COMMUNITY ASSISTANCE
PLANNING REPORT NO. 154

A TRANSIT SYSTEM DEVELOPMENT PLAN FOR THE CITY OF WAUKESHA: 1988-1992

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NUMBER 154

A TRANSIT SYSTEM DEVELOPMENT PLAN FOR THE CITY OF WAUKESHA: 1988-1992

Prepared by the

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

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December 1989

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December 21, 1989

Mr. Rodney W. Vanden Noven, Chairman
Waukesha Transit System Utility Board
Waukesha City Hall
201 Delafield Street
Waukesha, Wisconsin 53186

Dear Mr. Vanden Noven:

In September 1986 the City of Waukesha Transit System Utility Board requested the assistance of the Southeastern Wisconsin Regional Planning Commission in the preparation of a new, five-year city transit system development plan. The plan, which was to identify required transit improvements for the period 1988 through 1992, was needed to bring up to date the recommendations contained in a similar transit development plan completed in 1983. To advise and assist the Commission staff in the preparation of the new plan, Mayor Paul J. Vrakas created the City of Waukesha Transit System Development Plan Advisory Committee composed of elected and appointed officials, businessmen, and concerned citizens.

The Commission staff, working with the Advisory Committee, has now completed and is pleased to provide to you herewith on behalf of the Committee this report setting forth a new five-year transit system development plan for the City of Waukesha. The report presents transit service objectives and related performance measures as formulated under the study; the findings of inventories of pertinent demographic, economic, and land use characteristics of the City of Waukesha and environs and of the travel characteristics of city residents; the results of an assessment of both systemwide and route-by-route transit system performance considering operating characteristics, ridership, and financial return; and recommended operational changes that would expand the transit services provided by, and improve the performance of, the city transit system.

The plan recommends a number of changes in the current routes and schedules. Foremost among these changes would be the realignment of five existing bus routes, the addition of two new bus routes, and the expansion of special school day-only transit service provided to serve city elementary and secondary school students who are not eligible to receive yellow school bus service from the School District of Waukesha. In addition, the plan recommends that the existing city and county bus services provided in the corridor between downtown Waukesha and the Brookfield Square Shopping Center be combined, and that city and county officials initiate discussions directed at resolving matters related to the administration, operation, and funding of the proposed city-county bus service. Finally, the plan recommends that, while the City continues to operate its public transit program separately from the county program, efforts be made to better coordinate both programs in such matters as route schedules, staff resources, and the private firms employed to operate and manage the transit services.

The findings and recommendations of this report were carefully reviewed and approved by the Advisory Committee and are herewith submitted on behalf of the Committee for consideration and action by the City. The recommended plan can provide valuable guidance to city officials concerned with transit system development in a period when the transit system will have to be responsive to the changing development patterns and service needs of the City while also becoming more effective and efficient.

The Regional Planning Commission is appreciative of the assistance and support provided in the preparation of the recommended transit system development plan by the Waukesha Transit System Utility Board, the Waukesha Department of Public Works, and the City Transit Coordinator, as well as by the Advisory Committee. The Commission stands ready to assist the City in presenting the recommended plan to the public for review and evaluation, and in implementing the recommended service changes over time.

Sincerely,

Kurt W. Bauer
Executive Director

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Chapter I

INTRODUCTION

On September 24, 1986, the City of Waukesha requested the assistance of the Regional Planning Commission in the preparation of a new transit development plan for the City of Waukesha. Previous transit service plans prepared by the Commission for the city transit system were now outdated, including a transit development plan completed in 1980 which recommended the reestablishment of transit service in the City and transit system development over the period 1981 through 1985;[1] and an analysis of transit system operations completed in 1983 which recommended actions for improving transit service over the period 1983 through 1986.[2] The new plan was also requested to address certain route and scheduling problems on the transit system, and certain emerging issues concerning the operation of the system.

The requested transit development plan is documented in this report. The plan is based upon a thorough evaluation of the performance of the existing transit system operated by the Waukesha Transit System Utility; analyses of the personal travel habits, patterns, and needs of the residents of the City and environs; analysis of the transportation needs of the existing land use pattern; and a careful evaluation of alternative courses of action for providing the needed transit services. The plan also identifies the financial commitment and actions necessary by the various levels and units of government concerned to implement the plan.

STUDY PURPOSE

The purpose of this transit plan is fivefold:

1. To evaluate the effectiveness of the existing route structure and schedules in serving the population concentrations, major trip generators, and travel habits and patterns of the Waukesha area.

2. To evaluate the financial performance of the current transit system with regard to operating costs, passenger revenues, operating deficits, and proportion of operating costs recovered by passenger revenues.

3. To recommend potential changes which should be considered in the operation of, and areas served by, the existing routes of the transit system, including:

   a. The extension of transit service by the City of Waukesha into other communities, including the City of Brookfield;

   b. The provision of student transportation within the City of Waukesha; and

   c. Other changes needed to address routing and scheduling problems identified in the evaluation of the performance of the transit system.

4. To recommend the best means of coordinating city transit service, including schedules and fares, with service provided by other transit systems in the area, in particular the Waukesha County system.

5. To identify potential methods for distributing the annual apportionment of federal Urban Mass Transportation Administration (UMTA) Section 9 formula funds between Waukesha County and the City of Waukesha.

SCOPE OF WORK

Seven specific steps were involved in the preparation of this transit development plan. The first step was the formulation of appropriate transit service development objectives and supporting performance standards and design criteria. The second step was the collation and collection of the socioeconomic, land use, and travel habit

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[1] *See SEWRPC Community Assistance Planning Report No. 31, Waukesha Area Transit Development Program: 1981-1985, February 1980.*

[2] *See SEWRPC Community Assistance Planning Report No. 83, A Transit System Operations Analysis for the City of Waukesha Transit System, May 1983.*

and pattern data pertinent to the evaluation of existing and proposed transit services. The third step was an analysis of the operation of the existing transit system, including the identification of any potential deficiencies in that system. The fourth step was the development and evaluation of alternative changes in transit service which could address the identified problems and deficiencies. The fifth step was the preparation of a program of recommended changes in the transit system. The sixth step was the preparation of a financial plan, including the presentation of data on the estimated capital and operating expenses, passenger revenues, and operating deficits for the modified system, and on the portions of the associated capital and operating deficits that can be funded through federal and state transit assistance programs and the portion that needs to be funded through local taxes. The seventh step was the identification of the actions needed to be taken by the City of Waukesha and by each of the other concerned levels and units of government to implement the recommended changes in the transit system and thereby achieve the recommended modified system and associated needed services.

STUDY AREA

The study area considered in the report includes all the City of Waukesha; the northern one-half of the Town of Waukesha; the southern one-half of the Town of Pewaukee; and small portions of both the Village of Pewaukee and the Town of Brookfield, wherein the Waukesha County Technical Institute and the Goerke's Corners public transit station, respectively, are located. The study area includes the entire area served by the fixed-route bus system operated by the Waukesha Transit System Utility in August 1988. The study area is shown on Map 1. As deemed appropriate, the inventories and analyses conducted under this study included certain major traffic generators located outside the study area boundaries, including, in particular, the Brookfield Square Shopping Center located in the City of Brookfield.

It was recognized in the planning effort that the City of Waukesha is also currently served by two commuter-oriented bus routes operated between the City and downtown Milwaukee by a private transit operator under a contract with Waukesha County. These routes are part of a system of routes so operated by Waukesha County—for which a transit development plan was concurrently developed by the Regional Planning Commission. The city and county transit development plans were thereby fully integrated with respect to jurisdictional responsibilities, as well as type of service, route structure, area of service, scheduling of service, and funding.

STUDY ORGANIZATION

The preparation of this transit development plan was a joint effort by the staffs of the City of Waukesha and the Southeastern Wisconsin Regional Planning Commission. Additional staff assistance was obtained as necessary from certain other agencies concerned with transit development in the City of Waukesha and environs, including the staffs of the City of Waukesha Department of Public Works; Transit Management of Waukesha, Inc.; and the Wisconsin Department of Transportation.

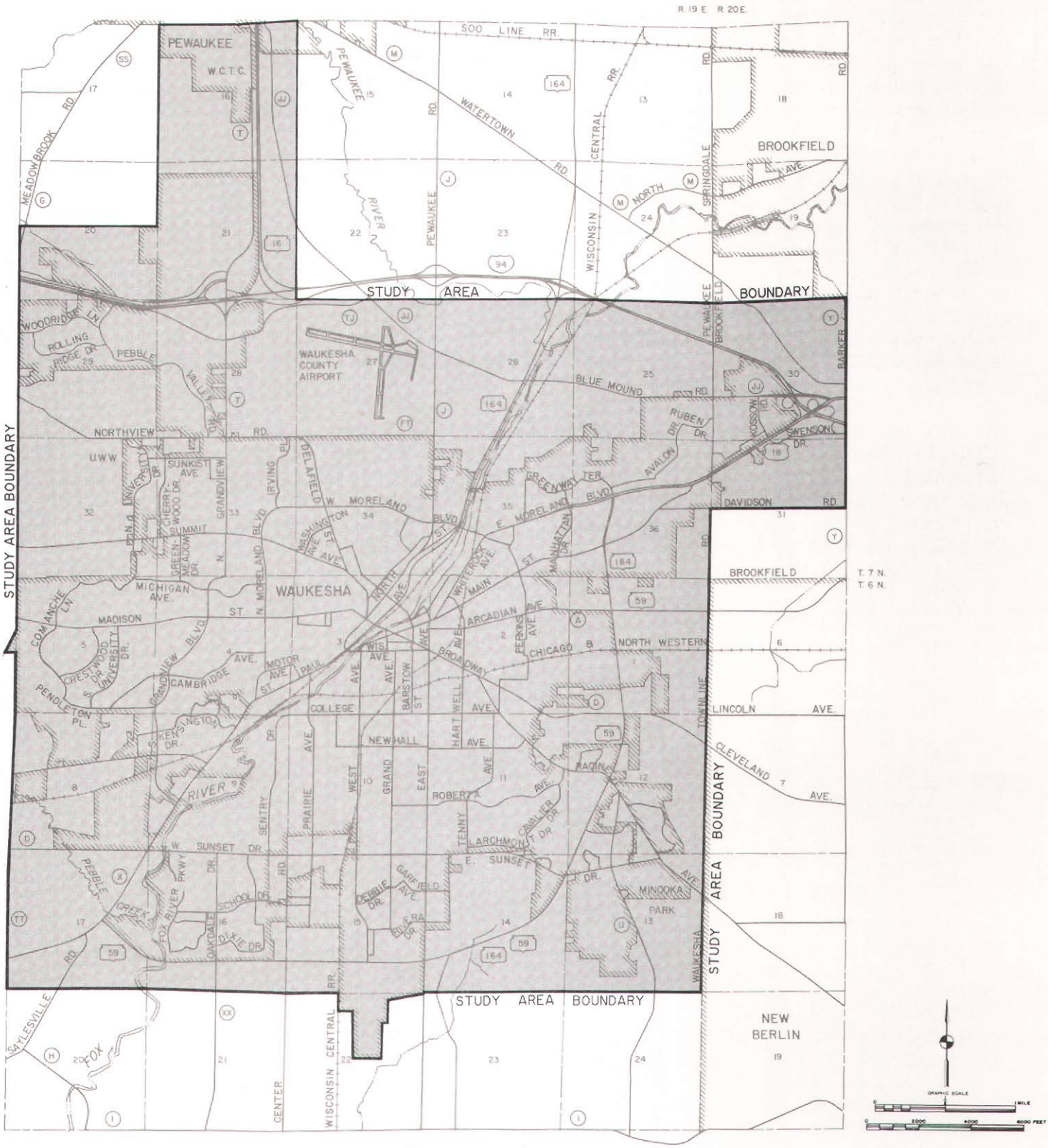
To provide guidance to the technical staffs in the preparation of this plan, and to more directly and actively involve concerned and affected public officials and citizen leaders in the development of transit service policies and improvement proposals, the City of Waukesha reactivated the Waukesha Transit Development Program Advisory Committee. The Advisory Committee had originally been created in January 1975 and had worked with the Regional Planning Commission and the City of Waukesha in conducting previous transit planning studies for the City, including studies conducted to prepare two transit development programs, one completed in 1976 and the other completed in 1980; a study to identify a location for a central transfer terminal for the transit system completed in 1982; and a study of transit system operations completed in 1983. The full membership of this Committee is listed on the inside front cover of this report.

SCHEME OF PRESENTATION

This planning report consists of nine chapters. Following this introductory chapter, Chapter II, "Existing Transit System," presents a description of the public transit system serving the City of Waukesha and environs as that system existed in August 1988, including descriptions of fixed-route bus service, specialized service for the transportation handicapped, equipment, fares,

Map 1

STUDY AREA FOR THE CITY OF WAUKESHA TRANSIT DEVELOPMENT PLAN



Source: SEWRPC.

ridership, administrative structure, operating costs, revenue, and deficits. Importantly, the chapter describes the status of implementation of previous plans. Chapter III, "Land Use and Travel Patterns," describes the pertinent land use, demographic, and economic characteristics, and major person-trip generators in the study area, as well as the travel habits and patterns of the transit riders currently using the transit system.

Chapter IV, "Existing Transit Legislation and Regulations," summarizes legislation and related regulations existing at the federal, state, and local levels affecting the provision of public transit service in the City of Waukesha and environs. Chapter V, "Transit Service Objectives and Standards," sets forth a set of transit service objectives and supporting performance standards and design criteria used to identify problems and deficiencies in the service provided by the city transit system in 1988, and to design and evaluate alternative and recommended actions to alleviate such problems and deficiencies. Chapter VI, "Transit System Performance Evaluation," presents an evaluation of the performance of the existing transit system, identifying service-related problems and deficiencies. Considered are population and land uses served, location of transit-dependent population groups, jobs served, and existing travel habits and patterns. Route performance evaluations as well as systemwide evaluations of operating characteristics, ridership, and financial performance are presented. Chapter VII, "Alternative and Recommended Transit Service Changes," identifies, describes, and evaluates a series of changes that should be considered to improve the overall performance of the transit system. Chapter VIII, "Recommended Transit Plan," sets forth desirable changes in the existing transit system and describes the recommended transit development plan for the City of Waukesha and environs. Recommendations are made for both fixed-route and specialized public transit services; capital and operating costs; fare box revenues; and operating deficits. This chapter also includes a financing plan, including amounts and sources of funds for capital and operating deficits, and identifies the actions that should be taken by each level and unit of government concerned to carry out the recommended plan in an orderly and timely manner. Chapter IX, "Summary and Conclusions," provides a summary of the significant findings and recommendations of the planning effort.

Chapter II

EXISTING TRANSIT SYSTEM

An understanding of the existing public transit system within the study area is basic to the preparation of any sound transit development plan. This understanding should be based upon a thorough inventory of current transit operations and appropriate survey data describing the travel habits and patterns and socioeconomic characteristics of the existing transit ridership. This chapter documents the findings of an inventory of public transit services serving the City of Waukesha and environs. A brief history of transit development within the City is included, and the operations of Waukesha Metro Transit—the main supplier of public transit service in the City—are described. Also, a description is provided of the implementation status of related transit projects recommended for the City by the previous transit service studies conducted by the Commission. Finally, this chapter describes the operations of other major suppliers of public transit service serving the Waukesha area. A description of the transit travel habits and patterns and socioeconomic characteristics of Waukesha Metro Transit riders, based upon a survey conducted in November 1987, is provided in the following chapter.

HISTORY OF TRANSIT DEVELOPMENT

Public transit service was initiated in the Waukesha area in 1895 with the construction of an electric railway line between Waukesha and Waukesha Beach, a popular recreation area located on Pewaukee Lake. The cars operated on half-hour schedules. This line was sold to an electric interurban railway operator, The Milwaukee Electric Railway & Light Company (TMER&L) in 1897. Electric interurban railway service was initiated by this company between the Five Points in downtown Waukesha and downtown Milwaukee in 1898, and later that year the service was extended to Waukesha Beach. Tracklaying through the City of Waukesha was greeted with considerable opposition from local citizens. Workers were stoned by local citizens and were even hosed with cold water by the fire department. Nevertheless, the line was completed and was extended to Oconomowoc by 1907 and Watertown by 1908.

Figure 1

INTERURBAN ELECTRIC RAILWAY CAR OPERATED BETWEEN WAUKESHA AND MILWAUKEE CIRCA 1940

Source: City of Waukesha Transit System Utility.

Within Waukesha, interurban trains similar to the one shown in Figure 1 were operated on Lincoln Avenue, Broadway, Delafield Street, and Summit Avenue, and provided some local service. It was not until August 1941 that local bus service was inaugurated in the City of Waukesha. By that time, declining ridership had forced a cutback in electric interurban railway service to the western city limits of Waukesha. In 1945, the electric interurban railway service was further cut back to the Waukesha central business district. Bus service in the Milwaukee-Waukesha corridor was inaugurated by Waukesha Transit Lines in 1951 and, for a brief period, both interurban bus and electric interurban railway service were provided in the corridor. After two changes of ownership, the electric interurban railway service was discontinued on June 30, 1951, as a result of financial losses, leaving only the interurban bus service between Waukesha and Milwaukee, provided by Waukesha Transit Lines. When in 1963 the company obtained operating rights to several other interurban bus routes, it changed its corporate name from Waukesha Transit Lines to Wisconsin Coach Lines, Inc. The company also developed an extensive charter business to locations throughout the continental United States and Canada.

Examples of the buses operated by the company between 1941 and 1963 are illustrated in Figure 2.

Actions leading to the discontinuation of privately operated transit service within the City of Waukesha began in 1970. Up until 1970, ridership on the local Waukesha bus system operated by Wisconsin Coach Lines, Inc., had remained relatively stable. However, in late 1970 the Waukesha Common Council Budget Committee requested that the Waukesha School Board eliminate a total of $180,000 from the 1971 budget. As a partial response to this request, the School Board eliminated $77,000 which had been budgeted for subsidizing the fares of city students who resided more than two miles from their school and used the local bus service provided by the private operator to travel between their home and school. This action resulted in a dramatic reduction in the number of passengers utilizing the local bus service, with total ridership on the transit system in 1971 being nearly 50 percent below that of the previous year. The private transit operator responded to the ridership losses by reducing service and raising fares in 1971 which, in turn, resulted in further ridership losses on the transit system between 1972 and 1975, and additional service reductions and fare increases by the private operator in 1975. After the private operator had successfully petitioned the Wisconsin Public Service Commission for the abandonment of its regular local bus service within the City in the fall of 1975, the City of Waukesha agreed to subsidize the operating deficit for the service while it explored the possibilities of obtaining federal and state operating assistance. Upon determining that state and federal operating assistance funds would not be immediately available, the City allowed Wisconsin Coach Lines, Inc., to discontinue operation of its two regular local transit service routes in the City of Waukesha on May 28, 1976. School tripper bus service was continued by the company until November 1977, when it, too, was discontinued owing to declining passenger revenues and a labor dispute with the local bus operators' union.

In February 1975, while the local bus system was still in operation, the Regional Planning Commission, at the request of the City, initiated work on a transit development program for the Waukesha area. Working with a citizens and technical coordinating and advisory committee,

Figure 2

MOTOR BUSES USED IN PUBLIC TRANSIT SERVICE IN THE CITY OF WAUKESHA: 1941-1963

CIRCA 1941

CIRCA 1954

CIRCA 1963

Source: City of Waukesha Transit System Utility.

the Commission completed work on the transit development program, documenting the committee recommendations in January 1977,[1] approximately one and one-half years after local bus service had been discontinued. The Committee recommended that local public transit service be reestablished through the development of a publicly subsidized demand-responsive transit service for the City of Waukesha and environs, similar to the service being provided by local taxicab companies. This recommendation, however, was rejected by a two-to-one margin by the voters in a citywide referendum held in April 1977.

A second attempt to reestablish local public transit service within the City of Waukesha was begun in July 1979. At that time, the advisory committee involved in the preparation of the transit development program was reactivated by the Mayor of the City of Waukesha and charged with determining if the effects of the "energy crisis" of 1979 had had any impact on the need and public support for the provision of public transit service in the area. The Regional Planning Commission staff, working with the reactivated committee, prepared a revised transit development program for the Waukesha area, completing the new plan and report in February 1980.[2] The transit system recommended by the Committee under the new plan consisted of nine radial fixed bus routes originating at the outer limits of the City of Waukesha and terminating at a common bus transfer point located in the Waukesha central business district. The plan recommended public ownership of the transit system, with the operation and management to be provided by private enterprise under contract to the City. The Committee's recommendations were approved by 69 percent of the voters in a citywide referendum held on April 1, 1980. The plan was adopted by the Common Council of the City of Waukesha on May 6, 1980.

Following the formation of a Transit System Utility Board in October 1980 to guide the institution and operation of the proposed transit system; the hiring of a transit coordinator in January 1981 to oversee and coordinate all activities necessary for the operation of the recommended transit service; and the selection of a private management firm in July 1981 to assume responsibility for the management of the day-to-day operation of the transit system, operation of the new fixed-route transit system—Waukesha Metro Transit—began on August 31, 1981, using eleven 45-passenger surplus buses leased from another public transit system. The used buses were replaced by new buses in 1983.

WAUKESHA TRANSIT SYSTEM UTILITY

The major supplier of public transit service in the study area is the City of Waukesha Transit System Utility, which, as previously noted, has operated fixed-route, local bus service within the City and environs since August 31, 1981. The following sections describe the existing operations of the transit system in terms of administration and management, routes and schedules, fare structure, facilities and equipment, ridership levels, financial status, and implementation status of previous transit plan recommendations.

Administrative Structure

The management and policy-making structure for the Waukesha Transit System Utility is summarized in the organizational chart shown in Figure 3. Responsible for the management and operation of the transit system are the Transit Coordinator in the City of Waukesha Department of Public Works and the General Manager, an employee of the private management firm. The City of Waukesha owns the equipment and facilities used in the operation of the transit system, but has elected to place the responsibilities for the management of the day-to-day operation of the system with private enterprise. The City of Waukesha has contracted for such services with the national transit management firm of ATE Management & Service Company, Inc. The former private operator of the local transit system in the City of Waukesha—Wisconsin Coach Lines, Inc., which is still in operation and providing commuter and charter services within the area—was requested by the City to consider the management proposal, but declined to bid on the contract.

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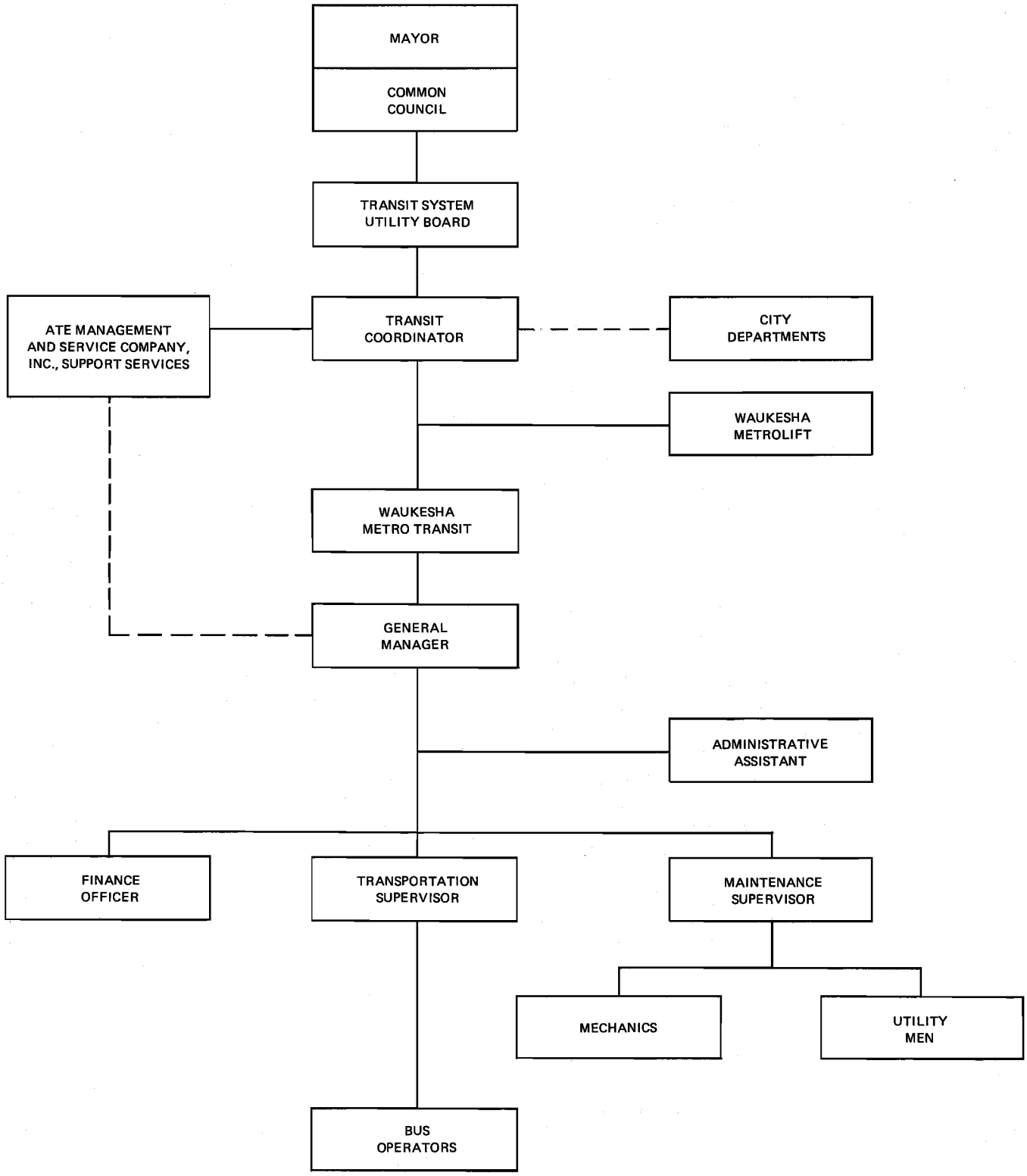
[1] *See SEWRPC Community Assistance Planning Report No. 12, Waukesha Area Transit Development Program: 1977-1981, January 1977.*

[2] *See SEWRPC Community Assistance Planning Report No. 31, Waukesha Area Transit Development Program: 1981-1985, February 1980.*

Figure 3

WAUKESHA TRANSIT SYSTEM UTILITY ORGANIZATION CHART



Source: City of Waukesha Transit System Utility and SEWRPC.

The Transit Coordinator is specifically responsible for the supervision of the activities and performance of the management firm, as well as the administrative affairs associated with transit planning and programming, federal and state grants administration, and marketing and policy implementation. The General Manager is responsible to the Transit Coordinator for the management of the day-to-day operations of the transit system, and devotes full time to this responsibility. In this capacity, the General Manager oversees all operations and maintenance functions necessary for the continued operation of the bus system.

Fixed-Route Bus Service

When the City of Waukesha Transit System Utility began operation of the transit system in August 1981, the system included 10 fixed routes. Service modifications made between 1981 and 1988 have reduced the number of routes operated by the transit system from 10 to 8, while expanding the service provided to residential areas of the City and major traffic generators both within and just outside the City. The eight bus routes operated by the City in 1988 to provide regularly scheduled local bus service within the study area are shown on Map 2.

The eight routes are primarily radial in design. Six of the eight routes—Routes 2, 3, 4, 6, 7, and 8—provide service primarily within the City of Waukesha, with only minor portions of Routes 2, 6, and 8 operated outside the City's corporate limits. The remaining two radial routes—Routes 1 and 9—service important traffic generators located outside the Waukesha corporate limits. Route 1 extends approximately 0.6 mile outside the City's corporate limits to serve the Goerke's Corners public transit station and the Crossroads Corporate Center in the Town of Brookfield; while Route 9 extends approximately 0.8 mile outside the City's corporate limits to serve Waukesha County Technical College in the Village of Pewaukee.

Bus service is provided by the transit system for approximately 12.5 hours on weekdays between 6:00 a.m. and 6:30 p.m., and for approximately nine hours on Saturdays between 9:00 a.m. and 6:00 p.m. No bus service is provided on Sundays or holidays. All routes operate throughout the service day. The service characteristics of each route of the transit system are summarized in Table 1.

All bus routes terminate at a common transfer terminal in the Waukesha central business district located in the municipal parking lot north of W. Main Street between W. Broadway and N. Barstow Street. The location of the terminal facility was based upon the recommendations of a bus transfer site study completed by the Commission in 1982.[3] Cycle, or "pulse," scheduling is utilized by the transit system so that all buses meet at the downtown terminal at approximately the same time during peak hours. This allows bus passengers the opportunity to conveniently transfer between bus routes and complete a trip with a minimum of delay. In addition, four of the eight routes—Routes No. 3, 4, 7, and 8—while identified as individual routes, are paired and actually operated as through routes, with buses operating over these route pairs continuing on to another part of the City over a second route after meeting at the downtown terminal. Routes No. 2 and 6 are also operated as paired routes, with buses continuing over the other route after meeting at the K-Mart Department Store. The pairing of routes in this manner is designed to eliminate turnaround time and mileage, and reduce the number of passengers who must transfer to another bus to complete their trip.

Specialized Transportation Service for the Transportation Handicapped

In addition to fixed-route bus service, the City of Waukesha Transit System Utility offers a door-to-door, lift-equipped bus service to handicapped individuals for travel within the service area of its fixed-route bus system. Operated under the program name Waukesha Metrolift, the specialized transportation service is designed to provide mobility to any handicapped person who is unable to use the City's regular bus service owing to a physical disability.

To provide the service offered under the Waukesha Metrolift program, the City contracts with Dairyland Buses, Inc.—a private "yellow school bus" operator in the area. The company supplies the lift-equipped vehicles and drivers needed to

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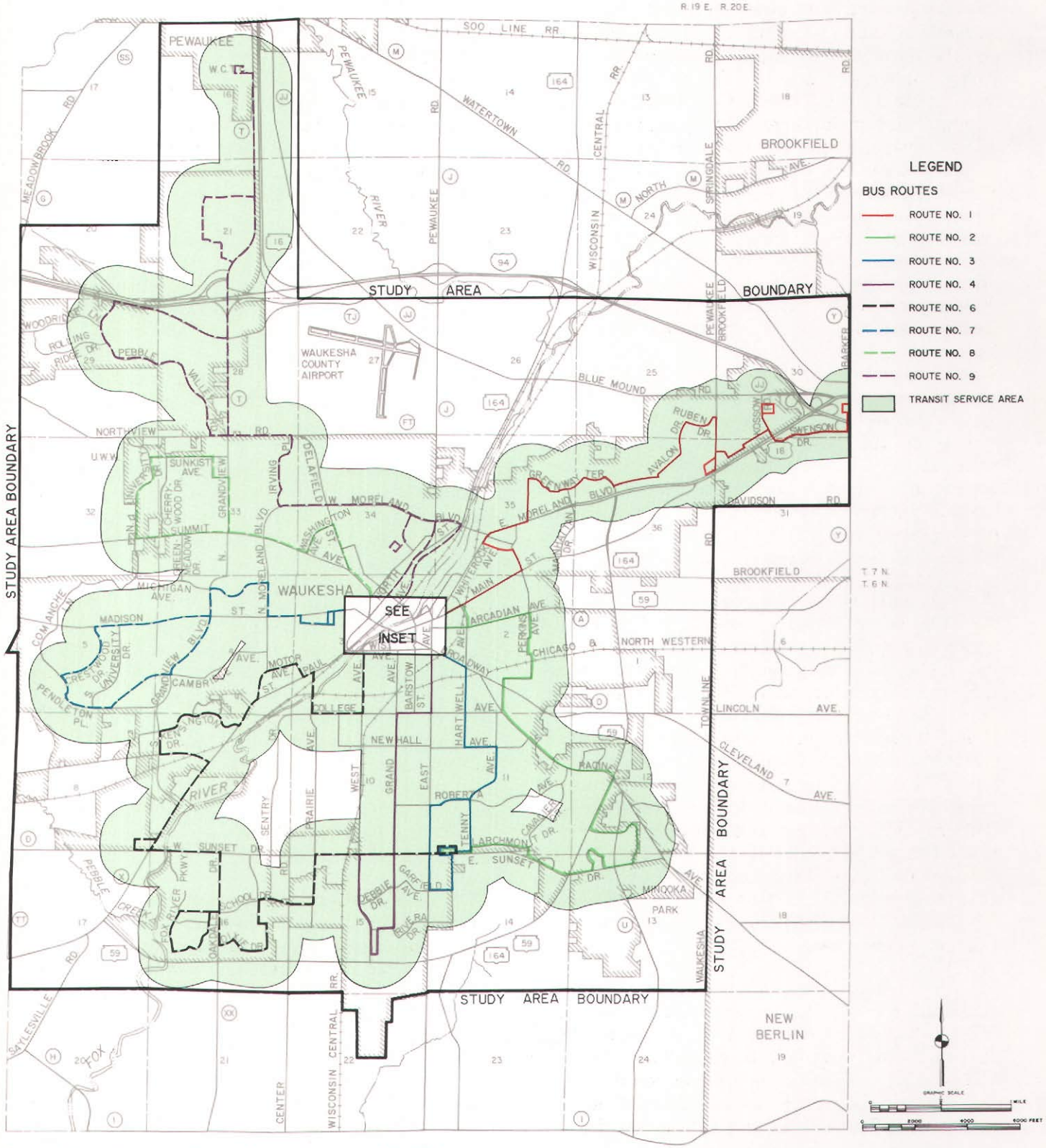
[3]*See SEWRPC Community Assistance Planning Report No. 82, A Central Transfer Site Location and Design Analysis for the City of Waukesha Transit System, December 1982.*

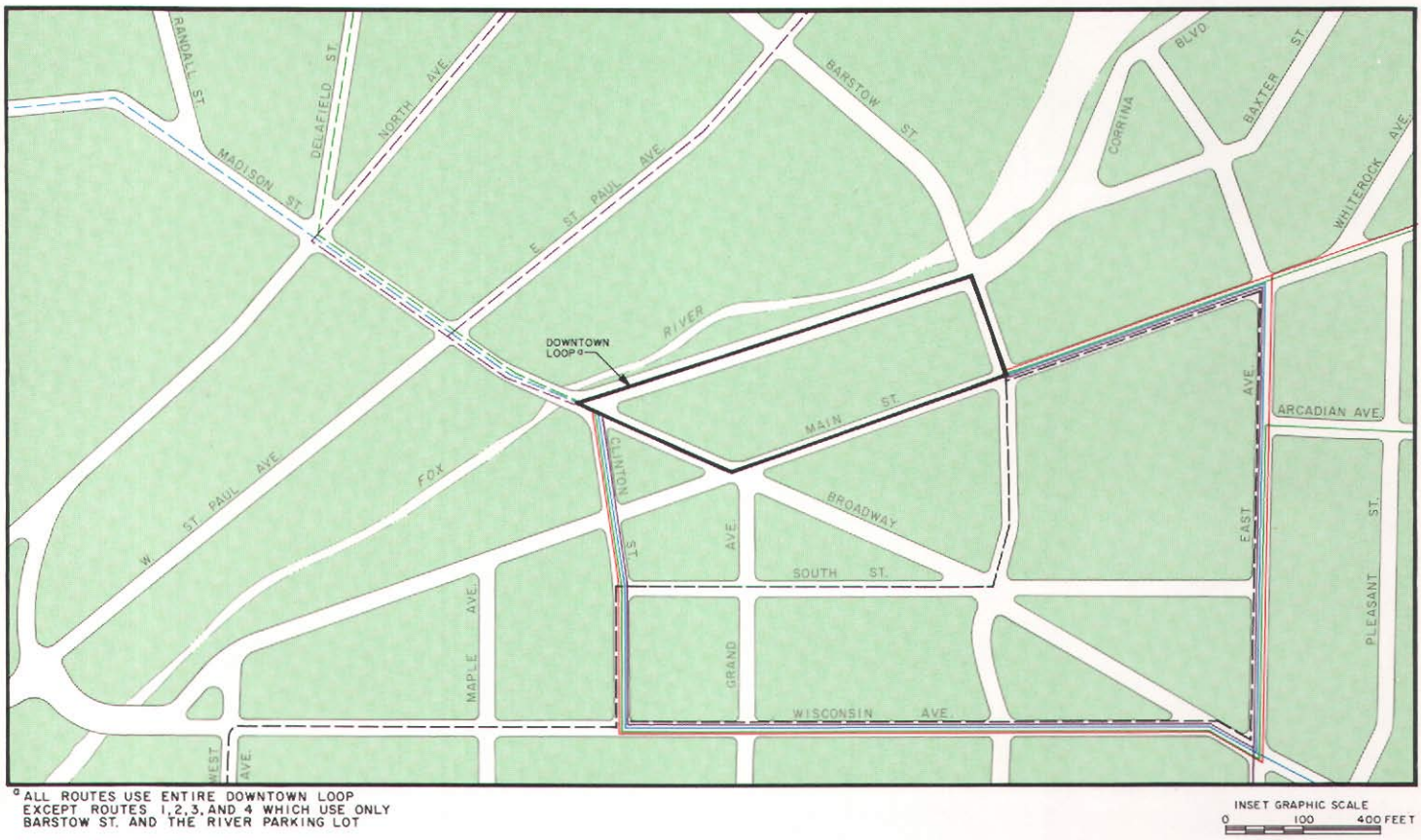
Map 2

BUS ROUTES OPERATED BY WAUKESHA METRO TRANSIT: AUGUST 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Map 2 Inset



[a] ALL ROUTES USE ENTIRE DOWNTOWN LOOP EXCEPT ROUTES 1, 2, 3, AND 4 WHICH USE ONLY BARSTOW ST. AND THE RIVER PARKING LOT

provide the service under the terms of the contract. The costs for the program are incurred on a per-trip basis, with the City being billed by the company each month for the net costs—total costs less passenger revenues—of the trips served. No costs are incurred by the program unless service is actually provided. The City has operated the program on a contract basis since March 1982, shortly after it began the operation of its regular fixed-route bus system.

The service area for the Waukesha Metrolift program includes all areas within one-quarter mile of one of the City's regular bus routes. This area includes essentially all of the major traffic generators and special facilities serving the elderly and handicapped in the City of Waukesha, plus Waukesha County Technical College in the Village of Pewaukee. The service is provided on a 24-hour advance-reservation basis. The service is offered between 6:00 a.m. and 6:15 p.m. on weekdays and between 9:00 a.m. and 6:00 p.m. on Saturdays, similar to the regular hours of operation for the fixed-route bus system. No service is provided on Sundays or holidays. Trips made on the service are not prioritized in any manner, as the current level of service is capable of meeting actual demand.

Eligible users of the Waukesha Metrolift program include both elderly and nonelderly persons whose disability is of such a nature that they are unable to use the regular fixed-route transit service provided by Waukesha Metro Transit. Certification by a private physician or an approved certifying agency is required in order to use Waukesha Metrolift. As of August 1988, a total of 162 handicapped persons had been certified to use the Waukesha Metrolift program.

Fares

The current one-way adult fare on the eight routes of Waukesha Metro Transit is $0.60 per passenger trip. Children four years of age and

Table 1

OPERATING AND SERVICE CHARACTERISTICS BY ROUTE FOR WAUKESHA METRO TRANSIT: AUGUST 1988

Bus Route	Round Trip Route Length (miles)	Service Availability				Service Frequency (minutes)			
		Weekdays		Saturdays		Weekdays			Saturdays
		Start Time First Trip (a.m.)	Start Time Last Trip (p.m.)	Start Time First Trip (a.m.)	Start Time Last Trip (p.m.)	A.M. Peak	Off-Peak	P.M. Peak	All Day
1 Westbrook/Target	12.70	6:05	6:15	9:31	5:50	30/35	60	30/45	60
2 Arcadian/Racine	12.25	5:48	6:15	9:34	5:50	30/70	60	30/70	60
3 Hartwell	6.60	6:05	6:15	9:03	5:50	30/35	60	30/70	60
4 Grand	6.80	5:53	6:15	9:20	5:20	30/35	60	30/35	60
6 Fox Run	22.65	5:55	6:15	9:17	5:50	65/70	60	30/60	60
7 Madison	7.80	5:59	6:15	9:05	5:50	30/65	60	30/40	60
8 Summit	12.20	5:47	6:15	9:20	5:20	30/35	60	30/40	60
9 Northview	19.85	6:05	6:15	9:29	5:50	30/65	60	30/60	60
System Total	100.85	5:47	6:15	9:03	5:50	30/70	60	30/70	60

Bus Route	Buses Required[a]			
	Weekdays			Saturdays
	A.M. Peak	Off-Peak	P.M. Peak	All Day
1 Westbrook/Target	2.0	1.0	2.0	1.0
2 Arcadian/Racine	1.0	1.0	2.0	1.0
3 Hartwell	1.0	0.5	1.0	0.5
4 Grand	1.0	0.5	1.0	0.5
6 Fox Run	1.0	1.0	2.0	1.0
7 Madison	1.0	0.5	1.0	0.5
8 Summit	1.0	0.5	1.0	0.5
9 Northview	2.0	1.0	2.0	1.0
System Total	10.0	6.0	12.0	6.0

[a] *Fractions indicate a single vehicle is operated over two routes during a time period.*

Source: City of Waukesha Transit System Utility and SEWRPC.

under ride free. Students ages 5 through high school age are charged $0.40 per passenger trip. Special fares for senior citizens and disabled persons are also available. Individuals belonging to these groups may ride for $0.30 with a Medicare card or Metro reduced-fare identification card. To qualify for the special identification card, a person must be at least 65 years of age or be certified as disabled by a physician or agency. Identification cards are issued to qualified individuals by the transit coordinator's office of the Waukesha Department of Public Works.

Persons that use the bus system must pay with the exact cash fare, as bus operators are not allowed to make change. Tickets can be used in lieu of cash fare for individual rides and are sold in strips of 10 in all fare denominations. Monthly passes may be purchased at a cost of $20 for an adult pass, and $15 for a student pass. The passes are good for unlimited riding during all hours of system operation.

Free transfers are issued upon request at the time the fare is paid and may be used to transfer to a different bus route at any downtown bus

Table 2

WAUKESHA METRO TRANSIT BUS ROUTES: AUGUST 1988

Number	Make	Model	Year Made	Engine	Number of Seats	Special Equipment		
						Air Conditioning	Wheelchair Lift	Kneeling Feature[a]
101	Orion	01.506	1983	Diesel	40	No	No	No
102	Orion	01.506	1983	Diesel	40	No	No	No
103	Orion	01.506	1983	Diesel	40	No	No	No
104	Orion	01.506	1983	Diesel	40	No	No	No
105	Orion	01.506	1983	Diesel	40	No	No	No
106	Orion	01.506	1983	Diesel	40	No	No	No
107	Orion	01.506	1983	Diesel	40	No	No	No
108	Orion	01.506	1983	Diesel	40	No	No	No
109	Orion	01.506	1983	Diesel	40	No	No	No
110	Orion	01.506	1983	Diesel	40	No	No	No
111	Orion	01.506	1983	Diesel	40	No	No	No
112	Orion	01.507	1985	Diesel	42	No	No	No
113	Orion	01.507	1985	Diesel	42	No	No	No
114	Orion	01.507	1985	Diesel	42	No	No	No

[a]*Lowers the front curbside corner of the bus to reduce front step height.*

Source: City of Waukesha Transit System Utility and SEWRPC.

stop and at transfer points along Sunset Drive for two hours from the time the transfer was issued. On Saturdays, a special "supertransfer," which is valid all day and good for unlimited rides, is offered. To receive the super transfer, passengers pay $1.00 instead of the regular cash fare on the first bus they board. In addition, a special transfer program between Wisconsin Coach Lines, Inc.—which provides commuter-oriented bus service between the City of Waukesha and downtown Milwaukee for Waukesha County—and Waukesha Metro Transit was implemented in March 1987. The transfer program allows Wisconsin Coach Lines and Waukesha Metro Transit passengers to receive up to a $0.40 discount from the applicable fare for the transit service to which they are transferring.

The current fare for a one-way trip on the Waukesha Metrolift specialized transportation service for the handicapped is $1.75 and applies to both the certified user and any necessary attendant. Tickets may be used in lieu of cash fares. However, monthly passes are not available for Metrolift users.

Equipment and Facilities

Buses: The bus fleet operated by Waukesha Metro Transit as of August 1988 consists of 14 buses, all owned by the City of Waukesha. Table 2 presents a categorical listing of the buses in the fleet by type of bus, including bus make and model, number of seats per bus, and year of manufacture. As shown in the table, the current bus fleet consists of 14 Orion urban motor coaches, including 11 buses purchased in 1983 which seat 40 passengers and three buses purchased in 1985 which seat 42 passengers. None of the buses in the fleet are equipped with air conditioning or with level-changing accessibility features such as wheelchair lifts or special "kneeling" features. The buses are equipped with a front entrance special assist grab rail and with signs designating seats adjacent to the front entrance for use by elderly and handicapped persons.

All the buses were purchased new by the City to replace a fleet of used 45-passenger buses manufactured between 1960 and 1967. As previously mentioned, the used buses were leased or purchased from other public transit operators by the City in order to initiate service on the transit system in 1981, and to operate the system during the first few years of operation. All the older used buses have been disposed of. The buses currently used by the transit system to provide transit service are illustrated in Figure 4.

Figure 4

BUSES OPERATED BY WAUKESHA METRO TRANSIT: AUGUST 1988

Source: City of Waukesha Transit System Utility.

Office, Operations, and Maintenance Facilities: Activities related to the operation of Waukesha Metro Transit are conducted in the Waukesha City Hall and the Waukesha Metro Transit Operations and Maintenance Facility.

The Waukesha City Hall is located on the northern edge of the Waukesha central business district at 201 Delafield Street. Certain important program functions are conducted in the offices and public meeting rooms of the City Hall, including the transit-related executive work of the Mayor of the City of Waukesha; transit-related policy formulation and approval meetings of the Waukesha Common Council and concerned committees of the Council; and policy formulation and approval meetings, and public hearings, of the Waukesha Transit System Utility Board. In addition, certain transit program-related functions are conducted within this building in the offices of the City Department of Public Works. The transit coordinator and shared support personnel are headquartered in this office. Also, certain transit system services are provided to the public in this building, including the sale of tickets and monthly passes, and the distribution of transit system information.

The Waukesha Metro Transit operations and maintenance facility is located at 2311 Badger Drive on the southwest side of the City. The facility is a single building, constructed in 1986, used for transit equipment-related functions, including bus storage, maintenance, cleaning and servicing, and parts storage. The building also houses employee facilities (including locker and meeting rooms), and offices for the administrative staff of the transit system. Transit system services provided to the general public by the administrative offices located in this building are limited to telephone information services.

Bus Passenger Shelters: Since 1981 a total of 17 bus shelters have been constructed throughout the City. All the shelters have been constructed by the transit system and are made of modular building materials. Tempered glass panels are used for the walls and a translucent material is used for the molded roof to provide visibility and natural lighting. The location of each bus passenger shelter as of August 1988 is shown on Map 3. The Transit System Utility has 12 additional shelters on order for installation in late 1988. In addition to providing bus shelters, it is the policy of the City to pave bus stop landings when streets are constructed or reconstructed.

In addition to the modular bus shelters described above, the transit system utilizes an off-street terminal in downtown Waukesha. The downtown terminal serves as the focus of the radial route structure operated by the transit system and the common transfer location for transit passengers on all routes. Constructed in 1983, the terminal consists of a raised concrete boarding platform covered by a centrally supported roof, but open on all four sides. To provide additional shelter for waiting passengers, two of the 17 bus shelters constructed by the transit system are located adjacent to the terminal. The terminal was designed and constructed to resemble a turn-of-the-century Victorian railway passenger platform, relating to the overall theme of the City's downtown revitalization effort. The downtown transfer terminal is shown in Figure 5.

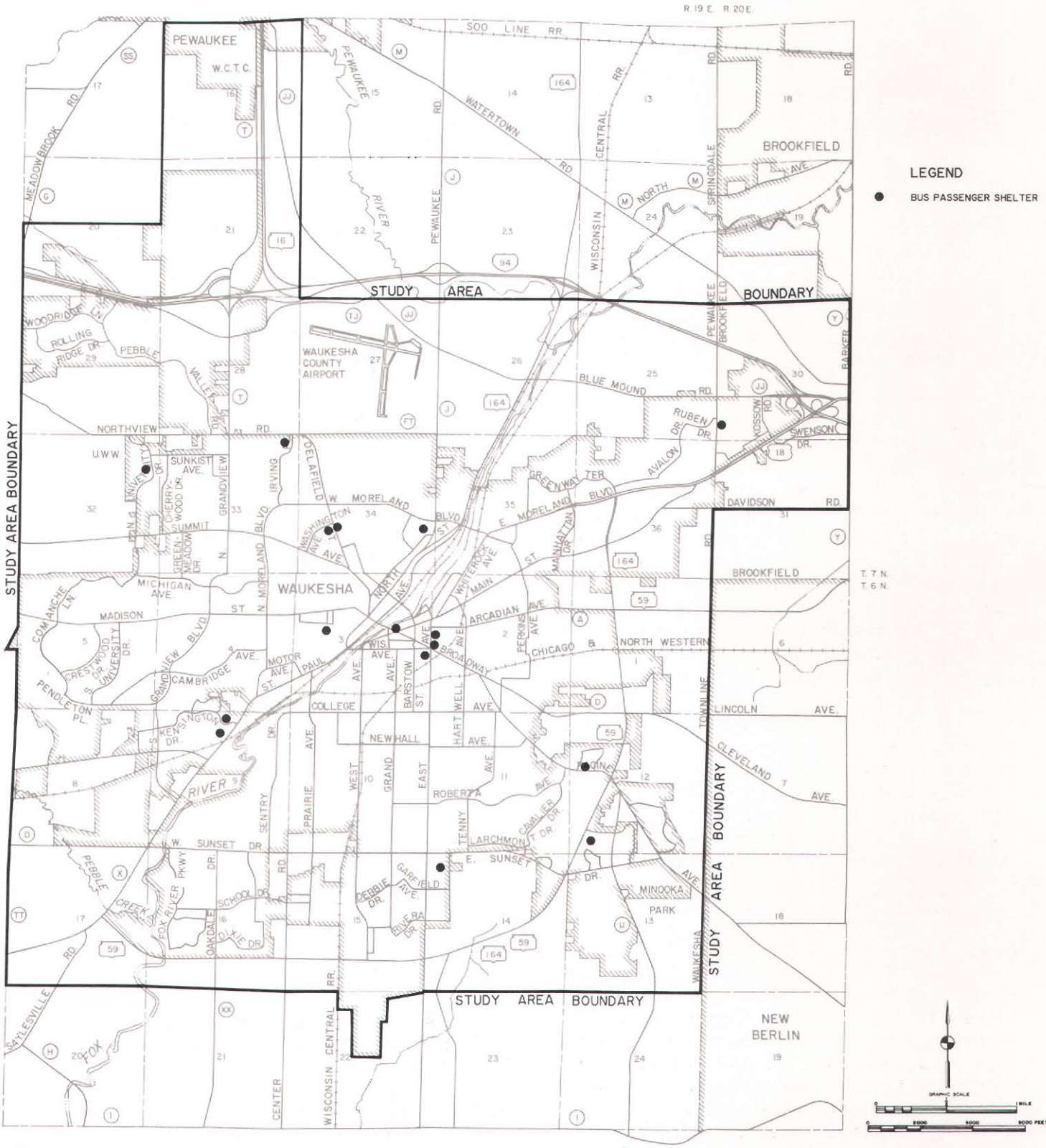
Ridership Trends

Since its beginning in 1981, Waukesha Metro Transit has exhibited steady growth in ridership similar to that of any successful new transit service in its early years of operation. Table 3 presents transit system ridership, service, and financial data for the years 1981 through 1987, and Table 4 identifies the key factors influencing the annual change in transit ridership.

Transit ridership on the City of Waukesha transit system nearly doubled between 1982—the first full year of service—and 1985, as shown in

Map 3

LOCATION OF BUS PASSENGER SHELTERS PROVIDED BY WAUKESHA METRO TRANSIT



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 5

WAUKESHA METRO TRANSIT DOWNTOWN TRANSFER TERMINAL

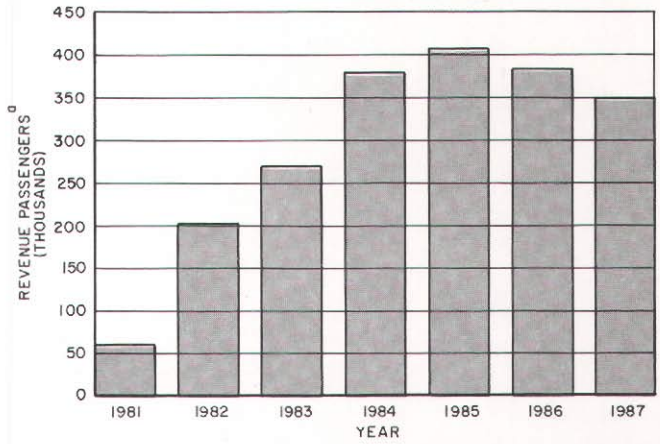
Source: SEWRPC.

Figures 6 and 7—exceeding the forecasts made in the initial plan prepared by the Regional Planning Commission. The ridership increases experienced during this period may be attributed to the introduction of the new service and to increases in the extent of service provided over those first few years, the most significant of which occurred in 1985 when transit service was extended to Saturdays. Gasoline prices were not a factor in the increase in ridership over this period, as gasoline prices peaked in 1981. Ridership on the transit system has declined over the past two years—by about 6 percent during 1986 and by about 9 percent during 1987. This declining ridership may be attributed primarily to a transit fare increase in 1985, a substantial reduction in gasoline prices in 1986, and very mild winters during both 1986 and 1987. During the first six months of 1988, ridership on the transit system was about 5 percent above the ridership levels observed during the first six months of 1987.

Ridership on the Waukesha Metro Transit system has grown at a faster rate than has the amount of service provided by the transit system. During the period 1982 through 1987, revenue vehicle hours operated by the Waukesha Metro Transit system increased about 18 percent, while transit ridership increased about 71 percent. Consequently, the system has experienced significant increases in productivity over this period. Passengers per revenue vehicle hour for the transit system increased about 46 percent, from about 8.7 passengers per vehicle hour in 1982 to about 12.7 passengers per vehicle hour in 1987.

Figure 6

TOTAL ANNUAL RIDERSHIP ON PUBLIC TRANSIT SERVICE PROVIDED BY THE WAUKESHA TRANSIT SYSTEM UTILITY: 1981-1987

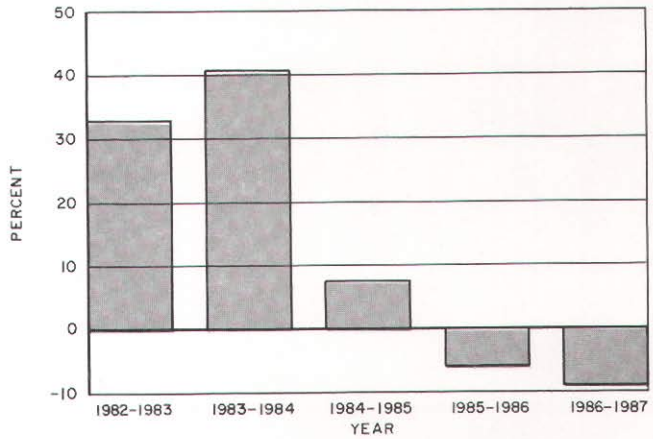


[a]INCLUDES REVENUE PASSENGERS ON BOTH FIXED ROUTE AND SPECIALIZED TRANSPORTATION SERVICES

Source: Wisconsin Department of Transportation, Bureau of Transit; City of Waukesha Transit System Utility; and SEWRPC.

Figure 7

PERCENTAGE CHANGE IN TOTAL ANNUAL RIDERSHIP ON PUBLIC TRANSIT SERVICE PROVIDED BY THE WAUKESHA TRANSIT SYSTEM UTILITY: 1982-1987



Source: Wisconsin Department of Transportation, Bureau of Transit; City of Waukesha Transit System Utility; and SEWRPC.

A breakdown of total weekday and Saturday boarding passengers by route during March 1988 is presented in Table 5. As indicated in this table, Route No. 1 had the highest ridership,

Table 3

TRANSIT RIDERSHIP AND SERVICE LEVELS FOR PUBLIC TRANSIT SERVICE PROVIDED BY THE CITY OF WAUKESHA TRANSIT SYSTEM UTILITY: 1981-1987

Characteristic	Year						
	1981[a]	1982	1983	1984	1985	1986	1987
Transit Service Levels							
Annual Revenue Vehicle Miles Operated	88,300	298,700	338,300	368,900	402,900	403,100	389,400
Annual Revenue Vehicle Hours Operated	7,800	23,200	24,100	25,100	27,500	27,600	27,300
Transit Ridership and Service Utilization							
Annual Revenue Passengers							
Waukesha Metro Transit	59,500	202,000	263,200	372,300	400,500	377,950	342,000
Metrolift	0	700	6,000	6,200	5,700	3,950	5,300
Total	59,500	202,700	269,200	378,500	406,200	381,900	347,300
Revenue Passengers per Revenue Vehicle Mile	0.87	0.68	0.80	1.03	1.01	0.95	0.89
Revenue Passengers per Revenue Vehicle Hour	7.6	8.7	11.2	15.1	14.8	13.8	12.7
External Factors Affecting Ridership							
Price of Gasoline	$1.395	$1.364	$1.317	$1.298	$1.293	$0.901	$0.995
Heating Degree Days (annual)	7,387	7,493	7,203	6,846	7,310	6,789	6,185
Days 0 or Below (annual)	14	22	12	9	24	6	3
Inches of Snow/Sleet (annual)	32	60	48	39	71	30	38
Inches of Rain (annual)	29	25	27	35	22	36	39

[a]*Data shown are for fewer than 12 months of operation, as the transit system began operation on August 31,1981.*

Source: SEWRPC.

Table 4

FACTORS INFLUENCING CHANGE IN THE CITY OF WAUKESHA'S TRANSIT SYSTEM RIDERSHIP: 1983 TO 1987

Year	Change in Ridership from Previous Year	Change in Service Provided from Previous Year[a]	Change in Fare from Previous Year	Change in Gas Price from Previous Year	Other Changes from Previous Year	Conclusion: Factors Influencing Ridership Change
1983	33 percent increase	13 percent increase	None	3 percent decrease	Second year of full operation of new system	Ridership increase was principally a result of continuing increased use of new service as well as the service expansion implemented in 1983
1984	41 percent increase	9 percent increase	None	2 percent decrease	Third year of full operation	Ridership increase was principally a result of continuing increased use of a new service
1985	7 percent increase	9 percent increase	20 percent increase	1 percent decrease	Saturday bus service added in February	Ridership increase was principally a result of service extension to Saturdays. Fare increase toward end of year reduced the amount of increase
1986	6 percent decrease	None	None	30 percent decrease	--	Ridership decrease was a result of full year of operation under fare increase, mild winter weather, and reduced gas prices
1987	9 percent decrease	3 percent decrease	None	10 percent increase	--	Ridership decrease was a result of low gasoline prices and mild winter weather

[a]*Service is represented by revenue vehicle miles.*

Source: SEWRPC.

