minutes overall travel time of a hospital and/or medical clinic;

   d. within 40 minutes' overall travel time of a major park or outdoor recreation area;

   e. within 40 minutes' overall travel time of a vocational school, college, or university; and

   f. within 60 minutes' overall travel time of a scheduled air transport terminal.

2. The regional transportation system should be adjusted to the regional land use plan so that a higher relative accessibility is provided to areas in which higher-density development is planned than to areas in which low-density development is planned or to areas which should be protected from development.

3. Urban rapid transit service should connect and serve:

   a. major retail and service centers;

   b. major industrial centers;

   c. major medical centers;

   d. major park and outdoor recreation areas;

   e. vocational schools, colleges, and universities;

   f. scheduled air transport terminals; and

   g. high-density residential areas.

OBJECTIVE NO. 2

A transportation system which is economical and efficient and best meets all other objectives while minimizing public and private costs.

PRINCIPLE

The total resources of the Region are limited, and any undue investment in transportation facilities and services must occur at the expense of other public and private investment; therefore, total transportation costs for the desired level of service should be minimized.

STANDARDS

1. The sum of transportation system operating and capital investment costs[b] should be minimized.

2. The direct benefits derived from transportation system improvements should exceed the direct costs of such improvements.

3. Full use of all existing major transportation facilities should be encouraged through low-capital-intensive and noncapital-intensive transportation system management measures[c] cooperatively fostered by government, business, and industry, prior to any capital-intensive or disruptive construction or provision of new facilities and services.

OBJECTIVE NO. 3

A multi-modal transportation system which provides appropriate types of transportation needed by all residents of the Region regardless of race, color, national origin, age, physical ability, or income status, at an adequate level of service; choices among transportation modes; and intermodal connectivity. The transportation system shall also permit ready adaptation to changes in travel demand, transportation technology, modal use, and new transportation management measures.

PRINCIPLE

A flexible, intermodal regional transportation system, functionally integrated into the larger urban complex, is necessary to provide an adequate level of transportation service to all segments of the population and to support essential economic and social activities. A regional transportation system consisting, as may be found appropriate, of arterial street and highway facilities, public transit facilities, bicycle and pedestrian facilities, associated terminal facilities, and transportation system management measures can be located and designed to be readily adaptable to changes in transportation technology and to the major socio-economic changes that affect travel demand. Arterial streets and highways provide for the movement of persons utilizing automobiles, taxicabs, buses, and bicycles and for the major transport of goods utilizing trucks and buses. Public transit provides passenger service utilizing rail vehicles, buses, vans, and taxicabs. Public transit supplies additional passenger transportation system capacity which can alleviate peak loadings on highway facilities and assist in reducing the demand for additional highways and for land necessary for parking facilities at major regional land use activities. Bicycle and pedestrian facilities which may provide for the sole movement of bicyclists and pedestrians may share the rights-of-way of arterial streets and can be designed to promote connectivity between various modes of travel. Transportation system management can facilitate safe and efficient travel on highway and public transit facilities, can influence travel demand, and reduce peak loadings on the transportation system.

STANDARDS

1. ARTERIAL STREET AND HIGHWAY SYSTEM

a. Arterial streets and highways should be provided at intervals of no more than one-half mile in each direction in urban high-density areas, at intervals of no more than one mile in each direction in urban medium-density areas, at intervals of no more than two miles in each direction in urban low-density and suburban-density areas, and at intervals of no less than two miles in each direction in rural areas.

b. Freeways or expressways should be considered for those travel corridors[d] within the Region which meet all of the following criteria:

   1) The corridor provides intercommunity service;

   2) The desired speeds or a volume-to-design capacity ratio of 1.0 requires control of access and an uninterrupted flow; and

   3) Potential average weekday traffic exceeds 45,000 vehicles per day in urban areas and 25,000 vehicles per day in rural areas.