Table 5

WEEKDAY AND SATURDAY RIDERSHIP ON THE WAUKESHA METRO TRANSIT SYSTEM: MARCH 1988

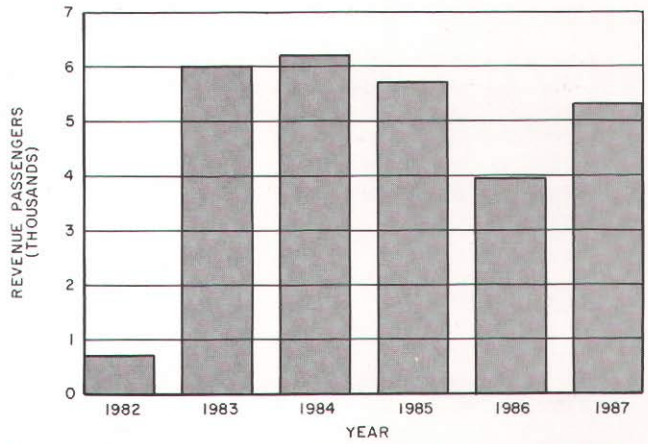
Route Number	Route Name	Total Boarding Passengers[a]	
		Weekdays	Saturdays
1	Westbrook/Target	366	169
2	Arcadian/Racine	145	40
3	Hartwell	244	65
4	Grand	285	112
6	Fox Run	296	91
7	Madison	176	56
8	Summit	188	56
9	Northview	209	34
	System Total	1,909	623

[a]*Includes transfer and free passengers. Based on counts taken on a single day during March 1988.*

Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 8

ANNUAL RIDERSHIP ON THE SPECIALIZED TRANSPORTATION SERVICE PROVIDED UNDER THE WAUKESHA METROLIFT PROGRAM: 1982-1987



Source: City of Waukesha Transit System Utility and SEWRPC.

with about 366 passengers on weekdays and 169 passengers on Saturdays. This route was followed by Route No. 6, with 296 passengers on weekdays and 91 passengers on Saturdays; Route No. 4, with 244 passengers on weekdays and 112 passengers on Saturdays; and Route No. 3, with 244 passengers on weekdays and 65 passengers on Saturdays. Together, Routes No. 1, 3, 4, and 6 accounted for about 62 percent of the weekday ridership and about 70 percent of the Saturday ridership on the Waukesha Metro Transit system in March 1988.

As previously noted, the Waukesha Transit System Utility also operates the Waukesha Metrolift program to provide a door-to-door, lift-equipped bus service to handicapped individuals within the service area of its fixed-route bus system. A history of the ridership on the Waukesha Metrolift program is shown in Table 3 and Figure 8. Since its first full year of service in 1983, ridership on the Waukesha Metrolift program has ranged from a low of about 3,950 trips in 1986 to a high of about 6,200 trips in 1984. During 1987, about 5,300 trips were made using the service offered under the Waukesha Metrolift program.

Trends in System Costs, Revenues, and Deficits

Experience indicates that it is presently not desirable, or probably possible, to recover the total cost of public transit service from passenger revenues alone. To charge fares that would completely recover the cost of operating such a service would result in the diversion of choice riders to other modes of transportation, leaving the captive riders alone to bear the high cost of the service provided. If a reasonable level of transit service is to be provided at a reasonable cost to the user, such transportation must be publicly subsidized. The regular riding of the captive rider alone cannot sustain the cost of supplying the community with a public transportation system.

The financial condition of Waukesha Metro Transit reflects the foregoing conclusion. A summary of the operating expenses, revenues, and deficits of the transit system from 1981 to 1987 is provided in Table 6. A summary of the capital outlays for the transit system over this same period is provided in Table 7. The total operating expenses for Waukesha Metro Transit for calendar year 1987 were approximately $948,000. Total operating revenue from the

Table 6

OPERATING EXPENSES, REVENUES, AND DEFICITS FOR THE PUBLIC TRANSIT SERVICES PROVIDED BY THE WAUKESHA TRANSIT SYSTEM UTILITY: 1981-1987

Characteristic	Year						
	1981[a]	1982	1983	1984	1985	1986	1987
Revenue Passengers	59,500	202,700	269,200	378,500	406,200	381,900	347,300
Revenue Vehicle Hours	7,800	23,200	24,100	25,100	27,500	27,600	27,300
Revenue Vehicle Miles	88,300	298,700	338,300	368,900	402,900	403,100	389,400
Operating Expenses[b]	$291,000[c]	$706,500	$732,700	$774,100	$858,700	$931,600	$948,000
Per Revenue Vehicle Hour	37.31	30.45	30.40	30.84	31.23	33.75	34.73
Per Revenue Vehicle Mile	3.30	2.37	2.17	2.10	2.13	2.31	2.43
Per Revenue Passenger	4.89	3.48	2.72	2.05	2.12	2.44	2.73
Operating Revenues	$ 23,400	$ 85,700	$112,000	$150,100	$169,200	$176,100	$159,600
Per Passenger	0.39	0.42	0.42	0.40	0.42	0.46	0.46
Percent of Operating Expenses	8.0	12.1	15.3	19.4	19.7	18.9	16.8
Operating Deficit							
Total	$267,600	$620,800	$620,700	$624,000	$689,500	$755,500	$788,400
Per Revenue Passenger	4.50	3.06	2.30	1.65	1.70	1.98	2.27
Sources of Required Public Funds							
Federal Operating Assistance	$127,200	$267,100	$275,200	$313,900	$267,000	$206,000	$226,900
State Operating Assistance	83,700	209,700	219,800	271,000	300,300	348,900	355,300
Local Operating Assistance	56,700	144,000	125,700	39,100	122,200	200,600	206,200
Percentage Change Required Public Funds from Previous Year							
Federal Operating Assistance	--	110.0	3.0	14.1	-14.9	-22.8	10.1
State Operating Assistance	--	150.5	4.8	23.3	10.8	16.2	1.8
Local Operating Assistance	--	154.0	-12.7	-68.9	212.5	64.2	2.8
Base Adult Cash Fare	$0.50	$0.50	$0.50	$0.50	$0.50/$0.60	$0.60	$0.60

[a] *Data shown are for less than 12 months of transit system operation, as fixed-route bus service was initiated on August 31, 1981.*

[b] *Excludes depreciation on transit system operating equipment and facilities, which is not considered a routine operating expense by the Waukesha Transit System Utility. Such expense is generally considered a capital outlay for the year in which the equipment or facilities are purchased or constructed. A summary of such capital outlays for the city transit system for the period 1981 through 1987, including the source of funding, is presented in Table 7.*

[c] *Includes one-time expenses associated with the start-up of system operation which were incurred during the period of transit system formation between January 1, 1981 and August 30, 1981.*

Source: Wisconsin Department of Transportation, Bureau of Transit; City of Waukesha Transit System Utility; and SEWRPC.

system for this period was about $159,600, or about 17 percent of the total system operating expenses, leaving an operating deficit of about $788,400. To cover the shortfall in operating revenues in 1987, the U. S. Department of Transportation, Urban Mass Transportation Administration (UMTA), provided about $226,900, or about 24 percent of total operating expenses; the Wisconsin Department of Transportation provided about $355,300, or about 37 percent; and the City of Waukesha provided the remaining $206,200, or 22 percent.

Figure 9 graphically depicts the total operating expenses for the transit system since its first full year of service in 1982 in both actual year of expenditure dollars and constant 1981 dollars. Between 1982 and 1987, total actual operating expenses increased by about $241,500, or about 34 percent, from $706,500 in 1982 to $948,000 in 1987. This increase is attributable to increases in the level of transit service provided, as well as increases in the cost of providing service. After accounting for the effects of general price inflation, transit system operating expenses

Table 7

CAPITAL OUTLAYS FOR THE PUBLIC TRANSIT SERVICES
PROVIDED BY THE WAUKESHA TRANSIT SYSTEM UTILITY: 1981-1987

Year	Description	Capital Expenditures	
		Source of Funds	Amount
1981	Purchase of radios, fareboxes, bus stop signs, automobile, and office and garage equipment	Federal capital assistance Local capital assistance Total	$ 48,372 60,326[a] $ 108,698
1982	Purchase of buses, bus parts, and garage equipment	Federal capital assistance Local capital assistance Total	$1,299,040 345,954 $1,644,994
1983	Construction of operations facility and purchase of microcomputer system	Federal capital assistance Local capital assistance Total	$ 684,835 171,209 $ 856,044
1984	Purchase of microcomptuer system and software, service vehicle, and garage equipment	Federal capital assistance Local capital assistance Total	$ 74,023 18,506 $ 92,529
1985	Construction of operations facility, and purchase of passenger shelters and office and garage equipment	Federal capital assistance Local capital assistance Total	$ 254,223 63,556 $ 317,779
1986	Purchase of passenger shelters, minivan, and office equipment	Federal capital assistance Local capital assistance Total	$ 26,706 6,676 $ 33,382
1987	Purchase of passenger shelters and garage equipment	Federal capital assistance Local capital assistance Total	$ 13,942 3,485 $ 17,427

[a]Includes $48,233 for capital equipment for system start-up which was purchased without federal capital assistance and funded solely by the City of Waukesha.

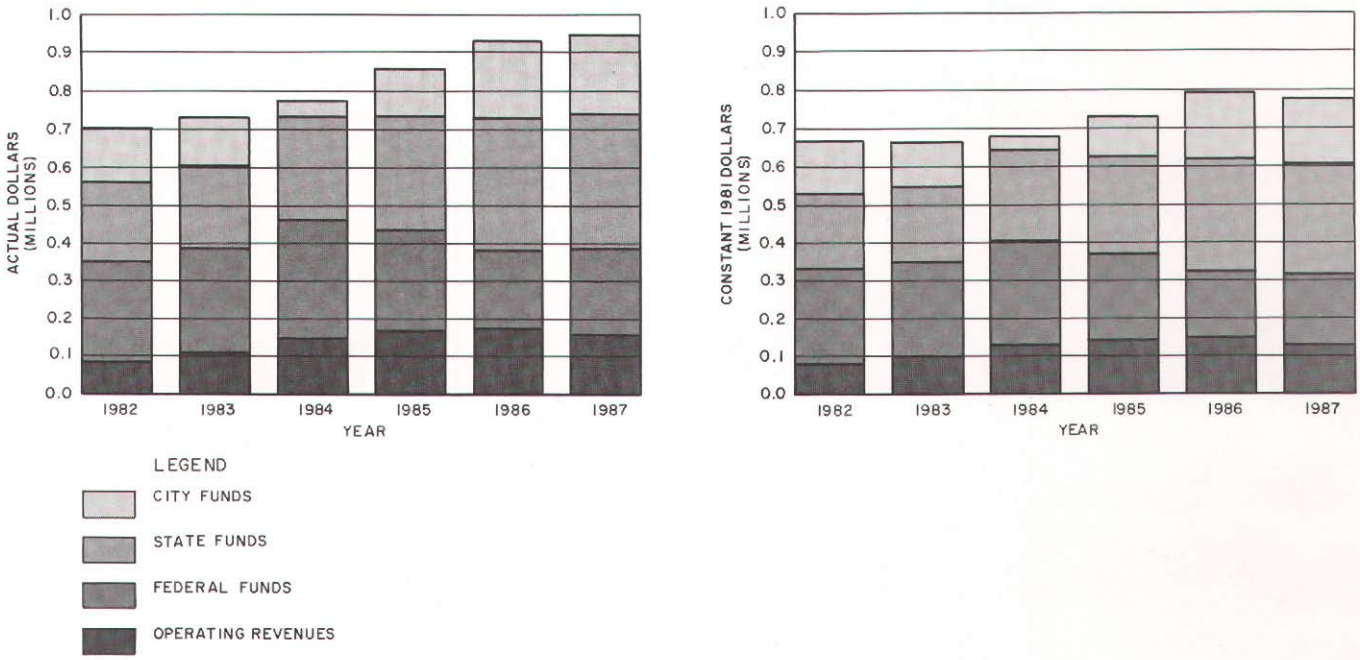
Source: City of Waukesha Transit System Utility and SEWRPC.

during this period increased by $103,600 in constant 1981 dollars, or by about 15 percent. This rate of increase is about the same as the rate at which service levels were increased by the transit system over this period.

Figure 10 depicts the operating expense per revenue vehicle hour for the transit system during this period in both actual year-of-expenditure dollars and constant 1981 dollars. While the actual operating expense per hour

Figure 9

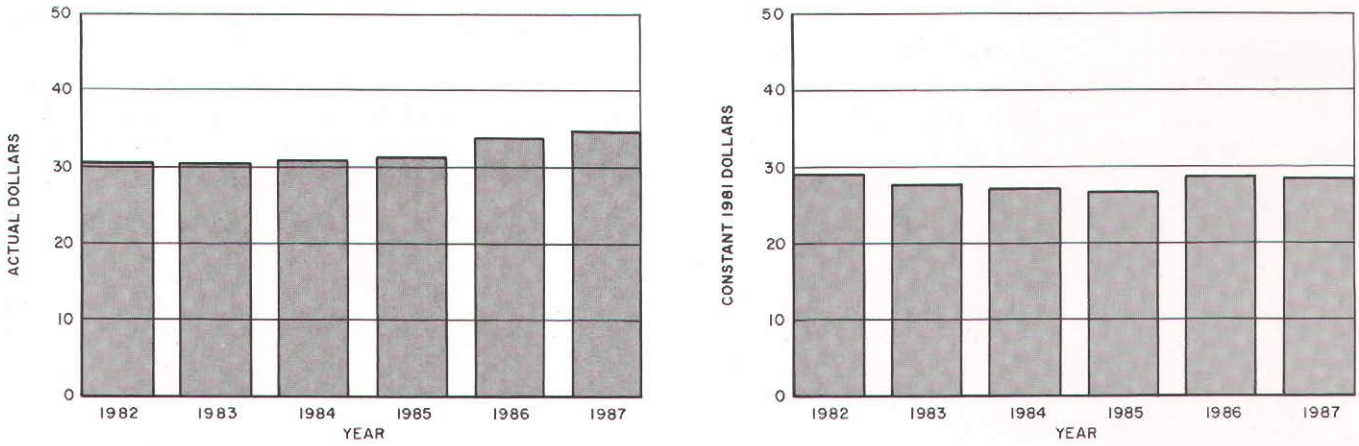
TOTAL ANNUAL OPERATING EXPENSE BY FUNDING SOURCE FOR WAUKESHA METRO TRANSIT: 1982-1987



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 10

OPERATING EXPENSE PER REVENUE VEHICLE HOUR FOR WAUKESHA METRO TRANSIT: 1982-1987



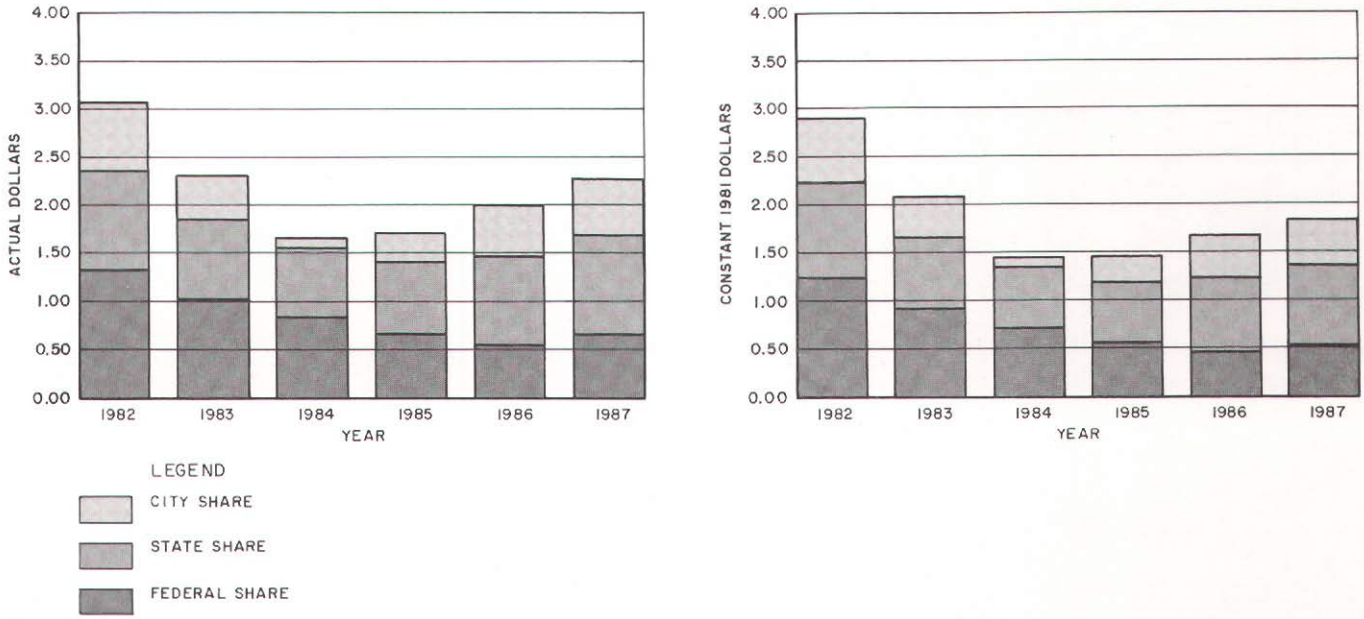
Source: City of Waukesha Transit System Utility and SEWRPC.

increased by about $4.28 between 1982 and 1987, or by about 14 percent, the operating expense per hour in constant 1981 dollars actually decreased by about $0.52, or about 2 percent.

Total actual operating revenues increased by about $73,900, or about 86 percent—from $85,700 in 1982 to $159,600 in 1987. This increase reflects the ridership growth that occurred following the introduction of the public transit service in 1981, and the increase in passenger fares implemented by the City of Waukesha in August 1986. Total operating revenues increased by about $49,000 in constant 1981 dollars, or about 60 percent, over this period.

Figure 11

OPERATING DEFICIT PER REVENUE PASSENGER BY FUNDING SOURCE FOR WAUKESHA METRO TRANSIT: 1982-1987



Source: City of Waukesha Transit System Utility and SEWRPC.

A comparison between costs and revenues indicates that the actual operating deficit has increased substantially since the first full year of operation of the Waukesha Metro Transit service in 1982. Between 1982 and 1987, the actual operating deficit for the system increased from $620,800 to $788,400—an increase of about $167,600, or 27 percent. In constant 1981 dollars, the operating deficit for the system over this period increased by about $54,700, or about 9 percent.

The actual operating deficit per passenger has followed the trend of significant increases and decreases in transit ridership and passenger revenues during the period 1982 to 1987. The operating deficit per passenger decreased steadily from $3.06 in 1982 to a low of $1.65 in 1984, then increased to $2.27 by 1987. Overall, the actual operating deficit per revenue passenger decreased a total of $0.79, or about 26 percent, from 1982 to 1987. In constant 1981 dollars, the operating deficit per passenger decreased by about $1.04, or about 36 percent, from 1982 to 1987. Figure 11 shows the relative shares of the operating deficit on a per-passenger basis in actual dollars and in constant 1981 dollars.

As with virtually all publicly operated transit systems in the United States, the City of Waukesha has depended heavily on federal transit operating assistance to help support the operating deficit of its system. The City has also benefitted from the availability of financial operating assistance from the Wisconsin Department of Transportation. Together, funding from these two sources has served to greatly reduce the local share of the transit system operating deficit which must be paid by the City of Waukesha. The City's share of the actual operating deficit fluctuated between 1981 and 1987 from a low of $39,100 in 1984 to a high of $206,200 in 1987. From 1981 to 1987, the local share of the operating expenses varied from 5 to 22 percent; the state share ranged from 29 to 38 percent; and the federal share varied from 22 to 44 percent, as shown in Figure 12. The relative shares of the operating expenses contributed by the City of Waukesha, the State of Wisconsin, and the U. S. Department of Transportation have varied depending upon the method of allocating state transit operating assistance funds, as well as upon the availability of state and federal funds.

Implementation Status of Previous Plan Recommendations

As previously noted, the Regional Planning Commission, in cooperation with the City of Waukesha and under the guidance of the Wauke-

sha Mass Transit Citizens and Technical Coordinating and Advisory Committee, completed a transit system development plan and program for the Waukesha area in February 1980 which presented recommendations for the period 1981-1985. The transit system plan and program was intended to provide a guide to future actions by the City regarding the provision of public transit service for the Waukesha area. Accordingly, it addressed the need for reestablishing public transit service in the Waukesha area, as well as what form it should take. Included in the report were recommendations concerning desirable transit levels, operating policies, ownership and management, and capital expenditures necessary to provide the recommended level of service. Specifically, the following recommendations were contained in the 1981-1985 transit development program:

1. That the City reestablish a fixed-route transit system consisting of nine radial routes terminating at a common transfer point in the City of Waukesha central business district, and operate the system using pulse scheduling.

2. That the public transit system be operated by experienced professional management under a contract with a private transit management firm.

3. That the City designate a full-time city employee to act as a liaison between the City and the private management firm.

4. That new operating equipment be ordered immediately, including seven 20-passenger buses and three 30-passenger buses.

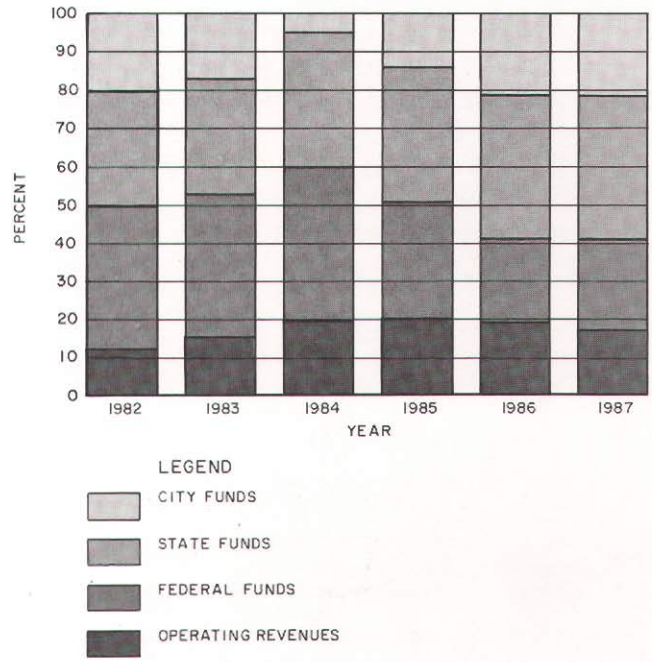
5. That pending acquisition of the new buses, equipment necessary for the daily operations of the transit system be leased from other transit operators or private leasing companies.

6. That a base adult cash fare of $0.50 be established.

The transit system plan and program was adopted by the City of Waukesha in May 1980. The following progress in implementing the above recommendations has been made as of August 1988:

Figure 12

PERCENTAGE DISTRIBUTION OF TOTAL OPERATING EXPENSES AMONG FUNDING SOURCES FOR WAUKESHA METRO TRANSIT: 1982-1987



Source: City of Waukesha Transit System Utility and SEWRPC.

1. On August 31, 1981, the City of Waukesha Transit System Utility began operation of Waukesha Metro Transit to provide local fixed-route bus service in the City of Waukesha and environs. The local bus system consisted of nine radial routes and one loop route, essentially as recommended in the transit system development plan. All bus routes were operated on a pulse schedule basis, with buses meeting at a common point in the Waukesha central business district.

2. Since 1981, the City has competitively procured the management services necessary to operate the city bus system from a private firm. At the present time, the management contract is with the firm of ATE Management & Service Company, Inc.

3. In 1981, the City hired a new employee to assume the position of transit coordinator and to serve as liaison between the City and the private management firm.

4. In 1982, the City applied for and received a Section 3 capital assistance grant from the U. S. Department of Transportation, Urban Mass Transportation Administration, for approximately $1.3 million. The City used part of these funds to purchase eleven 35-foot-long, 40-passenger, heavy-duty urban transit coaches plus necessary spare parts and tools. The new buses were delivered and placed in operation in 1983. The smaller buses recommended in the plan were determined not to be cost-effective after a life-cycle cost analysis.

5. To operate the transit system from August 1981 until the new buses were delivered in 1983, the City leased 14 used transit buses from other transit operators.

6. A base adult fare of $0.50 was established for the transit system when service was initiated in 1981. This fare was in effect until August 1985, when the base adult fare was raised to $0.60.

In December 1982, the Regional Planning Commission, in cooperation with the City of Waukesha and under the guidance of the aforementioned Advisory Committee, conducted a special study to identify the best location for the central transfer site for the transit system. The study was to establish locational and site planning design criteria for the central transfer facility, as well as to evaluate and make a recommendation from among several alternative locations for such a facility. Specifically, the study resulted in the following recommendations:

1. That the City of Waukesha establish a central transfer terminal in the municipal parking lot located between W. Broadway and N. Barstow Street, north of W. Main Street, and adjacent to the Fox River.

2. That the site development plan for the central transfer terminal include a saw-tooth bus berth design which would allow for individual bus pull-in and pull-out, and facilitate the assignment of a specific bus berth to a specific bus route.

The recommendations of the central transfer site location and design analysis were adopted by the City of Waukesha in December 1982. Since that time, the following progress has been made implementing the study recommendations:

1. The routes of the transit system were modified in August 1983 to move the central transfer location for Waukesha Metro Transit patrons from E. Main Street and W. Broadway to a terminal located in the river parking lot.

2. To serve the new transfer location, a new transfer terminal was completed in the river parking lot prior to modifying the routes of the transit system. However, owing to concerns expressed by downtown merchants over the number of parking spaces that would be removed if the recommended saw-tooth bus berth design were implemented, the terminal was designed as a raised platform with bus berths on both sides.

In June 1983, the Regional Planning Commission, in cooperation with the City of Waukesha and under the guidance of the Advisory Committee, completed a transit system operations analysis for the Waukesha Metro Transit system. The purpose of the study was to analyze the performance of the transit system during its first year of operation in order to identify areas of efficient and inefficient operation, determine the causes of operational problems resulting in inefficient operation, and develop a plan of operational improvements which could be made to the existing transit system to improve overall system efficiency and effectiveness.

Specifically, the following recommendations were made in the transit system operations analysis:

1. That Routes No. 2, 4, and 6 be adjusted to provide direct, no-transfer service from the residential areas served by these routes to the K-Mart/South High School area.

2. That, owing to low performance levels, Route No. 10 be eliminated and Routes No. 8 and 9 be adjusted to replace transit service that had been provided over the more productive segments of Route No. 10.

3. That changes be made to transit system schedules to adjust the pulsed arrival and departure times at the downtown central

transfer point to provide better service to the major traffic generators in the downtown area.

4. That service levels on some routes be adjusted to eliminate nonproductive bus trips and to add service which could be used by secondary school students.

5. That two new special "tripper" routes be implemented which would operate only on school days—one to serve students attending North High School and Butler Middle School, and one to serve students attending South High School.

6. That two additional vehicles be acquired in order for all the recommended service improvements to be implemented and to maintain at least two spare buses for the bus fleet.

The recommendations of the transit system operations analysis were adopted by the City in August 1986. The following progress in implementing the above recommendations has been made to date:

1. Routes No. 2 and 6 were adjusted to provide service to the K-Mart Department Store in August 1983.

2. Route No. 10 was eliminated and Routes No. 8 and 9 modified to provide a partial replacement of service in August 1983.

3. The transit system attempted to improve service to downtown traffic generators by adjusting the pulsed arrival and departure times at the downtown terminal through several schedule changes implemented between 1983 and 1987.

4. Service levels on individual routes of the transit system were adjusted several times between 1983 and 1987 to tailor the service offered to the actual demand for it. Between 1983 and 1987, modifications were also made to Routes No. 2, 4, 6, 8, and 9 to provide additional bus trips designed specifically for the use of students in Waukesha elementary and secondary schools.

5. Rather than create special new school tripper routes, as recommended, the transit system modified service over existing bus routes to provide bus service which is basically identical to that recommended to be provided on special school tripper routes for both North and South High School and Butler Middle School students.

6. In 1984, the City applied for and received an amendment to the UMTA Section 3 grant which funded the purchase of the 11 new buses delivered in 1983. The grant amendment enabled the City to purchase three additional 35-foot-long, 42-passenger buses. The three additional buses were delivered in 1985, resulting in the current transit system fleet of 14 buses.

OTHER PUBLIC TRANSIT SERVICES

The Waukesha Transit System Utility is the principal provider of public transit service within the greater Waukesha area. However, a number of other public transit services are also provided to area residents, including commuter bus service subsidized by Waukesha County; intercity bus service; taxicab service; yellow school bus service; and specialized transportation services provided by several public and private organizations.

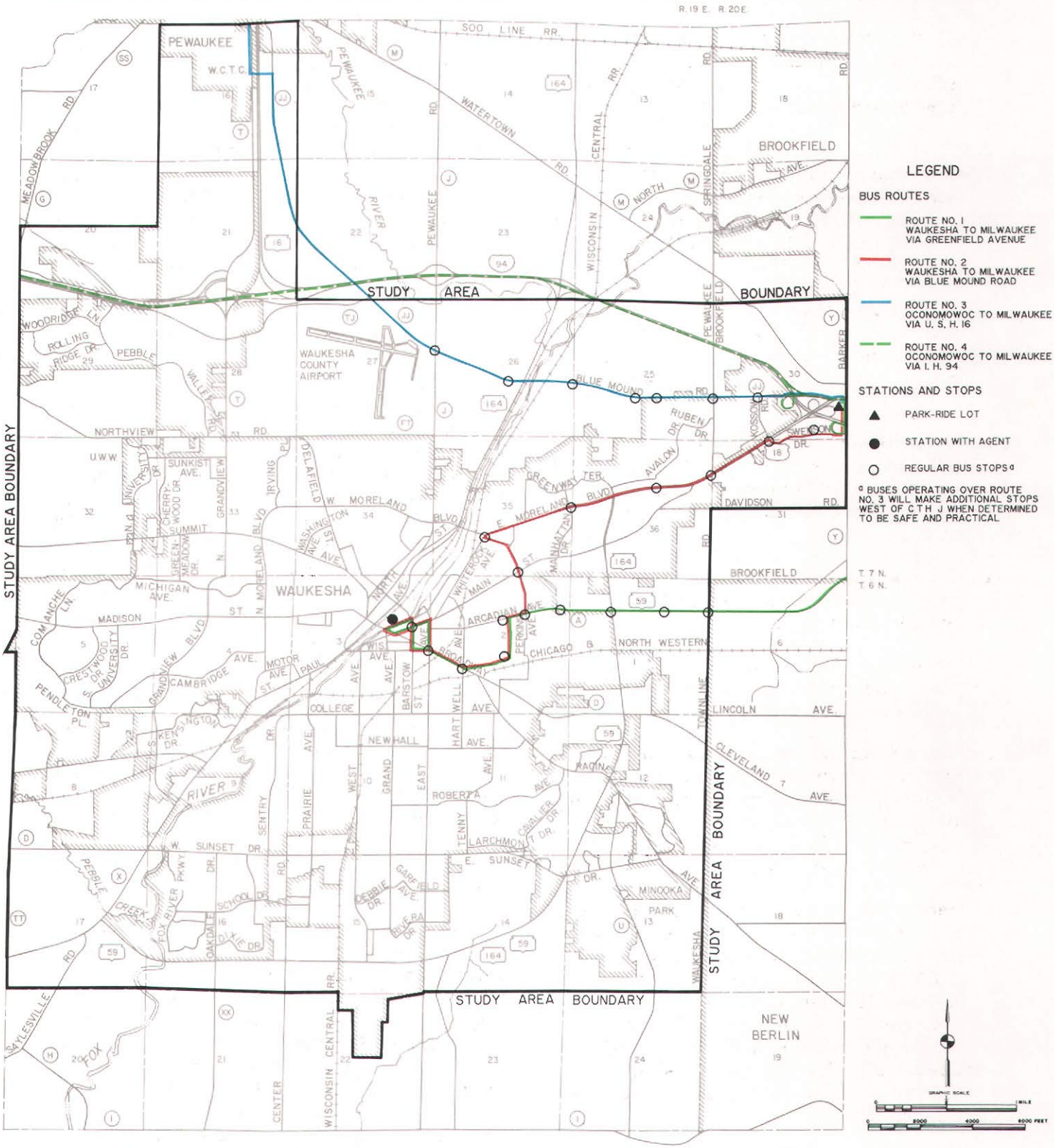
Waukesha County Subsidized Commuter Bus Service

Subsidized commuter bus service is currently provided within the study area by Waukesha County, which contracts for the operation of this service from a private transit operator—Wisconsin Coach Lines, Inc. Four bus routes are operated by Wisconsin Coach Lines for Waukesha County, all of which make at least some regular stops within the study area. The location of the routes and major stops within the study area are shown on Map 4.

Two of the four subsidized county bus routes—Route No. 1, Waukesha to Milwaukee via Greenfield Avenue; and Route No. 2, Waukesha to Milwaukee via Blue Mound Road—are operated between downtown Waukesha and the City of Milwaukee central business district. In addition to serving trips made between these points, the routes provide service between the study area and intermediate points principally along W. Greenfield Avenue in the Cities of New Berlin and West Allis, and along W. Blue Mound Road in the City of Brookfield. The service provided

Map 4

COMMUTER BUS SERVICE SUBSIDIZED BY WAUKESHA COUNTY WITHIN THE STUDY AREA: AUGUST 1988



Source: SEWRPC.

over these two routes includes stops at the Brookfield Square Shopping Center. A total of 35 one-way bus trips on weekdays, 12 one-way bus trips on Saturdays, and 8 one-way bus trips on Sundays and holidays are currently operated over these two routes.

The remaining two subsidized county bus routes—Route No. 3, Oconomowoc to Milwaukee via STH 16; and Route No. 4, Oconomowoc to Milwaukee via IH 94—are operated between the City of Oconomowoc and the Milwaukee central business district. These two routes provide commuter-oriented express bus service only during the peak hours of each weekday and in the peak direction of travel. The primary stop for these two routes within the study area is at the Goerke's Corners public transit station, where these routes supplement the peak-hour bus service provided over Route No. 2 to serve Waukesha-to-Milwaukee travel. Route No. 3 also makes a limited number of stops within the study area along Blue Mound Road (CTH JJ) west of the Goerke's Corners public transit station. Bus service over these routes is currently limited to four one-way bus trips during weekday peak periods.

The fares for the four routes operated for Waukesha County by Wisconsin Coach Lines, Inc., are based on distance, and range from $1.25 for shorter trips—such as those between the City of Waukesha and the Brookfield Square Shopping Center—to $3.35 for the longest commuter trips between the City of Oconomowoc and the Milwaukee central business district. Fares for passengers traveling between the study area and the Milwaukee central business district range from $1.75 for passengers boarding or alighting at the Goerke's Corners public transit station to $1.95 for passengers boarding or alighting at stops between downtown Waukesha and Goerke's Corners. As previously noted, a special transfer program between Wisconsin Coach Lines and Waukesha Metro Transit was implemented in March 1987 which allows passengers transferring between the separate county and city bus services to receive a $0.40 discount from the regular fare for the transit service to which they are transferring. During 1987, the four routes operated by Wisconsin Coach Lines carried approximately 143,500 revenue passengers.

Intercity Bus Service

Long-distance intercity public transportation service is provided by three private bus companies that operate routes with stops within the study area, as shown on Map 5. These companies are Badger Coaches, Inc.; Greyhound Lines, Inc.; and the Peoria-Rockford Bus Company.

The service provided by Badger Coaches, Inc., consists of six trips daily in each direction between Milwaukee and Madison which are operated through the study area over IH 94. All of these trips make intermediate stops at the Goerke's Corners public transit station in the study area. The service provided by Greyhound Lines, Inc., through the study area consists of five westbound and six eastbound trips daily between Milwaukee and Minneapolis-St. Paul, and one round trip daily between Milwaukee and Minocqua and between Milwaukee and Cedar Rapids, Iowa. All the Greyhound runs stop at the Goerke's Corners public transit station. The service provided by the Peoria-Rockford Bus Company consists of two trips daily in each direction plus an additional Sunday-only round trip between Milwaukee and Rockford, Illinois, all of which stop in the City of Waukesha.

Taxicab Service

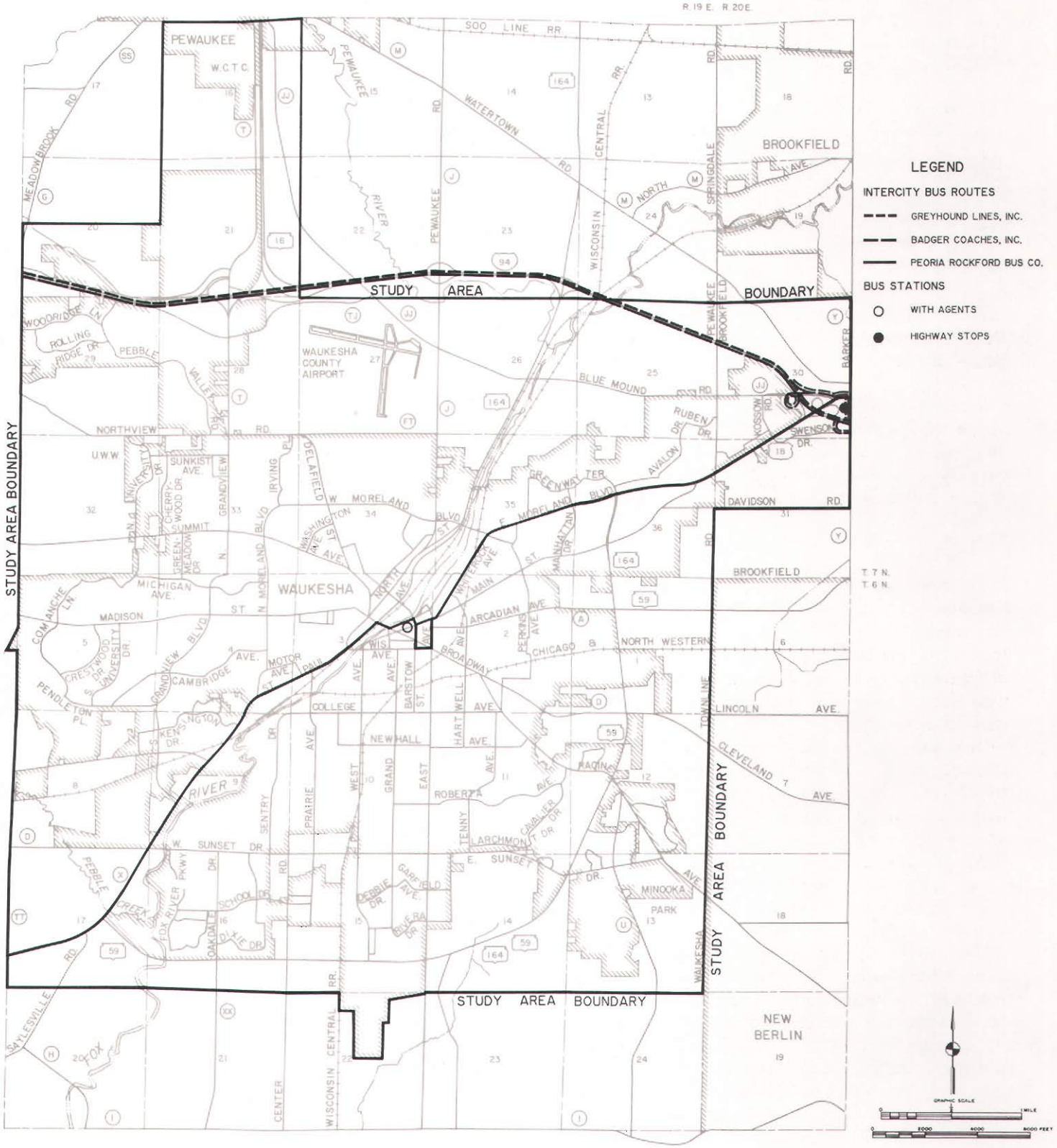
There are currently two taxicab companies based in the City of Waukesha, Best Cab Company and Checker/Yellow Cab Company. Taxicab service in the City operates on a shared-ride basis, where more than one fare may occupy the cab at the same time. Both taxi companies charge fares based on a zone system, under which the passenger pays a total fare based on the number of zones through which he travels. In 1987, total ridership for the two taxicab companies was about 30,000 passengers.

Yellow School Bus Service

The major provider of special school transportation service within the study area is the Waukesha Unified School District. The Waukesha School Board provides transportation to and from public, private, and parochial schools for all pupils who reside within the school district two miles or more—measured over the road—from the school they are entitled to attend. The Waukesha School Board will also provide transportation for students living less than two miles from the nearest school they are entitled to attend who would otherwise face hazardous walking conditions on their journey to and from school. During the 1988-1989 school year, the School Board will provide yellow school bus service for regular education to approximately

Map 5

INTERCITY BUS ROUTES OPERATED WITHIN THE STUDY AREA: AUGUST 1988



Source: SEWRPC.

4,500 students within the school district. To provide the service, the School Board contracts with Dairyland Buses, Inc., a private yellow school bus operator in the area.

Specialized Transportation Services

Several public and private organizations and social service agencies currently provide specialized services to certain population groups in the City of Waukesha. In general, the services do not use fixed routes or regular schedules, but instead provide service on demand to eligible clientele so long as the trips are requested in advance, are to be made within the hours of operation of the particular service, and have origins and destinations within the area served by each service. These services are intended for the use of elderly or handicapped individuals.

The Waukesha County Department of Aging is the principal provider of specialized transportation services within Waukesha County. The Department provides specialized transportation through six different projects to those eligible county residents who cannot walk or who require assistance walking. Five of the six projects provide transportation services which can be utilized by study area residents. These projects are: 1) the Ride Line transportation project; 2) the PM Ride Line transportation project; 3) the user-side subsidy transportation project; 4) the parallel commuter bus transportation project; and 5) the volunteer driver escort project. Table 8 describes the sponsor, service provider, hours of service, service area, type of vehicle use, eligible users, fare, and estimated annual ridership for each of these five services. During 1987, the specialized transportation services provided under these projects carried an estimated total of 57,400 one-way passenger trips within and outside the study area.

Within the area served by the Metrolift program operated by the Waukesha Transit System Utility, both the City of Waukesha and the Waukesha County Department of Aging refer elderly and handicapped passengers to the transit service provider judged best able to meet the specific transportation needs of the individual passenger concerned. The County Department of Aging also recommends that, if possible, all City of Waukesha residents eligible for the specialized transportation projects offered by the Department of Aging use the regular fixed-route bus service provided by Waukesha Metro Transit when available, instead of the county-sponsored services.

In addition, the County Department of Aging accepts transportation referrals from, and makes transportation referrals to, three other nonprofit agencies and organizations that provide specialized transportation services throughout Waukesha County, including the American Red Cross, the Retired Senior Volunteer Program (RSVP), and La Casa de Esperanza, Inc. The American Red Cross and the RSVP primarily provide nonaccessible transportation service through the use of volunteer staff. The RSVP is also used by the Department of Aging to provide transportation to able-bodied elderly persons and semiambulatory handicapped persons under the volunteer driver escort project administered by the Department.

La Casa de Esperanza, Inc., is a private, nonprofit organization providing a number of services to the Hispanic community within the City of Waukesha and Waukesha County, including specialized transportation service to elderly and handicapped persons. The organization provides an accessible door-to-door transportation service using its own vehicles and staff which is principally directed toward elderly and handicapped individuals with limited English ability and in need of door-to-door transportation service. While most of the service is provided within the City of Waukesha, the service area for the project includes all of Waukesha County. Eligible users, which include the elderly 55 years of age or older and physically and mentally handicapped persons, must make their service request 48 hours in advance of the time service is needed. In cases of emergency, however, service can be provided on a shorter notice. The service is available between 7:00 a.m. and 7:00 p.m. Mondays through Fridays; from 10:00 a.m. to 1:00 p.m. on Saturdays; and from 9:00 a.m. to 12:00 noon on Sundays. Trips for medical or therapeutic purposes receive the highest priority, followed by trips made for nutritional, shopping, and other purposes. Fares for individuals vary based upon the trip limits and trip length, with individuals being charged $2.00 for trips within the limits of the City of Waukesha and $4.00 for trips made outside the City of Waukesha which are less than 10 miles in length. For longer trips made outside the City of Waukesha, an addi-

Table 8

SPECIALIZED TRANSPORTATION SERVICES PROVIDED BY WAUKESHA COUNTY DEPARTMENT OF AGING WITHIN THE STUDY AREA: AUGUST 1988

Name of Service or Program	Service Sponsor	Service Provider	Hours of Service
Ride Line	Waukesha County Department of Aging	Waukesha County Department of Aging	Monday through Friday 8:00 a.m.-4:30 p.m.
User-Side Subsidy	Waukesha County Department of Aging	Best Cab Company and Checker/Yellow Cab Company	Every day, 24 hours/day
Parallel Commuter Bus Transportation	Waukesha County Transportation Department	Waukesha County Department of Aging	Monday through Friday 8:00 a.m.-4:30 p.m.
PM Ride Line	Waukesha County Department of Aging	Waukesha County Department of Aging	Wednesday and Friday 4:30 p.m.-10:30 p.m. Saturday 2:00 p.m.-10:30 p.m.
Volunteer Driver-Escort	Waukesha County Department of Aging	Retired Senior Volunteer Program (RSVP)	By special arrangement

Service or Program	Service Area	Vehicles Used	Eligible Users	Fare per Trip	Annual Ridership: 1987 (one-way trips)
Ride Line	Waukesha County	Wheelchair-accessible vans and minibuses	Waukesha County residents 60 and older and handicapped 18 and older who live in own home or apartment[b]	$1.00 for intramunicipality trips[a]; $2.00 for intermunicipality trips	28,900
User-Side Subsidy	City of Waukesha	Taxicabs	Waukesha County residents 65 and older and all physically or developmentally disabled receiving social security disability income[c]	Distance-related minus $1.25 subsidy	26,900
Parallel Commuter Bus Transportation	Two-mile-wide corridor centered on county subsidized bus routes within Waukesha and Milwaukee Counties	Wheelchair-accessible vans and minibuses	All handicapped Waukesha County residents 18 and older who would normally use the regular bus service if it were accessible	Distance-related, ranging from $1.25 to $3.35 per one-way trip	800[d]
PM Ride Line	Waukesha County	Wheelchair-accessible vans and minibuses	Waukesha County residents 18 and older who are physically disabled or legally blind	$1.00 for intramunicipality trips; $2.00 for intermunicipality trips	650
Volunteer Driver-Escort	Waukesha and surrounding counties	Automobiles	Elderly and nonelderly handicapped Waukesha County residents who are ambulatory	Donation	150

[a]$1.00 donation for nutrition-related trips.

[b]Also other passengers who are neither elderly nor handicapped when space is available.

[c]Individuals limited to eight subsidized one-way trips per month, except for additional medical-related trips when sufficient project funding is available and when authorized by the Paratransit Program Coordinator.

[d]Includes approximately 625 trips initially requested under the Ride Line transportation project and 175 trips initially requested under the PM Ride Line transportation project.

Source: SEWRPC.

tional $2.00 is charged for each five-mile increment in trip length. For large groups, a special group rate is available from the agency.

SUMMARY

On August 31, 1981, the City of Waukesha began operation of Waukesha Metro Transit to provide local bus service in the City of Waukesha and environs. As of August 1988, the fixed-route transit system consisted of eight bus routes totaling about 101 round-trip route miles. All the bus routes are radial in design and terminate at a common transfer terminal in the Waukesha central business district. Cycle, or pulse, scheduling is utilized by the transit system so that all buses meet at the downtown terminal at approximately the same time during peak periods of operation.

The local bus system is managed by the private firm of ATE Management & Service Company, Inc., under the direct supervision of the Transit Coordinator in the City of Waukesha Department of Public Works. The policy-making body of the transit system is the Transit System Utility Board. However, the Waukesha Common Council has the ultimate responsibility for review and approval of certain important matters, for the transit system, including the annual budget.

In addition to fixed-route transit service, the transit system provides a specialized transportation service which is designed to provide mobility to any handicapped person who is unable to use the City's regular bus service owing to the nature of his or her physical disability. To provide this service, the City contracts with Dairyland Buses, Inc.—a private yellow school bus operator in the area. The service area for the specialized transportation program includes all areas within one-quarter mile of the City's regular bus routes.

Transit ridership on the local bus system increased steadily from 1982—the first full year of system operation—to 1985. During this period, annual ridership on the transit system increased from about 202,700 revenue passengers in 1982 to about 406,200 revenue passengers in 1985, or about 100 percent. The ridership increases experienced during this period may be attributed to the introduction of the new service and to increases in the extent of service provided over the first few years, the most significant of which occurred in February 1985, when transit service was extended to Saturdays. Ridership on the transit system has declined over the past two years, decreasing to about 381,900 revenue passengers, or by about 6 percent, during 1986; and to about 347,300 revenue passengers, or by about 9 percent, during 1987. These declines in ridership may be attributed primarily to an increase in transit fares which was implemented in 1985, a substantial reduction in gasoline prices in 1986, and very mild winters during both 1986 and 1987.

Total annual operating expenses for the transit system increased from about $706,500 in 1982 to about $948,000 during 1987, an average annual increase of about 6 percent. Total actual operating revenues during this period increased from about $85,700 in 1982 to about $157,600 in 1987, an average annual increase of about 13 percent. The increase in operating revenues reflects the ridership growth that occurred following the introduction of the public transit system in 1981, and an increase in passenger fares implemented in August 1986. Despite this increase in operating revenues, the actual operating deficit for the transit system increased from $620,800 in 1982 to about $788,400 in 1987—an increase of about $167,600, or 27 percent, during the period. Although the local bus system is not financially self sufficient, the Waukesha Transit System Utility has managed to minimize the public funding requirement for the City of Waukesha by using available federal and state transit assistance funds. During 1987, about 17 percent of the transit system operating expenses were obtained from operating revenues; about 24 percent were obtained from the federal transit operating assistance program; about 37 percent were obtained from the state transit operating assistance program; and about 22 percent were obtained from property taxes levied by the City of Waukesha. The availability of federal and state transit assistance funds has also enabled the City to completely implement the recommendations of the previous transit plans prepared for the transit system.

In addition to the public transit services provided by the Waukesha Transit System Utility, there are other transit services provided within the study area, some of which are coordinated with city transit services to varying degrees. Commuter bus service between the study area and the Milwaukee central business district is provided over four bus routes operated by

Wisconsin Coach Lines, Inc., and subsidized by Waukesha County. This service carried about 143,500 revenue passengers during 1987. Two of these four bus routes originate in downtown Waukesha near the transfer terminal for the City's fixed-route bus system. Also, long-distance intercity bus service is provided through the study area by three different carriers—Badger Coaches, Inc.; Greyhound Lines, Inc.; and the Peoria-Rockford Bus Company—with buses having stops within the study area being operated between Milwaukee and Madison, Rockford, and Minneapolis-St. Paul. Shared-ride taxicab service is provided within the study area by two taxicab companies—Best Cab Company and Checker/Yellow Cab Company—on which about 30,000 trips were made during 1987. The Waukesha Unified School District provides special school transportation service for regular education within the study area to about 4,500 pupils who reside within the school district two miles or more from the school they are entitled to attend, or who would otherwise face hazardous walking conditions on their journey to and from school. Also, several specialized transportation services intended to serve the needs of elderly and handicapped individuals are provided within the study area, the principal providers of which are the Waukesha County Department of Aging and La Casa de Esperanza, Inc.

Chapter III

LAND USE AND TRAVEL PATTERNS

INTRODUCTION

In order to properly evaluate the transit services currently provided by the City of Waukesha transit system, and to consider the potential for transit service improvements, it is necessary to consider those factors which affect, or are affected by, the provision and use of transit service. These factors include the land use pattern, and the size and distribution of resident population and employment in the study area. These factors also include the travel habits and patterns of the resident population of the study area, including the existing transit system riders. This chapter presents the results of an inventory and analysis of these important determinants of the need for, and feasibility of, transit service in the City of Waukesha and immediate environs.

LAND USE

Historic Urban Growth

The pattern of urban growth in the study area and Waukesha County from 1850 through 1980 is depicted on Map 6. From 1850 to 1940, urban development within the County occurred in relatively tight concentric rings outward from what were then the small urban centers of the County, such as the City of Waukesha, the City of Oconomowoc, and the Village of Menomonee Falls. Following 1940, however, a dramatic change occurred in this pattern of urban development within the County. Between 1940 and 1950, substantial development began to occur along the shorelines of the lakes in the far western portions of the County, and much of the new urban development became discontinuous and diffused, occurring in scattered enclaves. This latter trend was particularly apparent in the 1970's. Another important trend that began in the 1950's was the development of the eastern portion of the County, including the area within and around the City of Waukesha, as part of the historic outward growth of the Milwaukee urbanized area.

An important conclusion regarding the potential for transit facilities and services in Waukesha County can be drawn from Map 6, showing the extent of urban development in the County. Specifically, the City of Waukesha is one of only a few substantial areas within the County that are fully developed for urban uses at truly urban densities—as opposed to suburban densities—and, therefore, that has a good potential to support efficient local transit service.

Historically, patterns of development and growth within the study area are similar to those found in other communities within the Region that have developed along rivers. Except during the Depression years, urban development within the study area has been rapid since the turn of the century. With the increased use of private automotive transportation after World War II, much new residential development occurred that was not directly related to the economic base of the City of Waukesha itself, but to that of the entire Milwaukee urbanized area. Since 1960, population growth and urbanization within the Waukesha study area have intensified. The area within the corporate limits of the City of Waukesha has increased by over 175 percent—from 6.1 square miles in 1960 to 16.8 square miles as of August 1988. This rapid urbanization has been marked by a diffusion of both commercial and residential development in the planning area, and a change in the characteristics of the central business district from a regional shopping center to an employment and community shopping center and a high-density residential area.

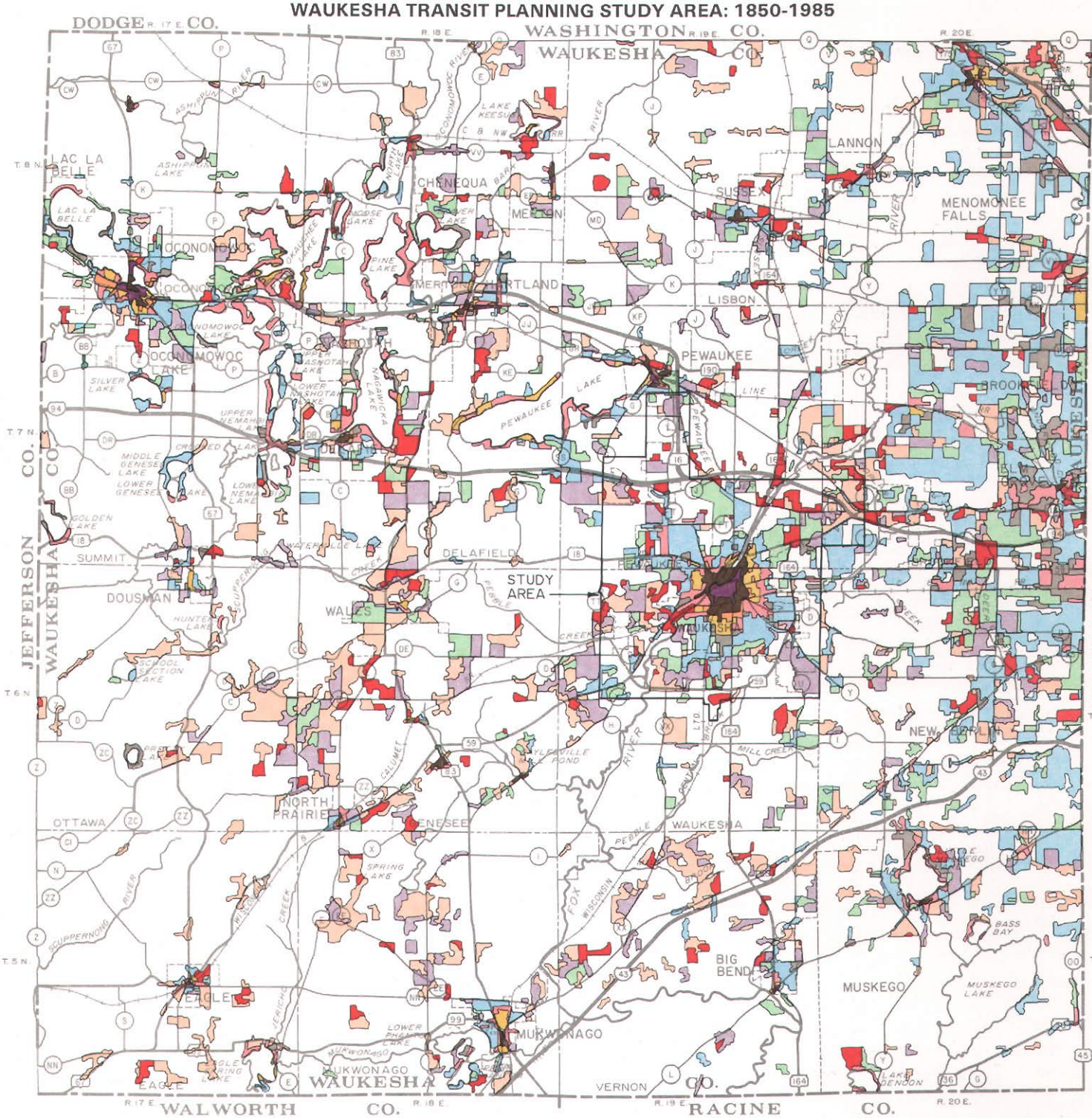
A continuation of some growth in both residential and commercial development within the City can be expected in the near future based upon recent development trends and proposals. Table 9 and Map 7 set forth areas of new residential development within the City of Waukesha that were under construction or had been proposed as of August 1988. Table 10 and Map 8 set forth areas of proposed new and expanding commercial and industrial development within the City.

Land Use

Table 11 and Map 9 set forth the distribution of land uses in 1985 within the study area. As shown in the table, single- and two-family residential development were the predominant types of land use within the urban portion of the study area. It is important to note that despite

Map 6

HISTORIC TREND OF URBAN GROWTH IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1850-1985



Source: SEWRPC.

rapid urbanization, a large portion of the land within the study area is still in open, rural uses.

The overall pattern of intensity, or density, of urban land use in 1985 in the study area and Waukesha County is shown on Map 10. This depiction of land use density reflects the density of residential and other urban land use activity, including commercial and industrial land uses in the study area and the immediate surrounding area. High-density land uses and substantial areas of medium-density land uses exist only in the City of Waukesha and the lands abutting Blue Mound Road (USH 18) generally west of Moorland Road in the City of Brookfield. Such land use densities are necessary to support efficient local transit service.

POPULATION AND EMPLOYMENT

General Population Characteristics

The estimated 1985 resident population of the study area was 60,300 persons, of whom about 51,800, or 86 percent, resided within the City of Waukesha. As shown in Table 12, the population in the City of Waukesha increased rapidly in the period 1950 to 1980. This high rate of growth appears to have moderated between 1980 and 1987.

The density of the population in the study area and in Waukesha County, measured in terms of persons per square mile, is shown on Map 11. As may be expected, the information shown is consistent with the previous information on generalized land use density. Accordingly, Map 11 indicates that substantial areas of medium to high population density exist only in the City of Waukesha, and thus this area has the highest potential to support efficient local transit service.

Table 13 indicates the historical change in the number of households in the City of Waukesha over the period 1960 to 1985. The increase in the number of households over the period 1960 to 1970 of 37 percent is very similar to the increase in city population over the same period of 32 percent. However, over the period 1970 to 1980, the number of households in the City increased much more rapidly than the did the resident population. The number of households in the City increased by 50 percent from 1970 to 1980, while the population increased by only 27 percent. Between 1980 and 1985, the number of households in the City increased from 17,600 to 18,800, an increase of 1,200 households, or about 7 percent. Travel in urban areas is more strongly related to the number of households than to the size of population, since the number of households is a better indicator of the size of the labor force and, hence, the amount of work travel, as well as other travel, including that for shopping and personal business purposes.

Transit-Dependent Population Characteristics

Generally, there are certain segments of the population whose dependence on and use of public transit is greater than that of the population as a whole. These segments of the population historically have had less access to the automobile as a form of travel than the population in general, and therefore have had to rely more heavily on alternative transportation modes for mobility. These groups include school-age children, the elderly, low-income families, and the handicapped.

One source that was used to obtain information about these groups in the Waukesha study area was the 1980 U. S. census data. Selected population characteristics for the census tracts within the Waukesha study area are set forth in Tables 14 and 15. Inasmuch as almost 96 percent of the population served by the City's local bus system resides within the City of Waukesha, the data presented in these tables represent only the City of Waukesha component of total census tract population and household figures.

The census tracts within the Waukesha study area which displayed concentrations of those population characteristics that depend most heavily on transit service were identified as high-priority transit service areas. Significant concentrations—over 10 percent of the total tract population—of elderly city residents were found in Tracts 2025, 2026, and 2028. Significant concentrations of both elderly and low-income city residents were found in Tract 2027. Tracts 2026, 2027, and 2028 also contained the heaviest concentrations of households within the City having no automobile or only one automobile available for use by household members. There were no significant concentrations of school-age children within the City in any census tract. Rather, a relatively even distribution was found among all census tracts within the City with the exception of Tract 2027—the Waukesha central business district—which contained a much lower

Table 9

AREAS OF NEW RESIDENTIAL DEVELOPMENT WITHIN THE CITY OF WAUKESHA: AUGUST 1988

Number on Map 7	Name	Proposed Size		Status
		Number of Housing Units	Type of Housing	
1	Brendon Way	16	Single-family	Under construction
2	Caroline	160	Apartments	Under constrution
3	David's Park	33	Single-family	
		28	Two-family	
		358	Apartments	
		391	Total	Under construction
4	East Sutton	52	Condominiums	Under construction
5	Evansdale	26	Single-family	Proposed
6	Kimberly	82	Apartments	Under construction
7	Mountain Village	258	Apartments	Under construction
8	North Burton	48	Single-family	Under construction
9	Paramont	40	Apartments	Proposed
10	River Walk	120	Apartments	Proposed
11	Saratoga	87	Apartments	Proposed
12	Springbrook	153	Single-family	
		70	Condominiums	
		223	Total	Proposed
13	Legend Hills	932	Apartments	
		192	Two-family	
		39	Single-family	
		1,163	Total	Proposed
14	Tolbert	52	Condominiums	Proposed
15	Westgrove	476	Apartments	Under construction
16	Willow Creek	136	Apartments	Under construction
17	Woodfield Phase 4	283	Single-family	
		96	Two-family	
		331	Total	Under construction
18	Woodridge Grove	90	Single-family	Proposed
	Total	688	Single-family	--
		288	Two-family	--
		174	Condominiums	--
		2,677	Apartments	--

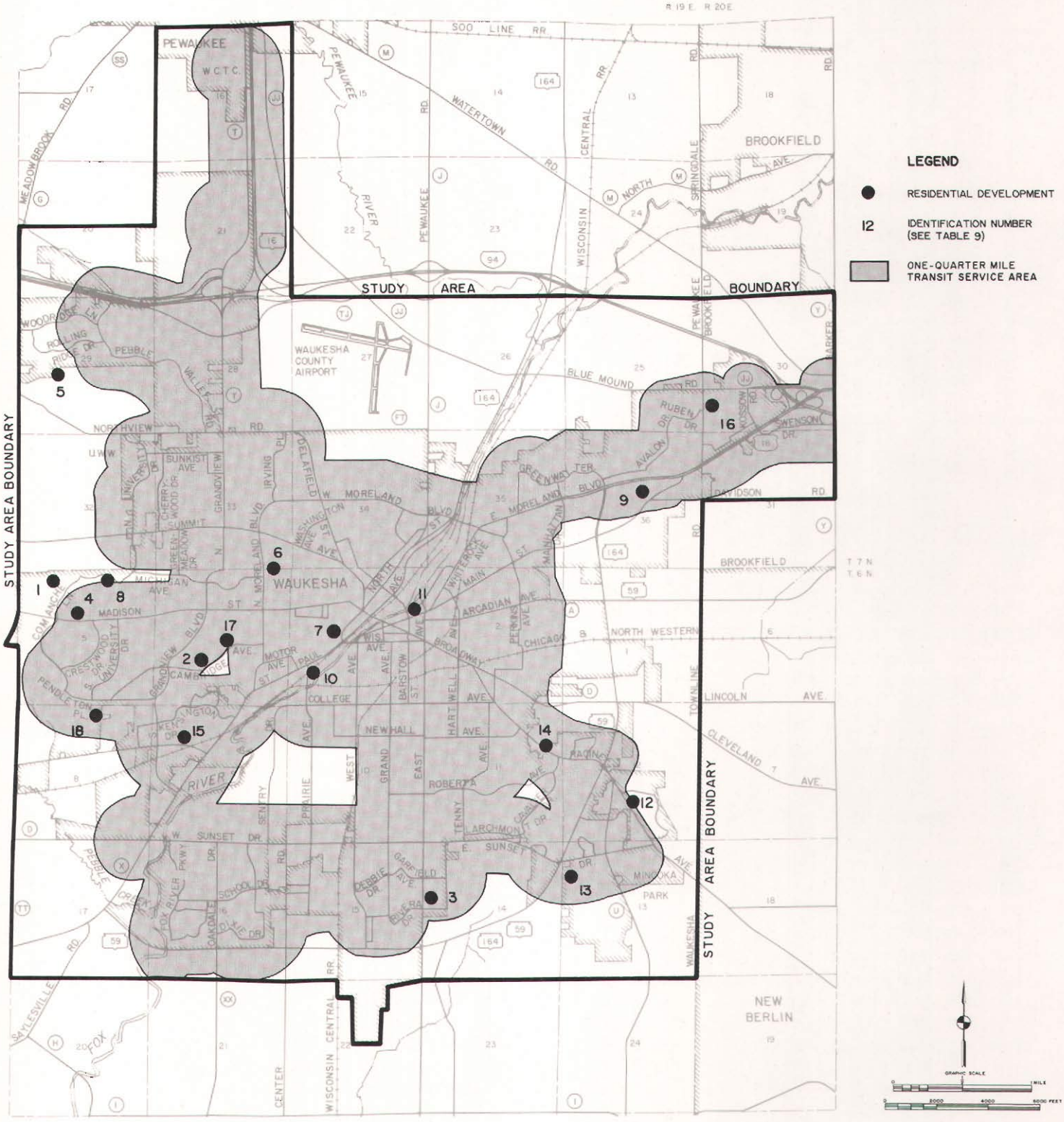
Source: City of Waukesha Engineering Department and SEWRPC.

than average percentage of school-age children. Tracts 2025, 2026, 2027, and 2028, accordingly, may be considered high-priority areas for transit services. These high-priority areas are shown on Map 12.

Places frequently used by the elderly for care and recreation purposes, along with the locations of retirement homes, elderly housing complexes, and nutrition sites, were also identified in the Waukesha study area for the year 1988, and are listed in Table 16 and located on Map 13. The locations of federally subsidized rental housing for low-income families and individuals were also identified within the study area in 1988, and are listed in Table 17 and located on Map 14. Finally, the locations frequently used by handicapped individuals for housing or residential care, for rehabilitation or sheltered employment, or for educational purposes are listed in Table 18 and located on Map 15.

Map 7

AREAS OF NEW RESIDENTIAL DEVELOPMENT WITHIN THE CITY OF WAUKESHA: AUGUST 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Table 10

AREAS OF NEW AND EXPANDING INDUSTRIAL AND COMMERCIAL DEVELOPMENT WITHIN THE CITY OF WAUKESHA: AUGUST 1988

Number on Map 8	Name	Status
	Industrial	
1	Airport Industrial Park	Proposed
2	Badger Drive Industrial Area	Expanding
3	Lincoln Avenue-East Industrial Area	Proposed
4	Missile Park Industrial Area	Proposed
5	ABB Electric, Inc., Plant	Proposed
6	South West Avenue Industrial Area	Expanding
	Commercial	
7	Blue Mound Road Motel Development	Expanding
8	East Main Street Commercial Development	Proposed
9	Silvernail Plaza Expansion	Proposed
10	Silvernail Road Office Development	Proposed
11	Crossroads Corporate Center	Expanding

Source: City of Waukesha Engineering Department and SEWRPC.

Employment Characteristics

The estimated 1985 employment of the study area was 38,400 jobs. As shown in Table 19, employment in the study area increased dramatically over the period 1963 to 1980, but increased only modestly from 1980 to 1985. The nationwide recession, which began in about 1979 and from which local recovery began in 1984, probably accounts for this modest increase. This recession severely affected the State of Wisconsin, and particularly southeastern Wisconsin. It may be noted that some parts of Waukesha County and the study area are recovering from the recession and increasing in employment much faster than others. For example, the Blue Mound Road (USH 18) corridor—bounded approximately by STH 100 on the east, Greenfield Avenue (STH 59) on the south, CTH T on the west, and North Avenue on the north—a portion of which is located within the study area, is estimated to have experienced an increase in jobs of 11,100, or 31 percent, from 1980 to 1985—from 36,200 jobs to 47,300 jobs.

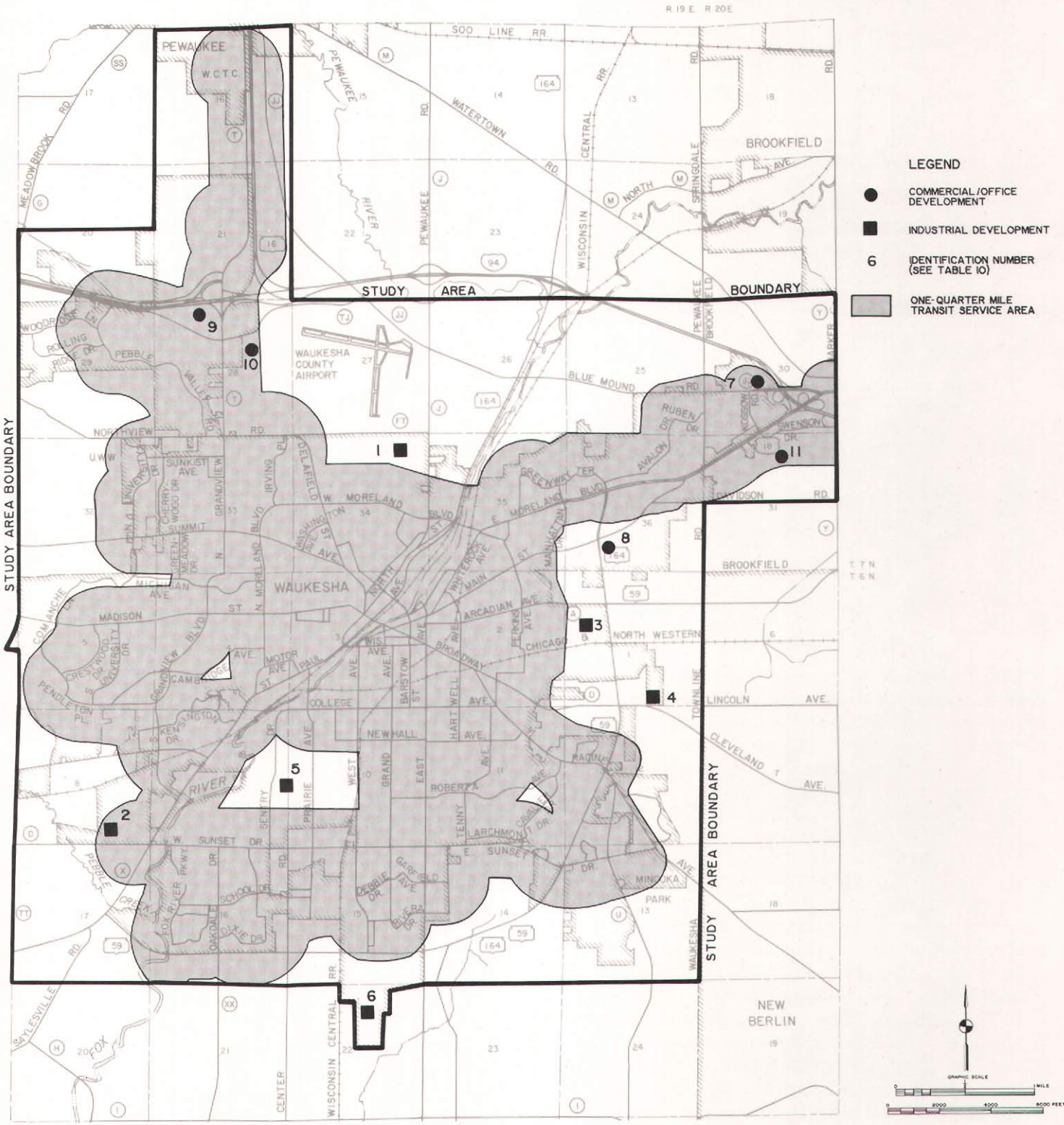
The density of employment in the study area and within Waukesha County is shown on Map 16. In 1985, the major concentrations of employment in the study area were located in the City of Waukesha within and around the Waukesha central business district; immediately north of the central business district along STH 164; on the south side of the City along Prairie Avenue; on the far northwest side of the City along CTH T; and on the northeast side of the City along E. Moreland Boulevard. The concentration of employment along E. Moreland Boulevard is actually part of a broader concentration of employment within the Blue Mound Road corridor which extends outside the study area to the east along W. Blue Mound Road to about W. Moorland Road.

MAJOR TRAFFIC GENERATORS

For public transit planning purposes, major traffic generators were defined as specific land uses or concentrations of such land uses which attract a relatively large number of person trips and, therefore, have the potential to attract a relatively large number of transit trips. The following categories of land uses were identified as major traffic generators for public planning purposes within the study area: 1) shopping areas; 2) educational institutions; 3) hospitals and medical centers; 4) governmental and public institutional centers; 5) major employment centers; and 6) recreational areas.

Map 8

AREAS OF PROPOSED NEW OR EXPANDING INDUSTRIAL AND COMMERCIAL DEVELOPMENT WITHIN THE CITY OF WAUKESHA: AUGUST 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Table 11

DISTRIBUTION OF LAND USE IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1985

Land Use Category	Area (acres)	Percent of Land Use Area	Percent of Total Study Area
Urban			
Single- and Two-Family Residential	4,861	45.0	25.7
Multiple-Family Residential	285	2.7	1.5
Commercial	370	3.4	2.0
Manufacturing and Wholesale Industrial	624	5.8	3.3
Transportation, Communication, and Utilities	3,501	32.4	18.5
Governmental and Institutional	661	6.1	3.5
Recreational	498	4.6	2.6
Subtotal	10,800	100.0	57.1
Rural			
Agricultural and Other Open Lands	5,403	66.5	28.4
Woodlands and Wetlands	2,247	27.6	11.9
Extractive Industrial	314	3.9	1.7
Surface Water	164	2.0	0.9
Subtotal	8,128	100.0	42.9
Total	18,928	--	100.0

Source: SEWRPC.

The major traffic generators identified within each category are listed in Tables 20 through 25, and their locations within the study area are shown on Maps 17 through 22.

TRAVEL HABITS AND PATTERNS

This section of the chapter presents information on the travel habits and patterns of City of Waukesha residents relevant to the provision and use of public transit service. Presented first is an estimate of the amount and pattern of the total travel generated by the households, employment, and land use activities in the City of Waukesha, including travel generated within the City and travel generated between the City and the remainder of southeastern Wisconsin. Following is an analysis of a survey of users of the City of Waukesha transit system conducted by the City in November 1987 to gather data on the socioeconomic and travel characteristics of

Table 12

POPULATION IN THE CITY OF WAUKESHA: 1900-1987

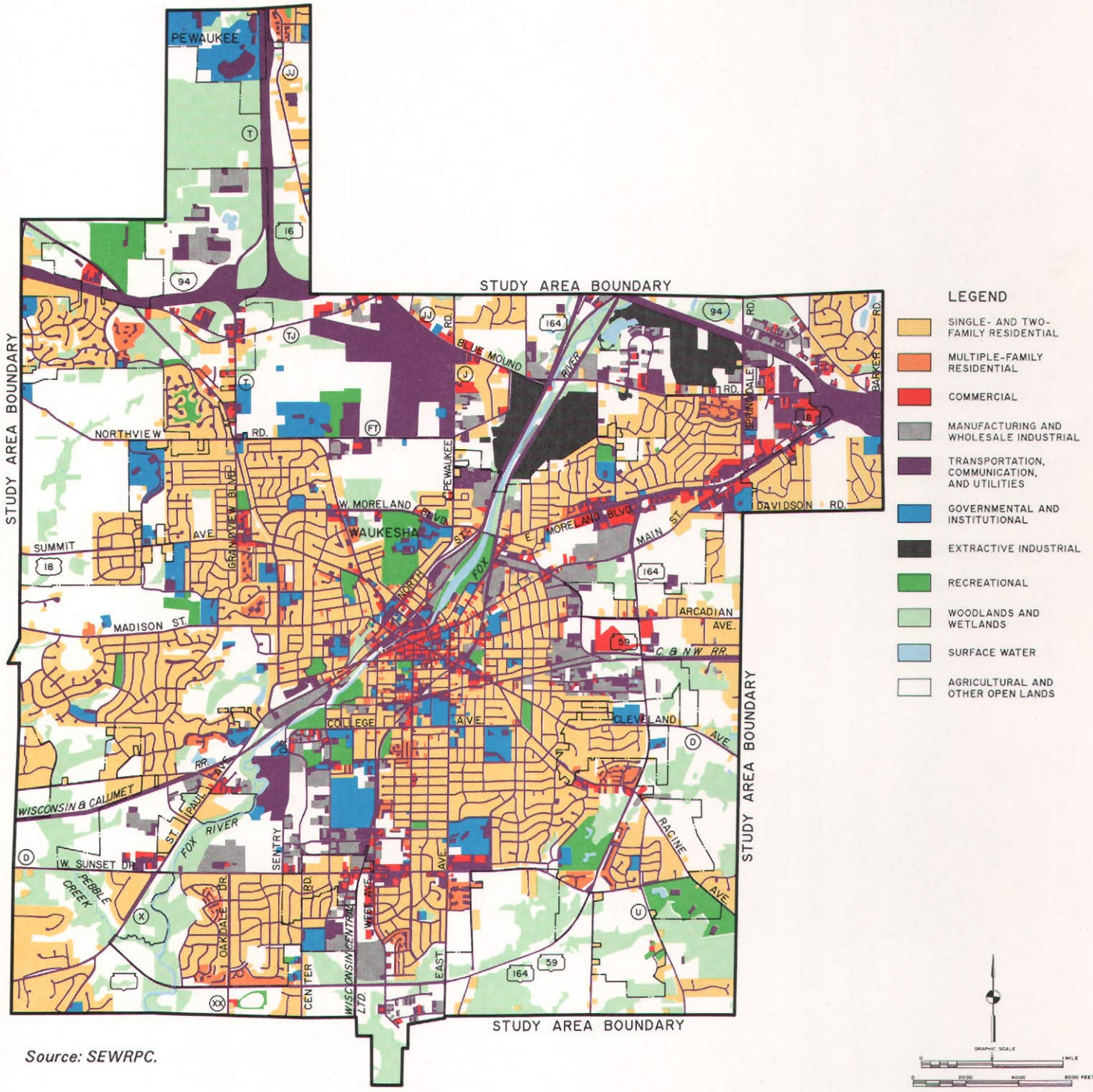
Year	Total Population	Difference	
		Actual	Percent
1900	7,419	--	--
1910	8,740	1,321	17.8
1920	12,558	3,818	43.6
1930	17,176	4,618	36.7
1940	19,242	2,066	12.0
1950	21,233	1,981	10.2
1960	30,004	8,771	41.3
1970	39,695	9,691	32.2
1980	50,365	10,670	26.9
1987[a]	53,080	2,715	5.4

[a]*Based on Wisconsin Department of Administration estimates.*

Source: U. S. Bureau of the Census, Wisconsin Department of Administration, and SEWRPC.

Map 9

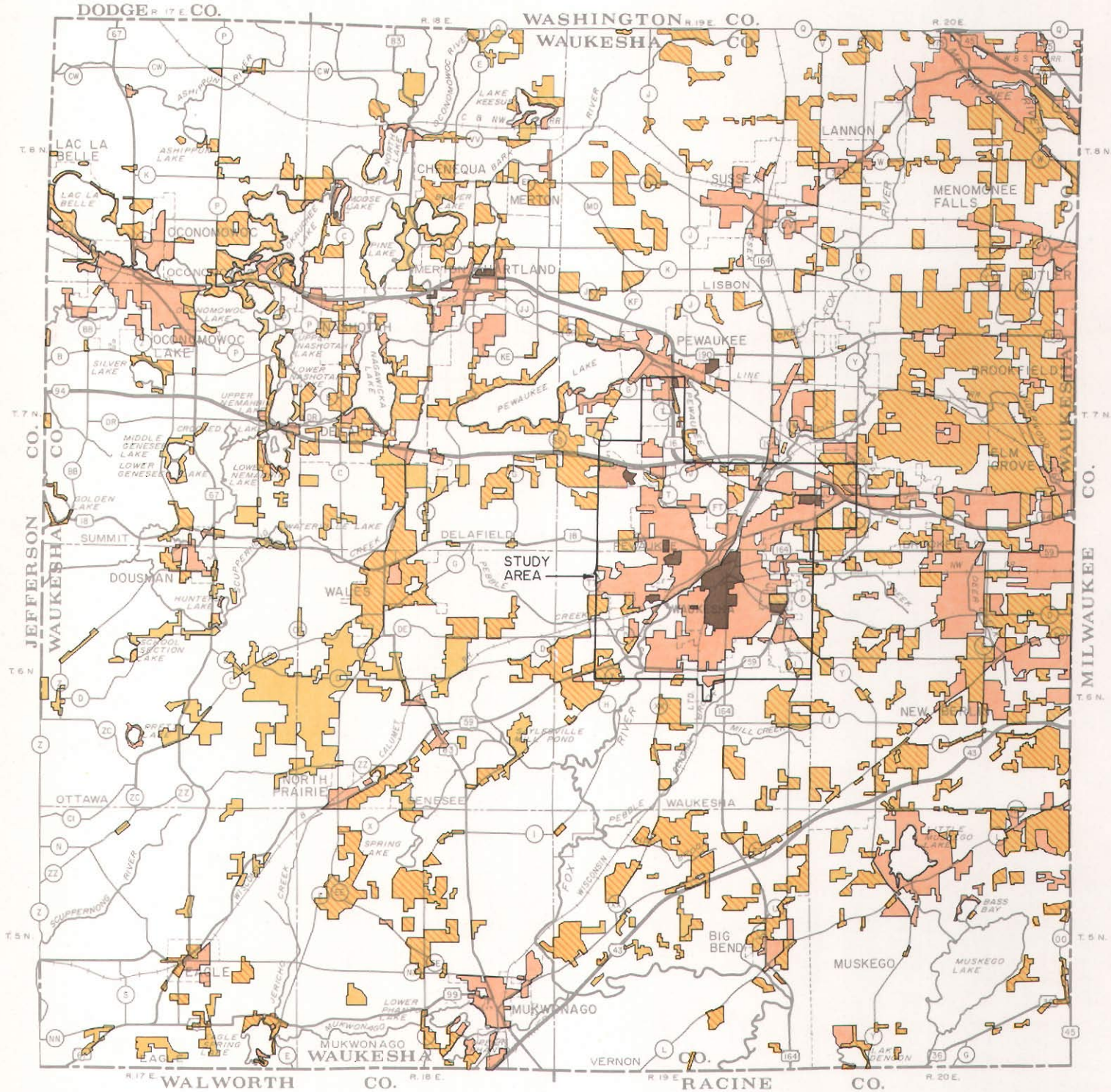
LAND USE WITHIN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1985



Source: SEWRPC.

Map 10

GENERALIZED LAND USE DENSITY WITHIN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1985



LEGEND

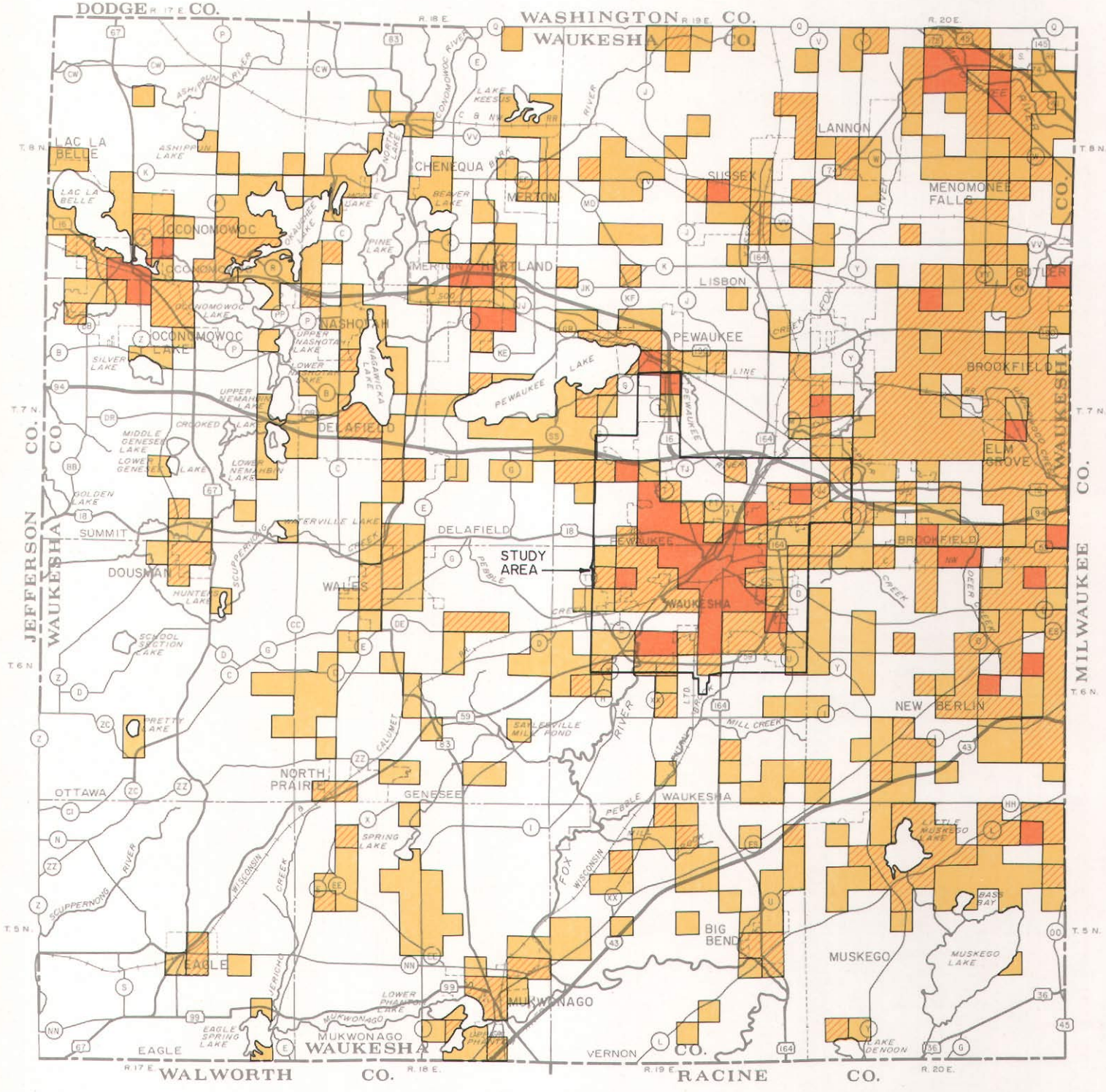
- SUBURBAN RESIDENTIAL (0.2-0.6 DWELLING UNITS PER NET RESIDENTIAL ACRE)
- LOW DENSITY RESIDENTIAL (0.7-2.2 DWELLING UNITS PER NET RESIDENTIAL ACRE)
- MEDIUM DENSITY RESIDENTIAL (2.3-6.9 DWELLING UNITS PER NET RESIDENTIAL ACRE)
- HIGH DENSITY RESIDENTIAL (7.0-17.9 DWELLING UNITS PER NET RESIDENTIAL ACRE)

GRAPHIC SCALE
0 2 3 MILES
0 4000 8000 12000 FEET

Source: SEWRPC.

Map 11

POPULATION DENSITY IN PERSONS PER SQUARE MILE WITHIN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1985



Source: SEWRPC.

Table 13

NUMBER OF HOUSEHOLDS IN THE CITY OF WAUKESHA: 1960-1980

Number of Households by Year				Change in Households 1960-1970		Change in Households 1970-1980		Change in Households 1980-1985	
1960	1970	1980	1985	Number	Percent	Number	Percent	Number	Percent
8,572	11,748	17,644	18,811	3,176	37	5,896	50	1,167	7

Source: SEWRPC.

Table 14

SELECTED CHARACTERISTICS OF THE CITY OF WAUKESHA RESIDENT POPULATION BY CENSUS TRACT: 1980

Tract Number	Total City Population	School-Age Children[a]		Elderly[b]		Low-Income[c]	
		Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
2016	16	--[d]	--	--[d]	--	--[d]	--
2021	1,760	272	15.3	18	1.1	123	6.8
2022	6,041	933	15.4	546	9.1	221	3.6
2023	9,156	1,568	17.1	538	5.9	622	6.8
2024	5,007	1,149	22.7	348	7.0	156	3.2
2025	3,476	563	16.1	416	12.1	181	5.2
2026	3,140	505	15.9	503	15.9	252	8.0
2027	1,232	116	9.8	331	26.8	207	17.1
2028	3,720	558	15.1	557	15.1	210	5.6
2029	3,716	748	20.2	106	3.0	62	1.6
2030	1,706	288	17.0	136	8.2	147	8.8
2031	11,350	2,186	19.3	710	6.3	322	2.8
Total	50,319	8,886	17.7	4,209	8.4	2,503	5.0

[a] *Ages 10 through 19 inclusive.*

[b] *Age 65 or older.*

[c] *Family income below federal poverty threshold. Poverty thresholds for families in 1979 as defined by the U. S. Bureau of the Census are shown in the following table.*

Size of Family Unit	Thresholds	Related Children Under 18 Years								
		None	1	2	3	4	5	6	7	8 or More
1 Person (unrelated individual)[e]	$ 3,686	--	--	--	--	--	--	--	--	--
Under 65 Years	3,774	$ 3,774	--	--	--	--	--	--	--	--
65 Years and Older	3,479	3,479	--	--	--	--	--	--	--	--
2 Persons	4,723	--	--	--	--	--	--	--	--	--
Householder Under 65 Years	4,876	4,858	$ 5,000	--	--	--	--	--	--	--
Householder 65 Years and Older	4,389	4,385	4,981	--	--	--	--	--	--	--
3 Persons	5,787	5,674	5,839	$ 5,844	--	--	--	--	--	--
4 Persons	7,412	7,482	7,605	7,356	$ 7,382	--	--	--	--	--
5 Persons	8,776	9,023	9,154	8,874	8,657	$ 8,525	--	--	--	--
6 Persons	9,915	10,378	10,419	10,205	9,999	9,693	$ 9,512	--	--	--
7 Persons	11,237	11,941	12,016	11,759	11,580	11,246	10,857	$10,429	--	--
8 Persons	12,484	13,356	13,473	13,231	13,018	12,717	12,334	11,936	$11,835	--
9 Persons or More	14,812	16,066	16,144	15,929	15,749	15,453	15,046	14,677	14,586	$14,024

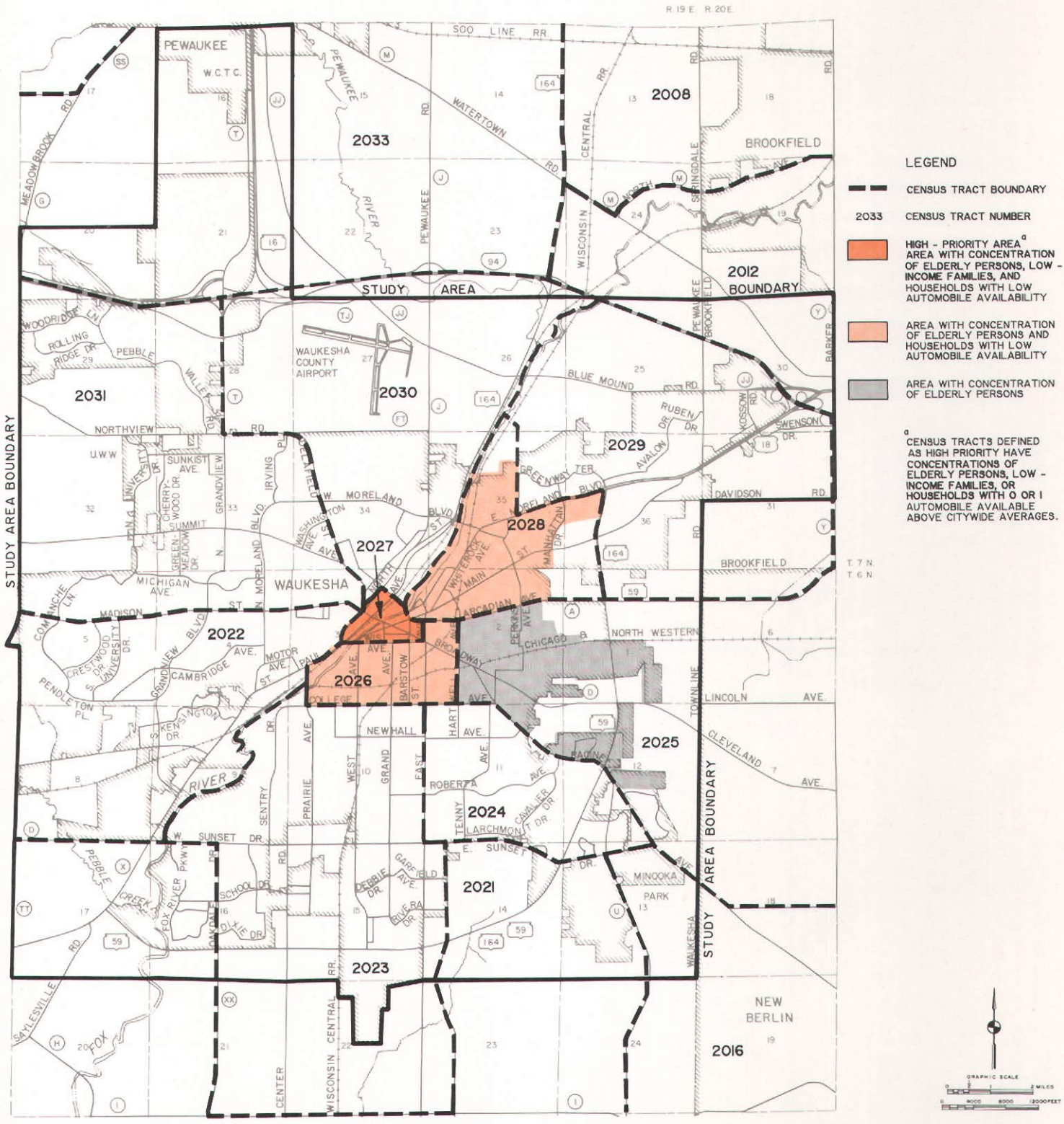
[d] *Data suppressed by U. S. Bureau of the Census.*

[e] *The U. S. Bureau of the Census defines "unrelated individual" as one who is not related by birth, marriage, or adoption to the legal head of household of the residence he or she occupies, or to members of the family of the head of household also occupying that residence—for example, a boarder, or a maid living as a member of her employer's household.*

Source: SEWRPC.

Map 12

HIGH-PRIORITY AREAS FOR TRANSIT SERVICE IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1980



Source: U. S. Bureau of the Census and SEWRPC.

Table 15

DISTRIBUTION OF HOUSEHOLDS WITHIN THE CITY OF WAUKESHA WITH ZERO OR ONE AUTOMOBILE AVAILABLE BY CENSUS TRACT: 1980

Tract Number	Number of Households Within City			Percent of Total Households with Zero or One Automobile Available
	Households with Zero Automobiles Available	Households with One Automobile Available	Total Households	
2016	--[a]	--[a]	8	--
2021	5	226	622	37.1
2022	147	679	1,975	41.8
2023	117	1,296	3,231	43.7
2024	17	405	1,454	29.0
2025	74	590	1,338	49.6
2026	311	698	1,342	75.2
2027	264	254	616	84.1
2028	227	567	1,301	61.0
2029	--	379	1,300	29.2
2030	55	253	664	46.4
2031	133	1,245	3,793	36.3
Total	1,350	6,592	17,644	45.0

[a]*Data suppressed by U. S. Bureau of the Census.*

Source: U. S. Bureau of the Census and SEWRPC.

Table 16

FACILITIES FOR THE ELDERLY WITHIN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988

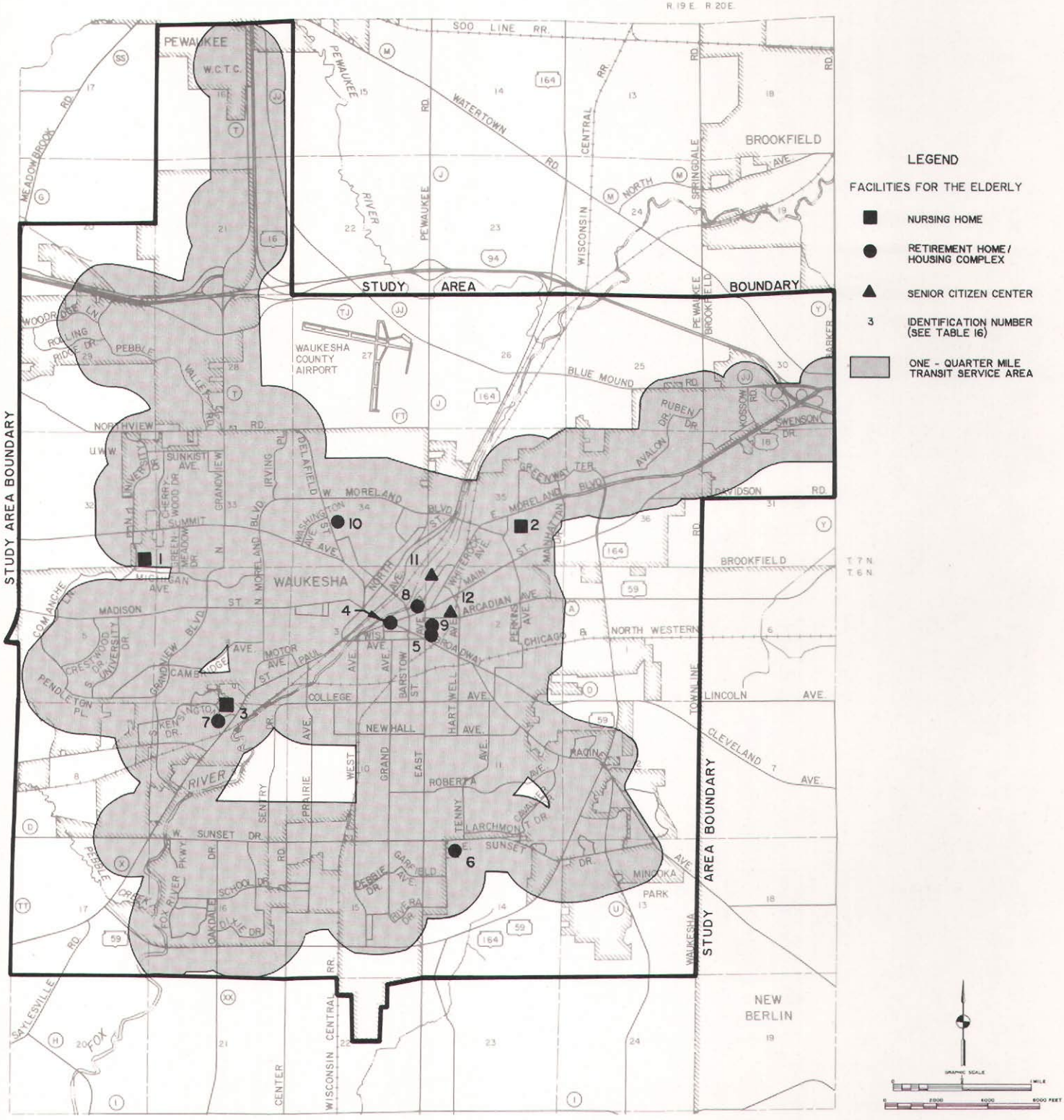
Number on Map 13	Facility	Address[a]
	Nursing Homes	
1	Linden Grove	425 N. University Drive
2	Virginia Nursing Home	1471 Waukesha Avenue
3	Westmoreland Manor	1810 Kensington Drive
	Retirement Homes and Housing Complexes	
4	Avalon Manor	222 Park Place
5	East Terrace Apartments	801 N. East Avenue
6	La Casa Village Apartments	1431 Big Bend Road
7	Oak Hill Village	1800 Kensington Drive
8	Saratoga Heights	120 Corrina Boulevard
9	Senior House	825 Pleasant Street
10	Willow Park	1001 Delafield Street
	Senior Centers	
11	C. F. Schuetze Building	1120 Baxter Street
12	La Casa de Esperanza, Inc	410 Arcadian Street

[a]*All addresses are in the City of Waukesha.*

Source: SEWRPC.

Map 13

LOCATION OF FACILITIES FOR THE ELDERLY IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988



Source: SEWRPC.

Table 17

FEDERALLY SUBSIDIZED RENTAL HOUSING FOR LOW-INCOME PERSONS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988

Number on Map 14	Project Name	Number of Units[a]	Address[b]
1	East Terrace Apartments	130	801 N. East Avenue
2	La Casa Village Apartments	50	1431 Big Bend Road
3	Saratoga Heights	119	120 Corrina Boulevard
4	Senior House	32	825 Pleasant Street
5	Sunset Apartments	71	1512 Big Bend Road
6	Westwood Heights	40	1705-1709 Elder Street
7	Willow Park	146	1001 Delafield Street

[a]*Excludes units known to be used as offices or as resident manager and caretaker units.*

[b]*All addresses are in the City of Waukesha.*

Source: SEWRPC.

Table 18

FACILITIES FOR THE HANDICAPPED IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988

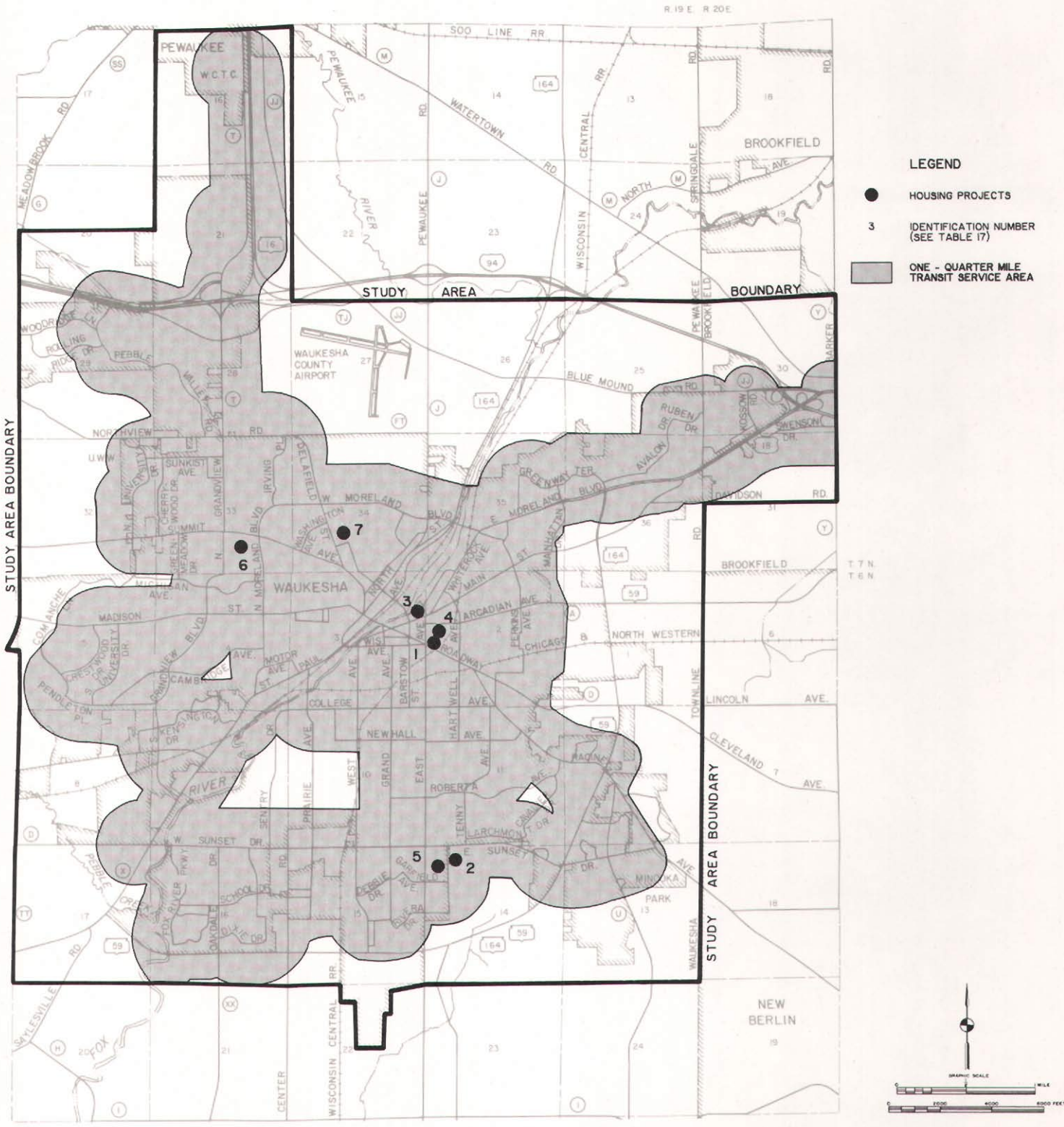
Number on Map 15	Facility	Address[a]
	Curative Workshops	
1	Curative Rehabilitation Center	149 Wisconsin Avenue
2	Waukesha Training Center	300 S. Prairie Avenue
	Nursing Homes	
3	Linden Grove	425 N. University Drive
4	Virginia Nursing Home	1471 Waukesha Avenue
5	Westmoreland Manor	1810 Kensington Drive
	Group Homes	
6	CCLS IV	2011 Kilps Drive
7	CCLS Waukesha Group Home	123 McCall Street
8	CCLS Waukesha Group Home III	516 N. West Avenue
9	CCLS-Welsh Court	2704 Welsh Court
10	CCLS-Wolf Road	1816 Wolf Road
11	Farrar Guest Home	1619 Birch Drive
12	Halfway House of Waukesha County	520 N. Grand Avenue
13	Lynne Spring Manor	718 Lynne Drive
14	Victoria Home	1425 Victoria Drive
15	Volunteers of America-Marion House	720 Luke Avenue
	Schools Offering Special Education	
16	Waukesha County Technical College Pewaukee Campus	800 Main Street, Village of Pewaukee
17	Waukesha Campus	400 E. Broadway

[a]*Except where noted, all addresses are in the City of Waukesha.*

Source: Waukesha County Department of Social Services and SEWRPC.

Map 14

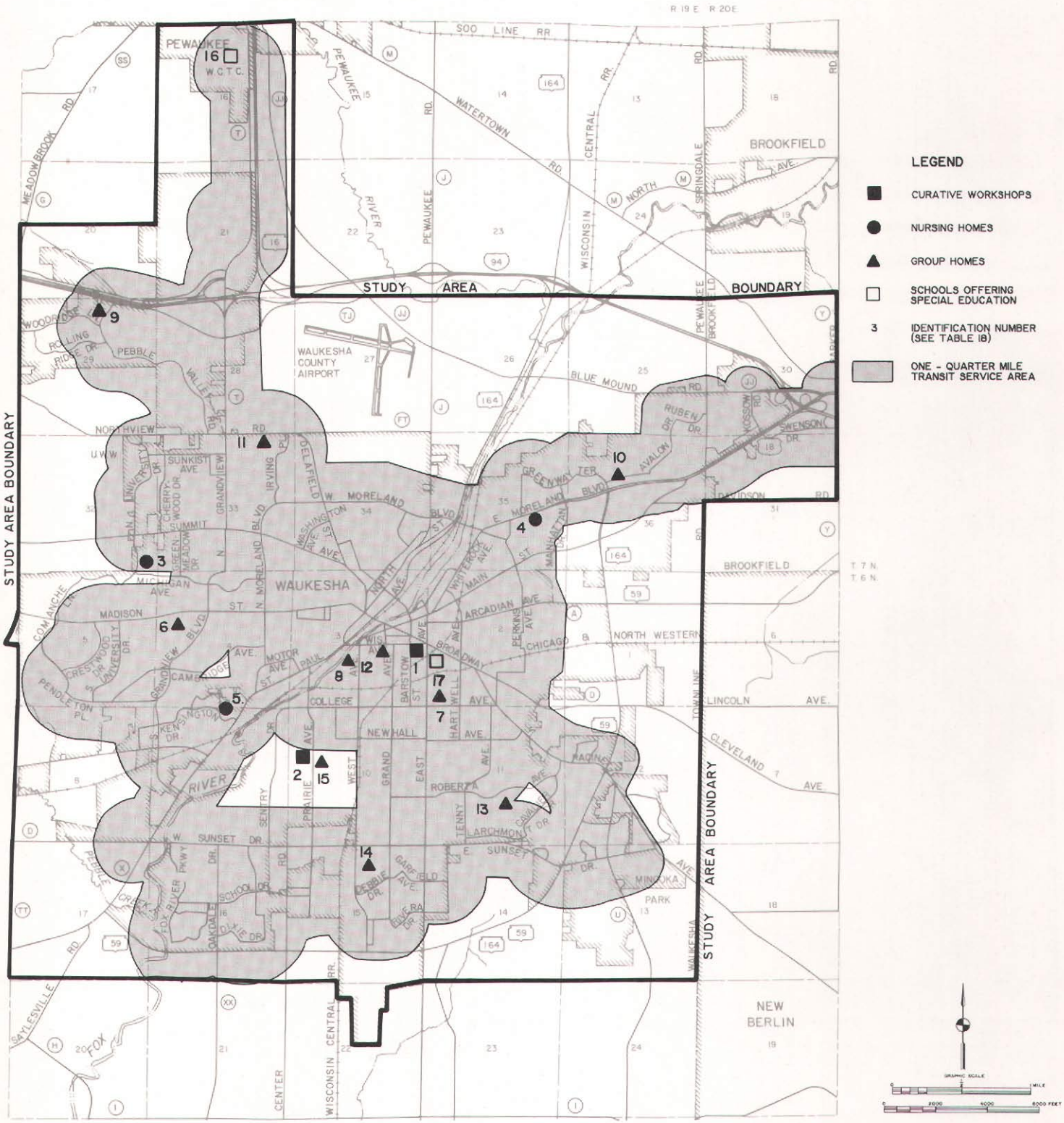
LOCATION OF FEDERALLY SUBSIDIZED RENTAL HOUSING IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988



Source: SEWRPC.

Map 15

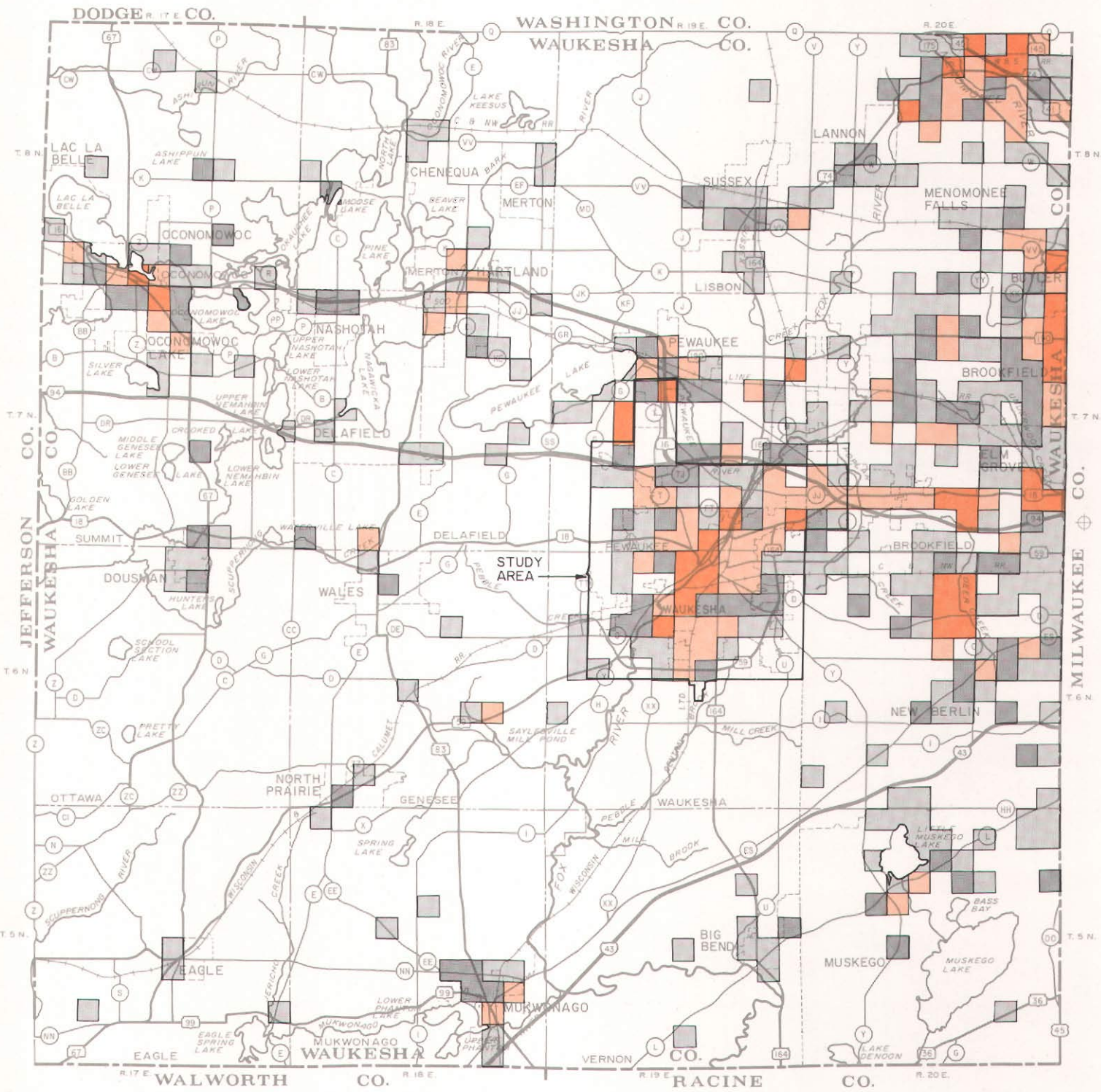
LOCATION OF FACILITIES FOR THE HANDICAPPED IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988



Source: Waukesha Department of Social Services and SEWRPC.

Map 16

EMPLOYMENT DENSITY IN JOBS PER SQUARE MILE WITHIN WAUKESHA COUNTY AND THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1985



Source: SEWRPC.

Table 19

HISTORICAL EMPLOYMENT IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1963, 1972, 1980, AND 1985

Employment by Year				Change in Employment 1963-1972		Change in Employment 1972-1980		Change in Employment 1980-1985	
1963	1972	1980	1985	Number	Percent	Number	Percent	Number	Percent
15,600	24,300	36,800	38,400	8,700	56	12,500	51	1,600	4

Source: SEWRPC.

Table 20

SHOPPING CENTERS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988

Number on Map 17	Shopping Center	Location[a]
	Community[b]	
1	Central Business District	Area bounded by Wisconsin Avenue, East Avenue, St. Paul Avenue, and West Avenue
2	K-Mart/Pick 'N Save/Brighton Square Shopping Area	East Avenue and Sunset Drive
3	Westbrook-Target Strip Development	On Moreland Boulevard between Ramona Road and IH 94
	Neighborhood[c]	
4	Fox Run Shopping Center	St. Paul Avenue and Sunset Drive
5	Gray Terrace Shopping Center	Racine Avenue and Roberta Avenue
6	Moreland Plaza Shopping Center	Moreland Boulevard and Delafield Street
7	Silvernail Plaza	On Silvernail Road approximately one-half mile west of intersection of Grandview Boulevard and Silvernail Road
	Other[d]	
8	Broadway Strip Development	On Broadway between East Avenue and Barney Street
9	Delafield Strip Development	On Delafield Street between Madison Street and Summit Avenue
10	Grand Avenue Strip Development	On Grand Avenue between College Avenue and Williams Street
11	Grandview Strip Development	Intersection of Grandview Boulevard and Summit Avenue
12	Sunset Drive Strip Development	On Sunset Drive between West Avenue and Grand Avenue

[a] *All locations are in the City of Waukesha.*

[b] *Defined as a concentration of stores, including one major food store, one department store, and six minor stores and support facilities.*

[c] *Defined as a concentration of stores, including one major food store and five minor stores and support facilities.*

[d] *Defined as minor shopping areas, including a food store or five minor stores with support facilities.*

Source: City of Waukesha Planning Department and SEWRPC.

Table 21

EDUCATIONAL INSTITUTIONS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988

Number on Map 18	Educational Institution	Address[a]
	Colleges and Universities	
1	Carroll College	100 N. East Avenue
2	University of Wisconsin-Waukesha County	1500 University Drive
	Waukesha County Technical College	
3	Pewaukee Campus	800 Main Street, Village of Pewaukee
4	Waukesha Campus	400 E. Broadway
	Middle and Senior High Schools	
5	Butler Middle School	310 N. Hine Avenue
6	Catholic Memorial High School	601 E. College Avenue
7	Central Middle School	400 N. Grand Avenue
8	Horning Middle School	2000 Wolf Road
9	North High School	2222 Michigan Avenue
10	South High School	401 E. Roberta Avenue
	Parochial Elementary Schools[b]	
11	Mt. Calvary Lutheran School	1941 Madison Street
12	St. Joseph's School	841 Martin Street
13	St. Mary's School	520 E. Newhall Avenue
14	St. William's School	444 N. Moreland Boulevard
15	Trinity Lutheran School	1060 White Rock Avenue

[a]*Except where noted, all addresses are in the City of Waukesha.*

[b]*Public elementary schools were not considered major transit trip generators because students at these schools generally live in the surrounding neighborhood and are able to walk to school. Waukesha Metro Transit does, however, carry significant numbers of student riders from some elementary schools, including Banting, Heyer, Whittier, and Prairie Schools.*

Source: SEWRPC.

Table 22

COMMUNITY AND SPECIAL MEDICAL CENTERS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988

Number on Map 19	Medical Center	Address[a]
	Community Medical Center[b]	
1	Waukesha Memorial Hospital	725 American Avenue
	Special Medical Centers[c]	
2	Moreland Medical Clinic	1111 Delafield Street
3	St. Joseph's Medical Clinic	826 N. East Avenue
4	Waukesha Family Practice Center	434 Madison Street
5	Westmound Medical Clinic	W228 N683 Westmound Drive, Town of Pewaukee

[a]*Except as noted, all addresses are in the City of Waukesha.*

[b]*Defined as a hospital having at least 100 beds and providing in- and out-patient facilities and laboratory and clinical services.*

[c]*Defined as all other major medical facilities and special clinics offering multi-specialty medical services.*

Source: SEWRPC.

Table 23

GOVERNMENTAL AND PUBLIC INSTITUTIONAL CENTERS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988

Number on Map 20	Institutional Center	Address[a]
	Regional and County	
1	County Courthouse Annex	916 N. East Avenue
2	Social Security Administration	2132 Silvernail Road
3	State Office Building	141 N. W. Barstow Street
4	Waukesha County Courthouse	515 W. Moreland Boulevard
5	Waukesha County Health Department	325 E. Broadway
6	Waukesha County Office Building	500 Riverview Avenue
7	Waukesha Public Library	321 Wisconsin Avenue
	Community	
8	U. S. Post Office	300 E. Broadway
9	Waukesha City Hall	201 Delafield Street
10	Waukesha Police Department	130 Delafield Street
11	School District of Waukesha	222 Maple Avenue

[a]*All addresses are in the City of Waukesha.*

Source: SEWRPC.