2. PUBLIC TRANSIT

a. Urban public transit facilities should be provided to connect[e] noncontiguous urban development with the urban center[f] of an urbanized area and within urbanized areas local transit should be provided to serve[g] only high- and medium-density residential neighborhoods and to connect such neighborhoods to the following land areas:

1) Transportation terminal facilities, including interregional and urban rapid and express transit service loading and unloading points and scheduled air transport terminals;

2) Major and community retail and service centers;

3) Major and community industrial centers;

4) Major parks and such special-use areas as zoological and botanical gardens, civic centers, senior citizen centers, fairgrounds, arenas, and stadiums; and

5) Such institutions as universities, colleges, vocational schools, secondary schools, community libraries, hospitals, mental health centers and sanitariums, and seats of State, county, and local governments.

b. Urban rapid transit service should be provided in travel corridors where service will save a minimum of one minute per mile of travel over alternative local transit service and where in-vehicle trip length is four miles or longer.

c. Rapid or express transit service should be provided as necessary to reduce peak loadings on arterial streets and highways so as to maintain a desirable level of transportation service between component parts of the Region.

d. Rapid and express transit service should be extended as warranted to perform a collection and distribution function so as to maximize the convenience of transit service.

e. Urban residential land shall be considered as served by urban public transit when such land is within the distance or time of the various types of service set forth in the following table:

Type of Urban Public Transit Service	Maximum Distance or Time		
	Walking	Driving	Feeder Bus or Van
Rapid[h]	0.50 mile	3.0 miles	15 minutes
Express[i]	0.50 mile	1.5 miles	--
Local[j]	0.25 mile	1.5 miles	--

f. The number of residents of an urbanized area served by rapid transit should be maximized.

g. The number of jobs in an urbanized area served by rapid transit should be maximized. A job shall be considered served by rapid transit if it is within a one-half mile walking distance or a 15-minute feeder bus ride of a rapid transit stop.

h. Public transit routes should be direct in alignment, with a minimum number of turning movements, and arranged to minimize duplication of service and minimize transfers which would discourage transit use.

I. Operating headways[k] for local transit service within urban areas shall be designed to provide service at intervals capable of accommodating passenger demand at the recommended load standards, but shall not exceed 30 minutes during weekday peak periods nor 60 minutes during weekday off-peak periods and weekends.

j. Operating headways for rapid transit service should be designed to provide service at intervals capable of accommodating demand at the recommended load standards, but shall not exceed 30 minutes. Operating headways shall be less than 30 minutes if necessary to meet transit demand during weekday peak periods.

k. Urban fixed-route public transit stops within urban areas should be located as follows:

Type of Urban Public Transit Service	Location of Stops
Rapid	At terminal areas and one-half mile or more on line-haul sections
Express	At terminal areas, intersecting public transit routes, intersecting arterial streets, and major traffic generators
Local	From 600 to 1,200 feet apart

l. Express and local public transit routes should be located sufficiently near concentrations of demand, including within the central business districts, so that 90 percent of transit users need walk no more than one block, or 600 feet, to a stop.

m. Rapid transit routes should be located sufficiently near concentrations of demand, including the central business districts, so as to maximize the number of users who need walk no more than one-quarter mile to a stop.

n. The proportion of total trips to the Milwaukee central business district by public transit should be increased to at least 30 percent.

o. Public transit stops should be located and designed to minimize walking distance to and from major trip generators; to provide protection from inclement weather; to promote ready access by feeder bus service where appropriate; and to provide, to the greatest extent practicable, modal interface with other forms of personal and public transportation service.

p. Paratransit service should be available within transit service areas to meet the transportation needs of the elderly and of those persons who because of a mental or physical disability are unable to avail themselves of conventional transit service. Specialized transportation service should be available within the rural portions of the Region to provide a level of transit service at least one day per week.

3. BICYCLE AND PEDESTRIAN FACILITIES

Appropriate bicycle and pedestrian facilities should be provided on those arterial streets and highways, on which bicyclists and pedestrians are legally permitted to operate, identified in the Regional Bicycle and Pedestrian Facilities Plan for Southeastern Wisconsin.

OBJECTIVE NO. 4

A transportation system which minimizes disruption of existing neighborhood and community development, including adverse affects upon the property tax base.