Table 24

MAJOR EMPLOYMENT CENTERS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988

Number on Map 21	Employment Center[a]	Address[b]	Total Estimated 1988 Employment
	Industrial/Manufacturing		
1	ABEX Corporation-Waukesha Division	1300 Lincoln Avenue	550
2	Alloy Products Corporation	1045 Perkins Avenue	190
3	Amron Corporation	525 Progress Avenue	435
4	ABB Electric, Inc.	400 S. Prairie Avenue	350
5	ABB Electric, Inc.	1100 S. Prairie Avenue	150
6	Envirex, Inc.-Rexnord Company	1901 S. Prairie Avenue	490
7	Gartland Foundries, Inc.	831 Progress Avenue	100
8	General Electric Company-Medical Systems Division	3000 N. Grandview Boulevard	2,100
9	Hein-Werner Corporation	1005 Perkins Avenue	150
10	Husco—Division of Koehring Company	N218 W239 Pewaukee Road, Town of Pewaukee	235
11	NAVISTAR-International Corporation	1401 Perkins Avenue	360
12	Quality Aluminum Casting Company	1242 Lincoln Avenue	200
13	RTE Corporation	1900 E. North Avenue	900
14	RTE Corporation	1319 Lincoln Avenue	500
15	RTE Fabrication Center	2300 Badger Drive	250
16	Sanofi Bio Ingredients, Inc.	620 Progress Avenue	100
17	Spancrete Industries	1800 E. Main Street	100
18	Waukesha Cutting Tools	1111 Sentry Drive	110

Table 24 (continued)

Number on Map 21	Employment Center[a]	Address[b]	Total Estimated 1988 Employment
	Industrial/Manufacturing (continued)		
19	Waukesha Engine—Division of Dresser Industries, Inc.	1000 W. St. Paul Avenue	350
20	Wisconsin Centrifugal, Inc.	905 E. St. Paul Avenue	575
--	Subtotal	--	8,195
	Governmental/Institutional		
21	Southeastern Wisconsin Regional Planning Commission	916 N. East Avenue	100
22	State Office Building	141 N. W. Barstow Street	500
23	Waukesha County Courthouse and Office Building	515 W. Moreland Boulevard and 500 Riverview Avenue	900
24	Waukesha Memorial Hospital	725 American Avenue	1,390
--	Subtotal	--	2,890
	Educational		
25	Carroll College	100 N. East Avenue	200
26	North High School	2222 Michigan Avenue	150
27	South High School	401 E. Roberta Avenue	170
28	University of Wisconsin-Waukesha County	1500 University Drive	150
29	Waukesha County Technical College-Pewaukee Campus	800 Main Street, Village of Pewaukee	450
--	Subtotal	--	1,120
	Public Utility		
30	Wisconsin Electric Power Company	2330 Blue Mound Road	100
31	Wisconsin Bell	1240 Davidson Road	150
32	Wisconsin Natural Gas Company	1830 S. West Avenue	100
--	Subtotal	--	350
	Wholesale/Retail/Finance		
33	Bank One	831 N. Grand Avenue	135
34	Beatrice Cheese, Inc.	770 N. Springdale Road, Town of Brookfield	180
35	Farm and Fleet of Waukesha	2310 Kossow Road	125
36	Godfrey Company	1200 W. Sunset Avenue	290
37	Holsum Foods	500 S. Prairie Avenue	150
38	K-Mart Discount Department Store	120 E. Sunset Drive	160
39	Target Department Store	2401 Kossow Road	210
40	Waukesha State Bank	100 Bank Street	130
41	Waukesha Wholesale Foods	900 Gale Street	100
--	Subtotal	--	1,480
Total Employment	--	--	14,035

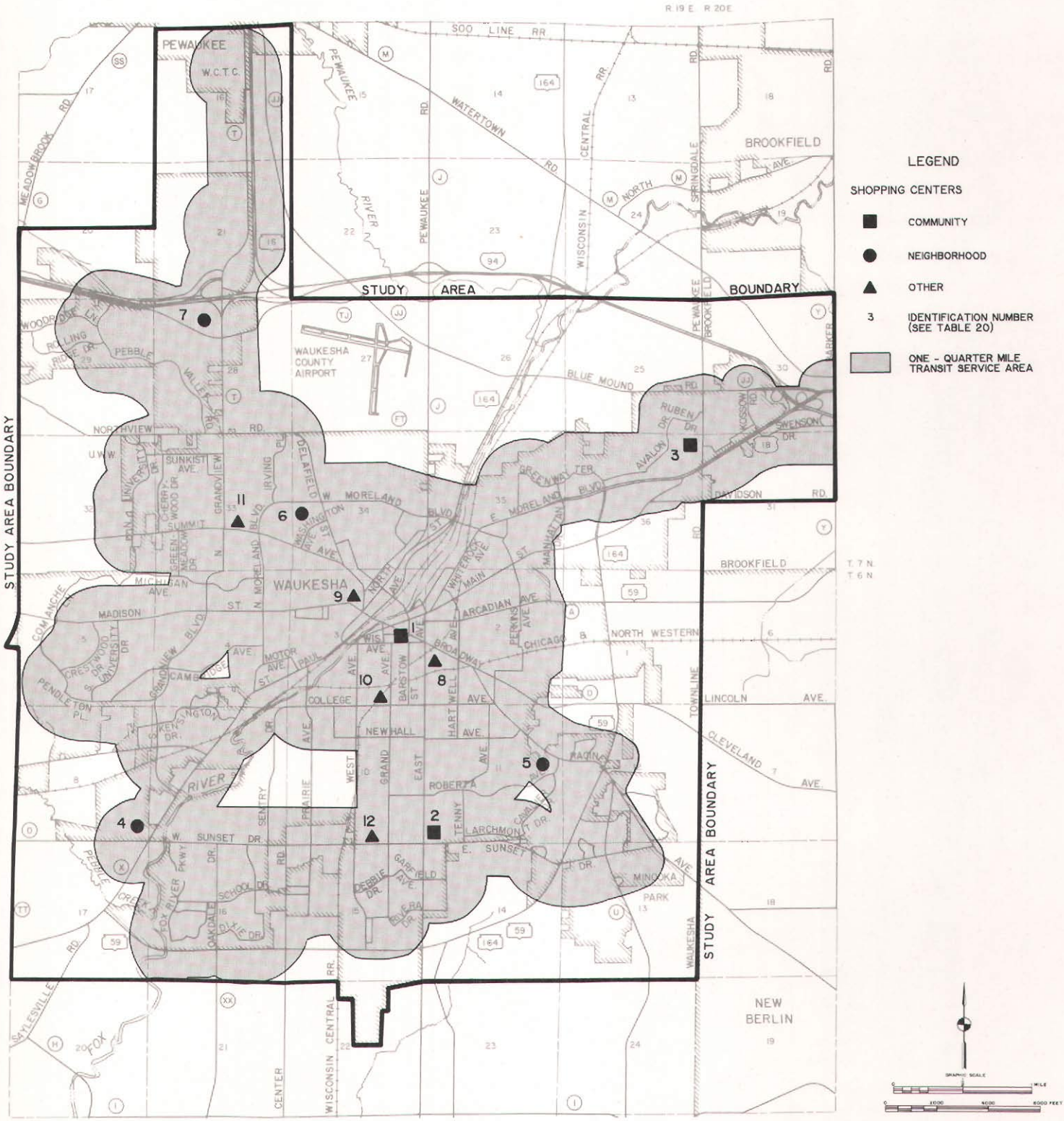
[a] *Only major employment centers, including public and private establishments, employing 100 or more persons are listed.*

[b] *Except where noted, all addresses are in the City of Waukesha.*

Source: Waukesha Area Chamber of Commerce and SEWRPC.

Map 17

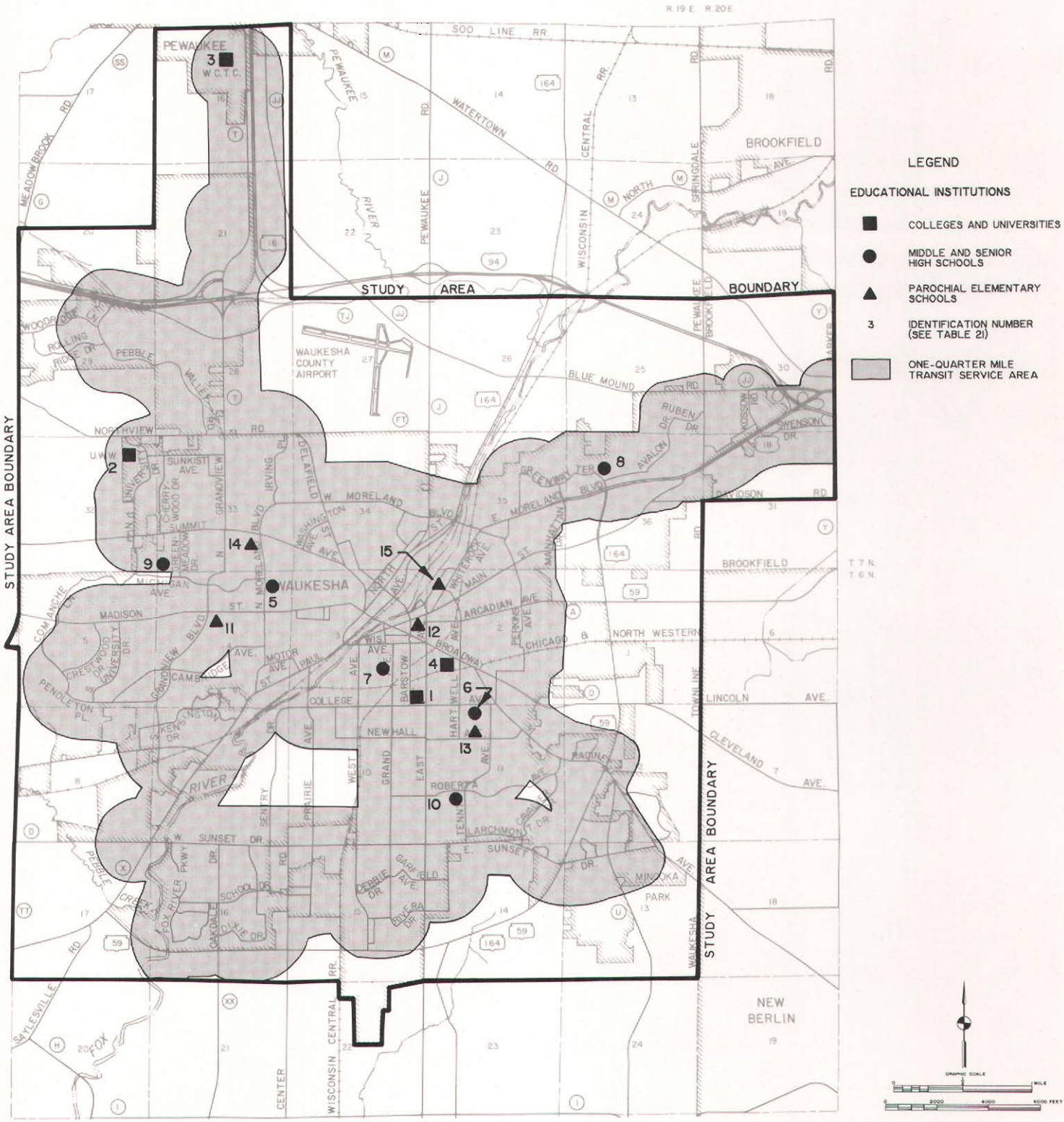
LOCATION OF SHOPPING CENTERS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988



Source: City of Waukesha Planning Department and SEWRPC.

Map 18

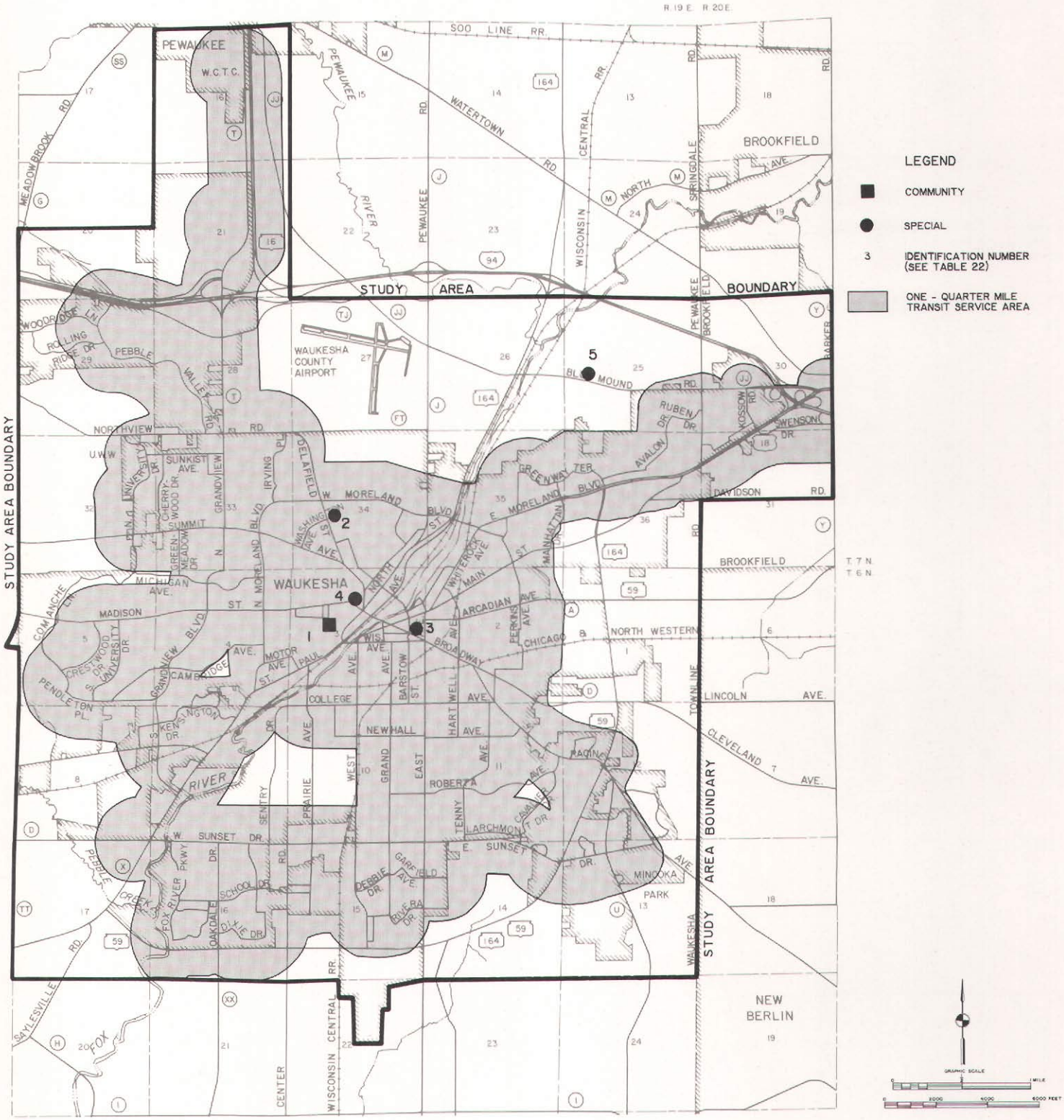
LOCATION OF EDUCATIONAL INSTITUTIONS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988



Source: SEWRPC.

Map 19

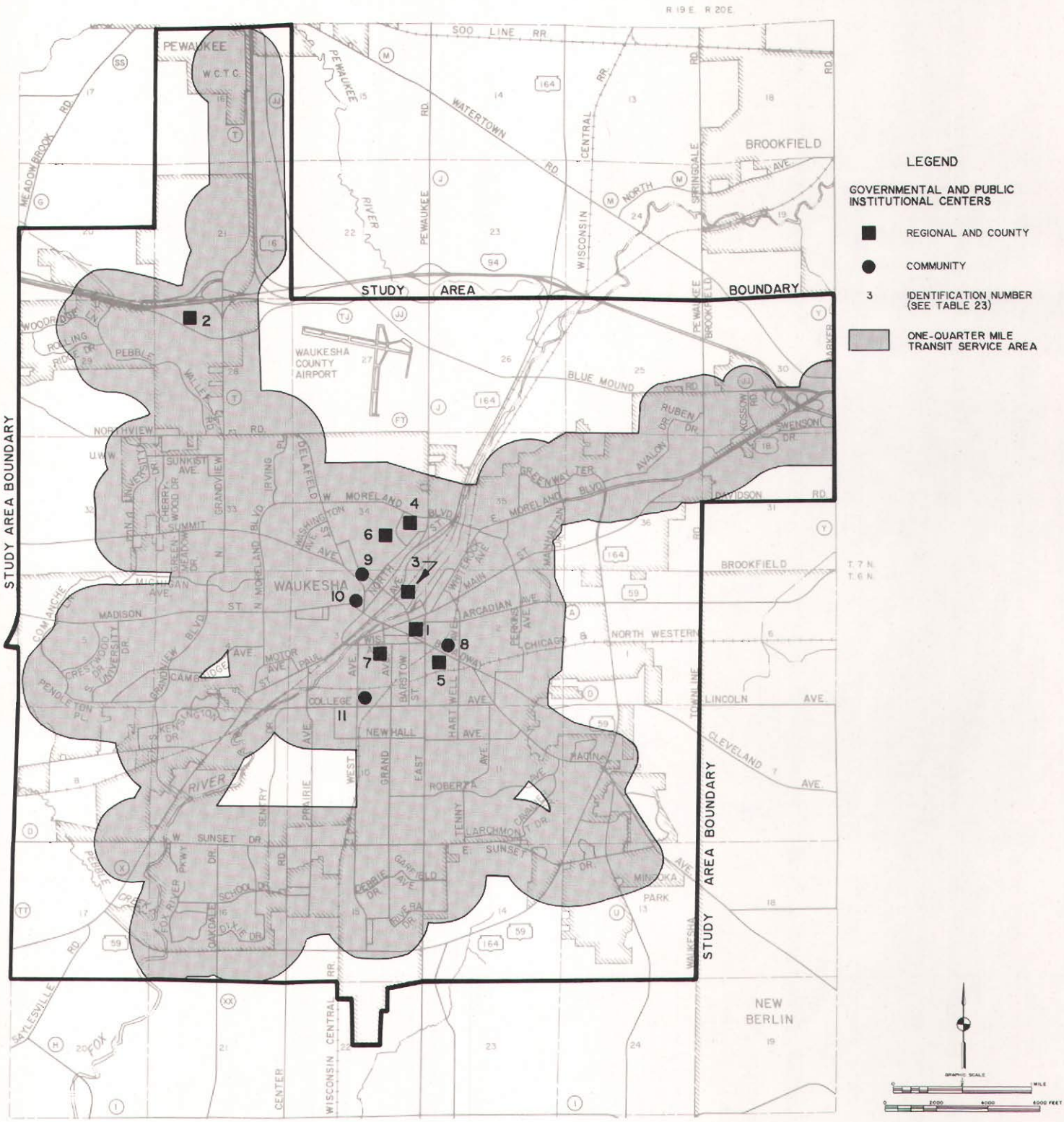
LOCATION OF MEDICAL CENTERS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988



Source: SEWRPC.

Map 20

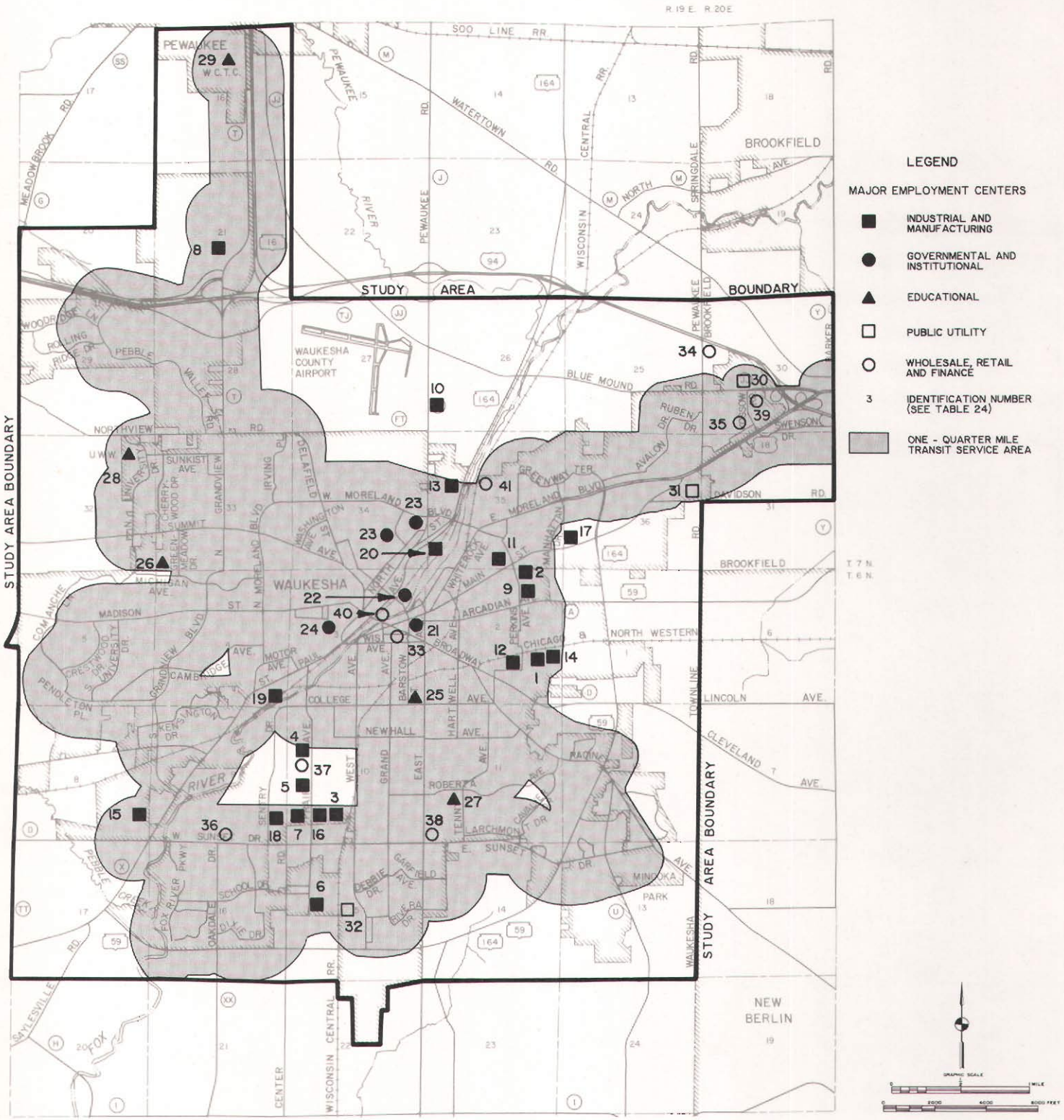
LOCATION OF GOVERNMENTAL AND PUBLIC INSTITUTIONAL CENTERS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988



Source: SEWRPC.

Map 21

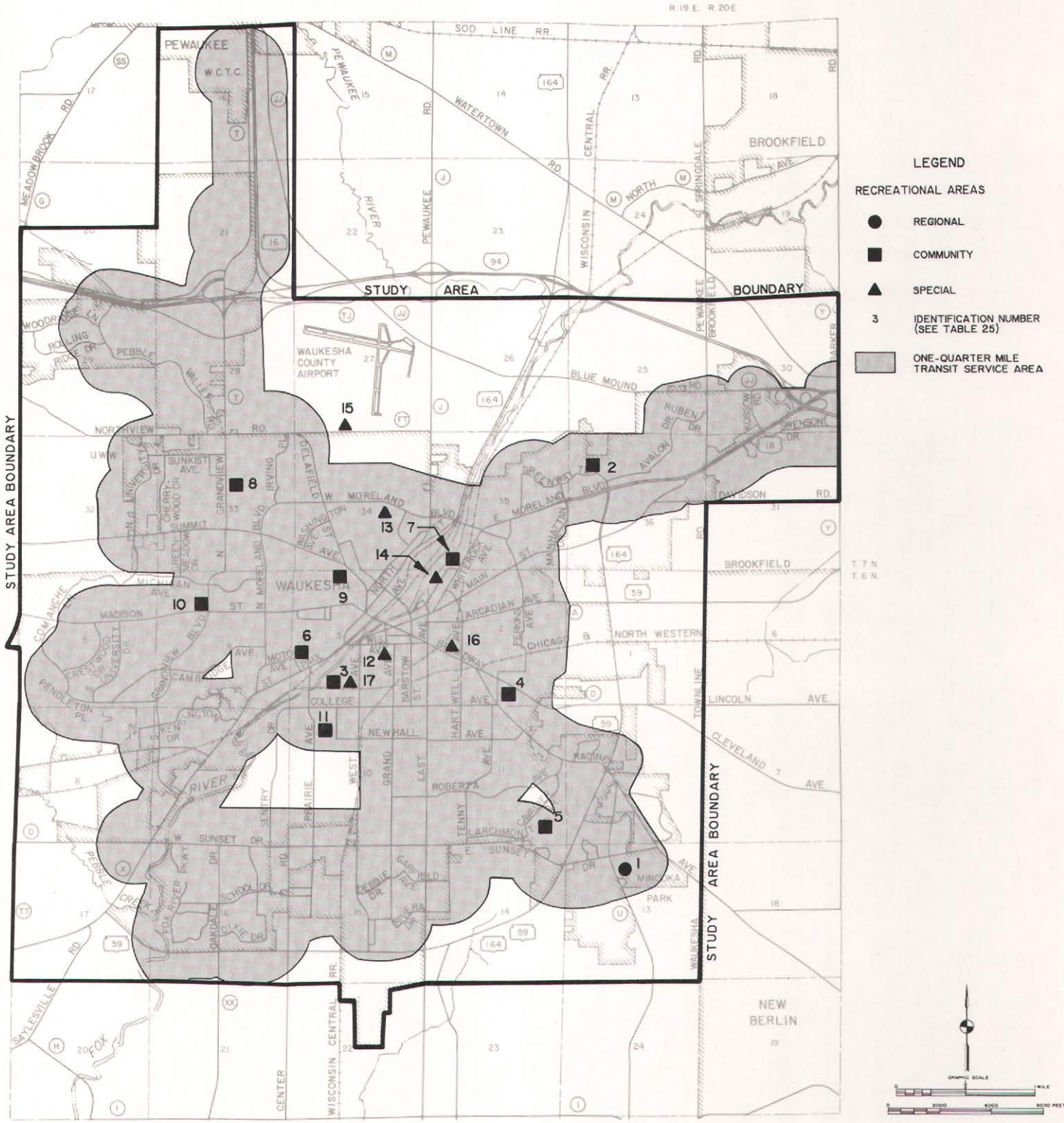
LOCATION OF MAJOR EMPLOYMENT CENTERS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988



Source: Waukesha Area Chamber of Commerce and SEWRPC.

Map 22

LOCATION OF RECREATIONAL AREAS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988



Source: SEWRPC.

Table 25

RECREATIONAL AREAS IN THE CITY OF WAUKESHA TRANSIT PLANNING STUDY AREA: 1988

Number on Map 22	Recreational Area	Location or Address[a]
	Regional[b]	
1	Minooka Park	Sunset Drive and Racine Avenue
	Community[c]	
2	Banting Park	Empire Drive and Butler Drive
3	Bethesda Park	Bethesda Court and Dunbar Avenue
4	Buchner Park	Oakland Avenue and Broadway
5	Charles Heyer Park	Lynne Drive and Heyer Drive
6	Dopp Park	Washington Avenue and Dopp Street
7	Frame Park	Baxter Street and Frame Park Drive
8	Grandview Park	Grandview Boulevard and Pine Street
9	Horeb Springs Park	Summit Avenue and Spring Street
10	Lowell Hill Park	Madison Street and Grandview Boulevard
11	Saratoga Softball Complex	Prairie Avenue and Phillips Drive
	Special[d]	
12	Cutler Park	Grand Avenue and Wisconsin Avenue
13	Moor Downs Golf Course	Moreland Boulevard and Riverview Avenue
14	C. F. Schuetze Building	1120 Baxter Street
15	Waukesha County Exposition Center	N1 W24848 Northview Road, Town of Pewaukee
16	YMCA	320 E. Broadway
17	YWCA	306 N. West Avenue

[a]*Except where noted, all locations and addresses are in the City of Waukesha.*

[b]*Defined as public recreation sites of at least 250 acres in size, offering multiple recreational opportunities.*

[c]*Defined as multiple-use public recreation sites which are community-oriented in service area and which contain community recreation facilities such as baseball or softball diamonds, swimming pools, or tennis courts.*

[d]*Comprising public and private recreational areas used primarily for special purposes.*

Source: SEWRPC.

transit system users for use in transit planning and marketing efforts. Comments and suggestions were also solicited from the survey respondents.

Total Person Travel Characteristics

In May 1982, the Commission conducted a special survey of households located within the City of Waukesha to collect information on the existing travel habits and patterns of the general population. A two-part mail-back survey was distributed to 1,002 households, or 5.5 percent of the 18,200 households within the City. Each sample household was requested to supply detailed data on each trip made by household members five years of age or older for a predetermined weekday, and information on the socioeconomic characteristics of the household. Of the 1,002 households sampled, 481, or about 48 percent, provided completed trip and socioeconomic information. The data received from these households were then expanded to represent the approximately 18,200 households located within the City of Waukesha, using household data obtained from the 1980 U. S. Census for the City of Waukesha.

Table 26

DISTRIBUTION BY TRIP PURPOSE OF AVERAGE WEEKDAY TOTAL PERSON TRIPS MADE BY RESIDENTS OF THE CITY OF WAUKESHA AND ENVIRONS: 1963, 1972, AND 1982

Year	Trip Purpose	Internal		External		Total	
		Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
1963	Home-based work	14,500	21.1	5,400	28.3	19,900	22.6
	Home-based shopping	9,900	14.4	1,300	6.8	11,200	12.8
	Home-based other	25,200	36.6	6,300	33.0	31,500	35.8
	Nonhome-based	13,300	19.3	5,800	30.4	19,100	21.7
	School	5,900	8.6	300	1.5	6,200	7.1
	Total	68,800	100.0	19,100	100.0	87,900	100.0
1972	Home-based work	18,400	21.5	9,000	31.1	27,400	24.0
	Home-based shopping	13,300	15.6	3,300	11.4	16,600	14.5
	Home-based other	32,600	38.2	7,600	26.3	40,200	35.2
	Nonhome-based	14,200	16.6	8,000	27.7	22,200	19.4
	School	6,900	8.1	1,000	3.5	7,900	6.9
	Total	85,400	100.0	28,900	100.0	114,300	100.0
1982	Home-based work	18,400	18.6	17,200	35.2	35,600	24.1
	Home-based shopping	17,700	17.9	4,600	9.4	22,300	15.1
	Home-based other	36,900	37.2	9,900	20.2	46,800	31.6
	Nonhome-based	16,900	17.0	15,100	30.9	32,000	21.6
	School	9,200	9.3	2,100	4.3	11,300	7.6
	Total	99,100	100.0	48,900	100.0	148,000	100.0

Source: SEWRPC.

The total person trip[1] data collected by the household survey were grouped into five categories of travel purpose: home-based work, home-based shopping, home-based other, nonhome-based, and school-based trips. Home-based work trips are defined as trips made between the place of residence of the tripmaker and a place of work. Home-based shopping trips are defined as trips made between the place of residence of the tripmaker and a place for shopping. Home-based other trips are defined as trips made between the place of residence of the tripmaker and a place other than work, shopping, or school. This category of travel would include trips made for medical, personal business, or social-recreational purposes. Nonhome-based trips are defined as trips that neither originate nor end at home or school. School-based trips are defined as trips having at least one end at school.

Quantity of Person Travel: A breakdown by trip purpose of 1963, 1972, and 1982 total person data is presented in Table 26. The analysis of the survey data indicates that about 148,000 person trips were made by residents of the City of Waukesha on an average weekday in May 1982.

[1] *A person trip is defined herein as a one-way journey between a point of origin and a point of destination by a person five years of age or older traveling as an auto driver or as a passenger in an auto, taxi, truck, motorcycle, school bus, or other mass transit carrier. To be considered, the trip must have been at least the equivalent of one full city block in length.*

This represents an increase of about 33,700 person trips per day, or about 30 percent, over the 114,300 person trips made by residents of the City of Waukesha and environs in 1972, and an increase of about 60,100 trips per day, or about 68 percent, over the 87,900 person trips made in 1963. The years 1963 and 1972 represent previous years in which the Commission conducted major household surveys of travel in the Southeastern Wisconsin Region, including the City of Waukesha. As can be seen in the table, the distribution of total person trips by trip purpose in 1982 has not changed appreciably from the distribution found in 1963 and 1972.

Internal Person Travel: A breakdown of 1963, 1972, and 1982 total person trip data indicating the distribution of internal and external person trips by trip purpose is presented in Table 27. In preparing this information, an analysis area representing one of 60 planning analysis areas identified by the Commission within the Southeastern Wisconsin Region was used. While this area includes portions of the Town of Waukesha, Town of Pewaukee, and Village of Pewaukee not included in the study area for the most recent study, the difference was not considered significant, as the travel data being reported are for City of Waukesha residents only.

About 99,100, or 67 percent, of the trips by city residents on an average weekday in May 1982 were made to or from areas internal to the analysis area. About 800 of these person trips, or about 0.8 percent, were made on the City's transit system. Based upon the growth in households and employment that has occurred since 1982 within the study area and the City of Waukesha, the number of internal person trips currently made on an average weekday by city residents can be assumed to have increased by about 5 percent to about 104,000 trips within the analysis area. In comparison, the number of person trips currently made using the City's transit system has increased to about 1,400 per average weekday, or by about 75 percent, and now represents about 1.3 percent of all internal person trips made by City of Waukesha residents within the analysis area.

To facilitate analysis of internal person trip characteristics, it is convenient to express travel in terms of trip ends, one end of the trip being the "production" end, and the other end being the "attraction" end. For trips beginning or ending at home—home-based trips—the production end is always considered the home end of the trip, while the attraction end is always considered the nonhome end, regardless of the actual direction of the trip. The number of home-based work trips "produced" within a specified area, for example, would be the number of trips from homes in that area to places of employment in all other areas plus the number of trips from places of employment in all other areas to homes in the specified area. Conversely, the number of home-based work trips "attracted" to a specified area would be the number of trips from homes in all other areas to a place of employment within that specified area plus the number of trips from places of employment in the specified area to homes in all other areas. Such a designation is helpful in defining the residential distribution of tripmakers and also the concentrations of work, shopping, and school facilities. For trips having neither end at home—nonhome-based trips—the origin of the trip is defined as the production end, while the destination is defined as the attraction end.

Based upon this distinction, Maps 23 and Map 24 graphically illustrate the distribution of internal person trip productions and attractions by quarter-section within the analysis area in 1982. In general, the map of trip productions reflects the residential concentrations of Waukesha tripmakers. An exception to this generalization would be the quarter section containing the Waukesha central business district, which produced about 5,400 internal person trips on an average weekday in 1982. The heaviest concentration of trip attractions was also located in the Waukesha central business district, which attracted about 15,000 internal person trips.

External Person Travel: Trips made to or from areas external to the analysis area constituted a significant portion of the total number of person trips made by city residents on an average weekday in May 1982. Of the 148,000 person trips made by city residents, about 48,900 trips, or about 33 percent, were made to or from areas external to the study area. This represented a significant portion of all trips made by City of Waukesha residents in 1982 which could not be served by the City's public transit system. It is also important to note the growth in external travel by city residents that occurred after 1963. In 1963, about 27 percent of all home-based work trips and 30 percent of all nonhome-based trips made by city residents were external trips. By

Table 27

DISTRIBUTION OF INTERNAL AND EXTERNAL TOTAL PERSON TRIPS MADE BY RESIDENTS OF THE CITY OF WAUKESHA AND ENVIRONS: 1963, 1972, AND 1982

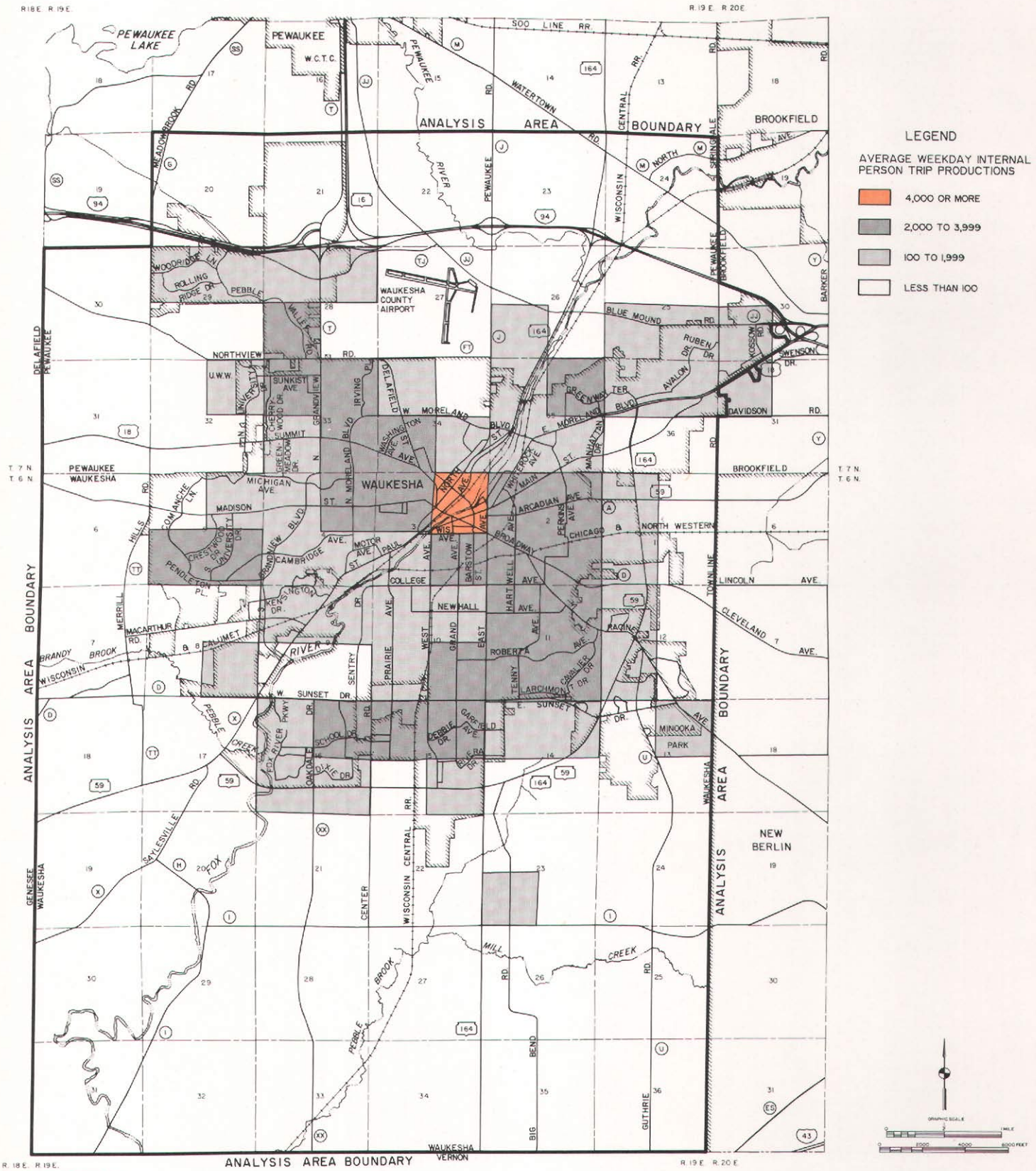
Year	Trips by Trip Purpose					
	Home-Based Work		Home-Based Shopping		Home-Based Other	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
1963						
Internal	14,500	72.9	9,900	88.4	25,200	80.0
External	5,400	27.1	1,300	11.6	6,300	20.0
Total	19,900	100.0	11,200	100.0	31,500	100.0
1972						
Internal	18,400	67.2	13,300	80.1	32,600	81.1
External	9,000	32.8	3,300	19.9	7,600	18.9
Total	27,400	100.0	16,600	100.0	40,200	100.0
1982						
Internal	18,400	51.7	17,700	79.4	36,900	78.8
External	17,200	48.3	4,600	20.6	9,900	21.2
Total	35,600	100.0	22,300	100.0	46,800	100.0

Year	Trips by Trip Purpose					
	Nonhome-Based		School		Total	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
1963						
Internal	13,300	69.6	5,900	95.2	68,800	78.3
External	5,800	30.4	300	4.8	19,100	21.7
Total	19,100	100.0	6,200	100.0	87,900	100.0
1972						
Internal	14,200	64.0	6,900	87.3	85,400	74.7
External	8,000	36.0	1,000	12.7	28,900	25.3
Total	22,200	100.0	7,900	100.0	114,300	100.0
1982						
Internal	16,900	52.8	9,200	81.4	99,100	67.0
External	15,100	47.2	2,100	18.6	48,900	33.0
Total	32,000	100.0	11,300	100.0	148,000	100.0

Source: SEWRPC.

Map 23

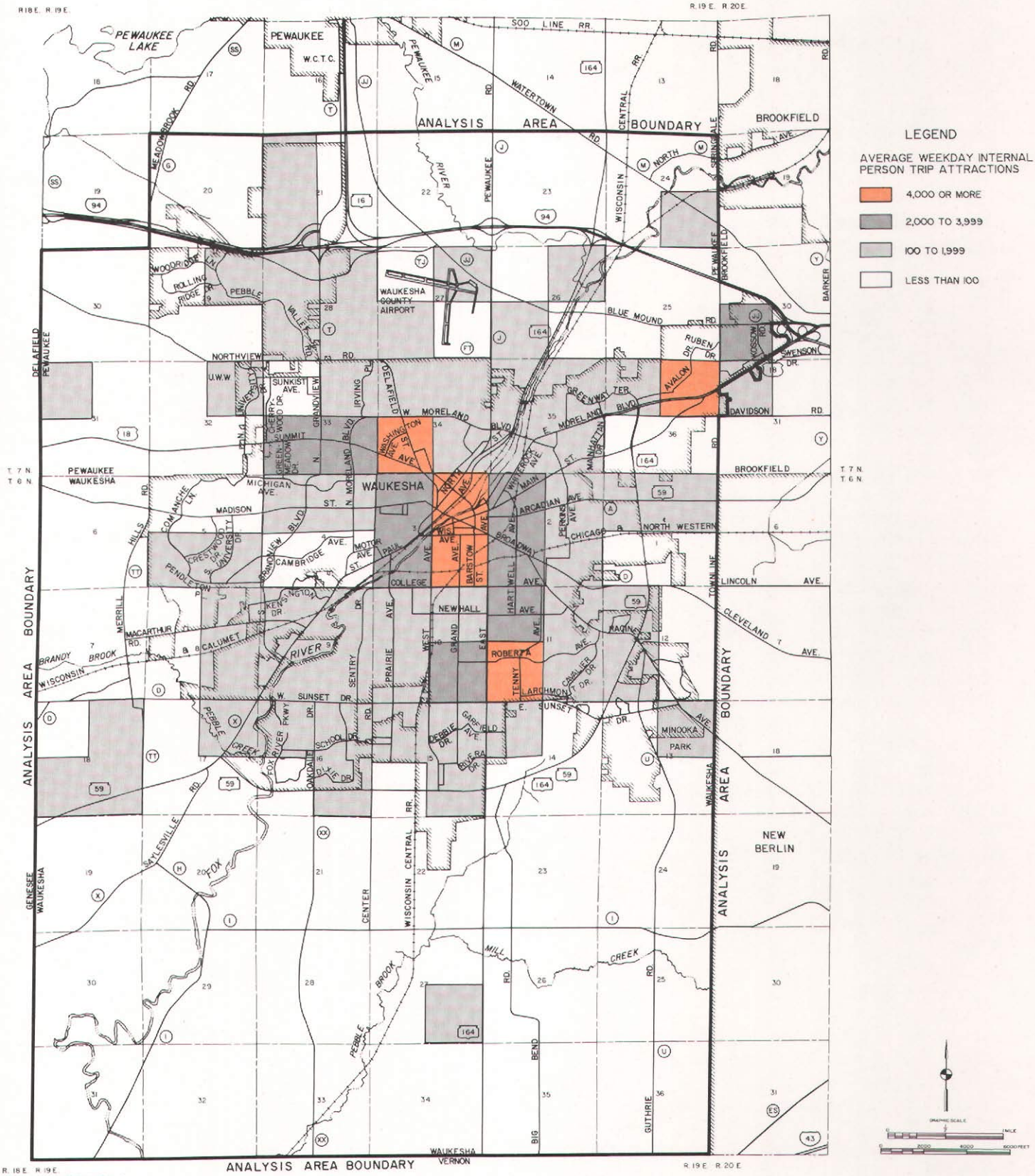
DISTRIBUTION OF WAUKESHA RESIDENT INTERNAL PERSON TRIP PRODUCTIONS IN THE ANALYSIS AREA: MAY 1982



Source: SEWRPC.

Map 24

DISTRIBUTION OF WAUKESHA RESIDENT INTERNAL PERSON TRIP ATTRACTIONS IN THE ANALYSIS AREA: MAY 1982



Source: SEWRPC.

1982, about 48 percent of all home-based work trips and about 47 percent of all nonhome-based trips made by city residents on an average weekday were external trips. The majority of these trips were made to or from other municipalities within the Milwaukee urbanized area. This indicates that the travel habits of city residents are not related solely to characteristics of the Waukesha area, but are strongly related to characteristics of the entire Milwaukee urbanized area.

The distribution of external person trips made by city residents in 1982 between the analysis area and other areas within the Southeastern Wisconsin Region is shown on Map 25. As shown on this map, the largest trip movements occurred between the study area and the Brookfield-Elm Grove area, with about 10,600 trips; the area comprising the City of Milwaukee, with about 9,600 trips; and the west-central portion of Milwaukee County, with about 5,300 trips. Of the 10,600 trips made between the study area and the Brookfield-Elm Grove area, about 3,700 trips, or 35 percent, were made to or from the Brookfield Square Shopping Center. Of the 9,600 trips made between the study area and the City of Milwaukee, about 2,900 trips, or 30 percent, were made to or from the Milwaukee central business district. Trips made by Waukesha residents between the study area and other municipalities within the Milwaukee urbanized area accounted for about 33,600 person trips, or about 69 percent of all external person trips.

Waukesha Metro Transit User Survey

An on-board bus survey was conducted on the Waukesha Metro Transit bus routes by the City of Waukesha on November 18, 1987, to define the socioeconomic and travel characteristics of the users of the City's transit system for use in planning and marketing efforts for the transit system. Survey forms were distributed to, and collected from, passengers on all bus runs on the eight routes operated by the transit system. The on-board bus survey form is reproduced in Appendix B of this report.

Actual ridership on the survey day was 1,485 passengers, including transfer and free passengers. A total of 853 usable survey questionnaires were returned, representing about 57 percent of the passengers using Waukesha Metro Transit on the survey day. Information gathered included socioeconomic characteristics of the transit users, characteristics of the trips made by the transit users, and comments and service suggestions of the transit users. The following sections summarize the results of the survey.

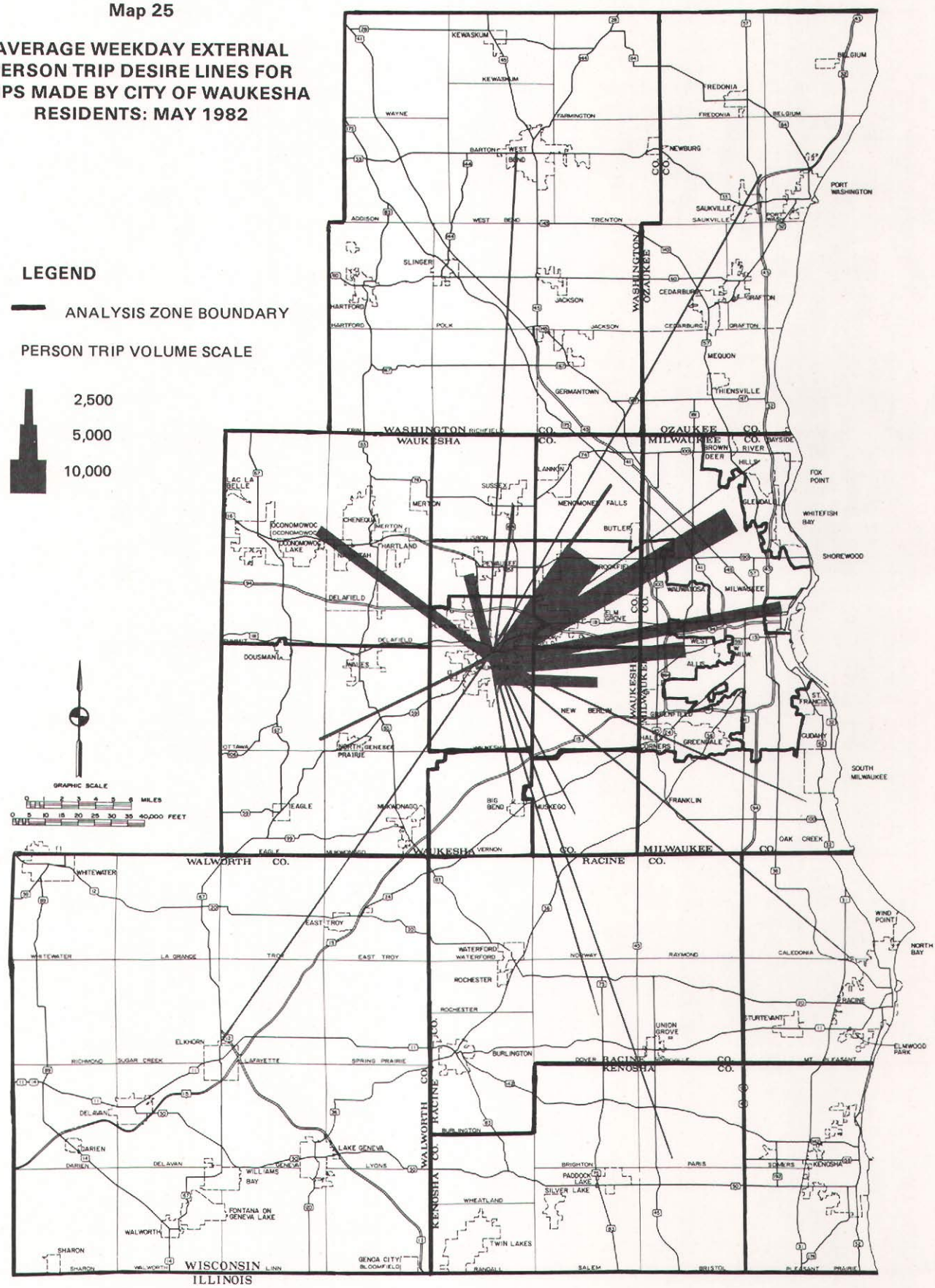
The socioeconomic characteristics generally considered relevant to the provision of transit facilities and services include sex, age, licensed driver status, income, household size, and vehicle availability. This information for users of Waukesha Metro Transit is presented in Table 28. As indicated in the table, about 65 percent of Waukesha Metro Transit users are female, and about 63 percent do not possess a driver's license. This is consistent with national figures, which indicate that women and unlicensed drivers constitute the overwhelming majority of transit riders.

Persons 18 years of age or under represent 45 percent of Waukesha Metro Transit system ridership. This age group includes students at secondary and elementary schools in the City. Other age groups representing substantial proportions of transit system ridership include the 19 through 24 and the 25 through 34 groups. These represent age groups likely to be just starting out in the labor force and having lower household incomes and lower household automobile availability, although members of the former age group could also be attending a technical school, college, or university. Based upon the survey results, the median household income of the transit riders on Waukesha Metro Transit was between $10,000 and $20,000, with the predominant household income of transit riders being under $10,000.

Automobile availability is an important factor influencing transit usage. Those households that do not own an automobile are dependent upon other persons, or upon public transit, for the provision of essential transportation services. Also, in those households where there are more members of the household, particularly of driving age, than there are automobiles, some members of the household may also be dependent upon others or upon public transit. The survey indicated that about 27 percent of the Waukesha Metro Transit riders were members of households with no vehicles available, and 31 percent were members of households with one vehicle available—representing about 58 percent of system riders. In comparison, the 1980 census

Map 25

AVERAGE WEEKDAY EXTERNAL PERSON TRIP DESIRE LINES FOR TRIPS MADE BY CITY OF WAUKESHA RESIDENTS: MAY 1982



Source: SEWRPC.

Table 28

PERCENTAGE DISTRIBUTION OF RIDERSHIP ON THE CITY OF WAUKESHA TRANSIT SYSTEM FOR VARIOUS RIDERSHIP CHARACTERISTICS: NOVEMBER 1987

Ridership Characteristic	Percent of Total Passengers
Age	
5 and Under	0.3
6-11	2.4
12-15	25.1
16-18	17.6
19-24	12.8
25-34	16.1
35-44	9.0
45-54	6.7
55-64	4.6
65 and Older	5.4
Total	100.0
Sex	
Male	34.9
Female	65.1
Total	100.0
Licensed Driver	
Yes	36.8
No	63.2
Total	100.0
Household Income	
Under $10,000	33.9
$10,000-$19,999	17.6
$20,000-$24,999	8.2
$25,000-$29,999	9.9
$30,000-$34,999	12.3
$35,000 and Over	18.1
Total	100.0
Household Size	
One Person	17.6
Two Persons	17.0
Three Persons	19.3
Four Persons	23.5
Five or More Persons	22.6
Total	100.0
Vehicle Availability	
No Vehicle	27.1
One Vehicle	31.3
Two Vehicles	30.3
Three Vehicles	7.5
Four or More Vehicles	3.8
Total	100.0

Source: Waukesha Transit System Utility and SEWRPC.

Table 29

PERCENTAGE DISTRIBUTION OF RIDERSHIP ON THE CITY OF WAUKESHA TRANSIT SYSTEM BY TRIP PURPOSE: NOVEMBER 18, 1987

Trip Purpose	Percent of Total Passengers
Home-based Work	25.0
Home-based Shopping	5.5
Home-based Other	9.7
Home-based School	46.6
Nonhome-based	13.2
Total	100.0

Source: Waukesha Transit System Utility and SEWRPC.

data indicated that about 8 percent of the households within the City of Waukesha had no vehicle available, and that about 37 percent of the households had only one vehicle available.

The purposes of trips made on the Waukesha Metro Transit system as identified by the City of Waukesha survey are shown in Table 29. Approximately 47 percent of all trips involved travel between home and school. An additional 25 percent involved travel between home and work.

Transit system riders who completed the survey were also asked to rate Waukesha Metro Transit on a number of issues related to the attitudes and abilities of bus operators; the convenience of the service provided; and the reasonableness of the fares charged. The responses of the survey passengers to these issues are summarized in Table 30. Over 95 percent of the riders rated transit system bus operators as "Good" to "Excellent" in terms of being friendly, helpful, and courteous. About the same percentage rated bus operators as "Good" to "Excellent" in terms of their driving skill. About 90 percent of the survey passengers rated the routes of the transit system as "Good" to "Excellent," and about 88 percent of the surveyed passengers similarly rated the transit system departure and arrival times. The vast majority of surveyed passengers—about 81 percent—rated the current bus fares as about right, with only about 18 percent rating them as too high.

Waukesha Metro Transit passengers were also given the opportunity to make comments or service suggestions on the survey form. A

Table 30

USER RATINGS OF VARIOUS TRANSIT SERVICE CHARACTERISTICS OF THE CITY OF WAUKESHA TRANSIT SYSTEM: NOVEMBER 18, 1987

Question and Rating Scale	Percent of Total Passengers
How would you rate Waukesha Metro Transit drivers in terms of being friendly, helpful, and courteous?	
1 Poor	2.6
2	2.2
3	14.0
4	33.1
5 Excellent	48.1
Total	100.0
How would you rate Waukesha Metro Transit drivers in terms of their driving skills?	
1 Poor	2.4
2	1.7
3	11.6
4	38.5
5 Excellent	45.8
Total	100.0
How convenient are Waukesha Metro Transit routes to where you want to go?	
1 Poor	3.4
2	5.7
3	15.4
4	26.3
5 Excellent	49.2
Total	100.0
How convenient are Waukesha Metro Transit departure and arrival times?	
1 Poor	4.0
2	8.1
3	23.1
4	33.3
5 Excellent	31.5
Total	100.0
How would you rate Waukesha Metro Transit fares?	
Too High	17.9
About Right	81.4
Too Low	0.7
Total	100.0

Source: Waukesha Transit System Utility and SEWRPC.

Table 31

SUMMARY OF COMMENTS AND SUGGESTIONS RECEIVED FROM SURVEYED PASSENGERS ON THE CITY OF WAUKESHA TRANSIT SYSTEM: NOVEMBER 18, 1987

Comments and Suggestions	Number of Responses
Change Service Times or Frequency	
Add Evening Service	114
Add Sunday Service	46
Extend Saturday Service Hours	25
Reduce Headways	114
Other	40
Total	339
Change Routes	
Add Blue Mound Road Route	21
Add/Extend Other Routes	51
Add Stops	30
Provide Better Coordination Among Routes	21
Other	12
Total	135
Other Service Improvements	
Reduce Fares	20
Be On Time	38
Improve Condition of Buses	12
Improve Stops (add shelters, lights, other amenities)	19
Other	38
Total	127
No Improvements Needed	64

Source: Waukesha Transit System Utility and SEWRPC.

summary of these comments and suggestions is presented in Table 31. The most frequent comments received were suggestions calling for expansion of the days or hours of transit system operation, and for a reduction of operating headways, particularly during the midday period, when buses operate one hour apart. A large number of surveyed passengers also suggested routing changes, including the addition of a bus route on Blue Mound Road serving the Brookfield Square Shopping Center. Other service improvements suggested by many passengers included better on-time performance and adding amenities at bus stops, including more bus shelters. As noted in Chapter II of this report, the transit system currently has an additional 12 bus passenger shelters on order.

SUMMARY

This chapter has presented pertinent information on those factors that affect, or are affected by, the provision and use of transit service in the City of Waukesha transit planning study area, including land use patterns, the size and distribution of population and employment, major traffic generators, and the travel habits and patterns of the resident population. These factors must be considered in any transit planning effort.

The pattern of historic urban growth in Waukesha County was found to have resulted in a discontinuous and highly diffused pattern throughout much of the County, with few major concentrations of complete urban development. The City of Waukesha is one of only a few substantial areas within the County that are fully developed for urban uses at truly urban densities; it therefore has a good potential to support efficient local transit service. Since 1960, population growth and urbanization within the Waukesha transit planning study area has intensified, with the area within the City of Waukesha corporate limits having increased by over 175 percent. This rapid urbanization has been marked by a diffusion of both commercial and residential development in the study area, and the declining importance of the central business district as an employment and shopping center.

Also reviewed was the density of urban development within and around the study area, as local transit service may generally be efficiently provided only in areas of medium- to high-density land uses. High-density land uses and substantial areas of medium-density land uses exist only in the City of Waukesha within the study area; and in the area abutting Blue Mound Road (USH 18) generally west of Moorland Road in the City of Brookfield immediately outside the study area.

The population of the City of Waukesha was shown to have increased rapidly during the period 1960 to 1980—by about 68 percent, with a substantially slower rate of increase of 5 percent between 1980 and 1985. The estimated 1985 population of the study area was 60,300, of whom about 51,800, or 86 percent, resided within the City of Waukesha. Similar substantial growth of about 106 percent occurred in the number of households in the City of Waukesha over the period 1960 to 1980, with, again, a much slower rate of growth of about 7 percent between 1980 and 1985.