PRINCIPLE

The social and economic costs attendant to the disruption and dislocation of homes, businesses, industries, and communication and utility facilities as well as the adverse affects on the natural resource base can be minimized through the proper location, design, and operation of transportation facilities and terminals.

STANDARDS

1. The penetration of neighborhood units and of neighborhood facility service areas by arterial streets and highways and primary rapid transit routes should be minimized.

2. The dislocation of households, businesses, industries, and public and institutional buildings caused by the reconstruction of existing or the construction of new transportation facilities and terminals should be minimized.

3. The total amount of land used for transportation facilities and terminals should be minimized.

4. The reduction of the property tax base caused by the reconstruction of existing or the construction of new transportation facilities and terminals should be minimized.

5. The destruction of historic buildings and of historic, scenic, scientific, archaeological, and cultural sites caused by the reconstruction of existing or the construction of planned transportation facilities and terminals should be minimized.

6. The proper use of land for, and adjacent to, transportation facilities should be maximized and the disruption of future development minimized through advance reservation of rights-of-way for transportation facilities.

7. Transportation facility construction plans should be developed which use sound geometric, structural, and landscape design standards which consider the aesthetic quality of the transportation facilities and the areas through which they pass and which consider any environmental enhancement activities likely to be required.

8. Transportation facilities should be so located as to avoid destruction of visually pleasing buildings, structures, and natural features and to enhance vistas to such features.

OBJECTIVE NO. 5

A transportation system which serves to protect the overall quality of the natural environment, which promotes the public health, and which helps to achieve ambient air quality standards.

PRINCIPLE

Adverse effects on the natural environment, air pollution, water pollution, and the loss of natural habitat and biological diversity in particular, can be minimized through the proper location, design, and operation of the transportation system. The relationship of the residents of the Southeastern Wisconsin Region to the natural environment should be one of stewardship.

STANDARDS

1. The location of transportation facilities in or through primary environmental corridors, particularly through the woodland and wetland portions of such corridors, should be minimized.

2. Any damaging effects on the natural resource base caused by the construction of transportation facilities should be minimized.

3. The amount of air pollutants emitted through the operation of the transportation system should be minimized.[m]

4. The loss of prime agricultural farmland to transportation facility construction should be minimized.

OBJECTIVE NO. 6

A transportation system which facilitates the movement of people and goods between component parts of the Region.

PRINCIPLE

To support the everyday economic and social activities, a transportation system which provides for reasonably fast, convenient travel is essential. Personal vehicle travel, while offering a high degree of mobility, comfort, and convenience, can result, particularly in corridors of high travel demand, in traffic congestion, excessive air pollutant emissions, and unnecessary motor fuel consumption. Effective and attractive high-quality public transit service and bicycle and pedestrian facilities may have the potential to directly reduce traffic congestion and associated personal delay, energy consumption, and air pollution when used by previous automobile users. Traffic congestion increases the costs of transportation and can adversely affect the attractiveness of an area for residential use and for the location and operation of businesses and industries.

STANDARDS

1. Total passenger-hours of travel, by highway and public transit modes, within the Region should be minimized.

2. Total vehicle-hours of highway travel within the Region should be minimized.

3. Total vehicle-miles of travel within the Region should be minimized.

4. Highway transportation facilities should be located and designed so as to provide adequate capacity, that is, a volume-to-design capacity ratio[n] equal to, or less than, 1.0 on the basis of 24-hour average weekday traffic volumes, to meet the existing and potential travel demand.

5. Urban public transit facilities should be designed, implemented, and operated so as to attract the maximum number of travelers currently operating single occupancy vehicles and to provide adequate transit vehicle capacity to meet existing and potential travel demand. The average maximum load factor[o] shall not exceed 1.00 in rapid, express, and local transit service in off-peak periods or beyond the 10-minute point[p] in peak periods. The load factor should not exceed 1.00 in rapid and express transit service provided by bus in peak periods or 1.25 in rapid and express transit provided by rail in peak periods. The load factor should not exceed 1.25 in local transit service in peak periods.