Five population groups that exhibit a typically high dependence on public transportation for mobility were identified within the study area: school-age children, the elderly, low-income families, the handicapped, and persons residing in households with limited automobile availability. Identification of the place of residence of these groups within the study area indicated that except for school-age children, the highest concentrations are located within the older, intensively developed portions of the City of Waukesha, making this area one of high need for transit service.

Also identified were the locations of all major traffic generators in the study area, including shopping areas, educational institutions, community and special medical centers, governmental and public institutional centers, employment centers, and recreational areas. This identification indicates that the vast majority are well concentrated in the highly urbanized areas of the City of Waukesha.

The results of a household travel survey undertaken by the Commission in May 1982 indicated that 148,000 person trips were made on an average weekday by City of Waukesha residents. Of this total, about 99,100 person trips, or about 67 percent, were made to or from points internal to the study area; and the remaining 48,900 person trips, or 33 percent, were made to or from points external to the study area. Internal to the study area, the quarter section containing the Waukesha central business district both attracted and produced the greatest volume of internal person trips. Internal person trip productions were generally concentrated within the densely developed residential areas of the City of Waukesha. External to the study area, the greatest number of person trips was made between the study area and other municipalities within the Milwaukee urbanized area. The largest volumes of external person trips were made between the study area and the Brookfield-Elm Grove area, the City of Milwaukee, and the west-central portion of Milwaukee County.

An on-board bus survey was conducted on the Waukesha Metro Transit bus routes by the City of Waukesha on November 18, 1987, to define the

socioeconomic and travel characteristics of the users of the City's transit system. The survey data collected indicated that the current transit users were predominantly females, persons 18 years of age and under, and persons not possessing a driver's license. Also, transit riders were found to come predominantly from households having three or more persons, no automobile or only one automobile available, and an annual income of less than $20,000. Similar survey data on the trip characteristics of the transit passengers indicated that the plurality of trips made on the transit system were home-based school and home-based work trips, which represented about 47 and 25 percent, respectively, of all transit trips. The overwhelming majority of transit riders rated the transit system as "Good" to "Excellent" with respect to the attitudes and abilities of the bus operators and the convenience of the bus routes and schedules. Some comments and suggestions were received calling for expansion of the days and hours of transit system operation, a reduction of operating headways, the modification of existing routes or addition of new routes, and the improvement of bus stops with additional passenger amenities.

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Chapter IV

EXISTING TRANSIT LEGISLATION AND REGULATIONS

This chapter summarizes legislation and related regulations existing at the federal, state, and local levels affecting the provision of public transit service in the City of Waukesha. Federal legislation and related administrative rules regulate the availability and distribution of federal financial aid for capital improvement projects, operating subsidies, and technical studies. State legislation specifies the institutional structure for public transit systems and tax relief structures, and provides for operating subsidies. Pertinent local ordinances include certain regulations affecting transit service and defining the local role in the provision of public transit service.

FEDERAL LEGISLATION

Federal assistance for urban public transportation was first provided in 1961 through a modestly funded section of the federal Housing and Urban Development Act. The section authorized federal expenditures for demonstration projects and for low-interest emergency loans for transit system development. Currently, federal aid for providing urban transit services is available primarily under the provisions of the Urban Mass Transportation Act of 1964 and its subsequent amendments.

Urban Mass Transportation Act of 1964, as Amended

The landmark Urban Mass Transportation Act of 1964 represented the first significant federal effort to provide financial assistance for transit service by the establishment of a comprehensive program of matching grants for preserving, improving, and expanding urban public transit service. The stated purposes of the Act were: "1) to assist in the development of improved mass transportation facilities, equipment, techniques, and methods, with the cooperation of mass transportation companies both public and private; 2) to encourage the planning and establishment of areawide urban mass transportation systems needed for economical and desirable urban development, with the cooperation of mass transportation companies both public and private; and 3) to provide assistance to state and local governments and their instrumentalities in financing such systems, to be operated by public or private mass transportation companies as determined by local needs." The 1964 Act was subsequently amended by the Urban Mass Transportation Assistance Act of 1970, by the National Mass Transportation Assistance Act of 1974, by the Surface Transportation Act of 1978, by the Federal Surface Transportation Assistance Act of 1982, and by the Federal Surface Transportation and Uniform Relocation Assistance Act of 1987. The federal reorganization of 1968 transferred responsibility for administering the Act from the U. S. Department of Housing and Urban Development to the U. S. Department of Transportation through the establishment of the Urban Mass Transportation Administration (UMTA) within that Department. Programs under the Act which offer designated eligible local recipients sources of federal funds to assist them in carrying out urban public transportation projects are described below.

Section 3 Funds: Discretionary capital matching grants are authorized under Section 3 of the Urban Mass Transportation Act of 1964, as amended by the Federal Surface Transportation and Uniform Relocation Assistance Act of 1987. Section 3 grants are made on a project-by-project basis at the discretion of the Secretary of the U. S. Department of Transportation. Such grants are intended primarily for state or local public agencies that operate or assist in the operation of transit systems in urbanized areas—that is, in urban areas having a central city of 50,000 or more population. Section 3 grants provide up to 75 percent of the costs of eligible projects, which include the acquisition, construction, reconstruction, and improvement of facilities and equipment for use in the provision of public transportation service; the construction of new and the extension of existing fixed-guideway rapid transit systems; the introduction into public transportation service of new technology in the form of innovative and improved products; and joint development projects. In addition to being available as matching grants, Section 3 funds may be used as loans for the acquisition of real property and interests in real property for use as right-of-way, station sites, and related purposes. The City of Waukesha received a grant of approximately $1.3

million in Section 3 funds in 1982 in partial support of the purchase of buses and other operating equipment for the city transit system.

Section 8 Funds: Grants for technical studies are provided under Section 8. Activities funded under this section include studies related to the management, operations, capital requirements, and economic feasibility of urban public transportation projects; the preparation of engineering and architectural surveys, plans, and specifications; the evaluation of previously funded transit projects; and similar and related activities preliminary to and in preparation for the construction, acquisition, or improved operation of public transportation systems, facilities, and equipment. Technical study grants may cover up to 100 percent of the study costs; however, current UMTA policy is to make all technical study grants on an 80 percent federal-20 percent local matching basis. Urban transit technical studies conducted as a part of the Regional Planning Commission's continuing land use-transportation study, such as this study for the City of Waukesha, are funded in part with Section 8 funds.

Section 9 Funds: The Section 9 formula block grant program makes federal transit assistance available to urbanized areas for planning and engineering, capital improvements, and operations. The federal matching share for planning and/or capital assistance is not to exceed 80 percent of the eligible project costs, while the federal matching share for operating assistance is not to exceed 50 percent of transit operating deficits. The Section 9 funds allocated to urbanized areas will remain available for up to three years past the year for which the allocation was made—a total of four years. Any funds remaining unobligated by UMTA after four years will be added to the amount available nationally for apportionment in the succeeding year.

The Section 9 program, created as part of the Federal Surface Transportation Assistance Act of 1982, is a formula-apportioned block grant program that replaced the Section 5 program in 1984.[1] Funds for this program are made available from general fund appropriations and are distributed among the nation's urbanized areas on the basis of a statutory formula. In general, the formula funds are apportioned on the basis of population and population density for urbanized areas with less than 200,000 population. For urbanized areas with more than 200,000 population—such as the Milwaukee urbanized area, which includes much of Waukesha County—formula funds are apportioned on the basis of population and population density, fixed-guideway route miles, bus and fixed-guideway revenue vehicle miles, and transit system efficiency as measured by passenger miles of travel and operating expenses.

The Section 9 program is the primary source of federal funds for routine capital assistance needs—that is, bus and rail system replacements, equipment purchases, facility construction, and system modernization and rehabilitation. The Section 9 program is also the sole source of federal funds for transit operating assistance for urbanized areas. As of 1987, UMTA has also permitted Section 9 grant recipients the option of using Section 9 capital assistance rather than operating assistance to fund the costs of privately owned capital components of transit services obtained through competitive procurement action. Eligible capital components are limited to capital items that are used in the operation of the contracted transit service. Under this policy, the total eligible capital costs are limited to the actual depreciation of the capital item or a fixed percentage of the total contract costs, whichever is lower. UMTA has prescribed fixed percentage caps for four different categories of service as follows:

1. Twenty percent of total contract costs for elderly and handicapped, demand-responsive, and noncommuter paratransit services.

2. Twenty-five percent of total contract costs for regular bus service.

3. Thirty-five percent of total contract costs for commuter services—including express bus, park-ride, and vanpool services.

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[1] *Federal assistance in the form of formula grant program funds for urbanized areas was first authorized under Section 5 of the Urban Mass Transportation Act of 1964 as amended by the National Mass Transportation Assistance Act of 1974. The Section 5 program was the source of formula funds available to eligible public transit operators within urbanized areas for capital and operating assistance from 1975 through 1983. National appropriations for the program were discontinued in 1984.*

4. Twenty-five percent of total contract costs for vehicle maintenance services.

In keeping with the policy of the current federal administration of reducing federal aid for transit operating assistance, the Surface Transportation Act of 1982 placed limits—or "caps"—on the amount of formula funds allocated annually to each urbanized area that could be used for operating assistance, based upon the total 1980 population of the urbanized area. Specifically, the funds available for use as operating assistance within an urbanized area are limited to a fixed percentage of the Section 5 operating assistance funds that were allocated by formula to the urbanized area in 1982 as follows: 80 percent of the 1982 allocation for urbanized areas with one million or more persons, such as the Milwaukee urbanized area, of which the City of Waukesha is a part; 90 percent of the 1982 allocation for urbanized areas with 200,000 or more persons, but fewer than one million persons; and 95 percent of the 1982 allocation for urbanized areas with fewer than 200,000 persons.

During 1983 and 1984, formula capital assistance funds could be transferred for use as operating assistance on a dollar-for-dollar basis to bring the 1983 Section 5 and 1984 Section 9 urbanized area operating assistance allocations up to the amount specified by the funding cap. Formula capital assistance monies could also be transferred to operating assistance to exceed the funding cap and bring 1983 Section 5 and 1984 Section 9 operating assistance levels back up to 100 percent of the 1982 level. However, a penalty was involved for any transfer of funds over the operating assistance funding cap.[2] The designated recipients within all three urbanized areas of the Region took advantage of this transfer provision during 1983 and 1984. The transfer of formula capital funds to operating assistance has not been allowed since 1984. Consequently, the funds available for operating assistance during 1985 and 1986 were limited by the cap levels within each urbanized area. During 1987 and 1988, the funds available for transit operating assistance for urbanized areas with one million or more persons were reduced. For the Milwaukee urbanized area, this has resulted in a reduction of about $760,000, or almost 12 percent, from the $6.4 million in transit operating assistance funds available during 1985 and 1986, to about $5.64 million in 1988.

For the Milwaukee urbanized area, the Counties of Milwaukee, Waukesha, Washington, and Ozaukee have been jointly designated as recipients of Section 9 formula funds. These recipients were designated in April 1975 by the Governor and the Southeastern Wisconsin Regional Planning Commission to receive formula funds which were allocated to the Milwaukee urbanized area at that time under the former Section 5 transit assistance program. In 1975 when this designation of recipients was made, there were no publicly owned and operated transit systems within the urbanized area. Milwaukee County was, however, in the final stages of acquiring the assets of the Milwaukee and Suburban Transport Company, which was the private transit company then serving Milwaukee County. This transaction was scheduled to be completed on July 1, 1975, at which time the County was to become the owner and operator of the public transit system within Milwaukee County. Outside Milwaukee County, transit service within the urbanized area in early 1975 was provided primarily by another private transit company—Wisconsin Coach Lines, Inc.—which operated commuter-oriented routes serving portions of Waukesha, Washington, and Ozaukee Counties, as well the local bus system serving the City of Waukesha. At the time the designation of recipients was made, Waukesha County was seeking funding to support the commuter route operated by Wisconsin Coach Lines between Waukesha and and downtown Milwaukee; and the City of Waukesha was in the process of preparing a transit development program for the City's local transit system which considered as an option the subsidizing of the privately operated local bus system.

The Governor and Regional Planning Commission designated each of the aforementioned four counties within the urbanized area as recipients of federal transit formula assistance funds

[2] *As a penalty for transferring formula capital assistance funds for use as operating assistance above the specified funding cap, UMTA required that one-third of the amount transferred be paid back to the Secretary of Transportation for use in the discretionary capital grant program nationwide. In other words, three dollars of capital assistance money were transferred to obtain two dollars of operating assistance money.*

because the Milwaukee urbanized area included portions of four counties; because there was the strong potential for more than one publicly owned and operated transit system to be developed within the urbanized area; and because each county was viewed as the potential operator of transit services within its jurisdiction. In making this designation, it was further envisioned that if local municipalities within a county chose to subsidize a private transit operator or to own and operate their own transit systems, an equitable agreement would be amicably negotiated between the municipalities and the county concerned for sharing the federal transit formula assistance funds available to each county.

Currently, the Section 9 formula funds allocated to the Milwaukee urbanized area are distributed among the designated recipients having subsidized transit operations within their jurisdiction using a procedure that has been mutually agreed upon by the three public transit operators within the urbanized area[3]—Milwaukee County, Waukesha County, and the City of Waukesha. Specifically, Section 9 funds available for capital and planning assistance are distributed among the three transit operators on the basis of need through a program of capital and planning assistance projects jointly developed by these operators. Section 9 funds available for operating assistance within the urbanized area are distributed by applying within the Milwaukee urbanized area the formula that is used to distribute Section 9 funds among the nation's urbanized areas. The transit operators chose this procedure in 1984 after considering several other options for distributing federal transit operating assistance, including procedures based upon annual transit ridership, annual transit passenger miles of travel, an equal proportion of operating deficits, an equal proportion of operating expenses, and an equal proportion of farebox revenues and local funds.

The national formula distributes Section 9 funds to urbanized areas with one million or more persons, such as the Milwaukee urbanized area, in four distinct tiers. The distribution of funds under the first two tiers is based upon the 1980 population and population density of each urbanized area. The allocation of funds under the last two tiers is based upon operating data for the public transit systems within each urbanized area, including total revenue vehicle miles of service and passenger miles of travel, weighted by an efficiency factor. The efficiency factor measures operating expenses incurred per passenger mile of travel and is calculated for each system and subsystem within the urbanized area.

A two-step procedure is used to apply the national formula to distribute Section 9 funds to the Milwaukee urbanized area's transit operators in Milwaukee and Waukesha Counties. In the first step, each county within the urbanized area is allocated a portion of the total funds allocated under the four separate funding tiers, based upon the national formula and the 1980 population; the 1980 population density; and the transit operating data attributable to the transit systems within each county, which are used by UMTA in making the national distribution of funds for the particular federal fiscal year. The funds available for operating assistance are then distributed among the five counties in proportion of each county's allocated share of the total urbanized area funds.

Because only Milwaukee and Waukesha Counties currently have subsidized transit operations within their jurisdiction and have a need for Section 9 operating assistance funds, a second step is applied to distribute the funds allocated to the other three counties within the urbanized area—Ozaukee, Racine, and Washington Counties—which have no such need at this time. The funds initially allocated to these counties are re-allocated to Milwaukee and Waukesha Counties based upon the proportionate share of the total initial allocation of funds to these two counties.

The City of Waukesha has used federal Section 9 funds since 1984 both to support the purchase costs of capital equipment and to partially offset the annual operating deficit of the transit system. During 1988 the City received approximately $61,300 in federal Section 9 funds in partial support of capital improvement projects.

In keeping with the process that was envisioned to be followed when the four counties were designated as recipients of federal formula

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[3]*See SEWRPC Staff Memorandum, "Alternative Methods for Allocating Urban Mass Transportation Administration Section 9 Transit Assistance to Designated Recipients in the Milwaukee Urbanized Area: 1985," June 1984.*

transit assistance funds in 1975, Waukesha County has, since 1984, annually negotiated an agreement with the City of Waukesha concerning the allocation of Section 9 transit operating assistance funds between the County and the City. A similar agreement was negotiated annually between 1981 and 1984 concerning the division of Waukesha County's allocation of operating assistance funds available under the former Section 5 program. The Section 9 operating assistance funds allocated to Waukesha County based on the aforementioned procedure will amount to approximately $366,500 in 1988, or 6.5 percent of the $5.64 million in transit operating assistance funds available within the entire Milwaukee urbanized area. Waukesha County and the City of Waukesha agreed to share this allocation equally in 1988, with both the City and County receiving approximately $183,300 in transit operating assistance funds from the 1988 allocation of Section 9 funds.

Section 9B Funds: The Federal Surface Transportation and Uniform Relocation Assistance Act of 1987 created a new capital assistance program under Section 9B. Section 9B permits some of the proceeds from the Mass Transit Account of the Highway Trust Fund to be apportioned annually among the Section 9 designated recipients within the urbanized areas of the United States using the same formula applied to distribute funds under the Section 9 program, and essentially creates a capital-only Section 9 program. All provisions of the Section 9 program pertaining to use of funds for capital assistance apply under the Section 9B program, and recipients need to submit only one grant application to request funds under both programs. Funds for the program were first made available in federal fiscal year 1988.

Section 16 Funds: Capital grants are available under Section 16(b)(2) to equip an agency to meet the specialized transportation needs of the elderly and handicapped. These grants are available only to private, nonprofit corporations providing coordinated specialized transportation services. This aid is provided to fill service gaps in areas where transit services for the general public do not operate or do not provide adequate transportation service for the elderly and handicapped. The Wisconsin Department of Transportation administers the Section 16(b)(2) program within Wisconsin for UMTA. Recipients of these funds in Waukesha County have included The Ranch, Inc., and La Casa de Esperanza, Inc.

UMTA Administrative Regulations: The availability of federal funds under the previously described Urban Mass Transportation Act of 1964, as amended, is restricted by several administrative regulations. Below are the more important of these regulations which have relevance to the use of UMTA urban transit assistance funds within Waukesha County:

1. No grants will be made unless the facilities and equipment proposed are included under the products of a continuing, cooperative, and comprehensive urban transportation planning process which includes the development of:

   a. An officially endorsed transportation plan for the transportation system of the area describing policies, strategies, and new or improved facilities;

   b. A staged multi-year program of transportation improvement projects consistent with the transportation plan —termed a transportation improvement program; and

   c. Other planning and project development activities deemed necessary by state and local officials to assist in addressing transportation issues in the area—such as the preparation of a current transit system plan and program.

2. To be considered for funding under the Section 9 program, each grantee is required to develop, publish, afford an opportunity for a public hearing on, and submit for approval a program of projects that the recipient proposes to undertake using such funds.

3. When federal funds provide a portion of the cost of a project, the remaining portion must come from sources other than federal funds, with the exception of federal revenue sharing funds and funds from federal programs, other than UMTA programs, which have been certified to be eligible as local share funds. In order for funds from federal programs to be eligible as local share funds, the UMTA requires certification by the sponsoring federal program agency that the funds to be used as local match money for UMTA grant

programs will be used in accordance with all requirements and regulations governing the distribution and expenditure of the particular program concerned.

4. A detailed submission indicating compliance with the provisions of Title VI of the Civil Rights Act of 1964 regarding nondiscrimination on the grounds of race, color, or national origin must be on file with UMTA before any financial assistance can be provided. Nondiscriminatory practices must be demonstrated for all UMTA-supported activities regarding:

   a. The distribution of transit facilities and services and the benefits derived from such facilities and services;

   b. The locational accessibility of transit facilities and services;

   c. The adverse impacts of transit facilities and services on persons residing in the affected communities; and

   d. The opportunity and ability for participation in the planning, programming, and implementation of transit facilities and services.

5. Public transportation programs and activities receiving federal financial assistance must comply with Section 504 of the Rehabilitation Act of 1973 regarding nondiscrimination on the basis of handicap. In order to comply with the federal regulations[4] promulgated to implement the provisions of Section 504 as they apply to public transportation, funding recipients must meet the following requirements:

   a. Funding recipients who employ 15 or more persons must adopt and file with the U. S. Department of Transportation procedures that incorporate appropriate due process standards which provide for the prompt and equitable resolution of complaints or grievances alleging any discriminatory action prohibited by federal regulations.

   b. Funding recipients must prepare and submit to the U. S. Department of Transportation a program for providing public transportation services to handicapped persons. The program must be developed through a public participation process which allows for:

      1. Consultation during the planning process with handicapped persons and groups representing them, social service organizations, concerned state and local officials, and the metropolitan planning organization.[5]

      2. A 60-day public comment period on the recipient's proposed program during which at least one public hearing on the proposed program must take place.

      3. The distribution of notices and materials pertaining to the program in a form usable by persons with vision and hearing impairments.

   Recipients may fulfill this obligation under the regulation by providing transportation service to handicapped persons using one of three service options, including:

      1. By providing some form of demand-responsive, door-to-door, specialized transportation service which is accessible to wheelchair-bound and semiambulatory persons.

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[4]*See "Nondiscrimination on the Basis of Handicap in the Department of Transportation Financial Assistance Programs: Final and Proposed Rule," Federal Register, Volume 51, No. 100, May 23, 1986, pp. 18994-19038.*

[5]*The Southeastern Wisconsin Regional Planning Commission has been designated by the Governor as the official areawide metropolitan planning organization for the seven-county Southeastern Wisconsin Region.*

2. By providing fixed-route bus service that is accessible to wheelchair-bound and semiambulatory persons over the regular routes operated by the recipient on either a regularly scheduled or on-call basis by equipping buses used in fixed-route transit service with wheelchair lifts, ramps, or other accessibility features. The number of accessible buses would need to be sufficient to meet certain minimum service criteria.

3. By providing a mix of both accessible specialized door-to-door transportation service and accessible bus service.

Whichever service option is ultimately selected by the recipient, it must meet specified minimum service criteria for each service option governing service area, service availability, fares, trip restrictions or priorities, waiting time, and user eligibility, subject to a cap level of annual expenditures by the recipient. A cap level of annual expenditures equal to 3 percent of the recipient's average operating expenses for all the public transportation services it provides, calculated based upon projected current year expenditures and expenditures for the two immediately preceding fiscal years, has been set forth in the regulation. The recipient is not required to spend more than the expenditure limit, even if, as a result, it cannot provide a level of service which meets all the service criteria for the service option it has selected. In this case, how the recipient chooses to modify the service criteria for the particular service option it selects must be determined through the aforementioned public participation process. If a recipient can provide a level of service which meets all the minimum service criteria for an amount less than the expenditure limit, then the limit can be ignored. UMTA, as part of its regular triennial review of Section 9 recipients, will monitor each recipient to determine if it is actually providing the service called for in its program of handicapped transportation service. Based upon its findings, UMTA may require that the recipient take corrective actions to ensure that the prescribed level of transportation service is actually provided.

6. All applications for federal assistance must certify that they have afforded an adequate opportunity for public comment on each proposed project. For Section 3 projects, applicants are required to conduct a public hearing on proposed projects, with the notice for such a hearing being given at least 30 days in advance and informing the public of all significant economic, social, or environmental issues, and inviting them to examine all project documents. For Section 9 projects, each applicant must certify that it has a locally developed process to solicit and consider public comment prior to raising fares or implementing a major reduction of transit service.

7. If an applicant desires to provide charter service using UMTA-funded equipment or facilities, it must first determine if there are any private charter operators that are willing and able to provide the charter service the applicant desires to provide. To the extent that there is at least one such private operator, the applicant is prohibited from providing charter service using UMTA-funded equipment or facilities unless:

   a. The applicant enters into a contract agreement with the private charter operator or operators to provide charter equipment or service for the private operator when requests for charter service exceed the capacity of the private operator, or when the private operator is unable to provide equipment that is accessible to elderly and/or handicapped persons;

   b. The applicant is granted an exception by UMTA to provide charter service directly to the customer for special events to the extent that the private charter operator or operators are not capable of providing service; or

c. The applicant is in a nonurbanized area and is granted an exception by UMTA to provide charter service directly to the customer because the charter service provided by a private operator would create a hardship for the customer.

Any charter service that an applicant provides under any of the above conditions must be incidental charter service.

8. No federal assistance may be provided for the purchase or operation of buses unless the applicant agrees not to engage in school bus operations for the exclusive transportation of students and school personnel in competition with private school bus operators. This rule does not apply, however, to "tripper" service provided for the transportation of school children along with other passengers by regularly scheduled bus service at either full or reduced rates.

9. No federal financial assistance may be provided until fair and equitable arrangements have been made as determined by the Secretary of Labor to protect the interests of employees affected by such assistance. Such arrangements must include provisions protecting individual employees against a worsening of their positions with respect to their employment, collective bargaining rights, and other existing employee rights, privileges, and benefits.

10. All accounting systems for all transit systems eligible for federal aid must conform to a uniform system of accounting and record-keeping. This system, entitled, "Uniform System of Accounts and Records," is to facilitate a clear definition of the economics and operating conditions of a transit system in the interest of more efficient planning, administration, and operation.

11. No federal assistance may be provided for public transit projects unless measures have been taken to encourage increased private sector involvement in the public transit project. To implement this policy, UMTA regulations require recipients of UMTA funds to develop, adopt, and submit to UMTA a process for the consideration of private enterprise participation and the private operation of public transportation services and support services to the maximum extent feasible. This process must include provisions for:

a. Notice to and early consultation with private providers during the development of new or restructured service, as well as in the periodic reexamination of existing service;

b. Periodic examination—at least every three years—of each route to determine if it could be more efficiently operated by a private enterprise;

c. A description of how new and restructured services will be evaluated to determine if they could be more effectively provided by private sector operation pursuant to a competitive bidding process;

d. The use of costs as a factor in the decision concerning private or public operation of transit services; and

e. A dispute resolution process which affords all interested parties an opportunity to object to the initial decision made by the local policy body.

At the time of the submission of the transportation improvement program described under Item No. 1b above, the metropolitan planning organization is required to certify that the recipient's local process has been followed, and to describe how the local process led to the development of the transit projects contained in the current year element of the transportation improvement program. The metropolitan planning organization must also develop a process to ensure the fair resolution of disputes which cannot be resolved by the recipient's dispute resolution process.

12. No federal assistance may be provided until all eligible disadvantaged business enterprises (DBE's) and women's busi-

ness enterprises (WBE's) have been afforded the opportunity to fairly and equitably participate in any proposed public transit proposals. The applicant must provide assurance of its adherence to meeting the specified goals.

STATE LEGISLATION

Two types of legislation which affect the provision of public transportation services have been enacted by the State of Wisconsin: 1) legislation authorizing financial assistance for the provision of general public and specialized transportation services, and 2) legislation involving the administrative regulations and controls governing the establishment and operation of transit services.

Financial Assistance

Urban Public Transportation Assistance Programs: Financial assistance provided by the State for urban public transportation includes indirect aid, principally in the form of tax relief, and direct aid in the form of operating subsidies and planning grants. Indirect aid to urban public transit systems in Wisconsin was introduced in 1955 on the basis of the findings and recommendations of the 1954 Governor's Study Commission on Urban Mass Transit. The most significant of the 1955 measures is Section 71.18 of the Wisconsin Statutes, which provides a special method that can be used by privately owned urban mass transit organizations to calculate their state income tax. To encourage urban bus systems to invest profits in new capital facilities and stock, the formula provides that net income after payment of federal income taxes is taxed by the State on the following basis:

1. An amount equivalent to 8 percent of the depreciated cost of carrier-operating property is exempt from the tax; and

2. The remaining portion of the net income is taxed at a rate of 50 percent.

Other Wisconsin Statutes giving urban public transportation systems tax relief are:

1. Section 76.54, which prohibits cities, villages, and towns from imposing a license tax on vehicles owned by urban transit companies.

2. Section 77.54(5), which excludes buses, spare parts and accessories, and other supplies and materials sold to common carriers for use in providing urban mass transportation services from the general sales tax imposed on goods and services.

3. Section 78.01(2)(d), which excludes vehicles engaged in urban public transportation from the fuel tax imposed upon motor fuel—such as diesel fuel—specifically used in transit vehicle operation.

4. Section 78.40(2)(c), which excludes vehicles engaged in urban public transportation from the fuel tax imposed upon special fuel—such as propane gas—specifically used in transit vehicle operation.

5. Section 78.75(1)(a), which allows taxi companies to obtain rebates of the tax paid on motor fuel or special fuel.

6. Section 341.26(2)(h), which requires that each vehicle engaged in urban public transportation service be charged an annual registration fee of $1.00 unless a municipal license has been obtained for the vehicle.

Direct financial aid in the form of transit operating assistance is currently available under the Wisconsin urban mass transit operating assistance program. The program was first established under the 1973 State Budget Act, which appropriated a total of $5 million in general-purpose revenue funds for transit operating assistance during the 1973-1975 biennium. The program has continued to be funded at increasing levels in every subsequent budget biennium, most recently being appropriated a total of $93.3 million for the 1987-1989 biennium under the 1987 State Budget Act. The program is authorized under Section 85.20 of the Wisconsin Statutes, and is currently funded by the Wisconsin Transportation Fund—a multi-purpose special revenue fund created to provide funding for transportation-related facilities and modes, with revenues derived from transportation users primarily through taxes on motor fuels and vehicle registration fees.

Under the program, local public bodies with populations of 2,500 persons or more and transit commissions that provide financial assistance

to, or that actually operate, a public transit system are eligible for reimbursement by the Wisconsin Department of Transportation for a fixed portion of the total annual operating expenses of the transit system. State aids are available to cover up to 37.5 percent of an eligible transit system's total operating expenses. Eligible transit systems under the program include those providing fixed-route transit service and those providing shared-ride taxicab service. The City of Waukesha received about $371,000 under the state transit operating assistance program in 1988 to support the operation of its transit system.

Transit systems receiving state transit operating assistance are required to provide a reduced-fare program for elderly and handicapped persons during nonpeak hours of operation. In addition, eligible projects must provide at least two-thirds of their transit service—measured in vehicle miles—within an urban area, defined as any area that includes a city or village having a population of 2,500 or more persons that is appropriate, in the judgment of the Wisconsin Department of Transportation, for an urban mass transportation system. Other restrictions of the State's operating assistance program include the following:

1. Projections of operating revenues and expenses must be based on an approved one-year "management plan" governing the operations of the participating transit system during the contract period.

2. The commitments of state funds and quarterly payments are based upon projections of operating revenues and operating expenses for a calendar year contract period.

3. Departmental audits of each participating transit system must determine the actual operating expenses and revenues of the system during the contract period.

4. Contracts between the Wisconsin Department of Transportation and recipients may not exceed one year in duration.

5. Recipients must annually submit to the Wisconsin Department of Transportation a four-year program of transit improvement projects for their systems.

Specialized Transit Assistance Programs: Two funding programs for elderly and handicapped specialized transportation services were established under the 1977 State Budget Act. The programs are authorized under Section 85.21 and Section 85.22 of the Wisconsin Statutes and are administered by the Wisconsin Department of Transportation.

Section 85.21 authorizes the provision of financial assistance to counties within the State for specialized transportation programs serving elderly and handicapped persons who would not otherwise have an available or accessible method of transport. A proportionate share of funds under this state program is allocated to each county in Wisconsin based on the estimated percent of the total statewide elderly and handicapped population residing in the county. In general, counties may use these funds for either operating assistance or capital projects to directly provide transportation services for the elderly and handicapped; to aid other agencies or organizations which provide such services; or to create a user-side subsidy program through which the elderly and the handicapped may purchase transportation services from existing providers at reduced rates. Counties must provide a local match equal to 20 percent of their allocations in order to receive their allocations. In addition, a county may hold its allocated aid in trust for the future acquisition or maintenance of transportation equipment.

Transportation services supported by funds available under this program may, at the direction of the county, carry members of the general public on a space-available basis, provided that priority is given to serving elderly and handicapped patrons. In addition, Section 85.21 requires that a co-payment, or voluntary donation, be collected from users of the specialized transportation service, and that a means for giving priority to medical, nutritional, and work-related trips be adopted if the transportation service is unable to satisfy all of the demands placed on it. Funding for this program during the 1987-1989 biennium was established at $7.7 million by the 1987 State Budget Act. Waukesha County currently participates in this program to help support several specialized transportation projects administered by the Waukesha County Department of Aging. The 1988 budget for the specialized transportation program administered by the Department of Aging included approximately $158,900 allocated to Waukesha County

under this state program. The Department of Aging specialized transportation program includes two projects—an advance-reservation, door-to-door transportation service and a taxi-based user-side subsidy program—which provide transportation to elderly and handicapped residents of the City of Waukesha.

Under Section 85.22 of the Wisconsin Statutes, the State can supply private, nonprofit organizations that provide transportation services to the elderly and handicapped with financial assistance for the purchase of capital equipment. This program represents the state counterpart to the previously referenced federal aid program authorized under Section 16(b)(2) of the Urban Mass Transportation Act of 1964, as amended. The state aids available under this program are distributed to applicants within the State on an 80 percent combined state-federal and 20 percent local matching basis. The program is administered jointly with the federal Section 16(b)(2) program by the Wisconsin Department of Transportation. In all cases, the applicant is responsible for providing the 20 percent local share of capital project costs.

Administrative Regulations and Controls

In addition to providing financial assistance to urban public transit systems within the State, the Wisconsin Statutes provide organizational alternatives to counties and municipalities for the operation of urban public transit systems. The more important State legislation which defines municipal governmental powers relating to the operation of a public transit system is outlined below:

1. Municipal Contract with Private Transit System Operator—Section 66.064 of the Wisconsin Statutes permits a city or village served by a privately owned urban public transit system to contract with the private owners for the leasing, public operation, joint operation, subsidizing, or extension of service of the system.

2. Municipal Operation of Transit System—Section 66.065(5) of the Wisconsin Statutes provides that any city or village may, by action of its governing body and upon a favorable referendum vote, own, operate, or engage in an urban public transit system. This Statute permits a city or village to establish a separate department to undertake transit operation under municipal ownership or to expand an existing city department to accommodate the responsibility of municipal transit operation.

3. City Transit System—Section 66.943 of the Wisconsin Statutes provides for the formation of a city transit commission composed of not fewer than three members appointed by the mayor and approved by the city council. No member of the commission may hold any other public office. The Commission is empowered to "establish, maintain, and operate a bus system, the major portion of which is located within, or the major portion of the service is supplied to, such a city." Institution of the urban transit system is subject to the limitations of Section 66.065(5) of the Wisconsin Statutes discussed above. The city transit commission is permitted to extend the urban transit system into adjacent territory beyond the city, but not more than 30 miles from the city limits. In lieu of directly providing transportation services, the transit commission may contract with a private organization for such services.

4. City Transit-Parking Commission—Sections 66.068, 66.079, and 66.943 of the Wisconsin Statutes provide for the formation of city transit and parking commissions. A combined transit-parking commission may be organized as a single body under this enabling legislation and not only may have all the powers of a city transit commission, but may also be empowered to regulate on-street parking facilities and own and operate off-street facilities as well.

5. Municipal Transit Utility—Sections 66.066 and 66.068 of the Wisconsin Statutes provide for the creation of a municipal transit utility. The statutes provide for the formation of a management board of three, five, or seven commissioners elected by the city council or village or town board to supervise the general operation of the utility. Institution of the urban transit system as a public utility is subject to the limitations of Section 66.065(5) of the Wisconsin Statutes. In cities with populations of less than 150,000, the city council may provide for the operation of the utility by the board of public works or by another municipal officer in lieu of the above

commission. The City of Waukesha, which owns and operates Waukesha Metro Transit, created the Waukesha Transit System Utility and the Waukesha Transit System Utility Board under the provisions of these statutes.

6. Joint Municipal Transit Commission—Section 66.30 of the Wisconsin Statutes permits any municipality to contract with another municipality or municipalities for the receipt or furnishing of services or the joint exercise of any power or duty authorized by statute. A "municipality" is defined, for purposes of this law, as any city, village, town, county, or regional planning commission. Thus, the law would permit any county, city, or village to contract with any other county, city, or village to receive or furnish transit services or even to establish a joint municipal transit commission.

State legislation also provides for the formation of certain special public transit districts and authorities. Section 66.94 of the Wisconsin Statutes permits the establishment of a metropolitan transit authority having the legal power to acquire, operate, and maintain a public transportation system in any county having a population of 125,000 or more. A public transportation system is defined to include subways, railways, and buses. The district to be served by the transit authority must have a total population of 100,000 or more. Significantly, authorities created under this enabling legislation do not have taxing powers.

LOCAL LEGISLATION

Perhaps the most important legislation affecting transit on the local level is found in Section 3.17 of Chapter 3, "Boards and Commissions," of the municipal code of the City of Waukesha. This section establishes the Waukesha Transit System Utility and the Waukesha Transit System Utility Board, and defines the functions, powers, and duties of that board. An important reference to public transit is contained in Chapter 31 of the municipal code, which establishes regulations, standards, and controls relating to the use and operation of public transit systems within the City of Waukesha. That chapter includes sections which define the city authority to delineate bus routes, designate bus stops and special bus loading zones on city streets, and prohibit parking at bus stops, as well as sections which address unacceptable conduct by passengers on transit system buses.

SUMMARY

This chapter has summarized pertinent federal and state legislation and regulations as they apply to the provision of financial assistance for public transportation service, and as they apply to transit organization and operation. The federal government is a major source of financial assistance for public transit services through five major programs relevant to Waukesha County. The U. S. Department of Transportation, Urban Mass Transportation Administration (UMTA), administers these programs, which were made available under the Urban Mass Transportation Act of 1964, as amended. Financial assistance for urban public transit systems is currently available under Section 3, primarily for capital purchase projects and rapid transit system construction costs; under Section 8 for planning assistance; and under Section 9 on a formula grant basis to designated recipients within urbanized areas for use toward operating assistance, capital equipment purchases, or planning projects.

Within the Milwaukee urbanized area, the Counties of Milwaukee, Waukesha, Ozaukee, and Washington have been designated as recipients of Section 9 formula funds. The Section 9 funds allocated annually to the urbanized area are distributed among the designated recipients having subsidized transit services within their jurisdiction, using a procedure mutually agreed upon by the three transit operators within the urbanized area. Section 9 funds available for planning projects or capital assistance projects are distributed on the basis of the need for such funds by each transit operator as reflected in a program of projects jointly developed by the three transit operators. Section 9 funds available for transit operating assistance are distributed using a process which applies within the urbanized area the national formula used to distribute funds among the urbanized areas nationwide. The transit operating assistance funds allocated to Waukesha County in this manner are currently, and have been in years past, divided between Waukesha County—which is a designated recipient of such funds—and the City of Waukesha—which is not a designated recipient but owns and operates its own local bus sys-

tem—based upon an agreement which is annually negotiated between the County and the City. The negotiation of such an agreement is consistent with how such matters were envisioned to be settled when each of the four counties was originally designated as a recipient of UMTA formula transit assistance funds in 1975.

Two other transit assistance programs were also authorized under the Urban Mass Transportation Act of 1964, as amended, and are also administered by UMTA. Section 16 provides financial assistance for the purchase of vehicles and equipment to private nonprofit agencies or corporations that provide specialized transportation to elderly and handicapped individuals. Section 18 provides financial assistance to nonurbanized areas on a formula grant basis.

The Wisconsin Statutes provide several programs for financing public transportation services. The Wisconsin Department of Transportation administers these programs, which provide financial assistance for both general and specialized transportation, including: an urban transit operating assistance program authorized under Section 85.20 of the Wisconsin Statutes, which provides operating assistance to communities with populations of more than 2,500 persons supporting general public transit systems; a specialized transportation assistance program authorized under Section 85.21 of the Wisconsin Statutes, which provides financial assistance to counties for elderly and handicapped transportation projects; and a specialized transit assistance program authorized under Section 85.22 of the Wisconsin Statutes, which, together with funds available under the UMTA Section 16(b)(2) program, provides capital assistance to private, nonprofit organizations providing specialized transportation services.

The Wisconsin Statutes also provide several organizational alternatives to municipalities for the operation of public transit services. These alternatives include: contracting for services with a private operator; public ownership and operation of a municipal utility; and public ownership and operation by a single joint municipal transit commission.

Local legislation specifically pertaining to transit system operation is contained in two sections of the municipal code of the City of Waukesha. The most significant section establishes and defines the powers of the Waukesha Transit System Utility Board. The other section establishes regulations, standards, and controls relating to the use and operation of public transit systems within the City.

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Chapter V

TRANSIT SERVICE OBJECTIVES AND STANDARDS

INTRODUCTION

One of the critical steps in the preparation of any transit system development plan is the articulation of the objectives to be served by the transit system, together with the identification of supporting standards which can be used to measure the degree of attainment of the objectives. The objectives and standards provide the criteria upon which the performance of the existing transit system may be assessed, alternative service plans designed and evaluated, and recommendations for improvement made. The objectives should, therefore, comprehensively represent the level of transit service and system performance desired by the City of Waukesha. The standards should permit direct measurement of the extent to which the objectives are being attained. Only if the objectives and standards clearly reflect transit-related goals will the recommended transit system development plan provide the desired level of service within the limits of available financial resources.

The following sections of this chapter present the public transit objectives, principles, and standards formulated and approved by the advisory committee guiding the city transit plan preparation effort, and used in the performance evaluation of the existing transit system and in the subsequent design and evaluation of the alternative short-range transit plans. In addition, these objectives and standards will be drawn upon by the transit system in conducting an assessment of transit system compliance with current federal regulations governing compliance with Title VI of the Civil Rights Act of 1964 as they pertain to the provision, planning, and programming of transit services in a manner that is not discriminatory to minority communities or minority users. A glossary of technical terms that are used in this chapter or that will appear in later sections of this report is presented in Appendix A.

OBJECTIVES

Transit service objectives and standards implicitly reflect the underlying values of the elected officials and citizens of the community to be served. Accordingly, the task of formulating objectives and standards should involve actively interested and knowledgeable public officials and private citizens representing a broad cross-section of interests in the community, as well as transit technicians. Accordingly, one of the important functions of the City of Waukesha Transit Development Program Advisory Committee was to articulate transit service objectives and supporting standards for the City of Waukesha transit system. By drawing upon the collective knowledge, experience, views, and values of the members of the Committee, it is believed that a meaningful expression of the public transit system performance desired by the City of Waukesha was obtained, and a relevant set of transit service objectives and supporting standards defined.

The specific objectives adopted basically envision a transit system that will effectively serve the City while minimizing the costs entailed. More specifically, the following objectives were adopted by the City of Waukesha Transit Development Program Advisory Committee:

1. Public transit should serve those areas of the City and its immediate environs which can be efficiently served, including those areas of urban development which are fully developed to medium or high densities, and, in particular, the transit-dependent population within those areas.

2. The public transit system should promote transit utilization and provide for user convenience, comfort, and safety.

3. The public transit system should promote efficiency in the total transportation system.

4. The transit system should be economical and efficient, meeting all other objectives at the lowest possible cost.

PRINCIPLES AND STANDARDS

Complementing each of the foregoing transit service objectives is a planning principle and a set of service and design standards, as set forth

Table 32

PUBLIC TRANSIT OBJECTIVES, PRINCIPLES, AND STANDARDS FOR THE CITY OF WAUKESHA TRANSIT SYSTEM DEVELOPMENT PLAN

Objective	Principle	Standards
1. Public transit should serve those areas of the City and its immediate environs which can be efficiently served, including those areas of urban development which are fully developed to medium or high densities and, in particular, the transit-dependent population within those areas	Public transit can provide an important means of access for all segments of the population, but particularly for low- to middle-income households, the youth and elderly, and the transportation-handicapped	1. Local fixed-route transit service should be provided only within areas of contiguous high- and medium-density urban development[a] 2. Public transit service to residential neighborhoods[b] and major nonresidential land use areas should be maximized. Major nonresidential land use areas served should include the following: a. Major regional, community, and neighborhood retail and service centers[c] b. Educational institutions including universities, colleges, vocational schools, secondary schools, and parochial schools[d] c. Major community and special medical centers[c] d. Major employment centers[e] e. Major governmental and public institutional centers[c] f. Major recreational areas[f] 3. The population served in, particular that portion which is transit dependent, should be maximized 4. The number of jobs served should be maximized 5. Specialized transportation service should be available within the transit service area to meet the transportation needs of those portions of the handicapped[g] population unable to avail themselves of regular transit service
2. The public transit system should promote transit utilization and provide for user convenience, comfort, and safety	The benefits of a public transit system are, to a large extent, greatly related to the degree to which it is used. The extent of such use, as measured by public transit ridership, is a function of the degree to which the transit facilities and services provide for user convenience, comfort, and safety	1. Ridership on the public transit system should be maximized. 2. Public transit service should be designed to provide adequate capacity to meet existing and projected demand. The average maximum load factor[h] for local transit service during peak periods should not exceed 1.25. During off-peak periods and at the 10-minute point,[i] the maximum load factor should not exceed 1.0 3. The following minimum travel speeds for local transit service should be provided on the transit system: a. Five miles per hour within the central business district b. Ten miles per hour outside the central business district 4. The public transit system should provide a level of service commensurate with potential demand. Operating headways for all fixed-route public transit service should be capable of accommodating passenger demand at the recommended load standards 5. The public transit system should be designed and operated to maximize schedule adherence, and be "on time" at least 95 percent of the time[j] 6. Transit stops for fixed-route local transit service should be located two to three blocks apart along the entire route 7. Public transit routes should be direct in alignment, with a minimum of turns, and arranged to minimize transfers and duplication of service, which would discourage transit use 8. Local transit service should have route spacings of one-half mile in high-density and medium-density areas 9. To provide protection from the weather, bus passenger shelters of an attractive design should be constructed at all major loading points[k] 10. Paved passenger loading areas should be provided at all fixed-route transit loading and unloading points, and all such points should be clearly marked by easily recognized bus stop signs 11. Each public transit vehicle should be rehabilitated or replaced at the end of its maximum service life, which shall be defined as follows: a. For diesel-powered buses with a seating capacity of more than 30 passengers, maximum service life should be considered to be 12 years b. For diesel- or gasoline-powered buses with a seating capacity of fewer than 30 passengers, the maximum service life should be considered to average five years 12. Preventive maintenance program standards should be established to achieve, at a minimum, 6,000 miles without in-service breakdown
3. The public transit system should promote efficiency in the total transportation system	Public transit facilities and services can promote economy and efficiency in the total transportation system. The public transportation system has the potential to supply additional passenger transportation capacity, which can alleviate peak loadings on arterial street facilities and assist in reducing the demand for land necessary for parking facilities at major centers of land use activity. Efficient public transit service also has the potential to reduce energy consumption and air pollutant emissions	1. The total amount of energy, and the total amount of energy per passenger mile, consumed in operating the total transportation system of which the transit system is an integral part, particularly petroleum-based fuels, should be minimized 2. The amount of highway system capacity which must be provided to serve travel demand should be minimized

Table 32 (continued)

Objective	Principle	Standards
4. The transit system should be economical and efficient, meeting all other objectives at the lowest possible cost	The total resources of the City are limited, and any undue investment in transportation facilities and services must occur at the expense of other public and private investments; therefore, total transportation costs should be minimized for the desired level of service	1. The operating and capital investment for the public transit system should be minimized and reflect efficient utilization of resources 2. The amount of transit system operating expenses recovered through operating revenues should be maximized. New transit service should have a percentage recovery of operating costs from operating revenues which equals or exceeds the average for the existing system after two years 3. The public subsidy required per transit ride should be minimized

[a]The categories of urban residential land use development densities shall be defined as follows:

Category	*Number of Dwelling Units per Net Residential Acre*	*Number of Persons per Gross Square Mile*
Urban High Density	*24.5-63.0*	*10,735-25,000*
Urban Medium Density	*8.1-24.4*	*3,882-10,734*
Urban Low Density	*2.5-8.0*	*1,220-3,881*
Suburban	*0.7-2.4*	*368-1,219*
Rural	*0.7*	*368*

[b]Residential neighborhoods shall be considered served by local, fixed-route, public transit service when located within a one-quarter-mile walking distance of a bus route.

[c]Shall be considered served if located directly on a bus route.

[d]Shall be considered served if located within one-eighth mile of a bus route.

[e]A major employment center shall be defined as an existing or planned concentration of industrial, commercial, or institutional establishments providing employment for more than 100 persons. Employment centers shall be considered served if located within one-eighth mile of a bus route.

[f]Shall be considered served if located within one-quarter mile of a bus route.

[g]The handicapped shall be defined as individuals who, by reason of illness, injury, congenital malfunction, or other permanent or temporary incapacity or disability, are unable without special facilities or special planning or design to utilize public transit services.

[h]The average maximum load factor is calculated by dividing the number of patrons at the maximum loading point of a route by the number of seats at that point during the operating period.

[i]The 10-minute point is a point located 10 minutes' travel time from the maximum loading point on a route. This means that passengers generally should not have to stand on board the public transit vehicle for longer than 10 minutes.

[j]"On time" is defined as schedule adherence within the range of zero minutes early and three minutes late.

[k]Construction of bus passenger shelters at transit loading points should generally be considered where one or more of the following conditions exist: 1) The location serves major facilities designed specifically for the use of, or is frequently used by, elderly or handicapped persons; 2) the location has a boarding passenger volume of 50 or more passengers per day; 3) the location is a major passenger transfer point between bus routes; or 4) the location is in a wide open space where waiting patrons would be unprotected from harsh weather conditions.

Source: SEWRPC.

in Table 32. The planning principle supports each objective by assessing its validity. Each set of standards is directly related to the transit service objective, and serves several purposes, including: to facilitate quantitative application of the objectives in the evaluation of the performance of the existing transit system; to provide guidelines for the consideration of new or improved transit services; and to provide warrants for capital projects. The standards are intended to include all relevant and important measures that would help to indicate the degree to which existing or proposed transit services contribute to the attainment of each objective.

The performance evaluation of the existing transit system utilized in the current study included assessments of transit performance on both a systemwide and individual route basis. The service standards set forth in this chapter represent a comprehensive list from which specific performance standards and measures, as deemed appropriate, were drawn in conducting the systemwide and route performance evaluations. A more complete description of the evaluation process is presented in Chapter VI.

OVERRIDING CONSIDERATIONS

The objectives and standards set forth in Table 32 were intended to be used to guide the evaluation of the performance of the existing transit system and the design and evaluation of public transit system service and facility improvements. However, any application of the objec-

tives and standards in the preparation of a transit system development plan for the City of Waukesha transit system must recognize several overriding considerations.

First, it must be recognized that an overall evaluation of the existing transit system performance and alternative transit service plans must be made on the basis of cost. Such an analysis may show that attainment of one or more standards is beyond the economic capability of the community and, therefore, that the standards cannot be met practically and must be either modified or eliminated.

Second, it must be recognized that a transit system is unlikely to fully meet all the standards, and that the extent to which each standard is met, exceeded, or violated must serve as the final measure of the ability of the transit system to achieve the objective which a given standard complements.

Third, it must be recognized that certain intangible factors, including the perceived value of transit service to the community and potential acceptance by the concerned elected officials, may influence, and therefore must be considered in, the preparation and selection of a recommended plan. Inasmuch as transit service may be perceived as providing a valuable service within the community, the community may decide to initiate or retain such services regardless of performance or cost. With regard to acceptance of recommended service changes, only if a considerable degree of such acceptance exists will service recommendations be implemented and their anticipated benefits realized.

Chapter VI

TRANSIT SYSTEM PERFORMANCE EVALUATION

INTRODUCTION

This chapter evaluates the performance of the City of Waukesha transit system based upon the transit service objectives and standards set forth in the previous chapter of this report. As a result of this evaluation, areas of efficient and inefficient operation are defined.

Four objectives in the provision of transit service were established in Chapter V of this report. Table 33 lists these objectives and summarizes the key standards which were used to determine whether these objectives had been met. Not all the listed standards under each objective were used in the evaluation process as they were not all deemed appropriate for such use. Standards not used were primarily intended to serve as guidelines in the design of new services. Based upon examination of the existing routes by the Commission staff, it was found that these standards were met in the design and operation of the current routes. Other standards not used were intended to serve as warrants for providing capital equipment and facilities for the transit system. These standards will be used in the development of a program of recommended capital projects developed for the recommended transit system development plan.

The performance evaluation was conducted at two levels using the sets of performance measures set forth in Table 34. These measures summarize quantitative application of the standards used in the performance evaluation. At the first level, an assessment of transit performance was made on a systemwide basis to ascertain the extent to which the transit system currently serves the existing land use pattern and resident population of the City of Waukesha and environs, and also to evaluate its contribution to the efficiency of the total transportation system. At the second level of evaluation, the performance of each route of the transit system was evaluated and ranked on the basis of performance. The following sections of this chapter present the findings of the evaluation process. These findings were used to develop the alternative transit system development plans described in Chapter VII of this report.

SYSTEMWIDE PERFORMANCE EVALUATION

Service to Existing Land Uses and Population Groups

Performance measures used to evaluate the existing transit service provided to Waukesha area land uses and population groups included measures of the total resident population served, the major nonresidential land use centers served, the areas of new and expanding development served, the facilities used by transit dependent persons served, and the residential concentrations of transit dependent population groups served. The evaluation was based upon the extent of geographic coverage provided by the existing transit system, as shown on Map 2 in Chapter II; and the locations of major traffic generators, areas of new or expanding development, and the facilities used by and the residential concentrations of transit dependent population groups within the City of Waukesha, identified in Chapter III.

The performance of the existing transit system with respect to these performance measures is summarized in Tables 35 through 37 and on Maps 26 and 27. Based upon this information, the following conclusions were reached:

1. The existing transit system provides excellent areal coverage of the existing residential areas of the City of Waukesha. Only small portions of the residential areas within the City are not within one-quarter mile of a bus route and, therefore, not considered served by the transit system. Such unserved areas include small sections of the Merrill Crest and The Windings subdivisions located on the western fringe of the service area, and unserved "islands" within the service area located on the southeast side of the City between Roberta Avenue and Cavalier Drive and on the west side of the City south of Madison Street between W. Moreland Boulevard and Cambridge Avenue.

2. The transit system also provides good coverage of the major nonresidential land use centers in the study area, serving 76 of

Table 33

STANDARDS USED IN THE PERFORMANCE EVALUATION OF THE EXISTING TRANSIT SYSTEM

Objectives and Standards	Standards Used in Transit System Performance Evaluation
Objective No. 1—Provide Service to Portions of City that Can be Efficiently Served	
Standard 1: Provide local fixed-route transit service within areas of contiguous high- and medium-density development	X
Standard 2: Maximize the residential and nonresidential land use areas served	X
Standard 3: Maximize the population served	X
Standard 4; Maximize the jobs served	--
Standard 5: Maximize transportation service provided to serve handicapped persons	X
Objective No. 2—Promote Transit Utilization and Provide for User Comfort, Convenience, and Safety	
Standard 1: Maximize transit system ridership	X
Standard 2: Provide adequate capacity so as not to exceed load factors	X
Standard 3: Provide service which meets or exceeds minimum vehicle speeds	--
Standard 4: Provide service at headways capable of accommodating demand	X
Standard 5: Achieve minimum acceptable schedule adherence	--
Standard 6: Provide stops meeting minimum stop spacing	--
Standard 7: Minimize indirect routing, duplication of service, and transfers which discourage transit use	X
Standard 8: Provide local routes at intervals of no more than one-half mile in high-density and medium-density residential areas	--
Standard 9: Construct bus passenger shelters at major passenger loading areas	--
Standard 10: Provide signs and paved passenger loading areas at bus stops	--
Standard 11: Replace public transit vehicles at end of maximum service life for vehicles	--
Standard 12: Minimize in-service breakdowns of revenue vehicles	--
Objective No. 3—Promote Efficiency in the Total Transportation System	
Standard 1: Minimize the energy consumed in operating the total transportation system	X
Standard 2: Minimize the amount of highway system capacity needed to serve travel demand	X
Objective No. 4—Provide Economical and Efficient Service	
Standard 1: Minimize operating and capital costs	X
Standard 2: Maximize percent of operating expenses recovered through operating revenues	X
Standard 3: Minimize local public subsidy per ride	X

Source: SEWRPC.

the 100 centers identified. Of the 24 centers not considered as served, four are located outside the City of Waukesha, and, therefore, outside the primary service area of the transit system. Of the remaining 20 unserved centers, only five are not located within one-quarter mile of a bus route—a maximum walking distance for transit users based upon accepted standards within the transit industry. It should be noted that three of these five centers were served by the transit system until a bus route operating over Prairie Avenue—Route No. 5—was eliminated in January 1987 due to low ridership.

3. The transit system provides excellent areal coverage of residential concentrations of transit dependent population groups and good coverage of facilities used by elderly and/or handicapped persons. While only eight of the 17 facilities for the handicapped are located on a bus route, the remaining nine facilities are located within

Table 34

APPLICATION OF SPECIFIC PERFORMANCE MEASURES IN THE PERFORMANCE EVALUATION PROCESS

Performance Measure by Objective	Systemwide Evaluation of Service to Land Uses	Route Performance Evaluation
Objective No. 1—Provide Service to Portions of City that Can be Efficiently Served		
1. Population served	X	--
2. Major nonresidential land use centers served	X	--
3. Areas of proposed new or expanding development served	X	--
4. Facilities used by elderly persons, handicapped persons, and low income households served	X	--
5. Residential concentrations of transit dependent population groups served	X	--
6. Major travel patterns for existing student ridership market served	X	--
Objective No. 2—Promote Transit Utilization and Provide for User Comfort, Convenience, and Safety		
1. Total passengers	--	X
2. Total passengers per revenue vehicle hour	--	X
3. Total passengers by scheduled bus run	--	X
4. Saturday ridership as a percent of weekday ridership	--	X
5. Travel distance by transit versus travel distance by automobile	--	X
6. Bus stop and schedule coordination	--	X
Objective No. 3—Promote Efficiency in the Total Transportation System		
1. Passenger miles per gallon of petroleum-based fuel	X	--
2. Impacts on highway capacity due to transit system operation	X	--
Objective No. 4—Provide Economical and Efficient Service		
1. Total operating deficit per passenger	--	X
2. Percent of operating expenses recovered by operating revenues	--	X

Source: SEWRPC.

a short walking distance from a bus route, which ambulatory handicapped individuals should be capable of negotiating. Nonambulatory and semi-ambulatory handicapped persons are provided with specialized door-to-door transportation service within the regular quarter-mile service area of the transit system by the Metrolift program operated by the City of Waukesha Transit System Utility. A specialized door-to-door transportation service is also available to elderly persons within the transit system service area through the Ride Line transportation project offered by the Waukesha County Department of Aging.

4. The existing route structure of the transit system is unable to fully serve much of the proposed new or expanding residential, commercial, and office development within the City of Waukesha. While three of the five areas of proposed new or expanding commercial and office development would be served, or could be served with only minor route modifications, less than one-half of the new residential development would be fully served with the existing routes. Some route changes will, therefore, be needed in the near future if all proposed developments are to be served, as they are completed.

5. The existing route structure is unable to fully serve the six proposed new or expanding areas of industrial development. However, the transit system has not had success in the past with generating significant ridership on routes serving primarily industrial areas.