6. Bicycle and pedestrian facilities should be located and designed to attract the greatest number of travelers currently operating single-occupancy vehicles.

7. Adequate capacity and a sufficiently high level of geometric design should be provided to achieve the following overall travel speeds based on average weekday conditions for the arterial street and highway and the urban public transit components of the transportation system:

Transportation System Component	Overall Travel Speed by Area[q] (miles per hour)		
	CBD	Urban	Rural
Arterial Street and Highway			
Freeway	35-55	40-55	50-55
Expressway	25-40	30-50	50-55
Standard Arterial			
Divided	15-25	25-45	45-55
Undivided	15-25	20-40	40-50
Urban Public Transit			
Rapid			
Rail	20-30	40-60	40-60
Bus	10-20	40-50	40-50
Express	10-20	20-35	40-50
Local	5-15	10-20	40-50

8. The use of transportation system management measures should be maximized in travel corridors to achieve the desired level of service for both arterial street and highway and public transit facilities and services.

OBJECTIVE NO. 7

A transportation system which reduces accident exposure and provides for increased travel safety and personal security.

PRINCIPLE

Accidents take a heavy toll in life, property damage, and human suffering; contribute substantially to overall transportation costs; and increase public costs for police, emergency medical services, and other social services. Therefore, every attempt should be made to reduce both the incidence and severity of accidents. Crime and the perception of crime hamper the mobility of persons who must travel within areas deemed unsafe, especially those persons dependent on public transportation; promotes urban blight and unsafe and difficult living and working conditions for those individuals and business who cannot move away from high-crime areas; promotes the costly dispersion of urban development as business and residents seek safer commercial and residential arrangements; increases public costs for police, emergency medical services, and other social services. Therefore, every attempt should be made to reduce the incidence of crime where it hampers mobility and access to basic opportunities the transportation system would otherwise provide in the absence of crime and to increase personal security in the operation of the transportation system.

STANDARDS

1. Travel on facilities which exhibit the lowest accident exposure should be maximized.

2. Traffic congestion and vehicle conflicts should be reduced by maintaining a volume-to-design capacity ratio equal to, or less than, 1.0, on the basis of 24-hour average weekday traffic volumes.

3. Railroad grade separations should be provided at all crossings involving the provision of intercity passenger and commuter train service. For all other crossings, the decision whether or not to provide grade separations should be made at the project planning stage.

OBJECTIVE NO. 8

A transportation system which minimizes the amount of energy consumed, especially such nonrenewable energy sources as fossil fuels.

PRINCIPLE

The environmental costs attendant to the widespread consumption, as well the mining, drilling, and transport, of fossil fuels used in the operation of the transportation system can include air and water pollution and the despoiling of natural land- and water-based wildlife habitats. The long-term efficiency of the transportation system depends on the conservation of existing nonrenewable energy sources and the increased application of renewable energy sources to fuel transportation.

STANDARDS

1. The total amount of nonrenewable energy consumed in the operation of the transportation system, particularly petroleum-based fuels, should be minimized.

OBJECTIVE NO. 9

A transportation system which facilitates linked tripmaking, providing facilities and services necessary for efficient, fast, safe, and convenient intermodal connections.

PRINCIPLE

An intermodal transportation system provides for efficient interaction among appropriate modes of transportation to facilitate effective passenger and freight movement. Where the use of more than one transportation mode is essential for travel between two points or is best able to achieve transportation related objectives, proper modal access, terminal capacity, coordination among transportation providers and between route and schedule information and services are necessary to prevent travel delays and unwanted transportation movements. Time spent waiting for transfers between or among modes raises the costs of travel and may discourage the use of certain modes.

1. The time individuals spend waiting at any modal transfer point for connecting modes of transportation should be minimized.

2. Parking should be provided at park-and-ride transit stations to accommodate the total parking demand generated by trips which change from auto and bicycle to public transit at each station and at carpool lots to accommodate the total parking demand generated by carpool and other ridesharing participants.

NOTE: Standard 1a of Objective No. 1, as initially approved by the Advisory Committee, indicated that both highway and transit modes should provide, within 30 minutes overall travel time, access to 40 percent of an urbanized area's employment opportunities in an urbanized area. In the preparation of alternative system plans, it was found difficult to meet this standard by travel on transit even with significant improvements in transit service. Two factors were found to contribute to this difficulty: the dispersed nature of employment and resident locations within the urbanized areas; and the fact that nearly one-half of overall transit travel time was spent out-of-vehicle. Accordingly, the standard public transit travel time was increased to 45 minutes.

[a]*Overall travel time is defined as the total door-to-door time of travel from origin to destination, including the time required to arrive at the vehicle and leave the vehicle as well as over-the-road travel time.*

[b]*The costs to be considered may be termed "life-cycle costs" and include capital, maintenance, and operational costs for facilities over the projected physical and economic life of the facility.*

[c]Low-capital-intensive and noncapital-intensive alternatives to the construction and provision of new transportation facilities and services may include, but are not limited to, the following transportation management measures:

1. *Such traffic engineering improvements as left- and right-turn lanes, channelization, one-way streets, reversible traffic lanes, intersection widening, bus turnout bays, and improved signing and pavement markings.*
2. *Such traffic control improvements as coordination of traffic signals, use of bus-priority signal control systems, and computer-based traffic control and freeway traffic management.*
3. *Such freeway operational control as advisory information, incident management, on-ramp metering and monitoring, and high-occupancy-vehicle (HOV) lanes and preferential access.*
4. *Ride-sharing programs.*
5. *Such parking management measures as pricing of off-street parking to encourage ride-sharing for short-term parking, preferential carpool/vanpool parking, and increased rates for weekday parking in the central business district.*
6. *Such transit service improvements as special bus lanes, transfer centers, bus turnout bays, shelters, reduced transit fare programs, shuttle service between retail and employment sites, and computer-based interactive scheduling and routing systems.*
7. *Employer-designed trip reduction strategies.*
8. *Staggered work hours.*
9. *Liberal licensing of taxicabs.*
10. *Banning private vehicles from sections of central business districts during weekdays.*

[d]The term travel corridor is defined as a relatively long and narrow geographic area centered on an existing or proposed arterial highway or rapid transit facility along which a substantial volume of persons or goods are, or are expected to be, transported.

[e]Urban public transit facilities shall be considered to connect noncontiguous urban development with the urban center of an urbanized area when the transit vehicle provides immediate access to the urban center and to a public transit system serving the urbanized area.

[f]The term "urban center" is defined as the largest concentrated complex of commercial activities within a single urbanized area.

[g]Urban residential land when shall be considered served by public transit when such land is within the distances of a transit route set forth in Standard 2e of Objective 3.

[h]Rapid transit is intended to facilitate relatively fast and convenient transportation along heavily traveled corridors and between major activity centers and high-density residential communities. Rapid transit has relatively high average operating speeds and relatively low accessibility, with station spacings located one-half mile or more apart. Rapid transit service can be provided by commuter rail and "heavy" rail operating over exclusive, grade-separated rights-of-way or by buses operating over exclusive, grade-separated busways. Rapid transit can also be provided by buses operating in mixed traffic on freeways and by "light" rail operating over exclusive, though unseparated-grade, rights-of-way.

[i]Express transit service is provided over arterial streets and highways with stops generally located less than 1,200 feet apart at intersecting transit routes, intersecting arterial streets, and major traffic generators. Express transit serves trips of moderate length and can be provided by bus or by light rail operating in mixed traffic on shared rights-of-way. Express mass transit service provides a greater degree of accessibility at somewhat slower operating speeds than rapid transit; it may provide "feeder" service to the rapid transit system.

[j]Local transit service is characterized by a high degree of accessibility and low operating speeds. Local service is provided over arterial and collector streets, with stops located no more than 1,200 feet apart. Such service can be provided by bus, trolley, or light rail vehicles. Local transit also provides a passenger collection-circulation-distribution function within

major activity centers. The collection-circulation-distribution function of local transit service may include the use of buses, vans, trolleys, light rail vehicles, automated guideway vehicles, and other types of people movers, such as moving ramps.