Table 35

TRANSIT SERVICE PROVIDED TO WAUKESHA AREA LAND USES AND POPULATION GROUPS: AUGUST 1988

Performance Measure	Systemwide Performance Characteristics
Population Served[a]	
Total Service Area Population	54,500
Percent of City of Waukesha Resident Population Served	98.5
Major Nonresidential Land Use Centers Served[b]	
Shopping Centers	11 of 12
Educational Institutions	14 of 15
Medical Centers	4 of 5
Governmental and Institutional Centers	11 of 11
Employment Centers	21 of 40
Recreational Areas	15 of 17
Facilities Used By Elderly Persons, Handicapped Persons, and Low Income Households Served[b]	
Elderly Facilities	9 of 12
Handicapped Facilities	8 of 17
Federally Subsidized Rental Housing	6 of 6
Residential Concentrations of Transit-Dependent Population Groups[b]	
Elderly	Served
Persons in Low Income Families	Served
Zero Automobile Households	Served
Areas of Proposed New or Expanding Development Served[c]	
Residential	8 of 18
Industrial	0 of 6
Commercial/Office	3 of 5

[a]*Residential areas were considered served by the transit system if they were located within one-quarter mile of a bus route.*

[b]*The facilities for elderly and/or handicapped persons and low income households and the major nonresidential land use centers which were identified within the City of Waukesha transit planning study area are presented in Tables 16 through 18 and 20 through 25 in Chapter III. The concentrations of transit-dependent persons identified in the study area are shown on Map 12 in Chapter III. Those centers, facilities, and concentrations not served by the existing transit system are identified in Table 36 and on Map 27 in Chapter VI.*

[c]*Areas of proposed new or expanding residential, industrial, commercial, and office development within the City of Waukesha which were identified within the City of Waukesha are presented in Tables 9 and 10 in Chapter III. Those areas of new and expanding development not served by the existing transit system are identified in Table 37 and shown on Map 28.*

Source: SEWRPC.

Transit Service Provided to Student Ridership Market

The results of 1987 on-bus survey conducted by the transit system indicate that about 47 percent of all trips made on the system by all user groups are for home-based school purposes; and that about 45 percent of all system users are 18 years of age or under. Based on information from the on-bus survey conducted on the city transit system by the Regional Planning Commission in 1984, about 75 percent of all home-based school trips—35 percent of all weekday trips during the school year—are made by students aged five through 18. From this infor-

mation, it may be concluded that students traveling to and from elementary and secondary schools in the City represent a large user group for the transit system. A high percentage of student riders under 18 years of age is not uncommon for transit systems. A recent analysis of the social and economic characteristics of the users of Wisconsin's urban bus systems conducted by the Wisconsin Department of Transportation found that trips by elementary and secondary school students make up a large percentage of all trips for many systems in Wisconsin.[1]

The School District of Waukesha provides all students residing two or more miles from school with yellow school bus transportation between their home and school at no direct cost to the student. A distance of less than two miles is considered by the School District to be a reasonable distance which students should be capable of walking. Students living less than two miles from school generally are only provided with transportation by the District if they would otherwise face hazardous conditions walking to or from school. Consequently, students using the City of Waukesha public transit system are generally those living within a reasonable walking distance of school but, instead of walking, choose to pay a fare to use the city transit system.

Based on the above information, on current passenger counts, and on service requests received by City Transit Coordinator, the major travel patterns for the existing student ridership market were identified and are shown on Map 28. A comparative analysis of these travel patterns and the existing bus routes and schedules led to the following conclusions:

1. The existing transit system fully serves less than one-half the major travel patterns of the existing student ridership market. Full service in this report was defined as direct service in both directions of travel on schedules that conveniently accommodate class start and dismissal times.

2. The remaining student trips are either partially served—with direct service provided in only one direction or at inconvenient times—or not served at all.

3. Routing and scheduling changes in addition to those implemented by the transit system in August 1988 should be considered to accommodate those student trips not fully served by the existing system.

Contributions to the Efficiency of the Total Transportation System

The third transit service objective concerns the operation of public transit services and facilities which promote both economy and efficiency in the total transportation system. This objective is supported by two standards relating to utilization of energy and the provision of adequate highway system capacity.

The first standard under this objective requires that the amount of energy, particularly petroleum-based motor fuels, utilized in operating the transportation system be minimized. This standard is intended to measure the potential energy savings of public transit services provided by the City of Waukesha transit system. To measure compliance with this standard, a comparison of relative energy efficiency of the current transit operation with that of automobile travel was undertaken. Based on March 1988 average weekday operating information for the City of Waukesha transit system, approximately 1,390 revenue bus miles on an average weekday were operated on the city transit system at an operating efficiency of about 4.6 bus miles per gallon. Approximately 1,909 total boarding passengers, at about 2.7 miles per unlinked trip, used the transit system to total about 5,154 passenger miles of travel on an average weekday in March 1988. Based on these figures, the transit system provided about 17.2 passenger miles of travel for every gallon of diesel fuel consumed in providing the service. This compares with an estimated 13.0 to 16.9 passenger miles of travel provided per gallon of gasoline consumed if the transit trips had, instead, been made by automobile during 1988. This estimated range of automobile efficiency assumes a 13.0 miles per gallon fuel efficiency for an automobile in city travel. Furthermore, the upper end of the range assumes that the comparable automobile travel is made at the average automobile occupancy in the Waukesha

[1] *See Secretary's Select Committee on Mass Transit Staff Report No. 13, Social and Economic Characteristics of Wisconsin Urban Bus Riders, Wisconsin Department of Transportation, Bureau of Transit, September 1988.*

Table 36

EXISTING MAJOR TRAFFIC GENERATORS; FACILITIES FOR ELDERLY, HANDICAPPED, AND LOW INCOME PERSONS; AND CONCENTRATIONS OF TRANSIT DEPENDENT PERSONS NOT SERVED BY THE CITY OF WAUKESHA TRANSIT SYSTEM: AUGUST 1988

Identification Number on Map 26	Name	Location/Address[a]
1	Unserved Shopping Centers[b] Grand Avenue Strip Development	On Grand Avenue between College Avenue and Williams Street
2	Unserved Educational Institutions[b] Mt. Calvary Lutheran School	1941 Madison Street
3	Unserved Medical Centers[b] Westmound Medical Clinic	W228 N683 Westmound Drive, Town of Pewaukee
--	Unserved Governmental and Public Institutional Facilities[b] None (all served)	--
	Unserved Employment Centers[b]	
4	ABEX Corporation-Waukesha Division	1242 Lincoln Avenue
5	Amron Corporation	525 Progress Avenue
6	ABB Electric, Inc.	400 S. Prairie Avenue
7	ABB Electric, Inc.	1100 S. Prairie Avenue
8	Beatrice Cheese, Inc.	770 N. Springdale Road, Town of Brookfield
9	Gartland Foundries, Inc.	831 Progress Avenue
10	Hein-Werner Corporation	1005 Perkins Avenue
11	Holsum Foods	500 S. Prairie Avenue
12	Husco-Division of Koehring Company	N218 W239 Pewaukee Road, Town of Pewaukee
13	Navistar-International Corporation	1401 Perkins Avenue
14	Quality Aluminum Casting Company	1242 Lincoln Avenue
15	RTE Corporation	1900 E. North Avenue
16	RTE Corporation	1319 Lincoln Avenue
17	RTE Fabrication Center	2300 Badger Drive
18	Sanofi Bio Ingredients, Inc.	620 Progress Avenue
19	Spancrete Industries	1800 E. Main Street
20	Waukesha Cutting Tools, Inc.	1111 Sentry Drive
21	Waukesha Wholesale Foods	900 Gale Street
22	Wisconsin Telephone Company	1240 Davidson Road
	Unserved Recreational Centers[b]	
23	C. F. Schuetze Building	1120 Baxter Street
24	Waukesha County Exposition Center[c]	N1 W24848 Northview Road, Town of Pewaukee
	Unserved Facilities for Elderly and/or Handicapped Persons[b]	
25	Virginia Nursing Home	1471 Waukesha Avenue
26	Saratoga Heights	120 Corrina Boulevard
27	C. F. Schuetze Building	1120 Baxter Street
28	CCLS IV	2011 Kilps Drive
29	CCLS Waukesha Group Home	123 McCall Street
30	CCLS Welsh Court	2704 Welsh Court
31	Farrar Guest Home	1619 Birch Drive
32	Halfway House of Waukesha County	520 N. Grand Avenue
33	Lynne Spring Manor	718 Lynne Drive
34	Victoria Home	1425 Victoria Drive
35	Volunteers of America-Marion House	720 Luke Avenue
--	Unserved Subsidized Housing Facilities for Low Income Persons[b] None (all served)	--
--	Unserved Residential Concentrations of Transit Dependent Population Groups[d] None (all served)	--

[a] *Except where otherwise noted, all addresses are in the City of Waukesha.*

[b] *Centers and facilities are considered as served by the transit system under the following conditions:*

1. *Shopping centers must be located directly on a bus route.*
2. *Educational centers must be located within one-eighth mile of a bus route.*
3. *Medical centers must be located directly on a bus route.*
4. *Governmental and public institutional facilities must be located within one-eighth mile of a bus route.*
5. *Employment centers must be located within one-eighth mile of a bus route.*
6. *Recreational centers must be located within one-quarter mile of a bus route.*
7. *Facilities for elderly and/or handicapped persons must be located directly on a bus route.*
8. *Subsidized housing for low income persons must be located within one-quarter mile of a bus route.*

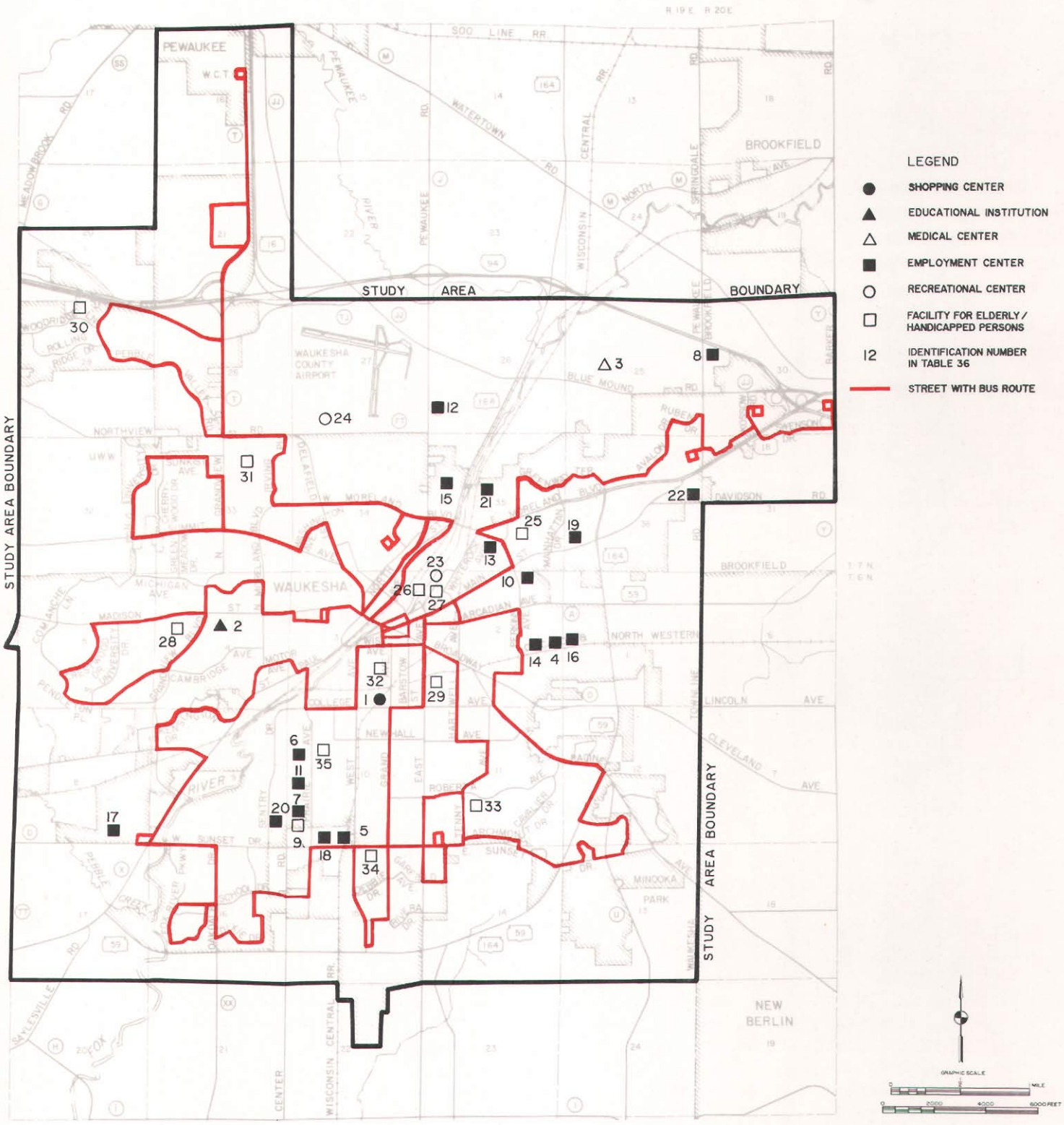
[c] *While not served at all times by regularly scheduled bus service, the Waukesha County Exposition Center is served by bus service for some special events, including the Waukesha County Fair.*

[d] *Residential concentrations of transit dependent persons were considered served if more than 50 percent of the residential area within the census tract was within one-quarter mile of a bus route.*

Source: SEWRPC.

Map 26

MAJOR TRAFFIC GENERATORS AND FACILITIES FOR ELDERLY AND/OR HANDICAPPED PERSONS NOT SERVED BY THE EXISTING CITY OF WAUKESHA TRANSIT SYSTEM: AUGUST 1988



Source: SEWRPC.

Table 37

AREAS OF PROPOSED NEW OR EXPANDING RESIDENTIAL, INDUSTRIAL, AND COMMERCIAL DEVELOPMENT WITHIN THE CITY OF WAUKESHA NOT SERVED BY THE EXISTING CITY OF WAUKESHA TRANSIT SYSTEM: AUGUST 1988

Number on Map 27	Name	Status
	Unserved Areas of New Residential Development[a]	
1	Brendon Way	Under construction
2	Caroline[b]	Under construction
3	David's Park	Under construction
4	East Sutton[b]	Under construction
5	Evansdale	Proposed
6	North Burton	Under construction
7	Paramont	Proposed
8	Springbrook	Proposed
9	Legend Hills[b]	Proposed
10	Woodfield Phase 4	Under construction
	Unserved Areas of New or Expanding Industrial Development[a]	
11	Airport Industrial Park	Proposed
12	Badger Drive Industrial Area	Expanding
13	Lincoln Avenue-East Industrial Area	Proposed
14	Missile Park Industrial Area	Proposed
15	ABB Electric, Inc., Plant	Proposed
16	South West Avenue Industrial Area	Expanding
	Unserved Areas of New or Expanding Commercial Development[a]	
17	East Main Street Commercial Development	Proposed
18	Silvernail Road Office Development	Proposed

[a] *To be considered served, areas must be located within one-quarter mile of a bus route.*

[b] *Area would be partially served by existing route structure.*

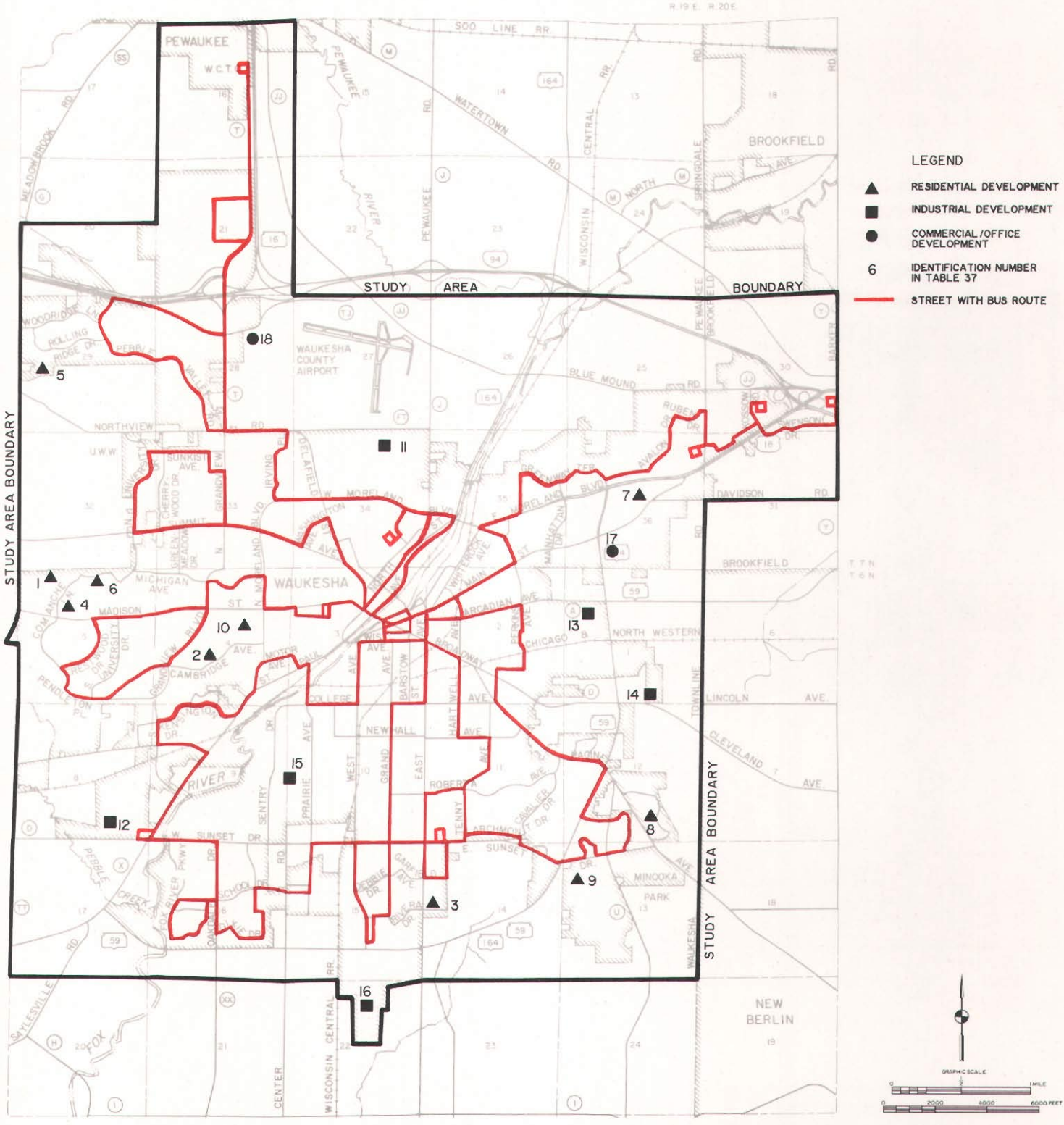
Source: City of Waukesha Engineering Department and SEWRPC.

area, or about 1.3 persons per vehicle. The lower end of the range for automobile travel is based on an average auto occupancy of 1.0 person, assuming that present transit passengers do not now have the opportunity to travel by carpool and, therefore, would not have such opportunity if they were assumed, as in this analysis, to have an automobile available for their travel.

The second standard under this objective states that the amount of highway system capacity provided to serve total travel demand should be minimized. The intent of this standard is to measure the impact of the additional passenger transportation capacity that is provided by the public transportation system on peak traffic loadings on arterial street and highway facilities, and on the need for improvements to existing arterial streets and highways. Table 38 provides a comparison for selected arterial street segments within the City of Waukesha of the current total vehicle traffic volume and the transit passenger volume. The street segments selected include arterial streets carrying a major route of the transit system and streets within the central business district, where generally more than one route uses the same street to serve the central business district. In reviewing this

Map 27

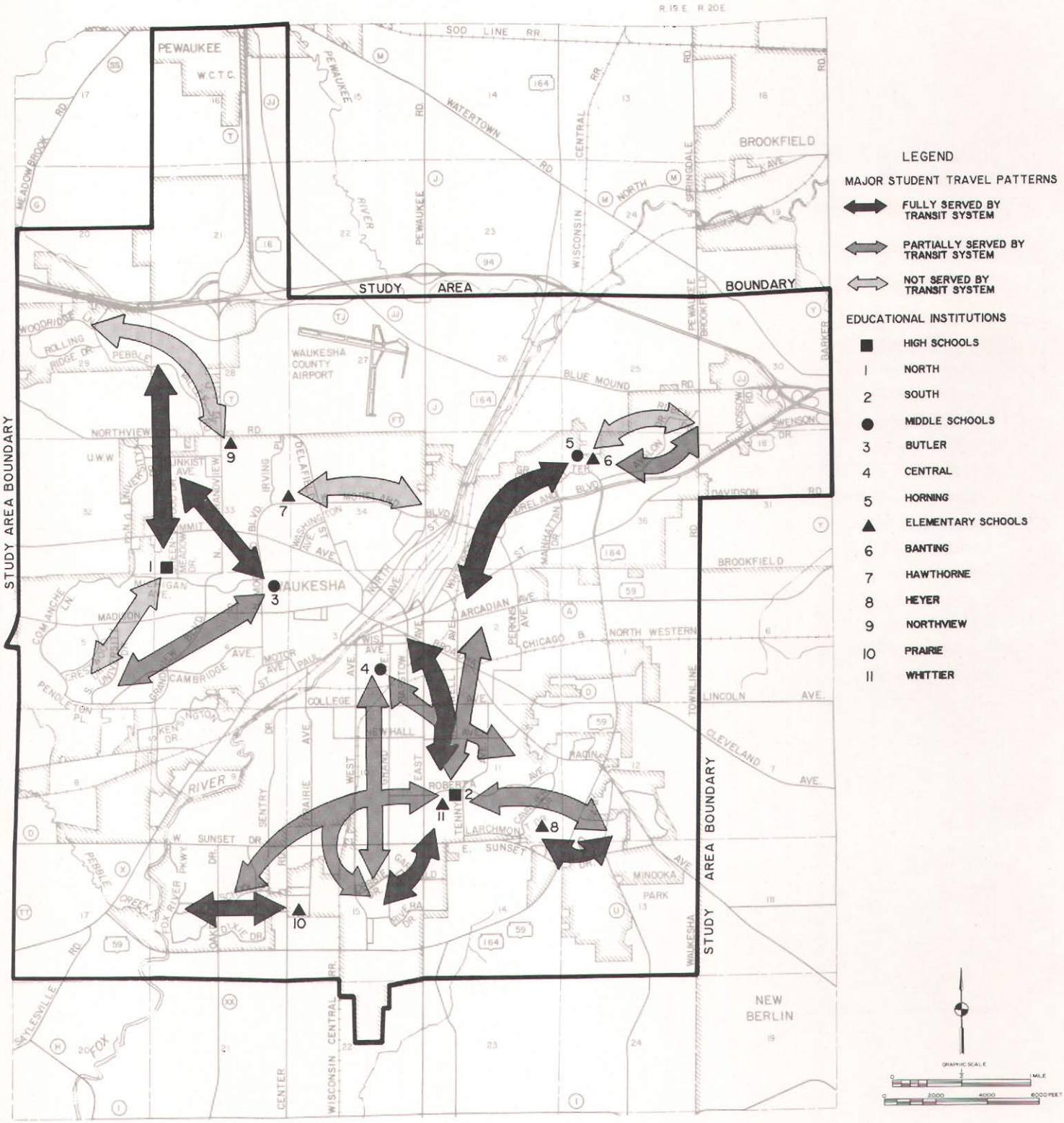
AREAS OF PROPOSED NEW OR EXPANDING RESIDENTIAL, INDUSTRIAL, AND COMMERCIAL DEVELOPMENT WITHIN THE CITY OF WAUKESHA NOT SERVED BY THE EXISTING CITY OF WAUKESHA TRANSIT SYSTEM: AUGUST 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Map 28

MAJOR STUDENT TRAVEL MARKETS FOR THE CITY OF WAUKESHA TRANSIT SYSTEM: AUGUST 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

information, it should be noted that information presented on an average weekday basis understates somewhat the transportation system benefits of public transit. This is because a higher percentage of average weekday transit passenger volumes—about 23 percent for the City of Waukesha transit system—is typically carried during the morning or evening peak traffic hour, than vehicle traffic volumes, the latter peaking at 8 to 10 percent of the average weekday total. For this reason, information is also provided for peak hour traffic and transit passenger volumes.

Based on the above information, the following conclusions were reached:

1. The overall energy efficiency of the city transit system in serving travel on an average weekday within the Waukesha area is higher than that of the private automobile. Consequently, the transit service provided by the system does reduce the use of petroleum-based motor fuels by Waukesha residents on a daily basis. A comparison of average weekday energy efficiency of the five urban public transit systems within the Southeastern Wisconsin Region is shown in Table 39. The information presented in this table would indicate that each of the transit systems is more energy efficient than the automobile, and that the transit system serving Milwaukee County is substantially more energy efficient than the private automobile, as is the Waukesha County transit system which serves primarily commuter travel between Waukesha County and the Milwaukee central business district. The higher efficiency of the Milwaukee County transit system may be attributed to its service area, which includes central Milwaukee County with its high density land uses and attendant travel and transit demand, particularly the City of Milwaukee central business district. The higher energy efficiency of the Waukesha County transit system may be attributed to the focus of its service on travel between Waukesha County and the Milwaukee central business district, and to the limitation of a sizable portion of its service to the morning and afternoon peak traffic periods.

   Each of the transit systems generally operates at energy efficiency levels substantially higher than their average during the weekday peak traffic periods, and generally substantially lower than their average levels during off-peak periods. In addition, each of the transit systems generally operates at substantially higher than their average energy efficiency levels on routes which carry more than their average passenger loadings and, as well, generally operate at substantially lower than their average energy efficiency levels on their routes which carry less than average passenger loadings.

   In general, it can be stated that the public transit in the City of Waukesha and southeastern Wisconsin does, on a daily systemwide basis, provide energy savings compared to the automobile, and that public transit is more energy efficient than the automobile on its more heavily traveled routes and during peak traffic periods, but only marginally more energy efficient, or, in some cases, less energy efficient, than the automobile on its more lightly traveled routes and during off-peak traffic periods.

2. It would appear that the City of Waukesha transit system may contribute to efficiency in the utilization of the total capacity of the transportation system. If the people traveling by public transit were, instead, traveling by automobile, there would be an increase in automobile traffic utilizing arterial streets of the area of from 5 to 10 percent during the peak traffic hour. The effect would be most pronounced on the streets within the City of Waukesha central business district, where the potential exists for traffic congestion to occur during peak traffic hours.

ROUTE PERFORMANCE EVALUATION

Ridership and Financial Performance

The performance characteristics of the bus routes composing the City of Waukesha transit system are shown in Table 40 and in Figures 13 through 17. The data presented within this table are based upon the operating characteristics and the total daily ridership—revenue passengers, transfer passengers, and free passengers—for each route from passenger counts taken by the transit system during the period March 24

Table 38

TOTAL VEHICLE AND TRANSIT PASSENGER VOLUMES ON SELECTED SURFACE ARTERIALS WITHIN THE CITY OF WAUKESHA: 1988

Location	Average Weekday			Peak Hour		
	Vehicle Count	Transit Passenger Count	Potential Percent Increase in Vehicle Traffic if Transit Trips Use Automobile[a]	Vehicle Count	Transit Passenger Count	Potential Percent Increase in Vehicle Traffic if Transit Trips Use Automobile[a]
W. Main Street (between N. East Avenue and N. Barstow Street)	11,400	450	3	1,050	105	7
W. Madison Street (between Bank Street and E. St. Paul Avenue)	10,400	500	4	950	115	9
S. Grand Avenue (between W. College Avenue and W. Laflin Avenue)	9,600	200	2	850	45	4
E. Main Street (between N. Greenfield Avenue and Perkins Avenue	5,000	250	3	450	60	10

[a]*Assumes an average automobile occupancy of 1.2 persons per auto for work trips and 1.4 persons per auto for all other trips. About 25 percent of weekday trips on the transit system are home-based work trips.*

Source: City of Waukesha Transit System Utility and SEWRPC.

Table 39

COMPARISON OF THE WEEKDAY ENERGY EFFICIENCY OF URBAN PUBLIC TRANSIT SYSTEMS WITHIN SOUTHEASTERN WISCONSIN: 1988

Characteristic	Transit System[a]				
	Waukesha County Transit System	Milwaukee County Transit System	City of Racine Transit System	City of Kenosha Transit System	City of Waukesha Transit System
Weekday Energy Efficiency of Travel by Transit					
Unlinked Transit Passenger Trips[b]	969	243,528	8,862	4,705	1,909
Transit Passenger Miles	13,975	638,520	22,020	18,062	5,154
Passenger Miles per Unlinked Trip	14.4	2.6	2.5	3.8	2.7
Revenue Bus Miles	1,187	52,409	4,277	2,205	1,390
Average Bus Miles per Gallon of Diesel Fuel	5.3	3.5	4.0	4.3	4.6
Transit Passenger Miles per Gallon of Diesel Fuel	62.4	42.3	20.4	35.1	17.2
Estimated Weekday Energy Efficiency If Transit Trips Were Made by Automobile					
Automobile Passenger Miles	13,975	638,520	22,020	18,062	5,154
Vehicle Miles (at 1.0-1.3 persons per automobile)	10,750-13,975	491,169-638,520	16,938-22,020	13,894-18,062	3,964-5,154
Vehicle Miles per Gallon of Gasoline[c]	20.0	13.0	13.0	13.0	13.0
Automobile Passenger Miles per Gallon of Gasoline	20.0-28.0	13.0-18.2	13.0-16.9	13.0-16.9	13.0-16.9

[a]*Transit system data are based upon information reported by each transit operator in its annual UMTA Section 15 report, except as noted.*

[b]*Represents all boarding passengers, including transfer and free passengers.*

[c]*Estimated based on average auto fuel efficiency of 19 miles per gallon, with average efficiency of 13.0 miles per gallon for central city standard arterial travel; and 24.0 miles per gallon for freeway and expressway travel.*

Source: SEWRPC.

Table 40

DAILY PERFORMANCE CHARACTERISTICS OF CITY OF WAUKESHA BUS ROUTES; MARCH 1988

Bus Route	Route Length (round-trip route miles)	Revenue Bus Hours		Route Performance Characteristics							
				Total Boarding Passengers[a]				Total Passengers Per Revenue Bus Hour			
				Weekdays		Saturdays		Weekdays		Saturdays	
		Weekdays	Saturdays	Number	Route Rank	Number	Route Rank	Number	Route Rank	Number	Route Rank
1. Westbrook/Target	14.05	17.2	8.7	366	1*	169	1*	21.3	3*	19.4	2*
2. Arcadian/Racine	11.85	12.6	6.8	145	8	40	7	11.5	8	5.9	7
3. Hartwell	6.60	9.7	4.5	244	4*	65	4	25.2	2*	14.4	3*
4. Grand	6.40	9.2	4.5	285	3*	112	2*	31.0	1*	24.9	1*
6. Prairie	22.65	18.7	10.9	296	2*	91	3*	15.8	6	8.3	6
7. Madison	7.55	9.3	4.6	176	7	56	5	18.9	5*	12.2	5*
8. Summit	11.20	9.4	4.5	188	6	56	5	20.0	4*	12.4	4*
9. Northview	19.85	15.8	8.7	209	5	34	8	13.2	7	3.9	8
Total System	100.15	101.9	53.2	1,909	--	623	--	18.7	--	11.7	--

Bus Route	Route Performance Characteristics									
	Operating Deficit per Passenger[b]				Percent of Operating Costs Recovered Through Farebox Revenues[b]				Saturday Ridership as a Percent of Weekday Ridership	
	Weekdays		Saturdays		Weekdays		Saturdays			
	Amount	Route Rank	Amount	Route Rank	Number	Route Rank	Number	Route Rank	Number	Route Rank
1. Westbrook/Target	$1.01	3*	$1.35	2*	27.3	3*	21.9	2*	46.2	1*
2. Arcadian/Racine	2.60	8	5.71	7	12.7	8	6.2	7	27.6	6
3. Hartwell	0.82	2*	1.91	3*	31.5	2*	16.5	3*	26.6	7
4. Grand	0.48	1*	0.73	1*	44.1	1*	34.1	1*	39.3	2*
6. Prairie	1.93	6	4.34	6	16.4	6	8.0	6	30.7	4
7. Madison	1.19	5*	2.68	5	24.2	5*	12.4	5	31.8	3
8. Summit	1.17	4*	1.98	4*	24.4	4*	16.1	4*	29.8	5
9. Northview	2.38	7	9.94	8	13.7	7	3.7	8	16.3	8
Total System	$1.35	--	$2.66	--	21.9	--	12.5	--	32.6	--

Note: An * indicates a route performs above the systemwide average level.

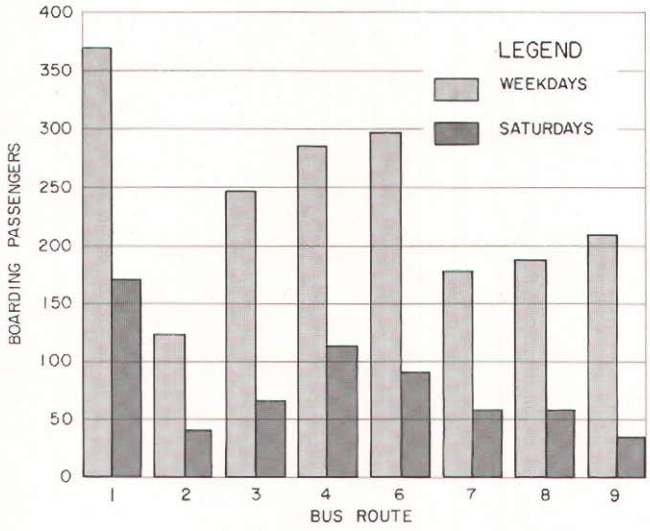
[a] *Ridership counts for weekdays were taken on one individual day for each route during the period of March 24-31, 1988. All Saturday counts were taken on March 26, 1988.*

[b] *Figures represent estimates and are based upon systemwide average operating expenses and average passenger revenues. Estimates of average daily operating expenses per route were based upon the systemwide average operating cost for the first four months of 1988 of $2.28 per vehicle mile, and total daily vehicle miles for each route. Estimates of average daily revenues for each route were based upon the systemwide average revenue per total passenger for the first four months of 1988 of $0.38 per passenger, and the total boarding passengers for each route from passenger counts taken by the transit system in March 1988.*

Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 13

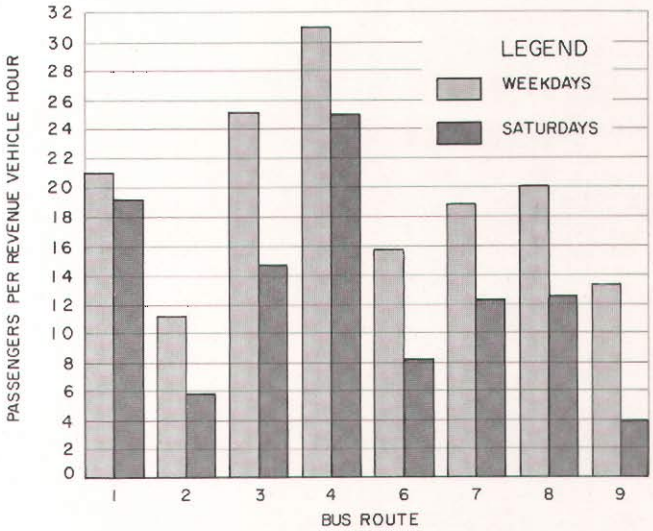
TOTAL PASSENGERS BY ROUTE FOR THE CITY OF WAUKESHA TRANSIT SYSTEM: MARCH 24-31, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 14

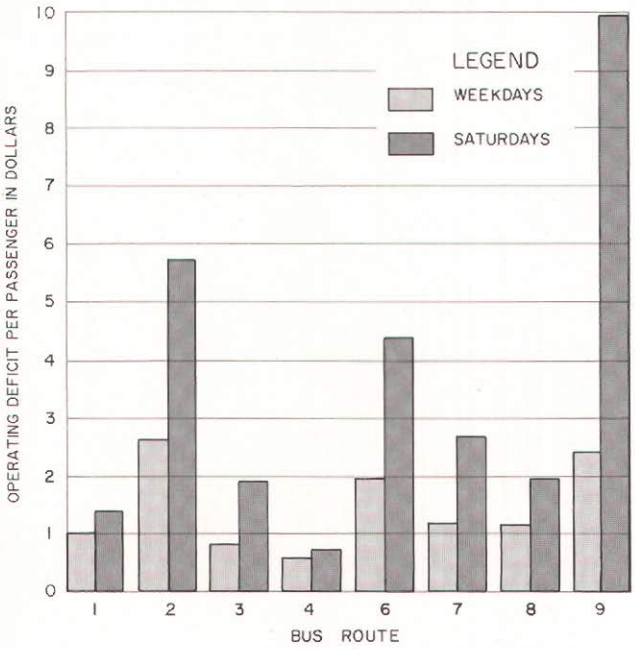
TOTAL PASSENGERS PER REVENUE BUS HOUR BY ROUTE FOR THE CITY OF WAUKESHA TRANSIT SYSTEM: MARCH 24-31, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 15

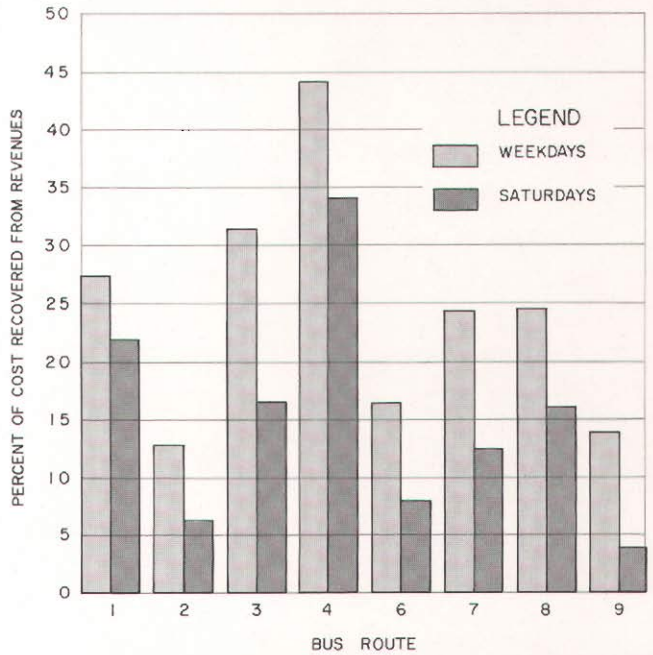
TOTAL OPERATING DEFICIT PER PASSENGER BY ROUTE FOR THE CITY OF WAUKESHA TRANSIT SYSTEM: MARCH 25-31, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 16

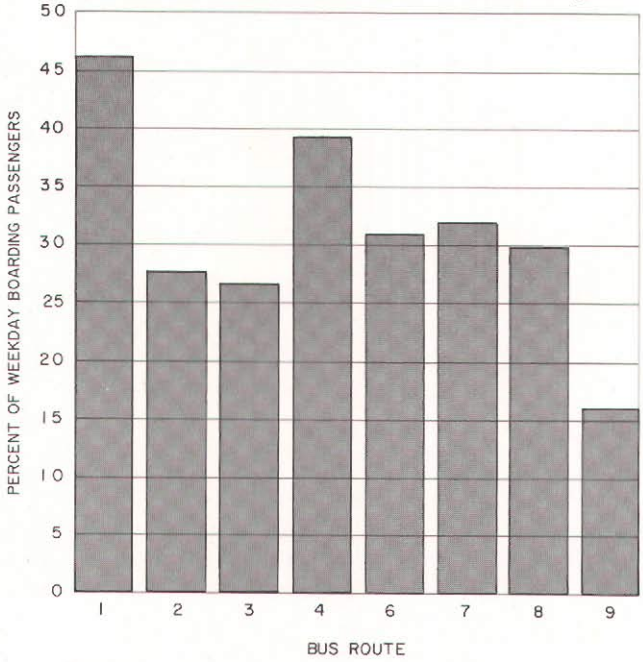
PERCENT OF OPERATING EXPENSES RECOVERED FROM FAREBOX REVENUES BY ROUTE FOR THE CITY OF WAUKESHA TRANSIT SYSTEM: MARCH 24-31, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 17

PERCENT OF WEEKDAY RIDERS ON SATURDAYS BY ROUTE FOR THE CITY OF WAUKESHA TRANSIT SYSTEM: MARCH 24-31, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

through 31, 1988, and on an average cost of operation for the first four months of 1988. The performance measures included in the table provide an indication of the ridership, productivity, and financial performance of each bus route. The information presented in the table implicitly sets a performance standard for each route equal to the systemwide average for each performance measure. The use of the systemwide average as a performance standard directs the transit system toward improving the performance of routes that are at or below average so that, over time, the overall performance of the entire transit system will improve.

To supplement the route ridership information, the boarding and alighting passenger activity along each bus route was also examined to help identify productive and nonproductive route segments. Information concerning the number of boarding and alighting passengers by location for each bus route was obtained from the passenger counts conducted by the transit system during the period March 24 through 31, 1988. To facilitate the analysis of the passenger boarding and alighting information, the bus routes were divided into route segments based upon distance and land uses served. Information on the total number of boarding and alighting passengers on individual route segments of the transit system is provided in Figure 18, while the route segments are identified on Map 29.

Information on the total boarding passengers by bus run and by time of day for each bus route is shown in Figures 19 through 27. This information is helpful in understanding the distribution of ridership by bus trip throughout the service day on each route, and can be used to identify potential problems with excessive passenger loads and bus trips with little passenger activity.

Based upon the above information, the following conclusions were reached:

1. Certain bus routes have weekday performance levels consistently above systemwide effectiveness levels, including Routes No. 1, 3, 4, 7, and 8. These routes can continue to be operated without change.

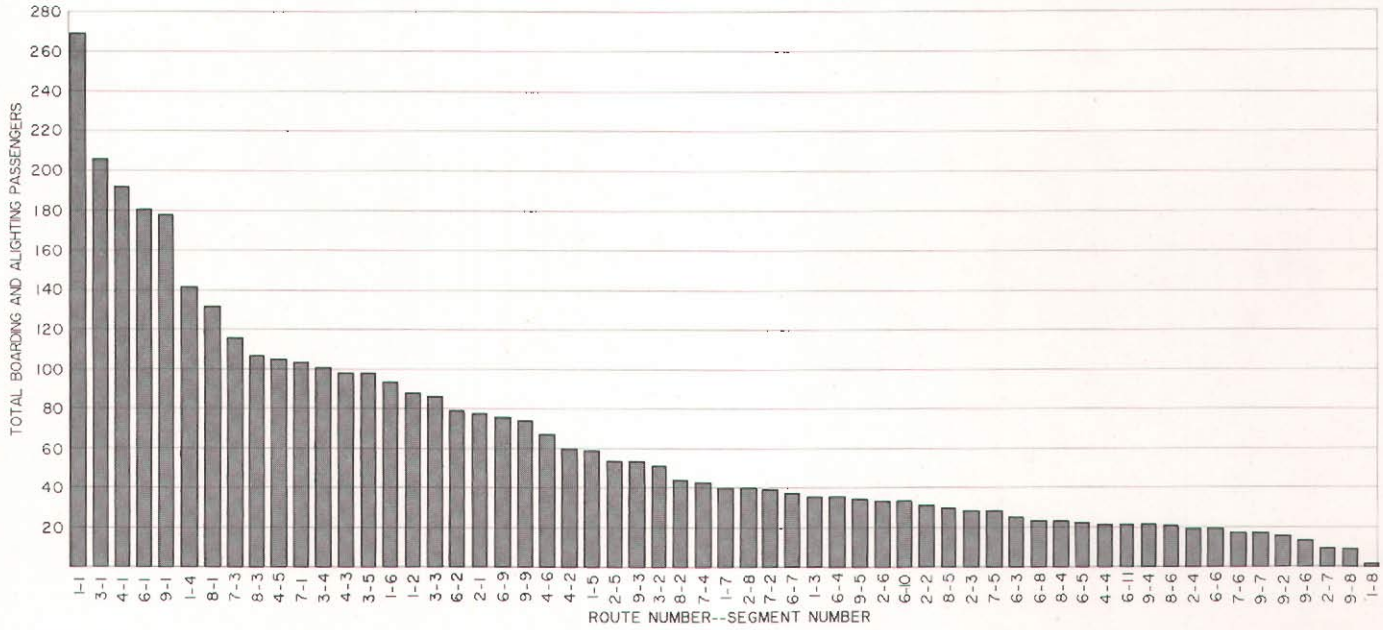
2. Other bus routes have weekday performance levels consistently below systemwide effectiveness levels, including Routes No. 2 and 9. In addition, Route 6 performs below systemwide effectiveness levels for some performance measures. These routes also include eight of the 10 least productive route segments in the transit system. Service changes to be made on Routes No. 2 and 9 in August 1988 may improve the performance of these routes.[2] However, the potential for making further service changes should be considered.

3. Many of the route segments with the lowest passenger activity occur where bus routes pass through areas with little resi-

[2]*Service changes made to Route No. 2 included changing the route to operate on Frederick Street, Ellis Street, Oakland Avenue, and E. Racine Avenue instead of on Lincoln Avenue and Greenfield Avenue between Perkins Street and Racine Avenue in order to provide service closer to the east side industrial park located along Pearl Street and Ellis Street, to Catholic Memorial High School, and to the Buchner Park pool. Service changes made to Route No. 9 included adding special school day service between The Windings and Pebble Valley subdivisions and Butler Middle School.*

Figure 18

PASSENGER ACTIVITY BY ROUTE SEGMENT ON THE CITY OF WAUKESHA TRANSIT SYSTEM: WEEKDAY—MARCH 24-31, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

dential development or few major trip generators in order to reach other residential areas or trip generators within the Waukesha area which generate significant ridership. Consequently, if the transit system is to continue to provide extensive areal coverage of the Waukesha area—as has been the policy of the City—some bus routes must be expected to perform at relatively lower levels of efficiency than other bus routes due to the operating and service area characteristics of each route.

4. Weekday ridership levels on the first bus trips in the early morning and last bus trips in the late afternoon are extremely low in comparison to ridership levels during the remainder of the day. Similarly, the overall performance of the transit system on Saturdays is significantly below that observed on weekdays, with Saturday systemwide ridership levels only one-third that observed on weekdays and productivity and effectiveness levels only about one-half that observed on weekdays. The elimination of underutilized bus trips and/or reductions in the days and hours of system operation could reduce total system operating expenses as well as the public subsidy required for the transit system. However, the decision to make such changes should reflect the policy of local officials concerning the acceptable balance between what transit service levels are deemed necessary to provide a reasonable level of service for the existing market and what the total cost to the public of the transit service should be.

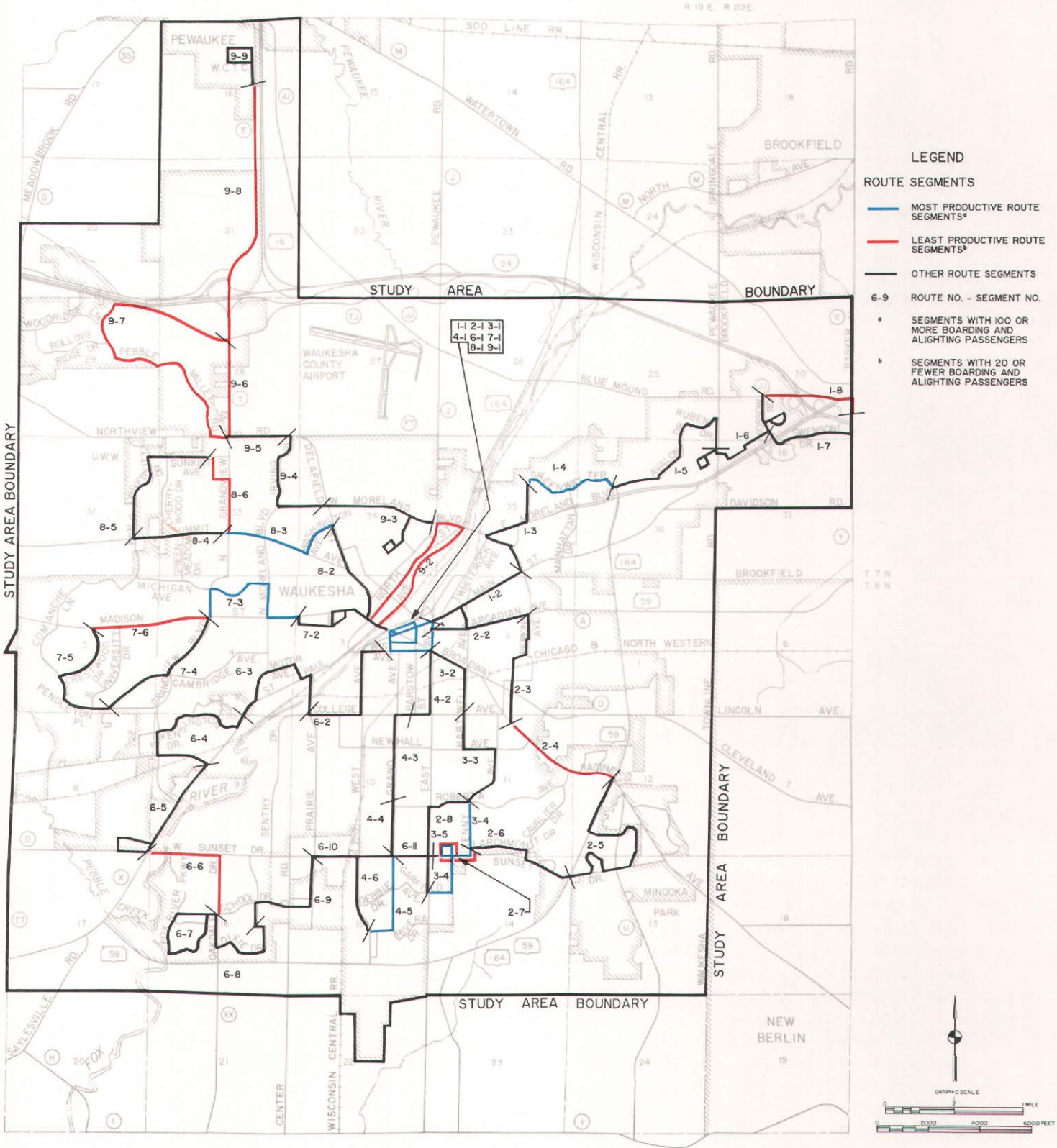
5. Some morning and afternoon bus trips currently carry passenger volumes which approach or exceed the capacity of the buses used. Schedule changes should be considered on the routes concerned to add additional service and thus reduce vehicle loading problems.

Directness of Public Transit Route Alignments

The directness of route alignments can affect the ability of the transit system to compete with the private automobile, since indirect and circuitous routing alignments affect travel time and can discourage transit use. In order to measure the directness of the alignments of the existing bus

Map 29

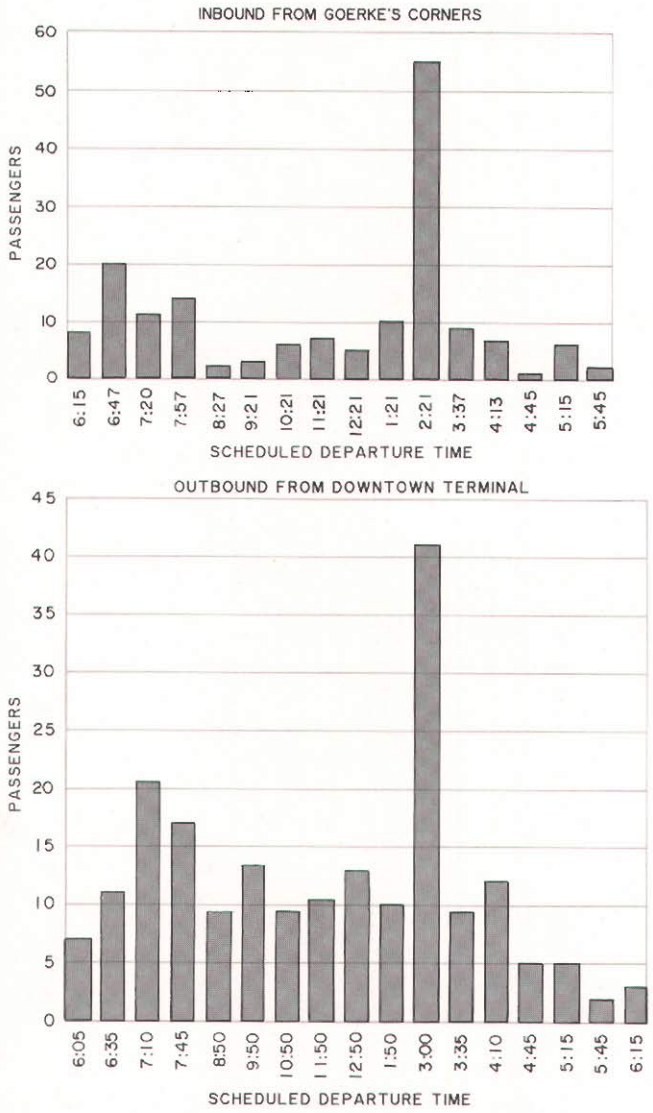
PRODUCTIVE AND UNPRODUCTIVE ROUTE SEGMENTS ON THE CITY OF WAUKESHA TRANSIT SYSTEM: MARCH 24-31, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 19

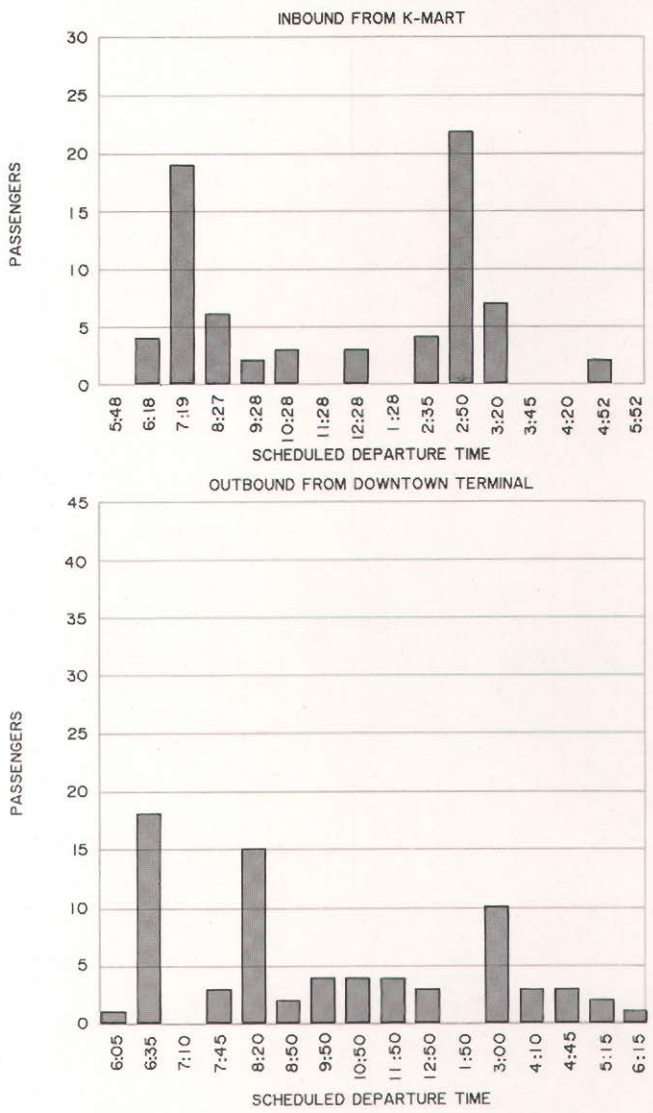
WEEKDAY BOARDING PASSENGERS ON ROUTE 1 WESTBROOK/TARGET: MARCH 25, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 20

WEEKDAY BOARDING PASSENGERS ON ROUTE 2 ARCADIAN/RACINE: MARCH 24, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

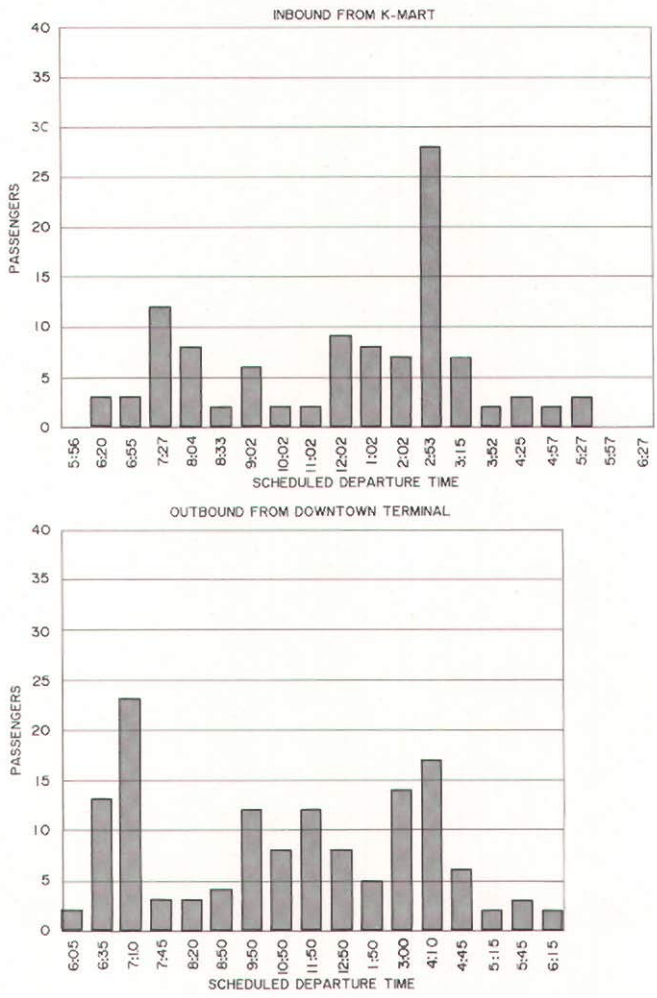
routes, the over-the-road distance for travel between selected locations within the transit service area by transit and by automobile was compared. As noted within Chapter III, the Waukesha central business district both produces and attracts the largest volume of total person trips made by residents of the City of Waukesha on an average weekday. Accordingly, over-the-road distances were measured for travel between the central transfer terminal for the transit system located within the Fox River parking lot in the Waukesha central business district and outlying termini of the eight radial city bus routes.

Table 41 presents the comparison of automobile and transit travel distances used to measure the directness of the current transit route alignments. From the information presented in this table, the following conclusions were reached:

1. All the existing transit system routes have alignments which are less direct to some degree than the paths which would be followed for automobile travel. The indirectness of current route alignments results from efforts by the City to serve completely the residential areas and major travel generators within the City along

Figure 21

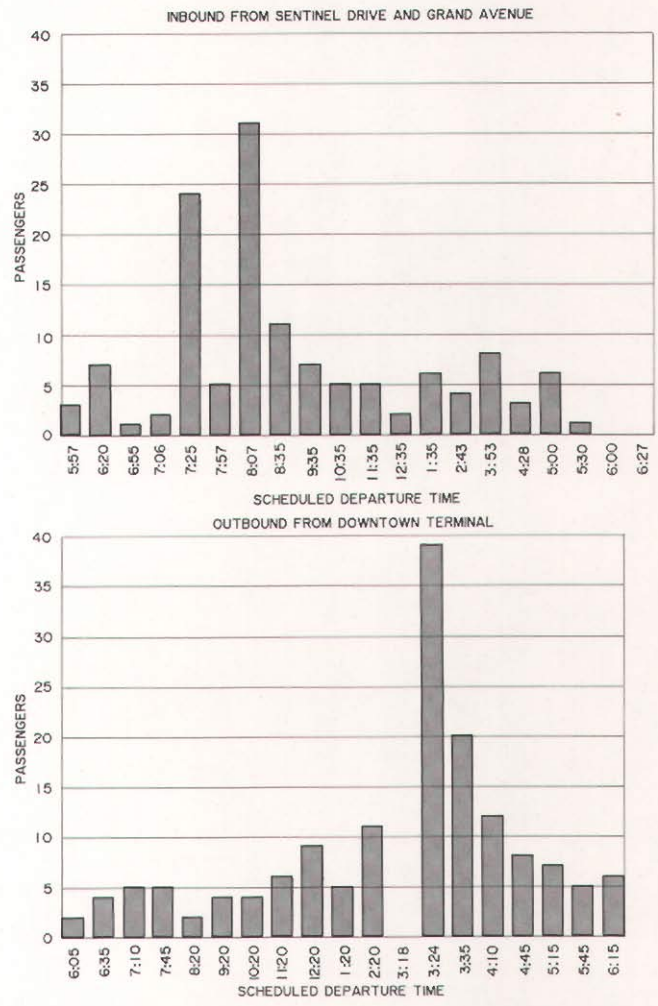
WEEKDAY BOARDING PASSENGERS ON ROUTE 3 HARTWELL: MARCH 24, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 22

WEEKDAY BOARDING PASSENGERS ON ROUTE 4 GRAND: MARCH 24, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

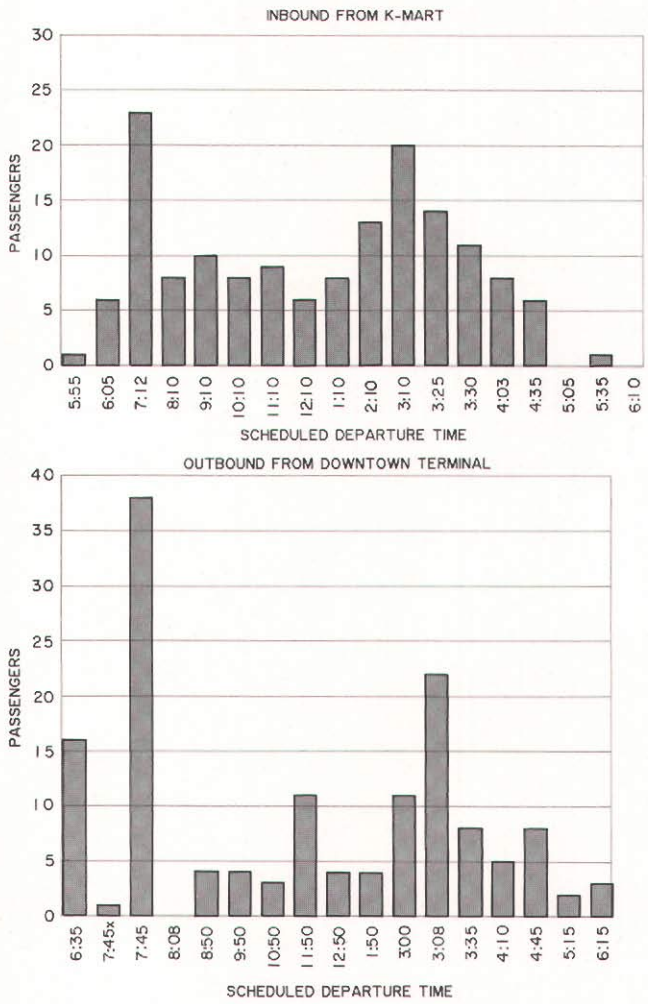
each route, while, at the same time, minimizing both the number of routes needed to completely serve the City and the attendant total city expenditures for transit system operation. For most routes for the transit system, the existing route alignments are relatively direct and result in only a minor amount of inconvenience in travel.

2. The existing alignments for Routes No. 2, 6, and 9, however, are circuitous and do result in a significant amount of inconvenience in travel between the outlying route termini identified in Table 41 and the City of Waukesha central business district. The absolute differences between the measured over-the-road distances for the transit and automobile travel paths for these routes ranged from about three to nine miles. The segments of these routes which are not considered to be direct in alignment are shown on Map 30.

It should be noted that these routes serve areas of recent development on the fringes of the City which are separated from older areas of residential development by open park land, industrial development, and other undeveloped lands. The alignments of Routes No. 2, 6, and 9 have been designed to link several areas of outlying

Figure 23

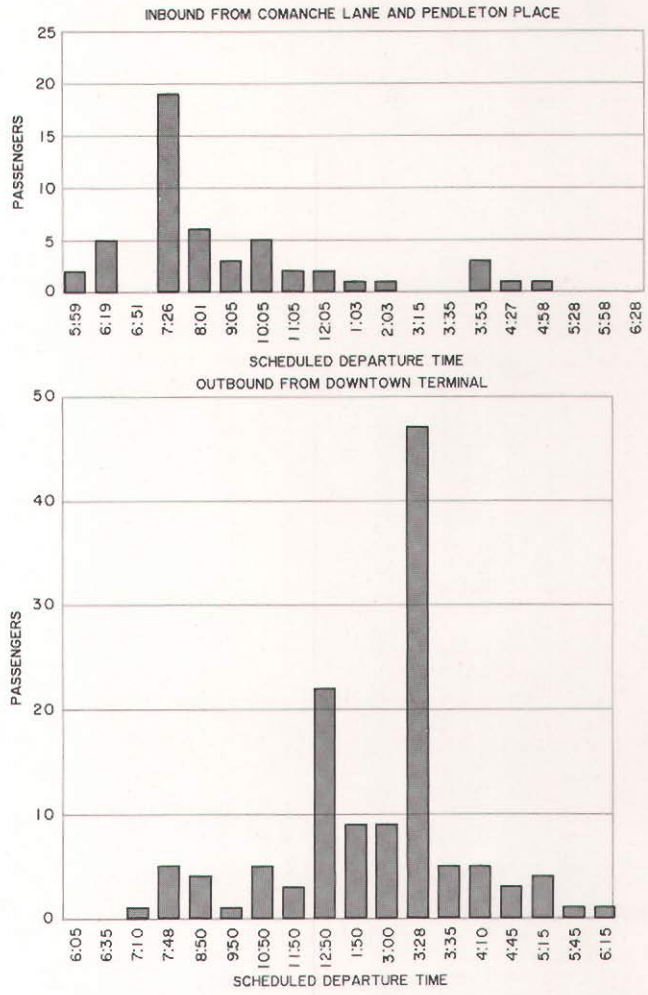
WEEKDAY BOARDING PASSENGERS ON ROUTE 6 PRAIRIE: MARCH 24, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 24

WEEKDAY BOARDING PASSENGERS ON ROUTE 7 MADISON: MARCH 24, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

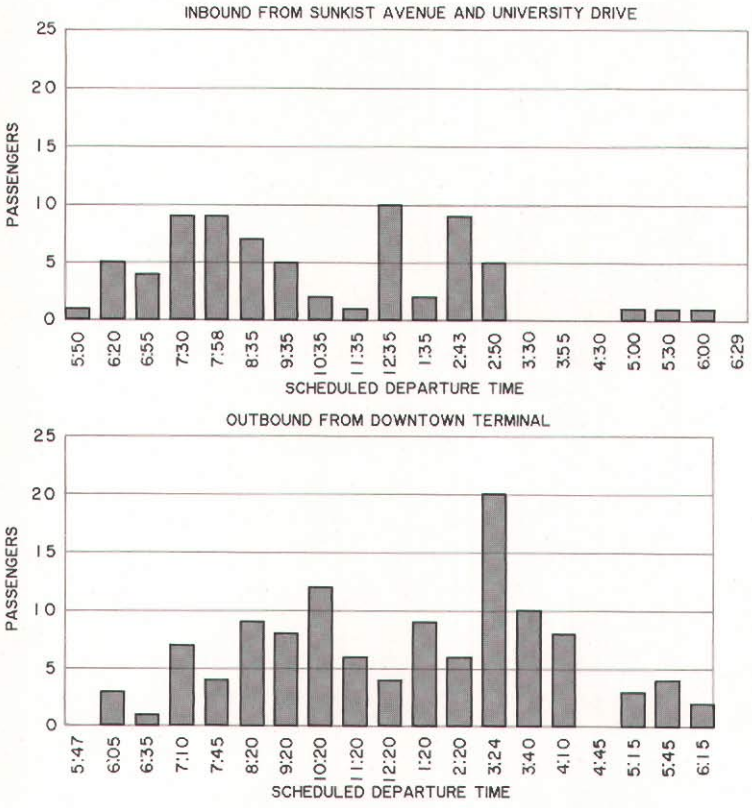
development and minimize the portion of the route alignments operating through areas with little potential for generating transit ridership. In addition, the portion of the route alignments on Routes No. 2 and 6 which extend over E. and W. Sunset Drive, along with those on Route No. 9, which extend over Silvernail Road, University Drive, and Pebble Valley Road through the Pebble Valley and Windings subdivisions were implemented in 1983 based on the findings of the previous transit study for the City transit system completed by the Commission in 1983.[3]

That study recommended the extension of Routes No. 2 and 6 from residential areas on the south side of the City over E. and W. Sunset Drive to the K-Mart/South High School area to serve major person trip movements which were inconveniently served by the then existing route structure of the transit system. The study also recommended the expansion of transit service to the Pebble Valley and Windings subdivisions, which had not been served with the early route structure of the transit system, by modifying Route No. 9. While the initial design of, or subsequent modifications to, these routes have resulted in somewhat indirect routing alignments for these routes, they have attempted to maximize the ridership on these routes. Alternatives which would correct the indirect

[3]*See SEWRPC Community Assistance Planning Report No. 83, A Transit System Operations Analysis for the City of Waukesha Transit System, February 1983.*

Figure 25

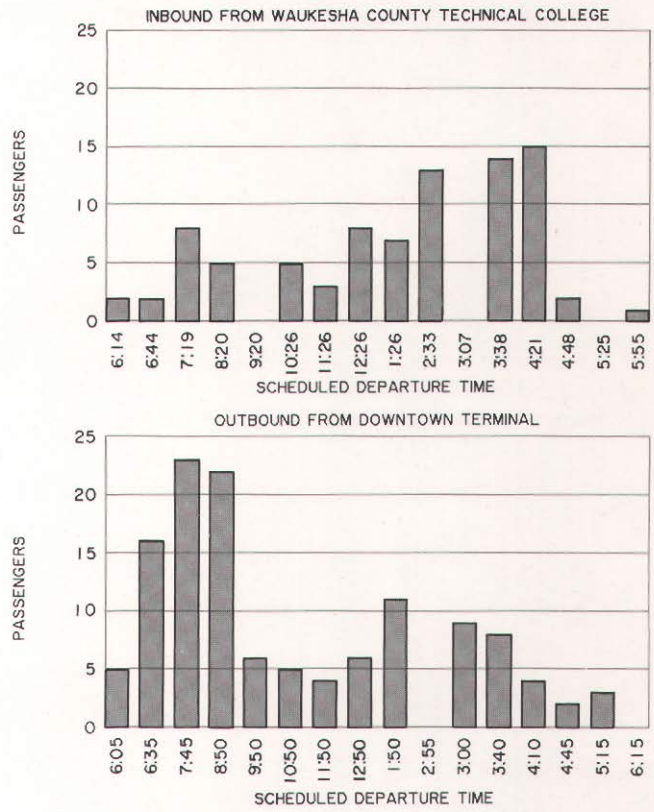
WEEKDAY BOARDING PASSENGERS ON ROUTE 8 SUMMIT: MARCH 24, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 26

WEEKDAY BOARDING PASSENGERS ON ROUTE 9 NORTHVIEW: MARCH 24, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

alignments of these routes would entail shortening the travel paths over these routes either by eliminating service to some areas of the City or adding new routes to maintain full geographic coverage of the City.

3. Routes No. 3, 7, and 8 of the transit system, as shown on Map 30, incorporate large, one-way loops at the outer end of the route alignments to maximize the areas served by each route. While this results in only a minor amount of inconvenience for passengers traveling between the outlying route termini and the Waukesha central business district, the one-way service along the loop portions of these routes can inconvenience passengers traveling between points along the loop. Reducing the size of the one-way loops or providing two-way service on these route segments would alleviate or eliminate the current inconvenience experienced by such passengers.

Bus Stop and Schedule Coordination

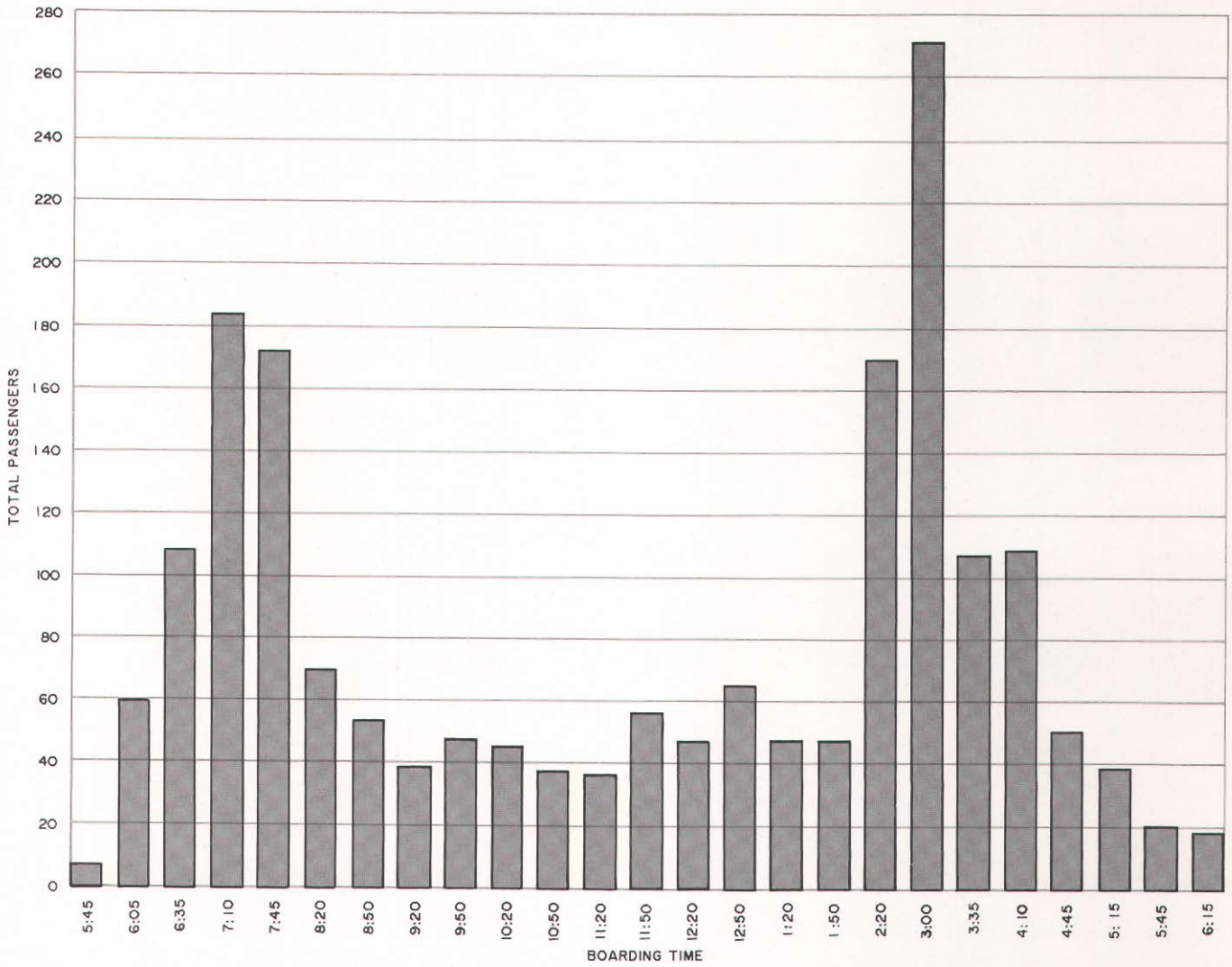
The degree to which the routes and schedules of a transit system are coordinated is an important determinant of the convenience of the transit service. This is particularly true when transfers between bus routes are required to complete a bus trip. Minimizing the inconvenience of transferring between bus routes helps to promote transit ridership.

Table 42 indicates which routes of the City of Waukesha transit system currently have coordinated arrival and departure times during the course of the service day. From the information presented in this table, the following conclusions were reached:

1. For transferring passengers, a substantial degree of coordination exists among the routes and schedules of the Waukesha transit system. This results primarily from the design of the transit system, which has all bus routes terminating at a common

Figure 27

BOARDING PASSENGERS BY TIME OF DAY ON THE CITY OF WAUKESHA TRANSIT SYSTEM: WEEKDAY—MARCH 24-31, 1988



Source: City of Waukesha Transit System Utility and SEWRPC.

transfer point in the Waukesha central business district; and the use of pulse scheduling, providing for buses operating on the routes to meet at the common transfer point at approximately the same time, thereby presenting passengers with the opportunity to transfer between bus routes with a minimum of delay.

2. Some problems do exist for transferring passengers because all bus routes do not meet at the common transfer point at the same time at all times. During weekday peak periods, bus routes are operated with both 30- and 60-minute headways. During weekday midday periods and on Saturdays, when all routes are operated with 60-minute headways, the bus routes are grouped into two sets, which depart from the central transfer terminal 30 minutes apart. Service coordination could be improved through operation of one or more bus routes with 30-minute headways all day to allow the buses on the route to meet with the buses of other routes at regular intervals at the common transfer point throughout the service day. While this service improvement could eliminate many

Table 41

TRANSIT-TO-AUTOMOBILE DISTANCES FOR TRAVEL BETWEEN SELECTED LOCATIONS SERVED BY THE CITY OF WAUKESHA TRANSIT SYSTEM: AUGUST 1988

Bus Route	Termini for Travel Distance Measurements[a]	Travel Distance (miles)							
		Inbound[b]				Outbound[c]			
		Transit	Auto	Difference (transit-auto)	Ratio (transit-to-auto)	Transit	Auto	Difference (transit-auto)	Ratio (transit-to-auto)
1. Westbrook/Target	Goerke's Corners public transit station and downtown terminal	5.8	4.0	1.8	1.45	6.2	4.0	2.2	1.55
2. Arcadian/Racine	K-Mart Department Store and downtown terminal	5.9	2.0	3.9	2.95	6.0	2.1	3.9	2.86
	Intersection of Sunset Drive/Blackhawk Trail and downtown terminal	4.5	3.0	1.5	1.48	4.7	3.0	1.7	1.57
3. Hartwell	K-Mart Department Store and downtown terminal	3.8	2.0	1.8	1.90	2.9	2.1	0.8	1.38
4. Grand	Intersection of Sentinel Drive/Madera Drive and downtown terminal	3.5	2.6	0.9	1.35	3.0	2.6	0.4	1.15
6. Prairie	K-Mart Department Store and downtown terminal	10.0	2.0	8.0	5.00	10.0	2.1	7.9	4.76
	Intersection of Waterview Lane/Haymarket Drive and downtown terminal	6.7	3.5	3.2	1.91	6.5	3.5	3.0	1.86
7. Madison	Intersection of Commanche Lane/Pendleton Place and downtown terminal	3.6	2.8	0.8	1.29	3.6	2.8	0.8	1.29
8. Summit	Intersection of University Drive/Sunkist Avenue and downtown terminal	3.3	2.9	0.4	1.14	3.2	2.9	0.3	1.10
9. Northview	Waukesha County Technical College and downtown terminal	11.7	5.2	6.5	2.25	10.0	5.2	4.8	1.92
	Intersection of Northview Road/Irving Place and downtown terminal	3.5	1.8	1.7	1.94	4.0	1.8	2.2	2.22

[a] *The downtown terminal for the transit system, which was used as the trip terminus in the central business district for all travel distance measurements, is located in the Fox River parking lot on the south side of the Fox River between N. Barstow Street and W. Broadway Street.*

[b] *Based on morning peak period travel for Routes No. 1-8, and evening peak period travel for Route No. 9.*

[c] *Based on evening peak period travel route for Routes No. 1-8, and morning peak period travel route for Route No. 9.*

Source: SEWRPC.

transfer problems noted within the Waukesha transit system, its impact upon the overall financial performance of the transit system would need to be carefully weighed.

SUMMARY

This chapter has evaluated the performance of the City of Waukesha transit system. The performance evaluation was conducted at two levels using specific performance measures related to the attainment of key transit system objectives and standards.

At the first level, an assessment of the performance was made on a systemwide basis. This assessment examined the extent to which the transit system serves the major land use centers and resident population groups within the Waukesha area. The conclusions reached from the systemwide performance assessment included:

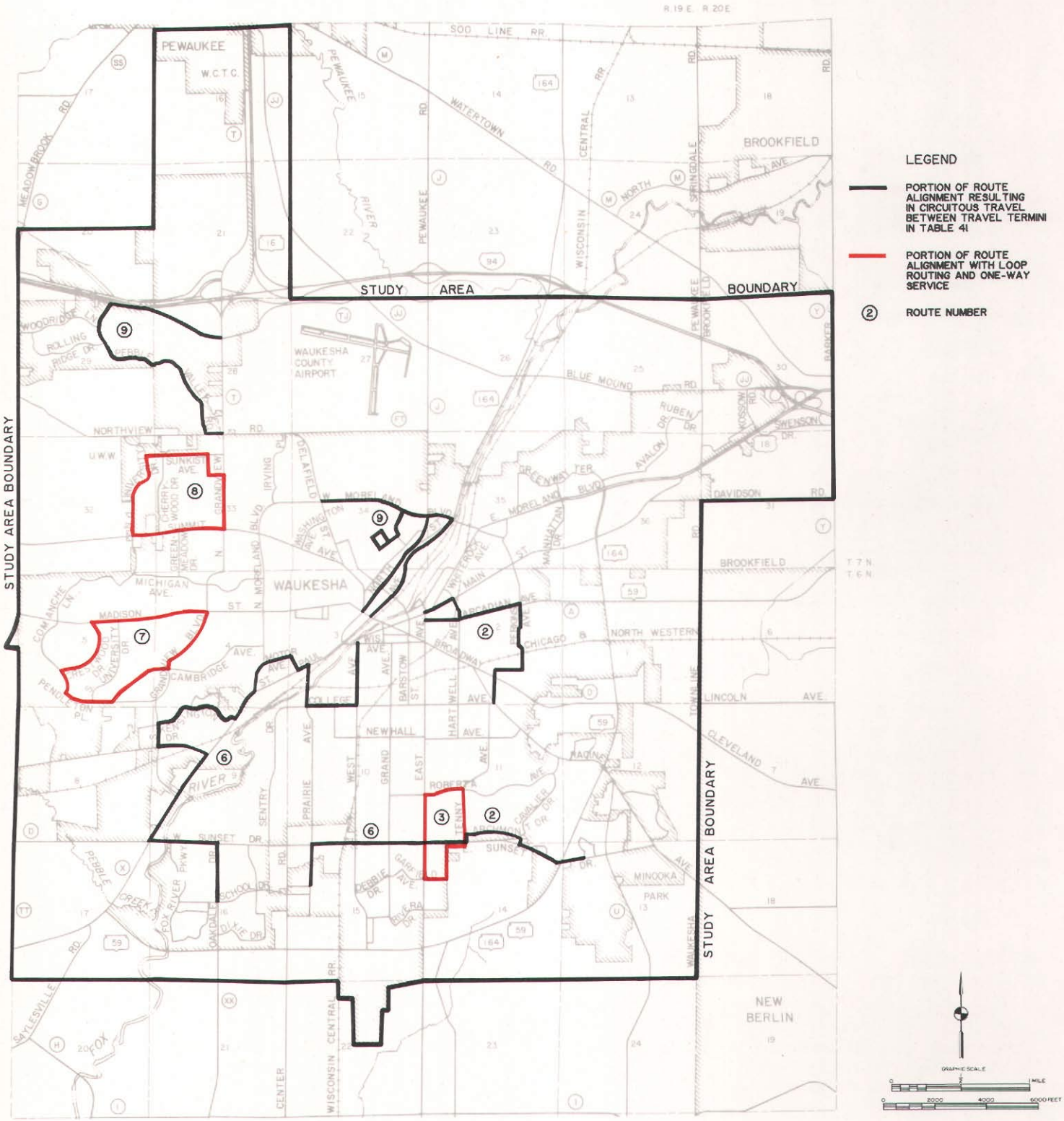
1. The existing transit system provides excellent areal coverage of the existing residential areas of the City of Waukesha.

2. The transit system also provides good coverage of the major nonresidential land use centers in the study area, serving 76 of the 100 centers identified.

3. The transit system provides excellent areal coverage of residential concentrations of transit dependent population groups and good coverage of facilities used by elderly

Map 30

ROUTE SEGMENTS NOT DIRECT IN ALIGNMENT ON THE CITY OF WAUKESHA TRANSIT SYSTEM: AUGUST 1988



Source: SEWRPC.

Table 42

COORDINATION OF BUS ARRIVAL AND DEPARTURE TIMES AT THE CENTRAL TRANSFER POINT FOR THE BUS ROUTES OPERATED BY THE WAUKESHA TRANSIT SYSTEM UTILITY: AUGUST 1988

Weekdays

Route Number[a]								Arrival Times	Departure Times	Route Number[a]							
1	2	3	4	6	7	8	9			1	2	3	4	6	7	8	9
--	X	--	X	X	X	X	--	6:02 a.m.	6:05 a.m.	X	X	X	X	--	X	X	X
X	X	X	X	X	X	X	X	6:32 a.m.	6:35 a.m.	X	X	X	X	X	X	X	X
X	--	X	X	--	X	X	X	7:07 a.m.	7:10 a.m.	X	--	X	X	--	X	X	X
X	X	X	X	X	X	X	X	7:42 a.m.	7:45 a.m.	X	X	X	X	X	X	X	X
X	--	X	X[b]	--	X	X[c]	--	8:17 a.m.	8:20 a.m.	--	--	X	X	--	--	X	X
X	X	X	X	X	--	X	X	8:47 a.m.	8:50 a.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	9:17 a.m.	9:20 a.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	9:47 a.m.	9:50 a.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	10:17 a.m.	10:20 a.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	10:47 a.m.	10:50 a.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	11:17 a.m.	11:20 a.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	11:47 a.m.	11:50 a.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	12:17 p.m.	12:20 p.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	12:47 p.m.	12:50 p.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	1:17 p.m.	1:20 p.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	1:47 p.m.	1:50 p.m.	X	X	X	--	--	--	X	--
--	--	X	--	--	X	--	--	2:17 p.m.	2:20 p.m.	--	--	--	X	--	--	X	--
X[d]	X[e]	X[f]	X	X	--	X[f]	X[d]	2:55 p.m.	3:00 p.m.	X	X	X	--[g]	X	X	X	X
--	--	X	--	X[d]	X	X	--	3:35 p.m.	3:40 p.m.	X[h]	--	--	X	X	X	X	X
X[i]	X	X	X	X	X[j]	X	X[i]	4:07 p.m.	4:10 p.m.	X	X	X	X	X	X	X	X
X	X	X	X	X	X[d]	X[d]	X[d]	4:40 p.m.	4:45 p.m.	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	5:12 p.m.	5:15 p.m.	X	X	X	X	X	X	X	X
X	--	X	X	--	X	X	X	5:42 p.m.	5:45 p.m.	X	--	X	X	--	X	X	--
X	X	X	X	X	X	X	X	6:12 p.m.	6:15 p.m.	X	X	X	X	X	X	X	X

Saturdays

Route Number[a]								Arrival Times	Departure Times	Route Number[a]							
1	2	3	4	6	7	8	9			1	2	3	4	6	7	8	9
--	--	X	--	--	X	--	--	9:17 a.m.	9:20 a.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	9:47 a.m.	9:50 a.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	10:17 a.m.	10:20 a.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	10:47 a.m.	10:50 a.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	11:17 a.m.	11:20:a.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	11:47 a.m.	11:50 a.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	12:17 p.m.	12:20 p.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	12:47 p.m.	12:50 p.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	1:17 p.m.	1:20 p.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	1:47 p.m.	1:50 p.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	2:17 p.m.	2:20 p.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	2:47 p.m.	2:50 p.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	3:17 p.m.	3:20 p.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	3:47 p.m.	3:50 p.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	4:17 p.m.	4:20 p.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	4:47 p.m.	4:50 p.m.	X	X	X	--	X	X	--	X
--	--	X	--	--	X	--	--	5:17 p.m.	5:20 p.m.	--	--	--	X	--	--	X	--
X	X	--	X	X	--	X	X	5:47 p.m.	5:50 p.m.	X	X	X	--	X	X	--	X

[a]An "X" indicates bus arrives or departs at times shown unless otherwise noted. The ability to conveniently transfer from one route to another can be ascertained by comparing the indicated arrival times for the originating route with the closest departure times indicated for the route to which the passenger is transferring.

[b]Bus arrives eight minutes before time shown.

[c]Bus arrives eight minutes before time shown on school days, and five minutes before time shown on nonschool days.

[d]Bus arrives two minutes after time shown.

[e]In addition to bus arriving at 2:55 p.m., a bus also arrives at 3:13 p.m. on school days only.

[f]Bus arrives four minutes after time shown.

[g]While no bus departs at 3:00 p.m., a bus departs at 3:13 p.m. on school days.

[h]Bus departs five minutes later than time shown.

[i]Bus arrives two minutes before time shown.

[j]Bus arrives one minute after time shown.

Source: City of Waukesha Transit System Utility and SEWRPC.

and/or handicapped persons. Nonambulatory and semi-ambulatory handicapped persons within the transit system service area are also provided with specialized door-to-door transportation service by the Metrolift Program operated by the City of Waukesha Transit System Utility.

4. The existing route structure of the transit system is unable to fully serve much of the proposed new or expanding residential, industrial, commercial, and office development within the City of Waukesha. Some routing changes will, therefore, be needed in the near future if all proposed developments are to be served.

5. The existing transit system fully serves fewer than one-half of the existing travel patterns of existing student ridership market. Routing and scheduling changes in addition to those implemented by the transit system in August 1988 should be considered to address those student trips not fully served by the transit system.

6. The overall energy efficiency of the city transit system in serving travel on an average weekday within the Waukesha area is higher than that of the private automobile. Consequently, the transit service provided by the system does reduce the use of petroleum-based motor fuels by Waukesha residents on a daily basis. Like the other transit systems within southeastern Wisconsin, the City's public transit system is more energy efficient than the automobile on its more heavily traveled routes and during peak traffic periods, but only marginally more energy efficient or, in some cases, less energy efficient, than the automobile on its more lightly traveled routes and during off-peak traffic periods.

7. The transit system may contribute to efficiency in the provision of total capacity on the transportation system by reducing peak hour automobile traffic and the potential for congestion on streets within the City of Waukesha central business district.

The second part of the performance evaluation was an assessment of the performance of each route in the transit system based upon its ridership, productivity, and financial performance. Further analyses of each route were then conducted to identify productive and nonproductive route segments, passenger loading problems, and stop and transfer coordination. The following conclusions were drawn from the assessment of route performance:

1. Certain bus routes have weekday performance levels consistently above system-wide effectiveness levels, including Routes No. 1, 3, 4, and 7, and can continue to be operated without change.

2. Other bus routes have weekday performance levels consistently below system-wide effectiveness levels for at least some of the performance measures, including Routes No. 2, 6, and 9. Service changes on these routes should be considered.

3. As some bus routes must pass through areas with little residential development or few major trip major trip generators in order to reach other residential areas or trip generators, such bus routes must be expected to perform at somewhat lower levels of efficiency than other bus routes if the transit system is to continue to provide extensive areal coverage of the Waukesha area.

4. The elimination of underutilized bus trips and reductions in the days or hours of system operation could reduce total system operating expenses as well as the public subsidy required for the transit system. However, the decision to make such changes should reflect the policy of local officials concerning the acceptable balance between what transit service levels are deemed necessary to provide a reasonable level of service for the existing market and what the total cost to the public of the transit service should be.

5. Some morning and afternoon bus trips currently carry passenger volumes which approach or exceed the capacity of the buses used, and schedule changes should, accordingly, be considered which would reduce vehicle loading problems.

6. The existing alignments of most routes of the transit system are relatively direct and result in only a minor amount of inconvenient travel. However, the existing alignments for Routes No. 2, 6, and 9 are

circuitous and, consequently, cause a significant amount of inconvenient and indirect travel between the outlying route termini and the City of Waukesha central business district. Alternatives which would correct the indirect alignments of these routes would entail shortening the travel paths over these routes either by eliminating service to some areas of the City or adding new routes to maintain full geographic coverage of the City. In addition, the large one-way loops incorporated at the outer ends of Routes No. 3, 7, and 8 can inconvenience passengers traveling between points along the loop. Reducing the size of the one-way loops on these routes or converting to two-way service on these route segments would alleviate or eliminate the current inconvenience to passengers traveling entirely along these route segments.

7. While a substantial degree of coordination exists among the routes and schedules of the Waukesha transit system, some problems do exist for transferring passengers because all bus routes do not meet at the common transfer point at the same time at all times. Coordination of schedules on the routes composing the transit system could be improved through operation of one or more bus routes with 30-minute headways all day to allow buses on these routes to meet with buses of other routes at regular intervals at the common transfer point throughout the service day.

The analyses documented in this chapter indicated that changes in the route configuration of the existing transit system will be needed if the City is to maintain its policy of providing complete geographic coverage to all areas of the City, including areas of proposed new or expanding development. The analyses also indicated that certain changes in the transit system operation could be considered to improve the overall performance of the transit system and reduce public subsidy requirements. In reviewing the feasibility of such service changes, consideration must be given not only to the potential impact upon system ridership, but also the potential impact upon the total financial requirements for, and overall financial performance of, the transit system. Alternative and recommended changes to the transit system are described in Chapter VII of this report.

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Chapter VII

ALTERNATIVE AND RECOMMENDED TRANSIT SERVICE CHANGES

INTRODUCTION

Previous chapters of this report have described the land use and travel patterns of the City of Waukesha transit planning study area and analyzed the effectiveness with which the existing public transit system serves those patterns. In addition, the ridership levels and financial performance of the transit system have been documented. All this information is intended to be used in the development and evaluation of alternative transit service modifications and improvements for the routes composing the City of Waukesha transit system. The evaluation of the alternatives developed is intended to identify those alternatives that are operationally and economically feasible, as well as politically acceptable. From among such alternatives, a recommended plan can be selected which can clearly identify the changes recommended to be made and the financial resources required to operate the changed system. This chapter describes the alternative transit service plans considered and describes those ultimately chosen by the Advisory Committee for adoption and implementation.

TRANSIT SERVICE ALTERNATIVES

Three basic transit service plans were formulated and evaluated for the City of Waukesha transit system: 1) a status quo alternative, under which no changes would be made to the existing transit system as operated in the fall of 1988; 2) an alternative proposing the addition of one new regular bus route and an expansion of present transit service to serve the student travel market better; and 3) an alternative proposing the addition of two new regular bus routes plus expanded student transit services. These three transit service alternatives propose changes to the basic geographic coverage of the transit system and the service currently provided to Waukesha area schools in response to findings presented during the performance evaluation of the existing City of Waukesha transit system. These findings indicated that some routing changes would be needed in the near future if all proposed new and expanding areas of urban development within the City were to be fully served. The performance evaluation also found that routing and scheduling changes, in addition to those implemented by the transit system in August 1988, should be considered to address those trips by students residing less than two miles from their school who are not fully served by the existing transit system. Such school trips, not served by the yellow school bus service provided by the Waukesha Unified School District, represent a potential market for the transit system.

Additional service changes which could be made under any of the basic service alternatives were also considered and evaluated for the transit system. These additional service changes included: 1) restructuring of bus service between the City of Waukesha and the Blue Mound Road corridor, including Brookfield Square Shopping Center; 2) reduction of off-peak headways on selected transit system bus routes; and 3) provision of peak hour express bus service on Route No. 9 to serve the General Electric Company Medical Systems Division plant and the Waukesha County Technical College. These additional service changes were examined at the specific request of the City of Waukesha in response to the findings of both the city transit study and the transit study conducted by the Regional Planning Commission for the Waukesha County transit system. In this respect, the analysis under both the city and county transit studies indicated a potential short-range future need for expansion of the local transit service between the City of Waukesha central business district and the Blue Mound Road corridor, including Brookfield Square Shopping Center. The performance evaluation of the city transit system also indicated that problems for passengers transferring between city bus routes at the common transfer point could be partially alleviated by reducing weekday off-peak and Saturday headways from 60 to 30 minutes on one or more bus routes to allow them to meet with the other bus routes at regular intervals throughout the service day. Finally, city staff indicated a potential need for express service on Route No. 9 between the downtown transfer terminal and the General Electric Company Medical Systems Division plant and Waukesha County Technical College to reduce travel times between these

Table 43

ASSUMPTIONS CONCERNING BASIC FACTORS AFFECTING FORECAST TRANSIT RIDERSHIP AND LOCAL FUNDS

Factor	Assumption
Motor Fuel Prices	Stable at about $1.00 per gallon throughout entire period
Transit Operating Expenses	Increase of between 2 and 3 percent in 1989 per 1989 system operating budget. Increases of about 5 percent per year per unit of service during 1990-1992
Passenger Fares	No change from 1988 fare structure
Federal Transit Assistance	Reduction in operating assistance available for City of Waukesha Transit System from about $181,400 in 1989 to $155,500 in 1992—reduction of about 5 percent per year. No change in current method used to divide available operating assistance funds between Waukesha County and the City of Waukesha. Sufficient capital assistance funds available to fund city needs for alternative service changes during entire period
State Transit Assistance	State transit operating assistance continues to be available to fund 37.5 percent of eligible operating expenses through June 30, 1989, and 38.5 percent of eligible operating expenses thereafter
Local Transit Assistance	No limits placed on local funding requirement by city government

Source: SEWRPC.

points on the route and provide better service to potential reverse commuters transferring between the city and county transit systems.

The basic assumptions concerning the factors affecting transit ridership and the required local funding for the City of Waukesha transit system which were applied in the analysis of each alternative transit service plan or service change are presented in Table 43.

Basic Alternative Transit Service Plans

The specific routing and service changes proposed under each of the basic service alternatives are summarized in Table 44. The projected ridership, financial performance, and local costs for each alternative are described in the following sections.

Alternative 1—Status Quo Alternative: This alternative service option essentially represents a baseline alternative for the City of Waukesha transit system for the period between 1988 and 1992. Under this alternative, the City would continue to operate the transit system, with the routes and service levels in effect during fall 1988 during the period 1989 through 1992. The routes and the service area coverage of the existing 1988 transit system are shown on Map 2 in Chapter II, while the operating characteristics of the existing transit system are shown in Table 45. Under this alternative, annual ridership on the transit system is projected to increase to about 393,000 revenue passengers by 1992—a 5 percent increase over the 1988 ridership of about 374,000 revenue passengers. The city share of the annual operating deficit for the

Table 44

SUMMARY OF ROUTING AND SERVICE CHANGES PROPOSED FOR CITY OF WAUKESHA TRANSIT SYSTEM UNDER BASIC SERVICE ALTERNATIVES

Basic Service Alternative	Description of Proposed Routing and Service Changes
Alternative 1—Status Quo Alternative	None
Alternative 2—One New Bus Route and Special Student Services	Proposed routing and service changes—shown on Maps 31 and 32 and in Table 48—include: 1. Changing downtown routing for Routes No. 2, 6, and 9 to directly serve an existing apartment complex for the elderly and a proposed new high rise apartment complex, both on Corrina Boulevard; and a new apartment complex at St. Paul Avenue and North Street currently under construction 2. Changing western portion of Route No. 7 to serve new single- and multi-family residential development immediately west of N. Moreland Boulevard between Madison Street and Cambridge Avenue 3. Adding a new bus route—Route No. 10—along Michigan Avenue to replace service currently provided by Route No. 7 and to expand service to new single- and multi-family residential development north of Madison Street between University Avenue and Comanche Lane 4. Reducing headways from 60 to 30 minutes on Route No. 8 weekdays between 9:00 a.m. and 3:00 p.m., and on Route No. 4 all day Saturdays 5. Adding bus trips on Routes No. 1, 2, 3, 4, 6, 7, and 9 to serve students at elementary and secondary schools within the City
Alternative 3—Two New Bus Routes and Special Student Services	Proposed routing and service changes—shown on Maps 33 and 34 and in Table 51—include: 1. Changes proposed under Alternative 2 for downtown routing of Routes No. 2, 6, and 9; for western portion of Route No. 7; for addition of new bus route along Michigan Avenue—Route No. 10; and for addition of bus trips on Routes No. 1, 2, 3, 4, 6, 7, and 9 to serve students at elementary and secondary schools within the City 2. Eliminating portion of Route No. 2 serving Minooka Park area and K-Mart Department Store in order to extend route to serve proposed new single- and multi-family residential development east of Racine Avenue between Guthrie Road and E. Sunset Drive 3. Extending Route No. 3 to replace service currently provided by Route No. 2 to Minooka Park area; and to extend service to proposed new single- and multi-family residential developments located south of Garfield Avenue between S. East Avenue and Big Bend Road; and south of E. Sunset Drive between Milky Way and Guthrie Roads 4. Splitting the existing Route No. 6 into two routes, with a new Route No. 5 created by using Prairie Avenue to connect the northern and southern portions of the current Route No. 6, thereby expanding service to existing unserved employment centers along Prairie Avenue; and a shortened Route No. 6 created by operating principally over St. Paul Avenue with service also extended west of S. Grandview Boulevard to Burrie Lane. Both routes would terminate at the Fox Run Shopping Center

Source: SEWRPC.

Table 45

OPERATING AND SERVICE CHARACTERISTICS OF CITY OF WAUKESHA BUS ROUTES UNDER ALTERNATIVE 1

Bus Route	Service Characteristic													
	Route Length (round-trip route miles)	Daily Bus Trips (one-way)			Service Frequency (minutes)				Buses Required For Daily Scheduled Services[a]				For Spare Buses	Total Fleet
		Weekdays		Saturdays	Weekdays			Saturdays	Weekdays			Saturdays		
		Schooldays	Nonschooldays		A.M. Peak	Midday Off-Peak	P.M. Peak	All Day	A.M. Peak	Midday Off-Peak	P.M. Peak	All Day		
1. Westbrook/Target	12.70	33	33	18	30/35	60	30/45	60	2.0	1.0	2.0	1.0	--	--
2. Arcadian/Racine	12.25	30	28	18	30/70	60	30/70	60	1.0	1.0	2.0	1.0	--	--
3. Hartwell	6.60	35	34	18	30/35	60	30/70	60	1.0	0.5	1.0	0.5	--	--
4. Grand	6.80	35	34	18	30/35	60	30/35	60	1.0	0.5	1.0	0.5	--	--
6. Prairie	22.65	31	29	18	65/70	60	30/60	60	1.0	1.0	2.0	1.0	--	--
7. Madison	7.80	35	34	18	30/65	60	30/40	60	1.0	0.5	1.0	0.5	--	--
8. Summit	12.20	38	36	18	30/35	60	30/40	60	1.0	0.5	1.0	0.5	--	--
9. Northview	19.85	32	31	18	30/65	60	30/60	60	2.0	1.0	2.0	1.0	--	--
Total System	100.85	269	259	144	30/70	60	30/70	60	10.0	6.0	12.0	6.0	2.0	14.0

[a] *Weekday vehicle requirements based on schoolday service needs. Fractions indicate a single vehicle is operated over two routes during a time period.*

Source: City of Waukesha Transit System Utility and SEWRPC.

Table 46

ANNUAL RIDERSHIP AND FINANCIAL PERFORMANCE OF THE CITY OF WAUKESHA TRANSIT SYSTEM UNDER ALTERNATIVE 1: 1988-1992

Operating Characteristic	Actual			Projected			
	1986	1987	1988	1989	1990	1991	1992
Annual Service Provided							
Revenue Vehicle Hours	27,630	27,310	28,530	28,350	28,350	28,350	28,590
Total Vehicle Hours	30,100	29,620	30,920	30,740	30,740	30,740	31,000
Service Productivity							
Annual Revenue Passengers	382,000	347,200	374,000	381,500	385,300	389,200	393,000
Passengers per Vehicle Hour	13.8	12.7	13.1	13.5	13.6	13.7	13.7
Service Cost							
Total Annual Operating Expenses	$931,600	$948,000	$989,200	$1,014,900	$1,065,700	$1,118,800	$1,184,800
Total Annual Operating Revenue	176,100	159,600	175,000	178,300	180,000	181,700	183,300
Total Annual Operating Deficit	755,500	788,400	814,200	836,600	885,700	937,100	1,001,500
Sources of Required Public Funds							
Federal Operating Assistance	$206,000	$226,900	$183,300	$ 181,400	$ 172,300	$ 163,700	$ 155,500
State Operating Assistance	348,900	355,300	371,000	385,700	410,300	430,700	456,100
Local Operating Assistance	200,600	206,200	259,900	269,500	303,100	342,700	389,900
Percentage Change in Required Public Funds from Previous Year							
Federal Operating Assistance	-22.8	10.1	-19.2	-1.0	-5.0	-5.0	-5.0
State Operating Assistance	16.2	1.8	4.4	4.0	6.4	5.0	5.9
Local Operating Assistance	64.3	2.8	26.0	3.7	12.5	13.1	13.8
Service Effectiveness							
Total Expense per Passenger	$2.44	$2.73	$2.65	$2.66	$2.77	$2.88	$3.02
Total Revenue per Passenger	0.46	0.46	0.47	0.47	0.47	0.47	0.47
Total Deficit per Passenger	1.98	2.27	2.18	2.19	2.30	2.41	2.55
Percent of Expenses Recovered Through Operating Revenues	18.9	16.8	17.7	17.6	16.9	16.2	15.5

Source: City of Waukesha Transit System Utility and SEWRPC.

Table 47

CAPITAL PROJECT EXPENDITURES REQUIRED FOR CITY OF WAUKESHA TRANSIT SYSTEM UNDER ALTERNATIVE 1: 1989-1992

Capital Equipment or Project		Unit Cost[a]	Total Cost[a]
Quantity	Description		
--	Miscellaneous tools and service equipment, spare parts for existing bus fleet, and office equipment	$60,000	$60,000
1	Replacement service van	$13,000	$13,000
1	Replacement service truck	$14,000	$14,000
	Total acquisition costs		$87,000
	Contingencies[b]		4,400
	Project administration[c]		1,700
	Total Capital Project Costs		$93,100
	Less costs not eligible for federal funding		$ 0
	Total capital project costs for federal grant purposes		$93,100
	Federal share of eligible capital costs[d]		$74,500
	Local share of total capital costs[e]		$18,600

[a]*Expressed in constant 1989 dollars.*

[b]*Estimated at 10 percent of total acquisition costs for buses, and 5 percent of total acquisition and construction costs for all other equipment and facilities.*

[c]*Estimated at 5 percent of total acquisition costs for buses, and 2 percent of total acquisition and construction costs for all other equipment and facilities.*

[d]*Assumes 80 percent of eligible capital costs funded through UMTA Section 9 formula grant program.*

[e]*Includes 20 percent matching funds for capital costs eligible for 80 percent federal funding.*

Source: City of Waukesha Transit System Utility and SEWRPC.

transit system would be projected to increase from about $260,000 in 1988 to about $390,000 in 1992, representing an increase of about $130,000, or 50 percent. The ridership and financial performance of the City of Waukesha transit system under this alternative is presented in Table 46.

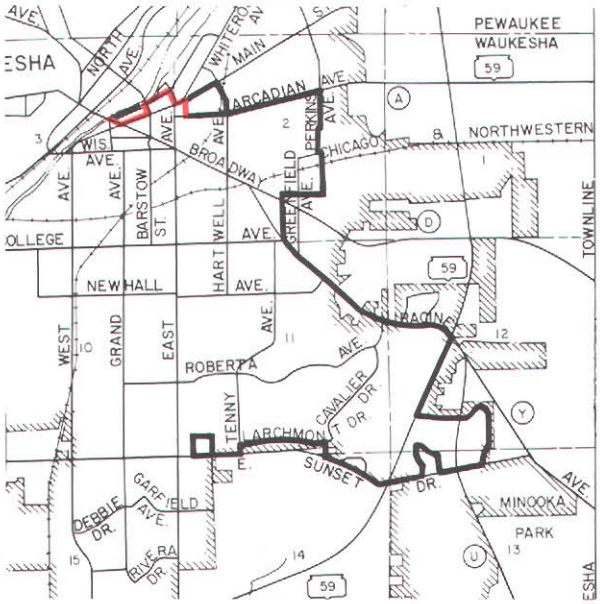
The capital projects required under this alternative to maintain the existing transit system include the purchase of miscellaneous tools, service, and office equipment; spare parts for buses; and replacement service vehicles. The total cost of these capital projects would be estimated at about $93,000, with the City's share of these projected capital project costs estimated at about $19,000. The capital projects required under this alternative and their attendant costs are shown in Table 47.

Alternative 2—One New Route and Special Student Services: This alternative proposes specific routing changes to four of the eight existing bus routes, plus the addition of a new ninth bus route to expand transit service to areas of new residential development within the City and facilities for elderly and/or handicapped persons which would be unserved by the existing transit system. Bus trips would also be added to seven of the eight existing bus routes and on the new ninth bus route to serve students who reside less than two miles from their elementary or secondary school within the City, and who, consequently, are not served by the yellow school bus service provided by the school district. Map 31 shows the specific routing changes proposed under this alternative, and Map 32 shows the specific changes in geographic coverage provided by the transit system

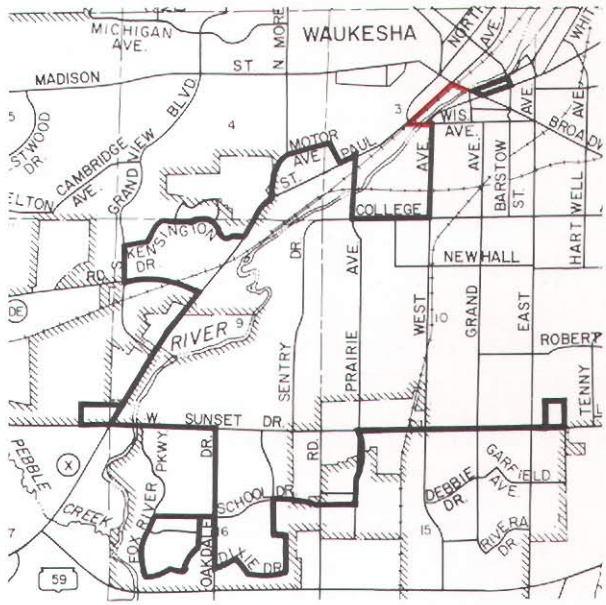
Map 31

PROPOSED CHANGES TO CITY OF WAUKESHA BUS ROUTES UNDER ALTERNATIVE 2

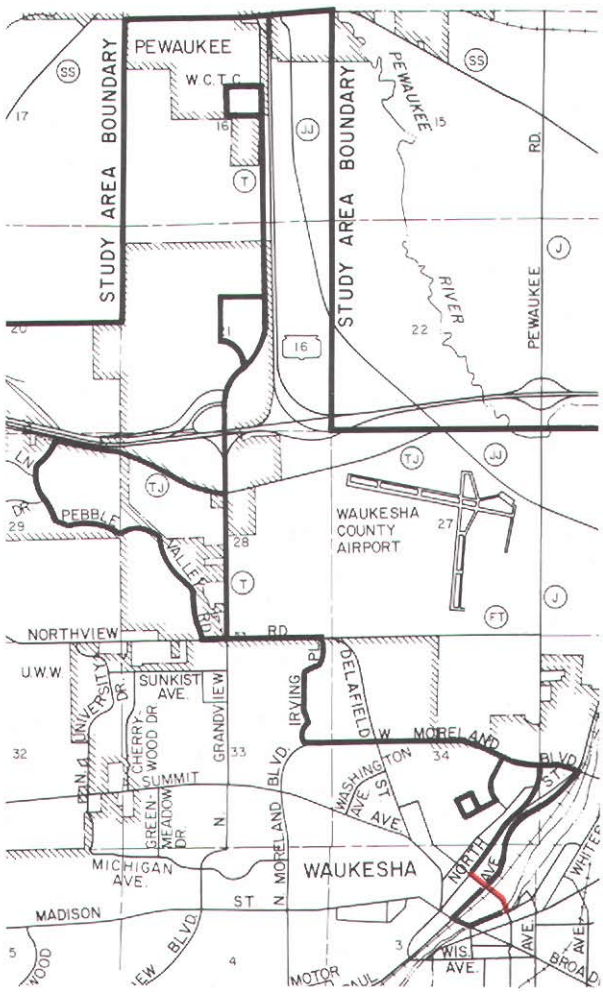
ROUTE 2 - ARCADIAN / RACINE



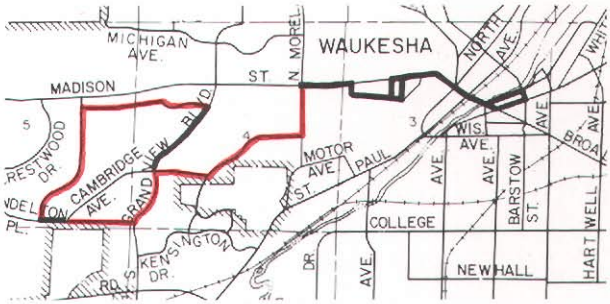
ROUTE 6 - PRAIRIE



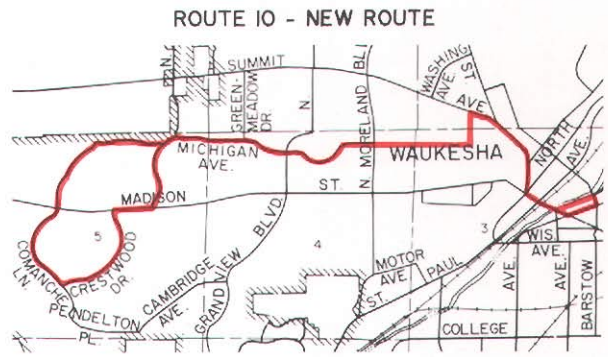
ROUTE 9 - NORTHVIEW



ROUTE 7 - MADISON



ROUTE 10 - NEW ROUTE



LEGEND

EXISTING ROUTE SEGMENT

PROPOSED ROUTE SEGMENT

Source: SEWRPC.

Table 48

OPERATING AND SERVICE CHARACTERISTICS OF CITY OF WAUKESHA BUS ROUTES UNDER ALTERNATIVE 2

Bus Route	Incremental Change from Alternative 1													
	Length (round-trip route miles)	Daily Bus Trips (one-way)			Service Frequency (minutes)				Buses Required					
		Weekdays			Weekdays			Saturdays	For Daily Scheduled Services[a]					
		Schooldays	Nonschooldays	Saturdays	A.M. Peak	Midday Off-Peak	P.M. Peak	All Day	Weekdays A.M. Peak	Weekdays Midday Off-Peak	Weekdays P.M. Peak	Saturdays All Day	For Spare Buses	Total Fleet
1. Westbrook/Target	--	4	1	--	--	--	-5	--	0.5	--	--	--	--	--
2. Arcadian/Racine	-0.05	1	--	--	--	--	--	--	--	--	0.5	--	--	--
3. Hartwell	--	1	--	--	--	--	--	--	--	--	--	--	--	--
4. Grand	--	1	--	18	--	--	--	-30	0.5	--	--	0.5	--	--
6. Prairie	-0.50	1	--	--	--	--	--	--	--	--	0.5	--	--	--
7. Madison	-0.35	2	--	--	--	--	--	--	--	--	--	--	--	--
8. Summit	--	12	12	--	--	-30	--	--	--	0.5	--	--	--	--
9. Northview	0.15	4	--	--	--	--	--	--	1.0	--	--	--	--	--
10. New Route	7.45	32	32	18	30/70	60	30/35	60	1.0	0.5	1.0	0.5	--	--
Total System	6.70	58	45	36	--	--	--	--	3.0	1.0	2.0	1.0	--	2.0

Bus Route	Service Characteristics Under Alternative 2													
	Length (round-trip route miles)	Daily Bus Trips (one-way)			Service Frequency (minutes)				Buses Required					
		Weekdays			Weekdays			Saturdays	For Daily Scheduled Services[a]					
		Schooldays	Nonschooldays	Saturdays	A.M. Peak	Midday Off-Peak	P.M. Peak	All Day	Weekdays A.M. Peak	Weekdays Midday Off-Peak	Weekdays P.M. Peak	Saturdays All Day	For Spare Buses	Total Fleet
1. Westbrook/Target	12.70	37	34	18	30/35	60	30/40	60	2.5	1.0	2.0	1.0	--	--
2. Arcadian/Racine	12.20	31	28	18	30/70	60	35/60	60	1.0	1.0	2.5	1.0	--	--
3. Hartwell	6.60	36	34	18	30/35	60	30/70	60	1.0	0.5	1.0	0.5	--	--
4. Grand	6.80	36	34	36	30/35	60	30/35	30	1.5	0.5	1.0	1.0	--	--
6. Prairie	22.15	32	29	18	65/70	60	30/60	60	1.0	1.0	2.5	1.0	--	--
7. Madison	7.45	37	34	18	30/65	60	30/40	60	1.0	0.5	1.0	0.5	--	--
8. Summit	12.20	50	48	18	30/35	30	30/40	60	1.0	1.0	1.0	0.5	--	--
9. Northview	20.00	36	31	18	30/65	60	30/60	60	3.0	1.0	2.0	1.0	--	--
10. New Route	7.45	32	32	18	30/70	60	30/35	60	1.0	0.5	1.0	0.5	--	--
Total System	107.55	327	304	180	30/70	30/60	30/70	30/60	13.0	7.0	14.0	7.0	2.0	16.0

[a]*Weekday vehicle requirements based on schoolday service needs. Fractions indicate a single vehicle is operated over two routes during a time period.*

Source: City of Waukesha Transit System Utility and SEWRPC.

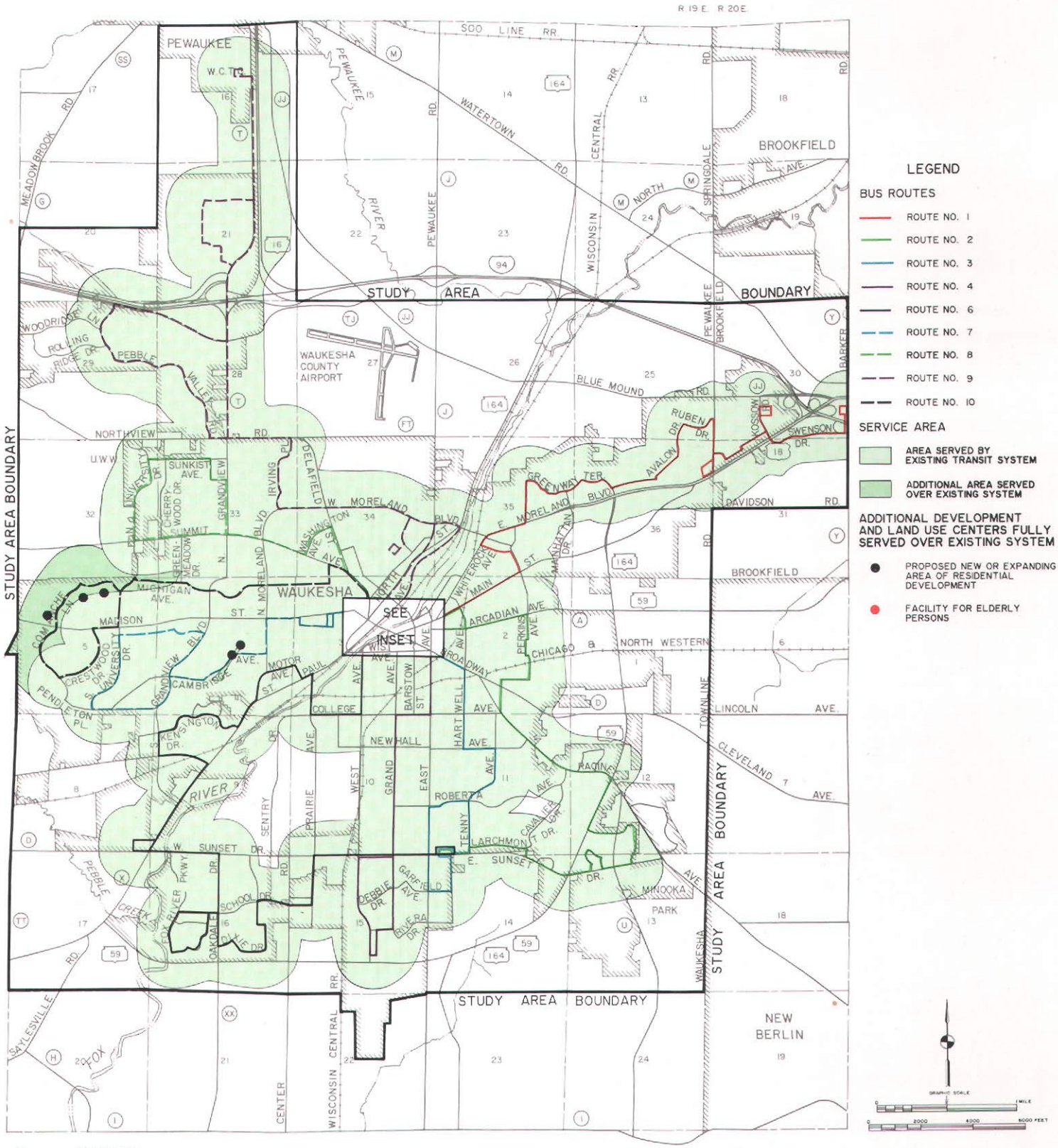
with the revised route structure. The proposed changes to the operating and service characteristics of each route on the transit system are presented in Table 48.