[k]The term "operating headway" is defined as the time between any two vehicles operating with fixed routes and schedules.

[l]The percent of urban public transit users walking less than one block from transit stop to destination within the Kenosha, Milwaukee, and Racine central business districts in 1991 is set forth below.

Central Business District	Percent of Transit Users Walking Less than One Block (1991)
Kenosha	87
Milwaukee	81
Racine	90

[m]An analysis, based upon guidelines promulgated by the U. S. Environmental Protection Agency, will be undertaken to demonstrate conformity of the final recommended regional transportation system to the objectives of the Federal Clean Air Act as reflected in the State Implementation Plan for Air Quality.

[n]Volume-to-design capacity ratio is defined as the relationship between the average weekday traffic volume on a particular section of the arterial system and the design capacity of that section, with volume and design capacity expressed in terms of number of vehicles per 24 hours. The design capacity of arterial facilities is set forth in the following table.

Facility Type	Average Daily Traffic Volumes (vehicles per 24 hours)
Urban Freeway	
Four-Lane	60,000
Six-Lane	90,000
Rural Freeway	
Four-Lane	52,500
Six-Lane	85,000
Urban Standard Arterial	
Two-Lane	13,000
Four-Lane Undivided	17,000
Four-Lane Divided	25,000
Six-Lane Divided	35,000
Eight-Lane Divided	45,000
Rural Standard Arterial	
Two-Lane	7,000
Four-Lane Divided	25,000

Arterial facilities operating at or under design capacity will generally permit the following average speeds to be achieved during peak-traffic periods:

Facility Type	Average Traffic Speed	
	Urban	Rural
Freeway		
Posted Speed 50 mph	40-50	--
Posted Speed 55 mph	45-55	45-55
Posted Speed 65 mph	--	55-65
Standard Arterial		
Posted Speed 30 mph	18-27	--
Posted Speed 40 mph	27-37	30-40
Posted Speed 55 mph	--	40-55

Urban standard arterial streets operating over design capacity will provide substantial delays at signalized intersections. During peak-traffic periods, vehicles may have to wait through more than one traffic signal red phase. The average delay to each vehicle at controlled intersections will be at least 35 seconds and may approach 120 seconds. The average travel speed along such urban arterials will generally be less than 15 to 20 miles per hour (mph). In addition, the potential for accidents is increased on arterials carrying traffic volumes over design capacity. Standard arterials operating at design capacity will have average speeds of about 20 to 30 mph and average delays at signalized intersections of about 25 seconds. Urban standard arterials operating below design capacity will have average speeds of 25 to 40 mph and average delays at signalized intersections of five to 15 seconds.

Rural arterials (with a 55-mph speed limit) operating over design capacity will have average speeds of 30 to 45 mph with significant restrictions on lane changing on multi-lane facilities and on passing on two-lane facilities. Rural arterials operating at design capacity will have average speeds of 40 to 50 mph with some restrictions on lane changing or passing. Rural arterials operating under design capacity will have average speeds of 50 to 55 mph with minimal restrictions on lane changing or passing.

Freeways operating over design capacity will have average speeds of 30 to 45 mph with significant restrictions on lane changing. Stop-and-go traffic at speeds below 30 mph may occur behind over-design-capacity freeway sections. Freeways operating at design capacity will have speeds of 40 to 50 mph with some restrictions on lane changing. Freeways operating under design capacity (with 55-mph speed limit) will have average speeds of 55 mph with no restrictions on lane changing.

[o]The average maximum load factor is defined as the ratio of the number of passengers carried on public transit vehicles past the maximum load point of any route to the seating capacity of vehicles past that point in the peak-flow direction during the operating period.

[p]The 10-minute point is a point located 10 minutes of travel time from the maximum load point on any public transit route. Application of this standard would provide that no passenger would have to stand on board the public transit vehicle for longer than 10 minutes.

[q]Overall travel speed is defined as the over-the-road travel distance divided by the overall travel time.

Source: SEWRPC.