The proposed changes to the transit system would result in a 16 percent increase in the annual revenue vehicle hours of service provided by the existing system in 1988. With this service increase, annual ridership on the system would be projected to increase to about 454,000 revenue passengers in 1992, representing an increase of about 61,000 revenue passengers, or 16 percent over the 1992 ridership with the existing transit system under Alternative 1. The City's share of the annual operating deficit would be projected to increase from $260,000 in 1988 to about $416,000 in 1992, representing an increase of $156,000, or 60 percent over the existing 1988 city operating subsidy; and an increase of about $26,000, or 7 percent over the city funds required in 1992 under Alternative 1. The projected ridership and financial performance of the transit system under this alternative is shown in Table 49.

Implementation of all routing and service changes would ultimately require the City to purchase two new buses and other related equipment, with the new vehicles assumed to be

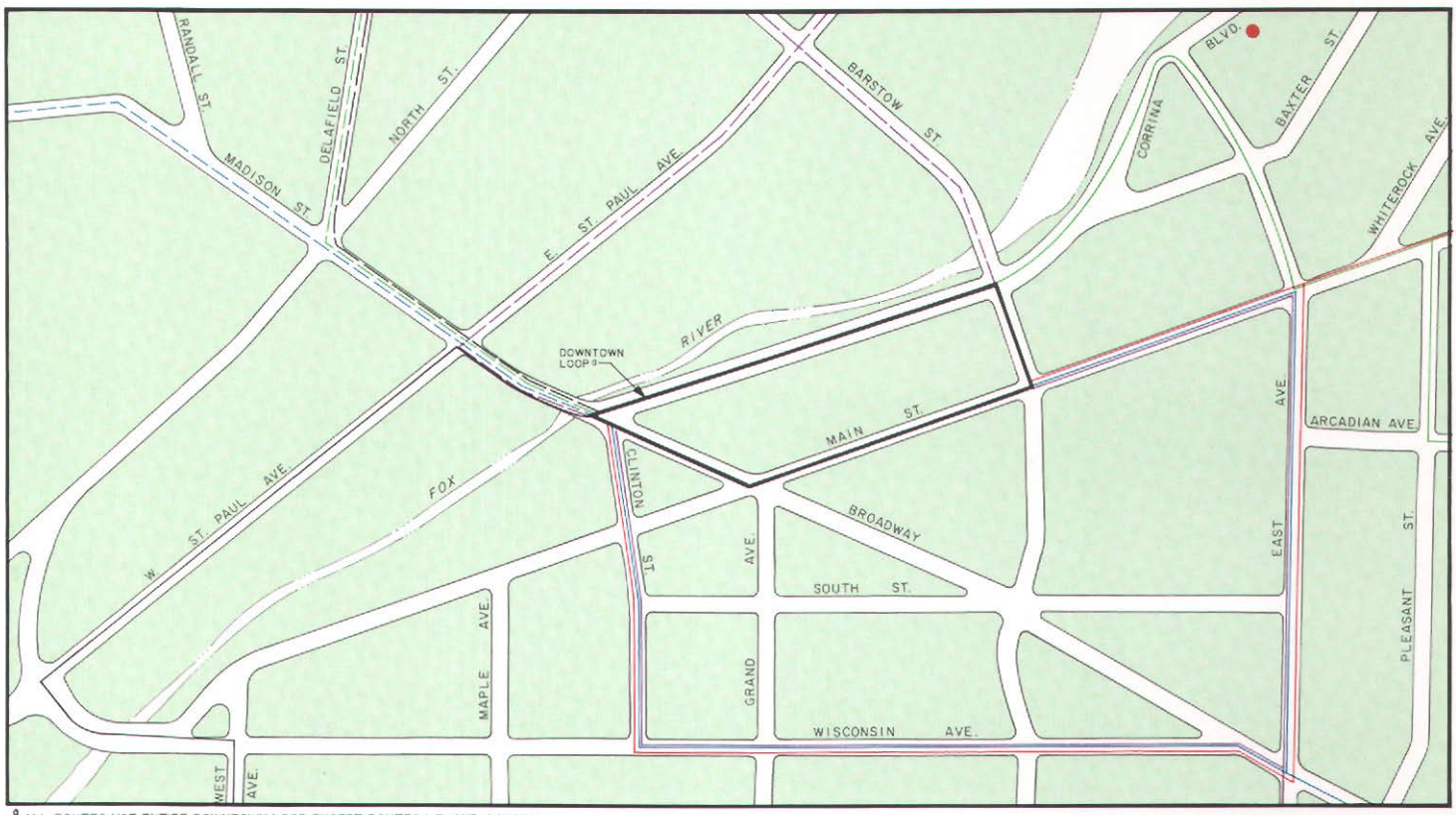
Map 32

BUS ROUTES PROPOSED TO BE OPERATED BY THE WAUKESHA TRANSIT SYSTEM UTILITY UNDER ALTERNATIVE 2



Source: SEWRPC.

Map 32 Inset



[9] ALL ROUTES USE ENTIRE DOWNTOWN LOOP EXCEPT ROUTES 1, 3, AND 4 WHICH ONLY USE BARSTOW STREET AND THE RIVER PARKING LOT AND ROUTE 9 WHICH USES ONLY THE RIVER PARKING LOT.

available by 1991. All routing and service changes have, however, been assumed to be implemented in 1990, using leased vehicles. The total costs of the capital projects required under this alternative are estimated at $395,000. The City's share of these total costs, assuming use of federal formula capital assistance funds to cover 80 percent of the total costs, would be $82,000. This would represent an increase of $63,000 over the City's share of total capital costs required to maintain the existing transit system under Alternative 1. The capital projects and related costs for this alternative are shown in Table 50.

Alternative 3—Two New Bus Routes and Special Student Services: This alternative includes the same changes proposed under Alternative 2 for modification to the routing of existing Routes No. 2, 6, 7, and 9 and the addition of a new ninth bus route along Michigan Avenue, and for the addition of bus trips on seven of the eight existing routes and the new ninth route to serve students at elementary and secondary schools within the City who are not provided with yellow school bus service. In addition, this alternative proposes that existing Routes No. 2, 3, and 6 be further modified, and that a second new route be created to fully serve all areas of new and expanding development which have been identified within the City. The specific routing changes proposed under this alternative are shown on Map 33, and the change in geographic coverage provided by the modified route structure is shown on Map 34. The changes in the operating characteristics of each route in the transit system under this alternative are shown in Table 51.

With the proposed service changes, service levels on the transit system would be increased by about 25 percent over those provided by the existing transit system in 1988. Annual ridership on the transit system would be expected to increase to about 470,000 revenue passengers by

Table 49

ANNUAL RIDERSHIP AND FINANCIAL PERFORMANCE OF THE CITY OF WAUKESHA TRANSIT SYSTEM UNDER ALTERNATIVE 2: 1988-1992

Operating Characteristic	Actual 1988	Projected									
		Under Alternative 1				Under Alternative 2					
						Incremental Change			Total System		
		1989	1990	1991	1992	1990	1991	1992	1990	1991	1992
Annual Service Provided											
Revenue Vehicle Hours	28,530	28,350	28,350	28,350	28,590	4,440	4,440	4,470	32,790	32,790	33,060
Total Vehicle Hours	30,920	30,740	30,740	30,740	31,000	4,820	4,820	4,850	35,560	35,560	35,850
Service Productivity											
Annual Revenue Passengers	374,000	381,500	385,300	389,200	393,000	56,500	59,400	61,100	441,800	448,600	454,100
Passengers per Revenue Hour	13.1	13.5	13.6	13.7	13.7	12.7	13.4	13.7	13.5	13.7	13.7
Service Cost											
Total Annual Operating Expenses	$989,200	$1,014,900	$1,065,700	$1,118,800	$1,184,800	$100,000	$79,700	$84,200	$1,165,700	$1,198,500	$1,269,000
Total Annual Operating Revenue	175,000	178,300	180,000	181,700	183,300	23,500	24,800	25,500	203,500	206,500	208,800
Total Annual Operating Deficit	814,200	836,600	885,700	937,100	1,001,500	76,500	54,900	58,700	962,200	992,000	1,060,200
Sources of Required Public Funds											
Federal Operating Assistance	$183,300	$ 181,400	$ 172,300	$ 163,700	$ 155,500	$ 0	$ 0	$ 0	$ 172,300	$ 163,700	$ 155,500
State Operating Assistance	371,000	385,700	410,300	430,700	456,100	38,500	30,700	32,400	448,800	461,400	488,500
Local Operating Assistance	259,900	269,500	303,100	342,700	389,900	38,000	24,200	26,300	341,100	366,900	416,200
Percentage Change in Required Public Funds from Previous Year											
Federal Operating Assistance	-19.2	-1.0	-5.0	-5.0	-5.0	0.0	0.0	0.0	-5.0	-5.0	-5.0
State Operating Assistance	4.4	4.0	6.4	5.0	5.9	10.0	7.5	7.5	16.4	12.5	13.4
Local Operating Assistance	26.0	3.7	12.5	13.1	13.8	14.1	8.0	7.7	26.6	21.0	21.4
Service Effectiveness											
Total Expense per Passenger	$2.65	$2.66	$2.77	$2.88	$3.02	$1.77	$1.34	$1.38	$2.64	$2.67	$2.79
Total Revenue per Passenger	0.47	0.47	0.47	0.47	0.47	0.42	0.42	0.42	0.46	0.46	0.46
Total Deficit per Passenger	2.18	2.19	2.30	2.41	2.55	1.35	0.92	0.96	2.18	2.21	2.33
Percent of Expenses Recovered Through Operating Expenses	17.7	17.6	16.9	16.2	15.5	23.5	31.1	30.3	17.5	17.2	16.5

Source: City of Waukesha Transit System Utility and SEWRPC.

1992, representing a total increase of abut 77,000 revenue passengers, or 20 percent over the 1992 ridership with the existing transit system under Alternative 1. The City's share of the annual transit system operating deficit would be expected to increase from about $260,000 in 1988 to about $438,000 in 1992, representing an increase of $178,000, or 68 percent over the existing 1988 city operating subsidy; and an increase of $48,000, or 12 percent over the city funds required in 1992 under Alternative 1. The ridership and financial performance of the transit system under this alternative is presented in Table 52.

Implementation of all proposed routing and service changes for this alternative would ultimately require the City to purchase three new buses and other related operating equipment, with the new vehicles assumed to be available by 1991. As under Alternative 2, all changes for this alternative have been assumed to be implemented in 1990 using leased vehicles. The total cost of the required capital projects for this alternative are estimated at about $545,000. The City's share of these total capital costs, assuming use of available federal capital assistance funds, would be estimated at about $114,000, representing an increase of about $95,000 over the City's share of the total capital project costs for the existing transit system under Alternative 1. The capital projects and related costs required for this alternative are shown in Table 53.

Additional Service Changes

A description of the additional service changes which could be implemented under any of the three basic service alternatives for the City of Waukesha transit system is presented in Table 54. The projected ridership, financial performance, and local costs for each service change are described in the following sections.

Restructured Bus Service Between Waukesha and Blue Mound Road Corridor: This service change is based upon analyses conducted under

Table 50

CAPITAL PROJECT EXPENDITURES REQUIRED FOR CITY OF WAUKESHA TRANSIT SYSTEM UNDER ALTERNATIVE 2

Capital Equipment or Project		Unit Cost[a]	Total Cost[a]
Quantity	Description		
2	35-foot-long air-conditioned urban motor coaches	$126,000	$252,000
--	Tools and diagnostic equipment for new buses	2,700	2,700
2	Nonregistering locked double-vault fareboxes	700	1,400
2	Mobile radio units	1,700	3,400
2	Electric message signs	300	600
50	Bus stop signs	70[b]	3,500
--	Capital projects required under Alternative 1 to maintain the existing system[c]	87,000	87,000
	Total acquisition and construction costs		$350,600
	Contingencies[d]		30,100
	Project administration[e]		14,600
	Total Capital Project Costs		$395,300
	Less costs not eligible for federal funding[f]		$ 3,700
	Total capital project costs for federal grant purposes		$391,600
	Federal share of eligible capital costs[g]		$313,300
	Local share of total capital costs[h]		$ 82,000

[a] *Expressed in constant 1989 dollars.*

[b] *Installed.*

[c] *See Table 47.*

[d] *Estimated at 10 percent of total acquisition costs for buses, and 5 percent of total acquisition and construction costs for all other equipment and facilities.*

[e] *Estimated at 5 percent of total acquisition costs for buses, and 2 percent of total acquisition and construction costs for all other equipment and facilities.*

[f] *Includes costs for bus stop signs with related contingency and project administration costs.*

[g] *Assumes 80 percent of eligible capital costs funded through UMTA Section 9 formula grant program.*

[h] *Includes 20 percent matching funds for capital costs eligible for 80 percent federal funding plus 100 percent of capital costs not eligible for federal funding.*

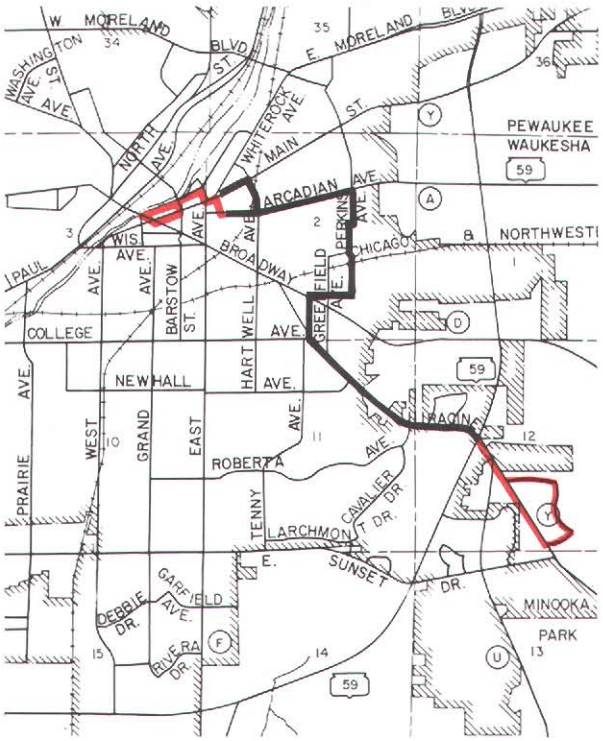
Source: City of Waukesha Transit System Utility and SEWRPC.

the transit studies for the City of Waukesha and Waukesha County transit systems, which identified a potential short-range future need to improve local transit service in the Blue Mound Road corridor for trips between Waukesha and the corridor, including the Brookfield Square Shopping Center; and also to separate local transit service from the rapid transit service provided between the Milwaukee central business district and the City of Waukesha central business district. At the present time, both the City of Waukesha and Waukesha County transit systems operate routes which provide local or express transit service between downtown Waukesha and Goerke's Corners, with the city bus route terminating at Goerke's Corners and

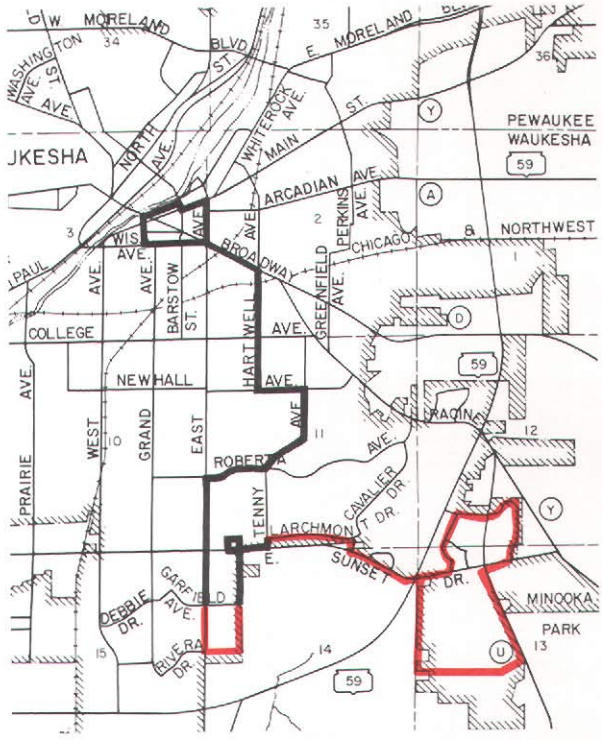
Map 33

PROPOSED CHANGES TO CITY OF WAUKESHA BUS ROUTES UNDER ALTERNATIVE 3

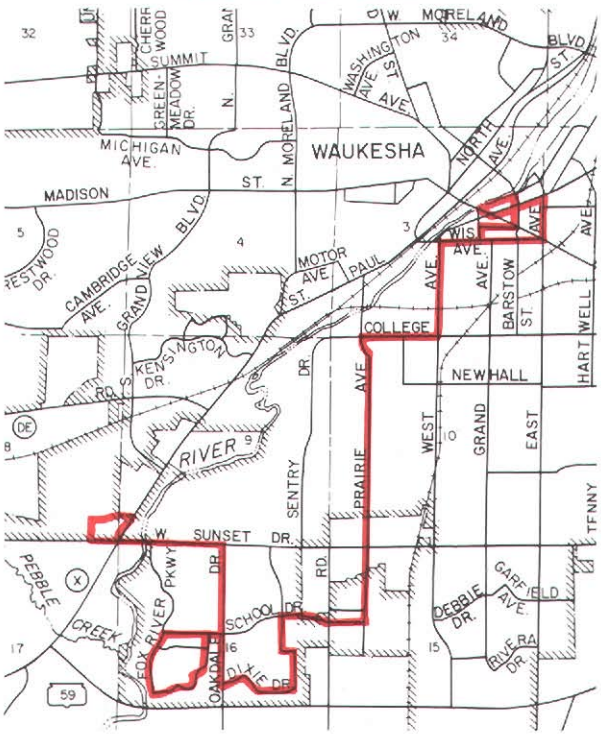
ROUTE 2 - ARCADIAN/RACINE



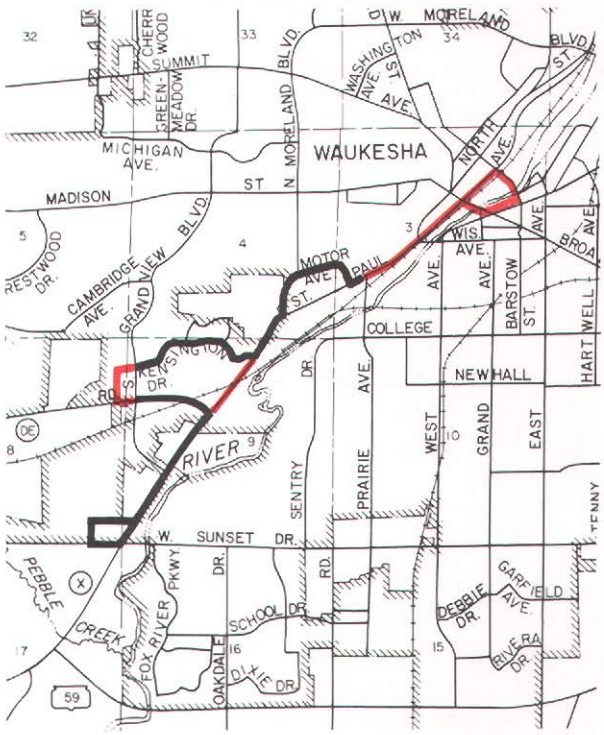
ROUTE 3 - HARTWELL



ROUTE 5 - NEW ROUTE

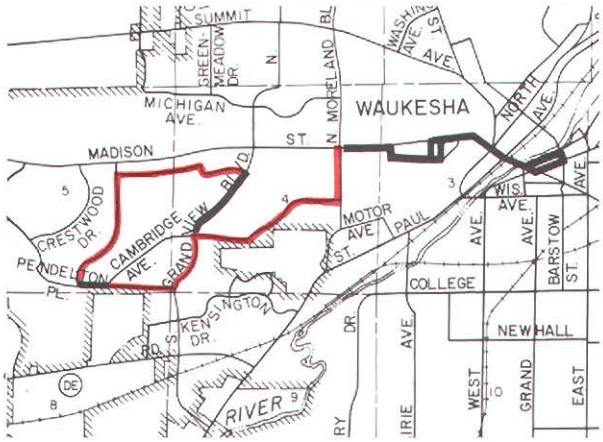


ROUTE 6 - PRAIRIE

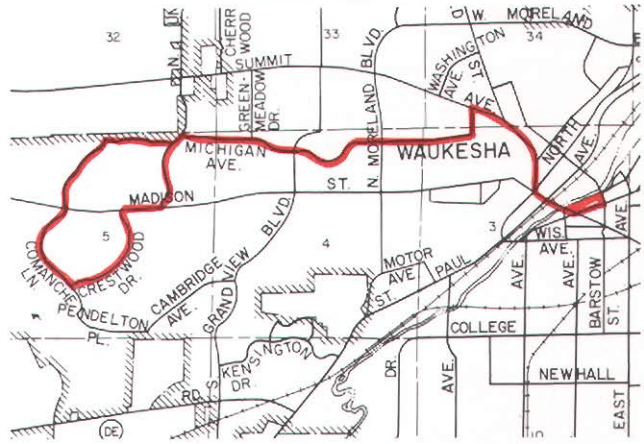


Map 33 (continued)

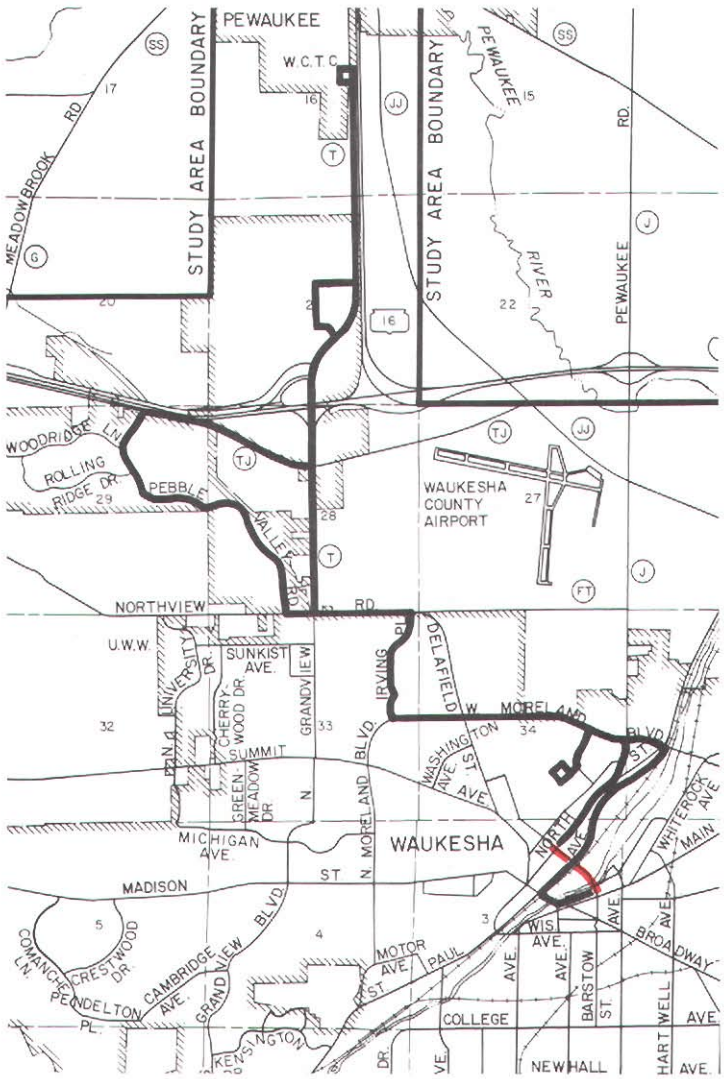
ROUTE 7 - MADISON



ROUTE 10 - NEW ROUTE



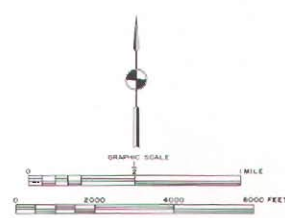
ROUTE 9 - NORTHVIEW



LEGEND

EXISTING ROUTE SEGMENT

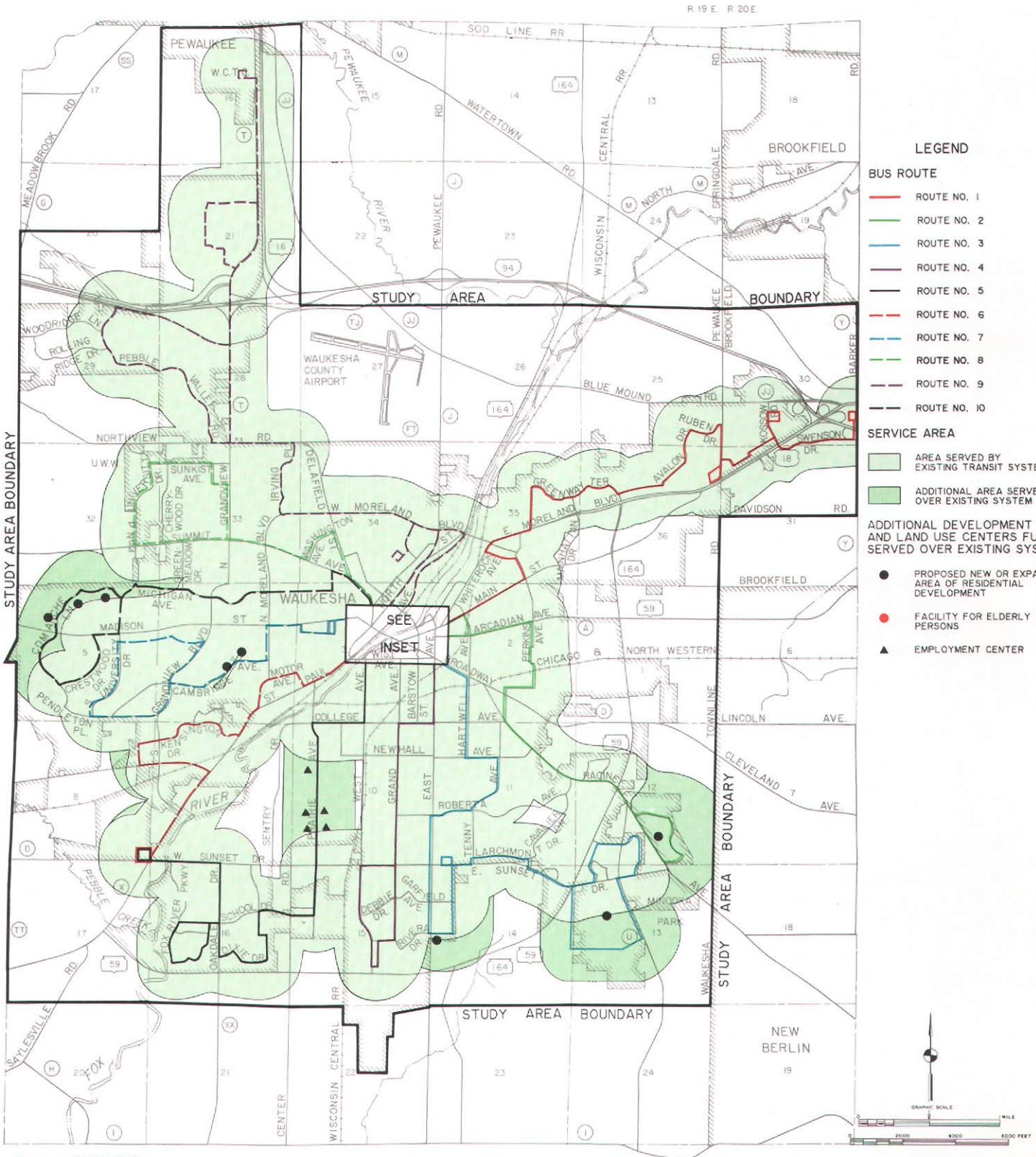
PROPOSED ROUTE SEGMENT



Source: SEWRPC.

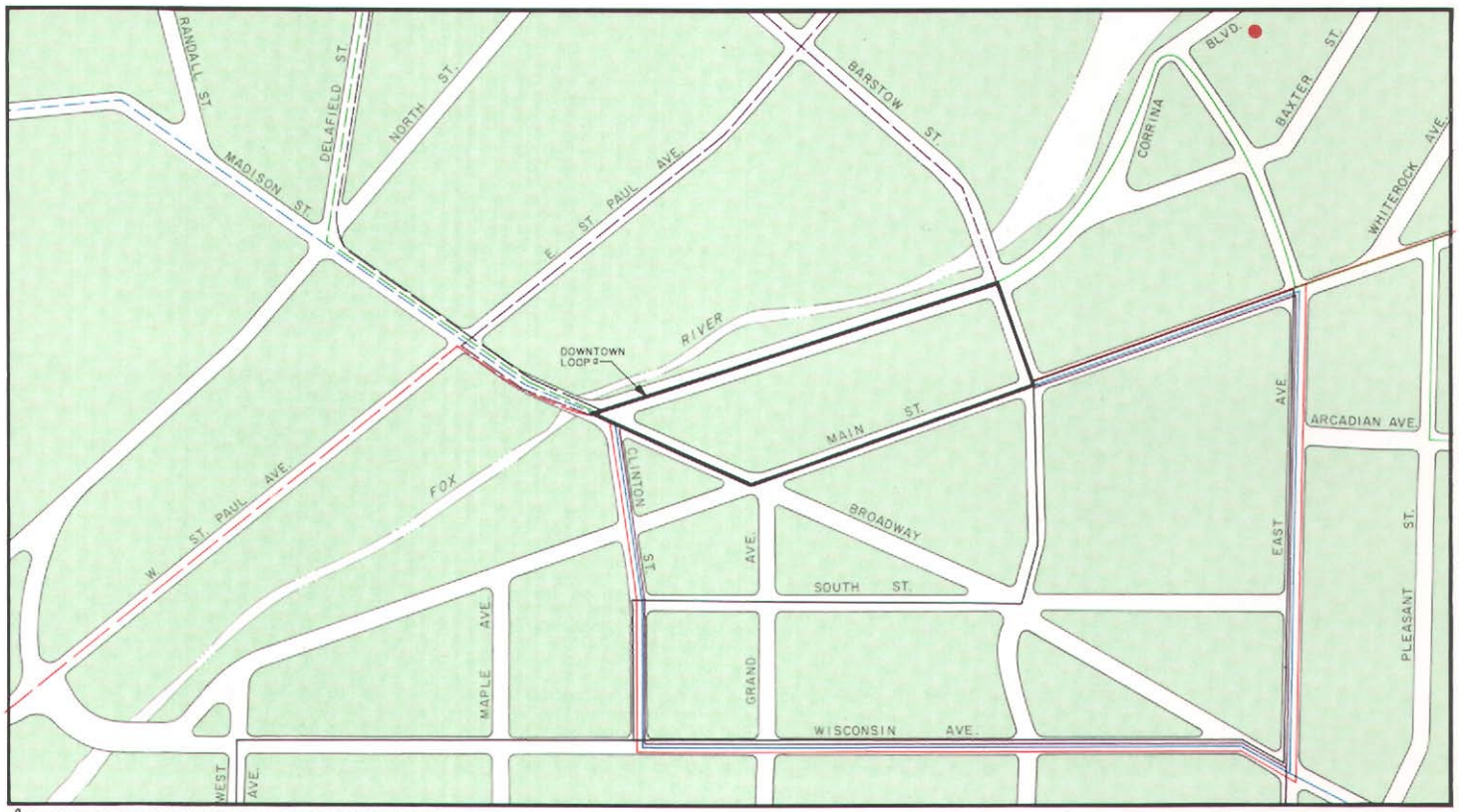
Map 34

BUS ROUTES PROPOSED TO BE OPERATED BY THE WAUKESHA TRANSIT SYSTEM UTILITY UNDER ALTERNATIVE 3



Source: SEWRPC.

Map 34 Inset



[9] ALL ROUTES USE ENTIRE DOWNTOWN LOOP EXCEPT ROUTES 1, 3, AND 4 WHICH ONLY USE BARSTOW STREET AND THE RIVER PARKING LOT AND ROUTE 9 WHICH USES ONLY THE RIVER PARKING LOT.

the county bus route continuing on to the Blue Mound Road corridor and the Brookfield Square Shopping Center and, ultimately, the Milwaukee central business district. This service change proposes that the City and the County agree to combine the two separate transit services into one bus service between downtown Waukesha and Brookfield Square.

Implementation of the proposed service improvement will require agreement between the County and the City on matters related to the administration, operation, and funding of the joint bus route. With respect to administration, a decision will need to be made concerning the lead agency for overseeing the operation of the single route and the applicant for federal and state transit assistance funds. While either the City or County could assume this responsibility, city administration of the service would be the most practical as the City has the necessary staff with expertise in transit service operations, planning, and grant management. City administration of the route would also be logical, as the route would serve to link city residents with the businesses, commercial development, and employment opportunities within the Blue Mound Road corridor. In order for the route to be effective in providing this service, it should be fully coordinated with, and integrated into, the city transit system.

With respect to how the service should be provided and who should be the transit operator for the route, a decision on these matters should be based on an assessment of service proposals—such as one which would be made through a competitive procurement process—submitted by the current county private transit operator, by other private transit operators, and by the City of Waukesha transit system. A final decision could then be made after considering both the quality and the cost of the service proposed to be provided by the prospective transit operators.

Table 51

OPERATING AND SERVICE CHARACTERISTICS OF CITY OF WAUKESHA BUS ROUTES UNDER ALTERNATIVE 3

Bus Route	Incremental Change from Alternative 1													
	Length (round-trip route miles)	Daily Bus Trips (one-way)			Service Frequency (minutes)				Buses Required					
		Weekdays			Weekdays			Saturdays	For Daily Scheduled Services[a]				For Spare Buses	Total Fleet
		Schooldays	Nonschooldays	Saturdays	A.M. Peak	Midday Off-Peak	P.M. Peak	All Day	Weekdays A.M. Peak	Weekdays Midday Off-Peak	Weekdays P.M. Peak	Saturdays All Day		
1. Westbrook/Target	--	4	1	--	--	--	-5	--	0.5	--	--	--	--	--
2. Arcadian/Racine	-4.25	1	--	--	-5	--	--	--	--	-0.5	1.0	-0.5	--	--
3. Hartwell	7.00	2	-2	--	30	--	-25	--	1.0	0.5	1.5	0.5	--	--
4. Grand	--	2	--	18	--	--	--	--	0.5	--	--	--	--	--
5. New Route	14.40	32	29	--	65/70	60	30/60	60	1.5	1.0	2.5	1.0	--	--
6. Fox Run	-14.20	4	1	--	--	--	--	--	--	-0.5	-1.0	-0.5	--	--
7. Madison	0.35	2	-2	--	--	--	--	--	--	--	--	--	--	--
8. Summit	--	--	5	--	--	--	--	--	--	--	--	--	--	--
9. Northview	0.15	4	31	--	--	--	--	--	0.5	--	--	--	--	--
10. New Route	7.45	32	32	18	30/70	60	30/35	60	1.0	0.5	1.0	0.5	--	--
Total System	10.20	83	66	36	--	--	--	--	5.0	1.0	3.0	1.0	--	3.0

Bus Route	Service Characteristics Under Alternative 3													
	Length (round-trip route miles)	Daily Bus Trips (one-way)			Service Frequency (minutes)				Buses Required					
		Weekdays			Weekdays			Saturdays	For Daily Scheduled Services[a]				For Spare Buses	Total Fleet
		Schooldays	Nonschooldays	Saturdays	A.M. Peak	Midday Off-Peak	P.M. Peak	All Day	Weekdays A.M. Peak	Weekdays Midday Off-Peak	Weekdays P.M. Peak	Saturdays All Day		
1. Westbrook/Target	12.70	37	34	18	30/35	60	30/35	60	2.5	1.0	2.0	1.0	--	--
2. Arcadian/Racine	8.00	31	28	18	30/65	60	30/70	60	1.0	0.5	1.0	0.5	--	--
3. Hartwell	13.60	37	32	18	30/65	60	30/45	60	2.0	1.0	2.5	1.0	--	--
4. Grand	6.80	37	34	18	30/35	60	30/35	60	1.5	0.5	1.0	0.5	--	--
5. New Route	14.40	32	29	18	65/70	60	30/60	60	1.5	1.0	2.5	1.0	--	--
6. Fox Run	8.45	35	35	18	30/65	60	30/40	60	1.0	0.5	1.0	0.5	--	--
7. Madison	7.45	37	34	18	30/65	60	30/40	60	1.0	0.5	1.0	0.5	--	--
8. Summit	12.20	38	36	18	30/35	60	30/40	60	1.0	0.5	1.0	0.5	--	--
9. Northview	20.00	36	31	18	30/65	60	30/60	60	2.5	1.0	2.0	1.0	--	--
10. New Route	7.45	32	32	18	30/70	60	30/35	60	1.0	0.5	1.0	0.5	--	--
Total System	111.05	352	325	180	30/70	60	30/70	60	15.0	7.0	15.0	7.0	2.0	17.0

[a] *Weekday vehicle requirements based on schoolday service needs. Fractions indicate a single vehicle is operated over two routes during a time period.*

Source: City of Waukesha Transit System Utility and SEWRPC.

Finally, both the City and County should agree to jointly fund the combined city-county bus service. Since the City currently funds the operation of its local bus route within the City between downtown Waukesha and Goerke's Corners, and the proposed joint city-county bus routes within the Blue Mound Road corridor would replace the service provided to city residents by the existing city route, it would be reasonable for the City to provide funding for the portion of the proposed combined city-county route operated between downtown Waukesha and Goerke's Corners. It would be reasonable for the County to provide funding for the portion of the proposed route within the corridor which would replace the existing service provided by the county subsidized route operated between Goerke's Corners and the Brookfield Square Shopping Center.

The proposed joint Waukesha County-City of Waukesha bus routes between downtown Waukesha and the Brookfield Square Shopping Center is shown on Map 35. The potential change to the

Table 52

ANNUAL RIDERSHIP AND FINANCIAL PERFORMANCE OF THE CITY OF WAUKESHA TRANSIT SYSTEM UNDER ALTERNATIVE 3: 1988-1992

Operating Characteristic	Actual 1988	Projected									
		Under Alternative 1				Under Alternative 3					
						Incremental Change			Total System		
		1989	1990	1991	1992	1990	1991	1992	1990	1991	1992
Annual Service Provided											
Revenue Vehicle Hours	28,530	28,350	28,350	28,350	28,590	6,900	6,900	6,950	35,250	35,250	35,540
Total Vehicle Hours	30,920	30,740	30,740	30,740	31,000	7,480	7,480	7,540	38,220	38,220	38,540
Service Productivity											
Annual Revenue Passengers	374,000	381,500	385,300	389,200	393,000	70,000	74,300	76,800	455,300	463,500	469,800
Passengers per Revenue Hour	13.1	13.5	13.6	13.7	13.7	10.1	10.8	11.1	12.9	13.1	13.2
Service Cost											
Total Annual Operating Expenses	$989,200	$1,014,900	$1,065,700	$1,118,800	$1,184,800	$153,900	$123,800	$131,000	$1,219,600	$1,242,600	$1,315,800
Total Annual Operating Revenue	175,000	178,300	180,000	181,700	183,300	29,500	31,400	32,500	209,500	213,100	215,800
Total Annual Operating Deficit	814,200	836,600	885,700	937,100	1,001,500	124,400	92,400	98,500	1,010,100	1,029,500	1,100,000
Sources of Required Public Funds											
Federal Operating Assistance	$183,300	$ 181,400	$ 172,300	$ 163,700	$ 155,500	$ 0	$ 0	$ 0	$ 172,300	$ 163,700	$ 155,500
State Operating Assistance	371,000	385,700	410,300	430,700	456,100	59,300	47,700	50,400	469,600	478,400	506,500
Local Operating Assistance	259,900	269,500	303,100	342,700	389,900	65,100	44,700	48,100	368,200	387,400	438,000
Percentage Change in Required Public Finds from Previous Year											
Federal Operating Assistance	-19.2	-1.0	-5.0	-5.0	-5.0	0.0	0.0	0.0	-5.0	-5.0	-5.0
State Operating Assistance	4.4	4.0	6.4	5.0	5.9	15.4	11.6	11.7	21.8	16.6	17.6
Local Operating Assistance	26.0	3.7	12.5	13.1	13.8	24.1	14.7	14.0	36.6	27.8	27.8
Service Effectiveness											
Total Expense per Passenger	$2.65	$2.66	$2.77	$2.88	$3.02	$2.20	$1.66	$1.70	$2.68	$2.68	$2.80
Total Revenue per Passenger	0.47	0.47	0.47	0.47	0.47	0.42	0.42	0.42	0.46	0.46	0.46
Total Deficit per Passenger	2.18	2.19	2.30	2.41	2.55	1.78	1.24	1.28	2.22	2.22	2.34
Percent of Expenses Recovered Through Operating Expenses	17.7	17.6	16.9	16.2	15.5	19.2	25.4	24.8	17.2	17.1	16.4

Source: City of Waukesha Transit System Utility and SEWRPC.

service and operating characteristics of the city transit system under the basic service alternatives, assuming city operation of the proposed route, is shown in Table 55. A comparison of selected operating characteristics of the existing and proposed bus service between downtown Waukesha and the Brookfield Square Shopping Center is shown in Table 56.

If the City were to operate the restructured bus service between downtown Waukesha and the Brookfield Square Shopping Center, the proposed service change may be expected to increase the 1992 service levels for the city transit system by between 13 and 16 percent. Annual ridership on the city transit system in 1992 would be expected to range from about 434,000 revenue passengers to about 511,000 revenue passengers, representing an increase of about 41,000 revenue passengers, or from 9 to 10 percent over the 1992 ridership under the basic service alternatives without the improved service. The local funding requirement for the city transit system would be expected to increase from about $260,000 in 1988 to between $433,000 and $481,000 in 1992. This would represent an increase of between $173,000 and $221,000, or 66 to 85 percent, over the existing 1988 local operating subsidy; and an increase of about $43,000, or 10 to 11 percent, over the total local funds required under the basic service alternatives in 1992 without the improved service. If the local costs for the route are shared between the City and the County as proposed above, about $24,000, or 56 percent of the total increase of $43,000 in local funds in 1992, would be provided by the City, and the remaining $19,000, or 44 percent, would be provided by the County. The projected ridership and financial performance of the basic service alternatives with this service change are presented in Table 57.

This proposed service change would be made as part of a proposed restructuring of the existing Waukesha County bus service between Waukesha and downtown Milwaukee so that most county system bus runs would be operated over freeway facilities to reduce travel times. Because Waukesha County's current contract with the private transit operator providing the existing

Table 53

CAPITAL PROJECT EXPENDITURES REQUIRED FOR CITY OF WAUKESHA TRANSIT SYSTEM UNDER ALTERNATIVE 3

Capital Equipment or Project		Unit Cost[a]	Total Cost[a]
Quantity	Description		
3	35-foot-long air-conditioned urban motor coaches	$126,000	$378,000
--	Tools and diagnostic equipment for new buses	2,700	2,700
3	Nonregistering locked double-vault fareboxes	700	2,100
3	Mobile radio units	1,700	5,100
3	Electric message signs	300	900
80	Bus stop signs	70[b]	5,600
--	Capital projects required under Alternative 1 to maintain existing system[c]	87,000	87,000
	Total acquisition and construction costs		$481,400
	Contingencies[d]		43,000
	Project administration[e]		21,000
	Total Capital Project Costs		$545,400
	Less costs not eligible for federal funding[f]		$ 6,000
	Total capital project costs for federal grant purposes		$539,400
	Federal share of eligible capital costs[g]		$431,500
	Local share of total capital costs[h]		$113,900

[a] *Expressed in constant 1989 dollars.*

[b] *Installed.*

[c] *See Table 47.*

[d] *Estimated at 10 percent of total acquisition costs for buses, and 5 percent of total acquisition and construction costs for all other equipment and facilities.*

[e] *Estimated at 2 percent of total acquisition costs for buses, and 2 percent of total acquisition and construction costs for all other equipment and facilities.*

[f] *Includes costs for bus stop signs with related contingency and project administration costs.*

[g] *Assumes 80 percent of eligible capital costs funded through UMTA Section 9 formula grant program.*

[h] *Includes 20 percent matching funds for capital costs eligible for 80 percent federal funding plus 100 percent of capital costs not eligible for federal funding.*

Source: City of Waukesha Transit System Utility and SEWRPC.

bus service between downtown Waukesha and the Brookfield Square Shopping Center runs through 1990, implementation of the proposed service changes were not assumed to occur before 1991. If operated as part of the City of Waukesha's transit system, the service change would require the leasing of one additional bus until a new bus could be purchased and delivered. The total cost of the capital projects required to implement this service change is estimated at $150,000, with the City's share estimated at $32,000. The capital project-related costs required to implement this service change are shown in Table 58.

Table 54

SUMMARY OF ADDITIONAL SERVICE CHANGES PROPOSED FOR CITY OF WAUKESHA TRANSIT SYSTEM UNDER BASIC SERVICE ALTERNATIVES

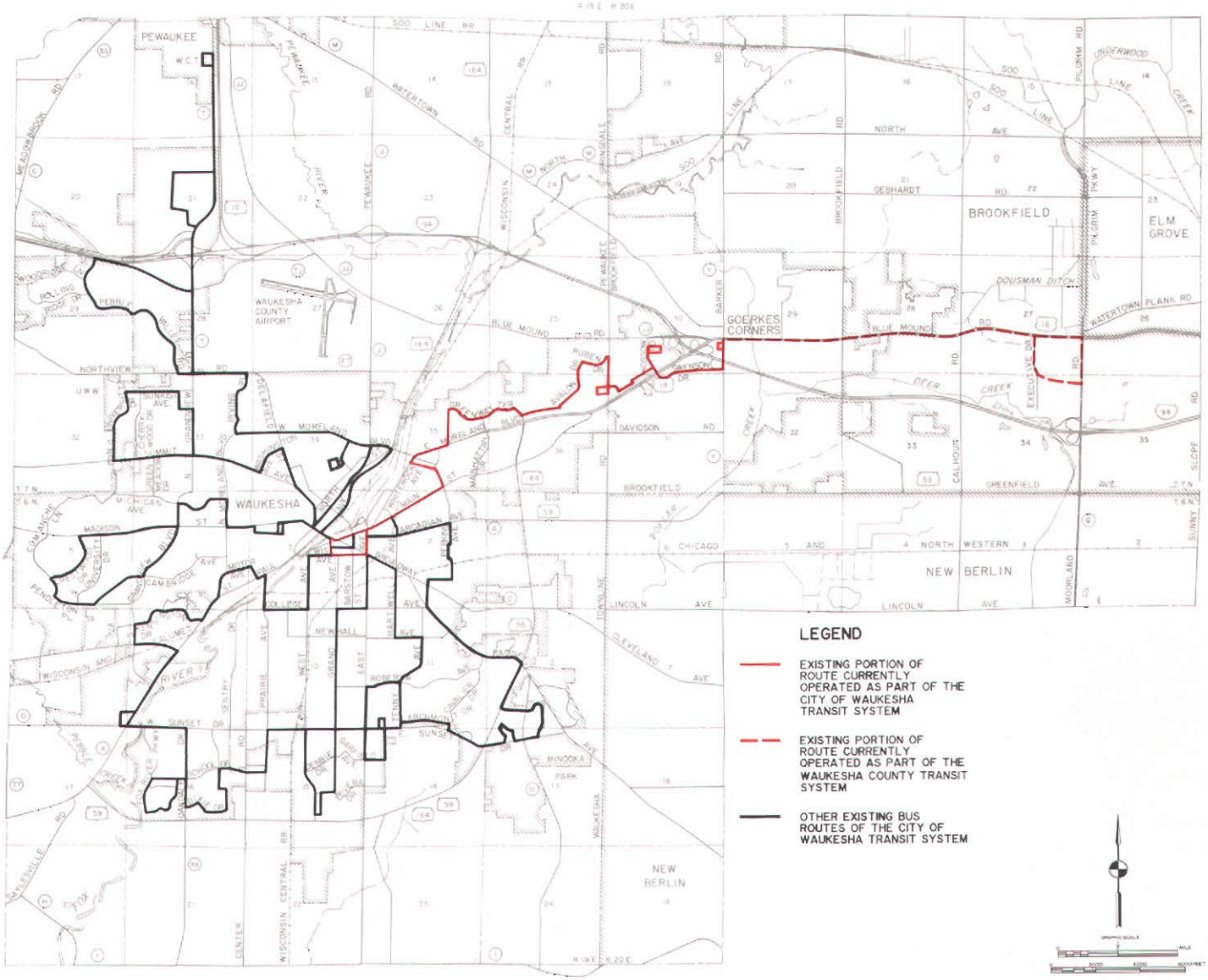
Additional Service Change	Proposed Routing and Service Changes
Restructured Bus Service Between City of Waukesha and Blue Mound Road Corridor	Proposed routing and service changes—shown on Map 35 and in Tables 55 and 56—call for existing Waukesha County bus service provided between downtown Waukesha and Brookfield Square over Moreland Boulevard-Blue Mound Road, and over Greenfield Avenue; and the existing City bus service provided on Route No. 1 between downtown Waukesha and Goerke's Corners, to be combined into one bus service using a single route administered and operated by either the County or the City. Headways on single route would be reduced to 30 minutes during all times of operation, including on in-city portion of route where service is currently provided at 60 minute headways during weekdays between 9:00 a.m. and 3:00 p.m., and all day on Saturdays. This change would be made as part of a proposed restructuring of the existing County rapid transit service between Waukesha and downtown Milwaukee whereby most bus runs are operated over freeway facilities to reduce travel times
Reduced Off-Peak Headways on Selected Bus Routes	Proposed service changes—shown in Table 59—call for headways on selected routes to be reduced from 60 to 30 minutes on weekdays between 9:00 a.m. and 3:00 p.m., and all day Saturday to improve transfer coordination between routes at the downtown transfer terminal. With existing transit system proposed under Alternative 1, headways would be reduced on Routes No. 1, 3, 4, 7, and 8 on weekdays, and on Route No. 1 Saturdays. With transit system as modified under Alternative 2, headways would be reduced on Routes No. 1, 3, 4, 7, and 10 on weekdays, and on Routes No. 1 and 4 on Saturdays. With transit system as modified under Alternative 3, headways would be reduced on Routes No. 1, 3, 4, 6, 7, and 8 on weekdays, and on Routes No. 1, 4, and 6 Saturdays
Provision of Peak-Hour Express Bus Service On Route No. 9	Special express bus service—shown on Map 36 and in Table 62—to be provided on Route No. 9 during weekday peak periods to reduce the travel time between downtown Waukesha and the General Electric Company Medical Systems Division plant and Waukesha County Technical College with the existing service on Route No. 9. The proposed express routing would operate over Madison Street, Delafield Street, and N. Grandview Boulevard between the downtown terminal and the Waukesha County Technical College; and bypass the Waukesha County Courthouse and office building and the Pebble Valley and Windings subdivisions, thereby reducing travel times to the General Electric plant and the Waukesha County Technical College by 10 to 12 minutes

Source: SEWRPC.

It may be possible that the local costs for the restructured service proposed under this service change would be different if the service contract for the route were awarded to the existing private transit operator, or another transit operator, using a procurement process similar to that followed by Waukesha County in 1987 to award service contracts for county bus routes for the period 1988-1990. In this respect, the process followed by Waukesha County to award service contracts by competitive bidding required potential service contractors to submit bids which indicated the specific amount of local funds they would require from Waukesha County if they were awarded the contracts for operation of county bus routes. Each contractor was provided with information allowing him to estimate the amounts of federal and state aids potentially available for the contract services and also to project the ridership and passenger revenues for the contract services. The bids submitted by all potential service contractors subsequently indicated that no county funds would be required by any potential contract operator.

Map 35

PROPOSED JOINT WAUKESHA COUNTY/CITY OF WAUKESHA BUS ROUTE BETWEEN DOWNTOWN WAUKESHA AND THE BROOKFIELD SQUARE SHOPPING CENTER



Source: SEWRPC.

Reduction of Off-Peak Headways on Selected Transit System Routes: Under this service change, headways on selected transit system routes would be reduced from 60 to 30 minutes during weekday midday periods of operation and all day Saturday in order to improve transfer coordination between city bus routes at the downtown transfer terminal. The specific routes with reduced headways would vary somewhat due to the different service and operating characteristics of the transit system during weekday middays and on Saturdays under the basic service alternatives. The changes in the operating characteristics of the routes affected by the proposed service change, and for the entire system under the basic service alternatives, are presented in Table 59.

Implementation of the proposed headway reductions would increase 1992 service levels on the transit system by 16 to 20 percent over those on the transit system under the basic service alternatives without reduced headways. Annual ridership on the transit system in 1992 would be

Table 55

CHANGES IN OPERATING CHARACTERISTICS OF CITY OF WAUKESHA BUS ROUTES AFFECTED BY RESTRUCTURED WAUKESHA-BROOKFIELD SQUARE BUS SERVICE UNDER BASIC SERVICE ALTERNATIVES

Bus Route[b]	Service Characteristics													
	Length (round-trip route miles)	Daily Bus Trips (one-way)			Service Frequency (minutes)				Buses Required					
									For Daily Scheduled Services[a]					
		Weekdays		Saturdays	Weekdays			Saturdays	Weekdays			Saturdays	For Spare Buses	Total Fleet
		Schooldays	Nonschooldays		A.M. Peak	Midday Off-Peak	P.M. Peak	All Day	A.M. Peak	Midday Off-Peak	P.M. Peak	All Day		
Alternative 1														
Incremental Change														
1. Westbrook/Target	7.20	14	14	18	--	-30	--	-30	--	2.0	1.0	2.0	--	1.0
Total System with Service Changes	108.05	283	273	162	30/70	30/60	30/70	30/60	10.0	8.0	13.0	8.0	2.0	15.0
Alternative 2														
Incremental Change														
1. Westbrook/Target	7.20	14	14	18	--	-30	--	-30	--	2.0	1.0	2.0	--	1.0
Total System with Service Changes	114.75	341	318	198	30/70	30/60	30/70	30/60	15.0	9.0	15.0	9.0	2.0	17.0
Alternative 3														
Incremental Change														
1. Westbrook Target	7.20	14	14	18	--	-30	--	-30	--	2.0	1.0	2.0	--	1.0
Total System	118.25	366	339	198	30/70	30/60	30/70	30/60	15.0	9.0	16.0	9.0	2.0	18.0

[a] *Weekday vehicle requirements based on schoolday service needs. Fractions indicate a single vehicle is operated over two routes during a time period.*

[b] *Service characteristics shown for only those bus routes affected by proposed service change.*

Source: City of Waukesha Transit System Utility and SEWRPC.

expected to range from 450,000 revenue passengers to 531,000 revenue passengers, representing an increase of between 51,000 and 62,000 revenue passengers, or 11 to 15 percent over the projected 1992 ridership for the system under the basic service alternatives without reduced headways. The city share of the annual operating deficit in 1992 would be expected to range from about $427,000 to $493,000, representing an increase of between $167,000 and $233,000, or 64 to 90 percent over the 1988 city operating subsidy of about $260,000; and an increase of between $37,000 and $55,000, or 9 to 13 percent over the city operating subsidy required in 1992 under the basic service alternatives without reduced headways. The projected ridership and financial performance of the basic service alternatives with this service change are presented in Table 60.

Implementation of the proposed headway reductions would also require the purchase of two new buses to provide the additional service under all three basic service alternatives. In addition, the proposed headway reductions under Alternatives 2 and 3 would also require that one additional bus be purchased to increase the current number of spare buses for the transit system from two to three buses, and that the existing transit system operations and maintenance facility be expanded to accommodate a total bus fleet of 19 to 20 buses. These projects would be in addition to the new buses and equipment required for the service changes proposed under the basic service alternatives. The proposed headway reductions were assumed to be implemented in 1990 using leased vehicles, with new vehicles assumed to be available by 1991. The total costs of the capital projects required to reduce headways under the basic service alternatives are estimated at between $296,000 with the existing system under Alternative 1 and $1,171,000 with the system as modified under Alternatives 2 and 3. The City's share of these capital costs is estimated at between $59,000 and $234,000. The required capital projects and their attendant costs are shown in Table 61.

Table 56

COMPARISON OF SELECTED OPERATING CHARACTERISTICS OF EXISTING AND PROPOSED BUS SERVICE BETWEEN WAUKESHA AND BROOKFIELD SQUARE

Operating Characteristics	Existing 1988 Bus Service Provided by Waukesha County Transit System	Proposed Joint City/County Bus Service[a]
Hours of Service[b]		
Weekdays	7:00 a.m.-9:45 p.m.	6:33 a.m.-5:35 p.m.
Saturdays	8:15 a.m.-9:45 p.m.	9:55 a.m.-5:41 p.m.
Sundays and Holidays	11:15 a.m.-9:45 p.m.	--
Number of One-Way Bus Trips Between Brookfield Square and:		
Downtown Waukesha		
Weekdays	23[c]	42
Saturdays	12[c]	32
Sundays and Holidays	8[c]	--
Goerke's Corners Public Transit Station		
Weekdays	15	42
Saturdays	6	32
Sundays and Holidays	2	--
Travel Time Between Brookfield Square Shopping Center and:		
Downtown Waukesha	22-33 minutes	28-41 minutes
Goerke's Corners Public Transit Station	7 minutes	11 minutes
Base Cash Fares per One-Way Trip[d]		
Adult	$1.25	$0.85
Children/Students[e]	0.65	0.65
Senior Citizens and Handicapped Persons	0.60	0.55

[a]Assumes operation of proposed bus service by City of Waukesha Transit System Utility.

[b]Represents times of stops at Brookfield Square Shopping Center.

[c]Includes 12 weekday trips, six Saturday trips, and six Sunday trips provided by Waukesha County Transit System over W. Greenfield Avenue.

[d]Fares shown assume passengers do not transfer to or from another city bus route. If passengers transfer between a city bus route and a county bus route for travel between the City of Waukesha and the Brookfield Square Shopping Center, the current total cash fare for such a trip—under a special transfer agreement between the City of Waukesha Transit System Utility and Wisconsin Coach Lines, Inc.—would be $1.45 for adults, $1.25 for students age 13 through high school, $0.65 for students age 5-12, and $0.60 for senior citizens and handicapped persons. Transfers between city bus routes are free.

[e]For Waukesha County bus service, fares are for children age 5-12. For City of Waukesha bus service, fares are for students age 5 through high school.

Source: City Waukesha Transit System Utility; Wisconsin Coach Lines, Inc.; and SEWRPC.

Table 57

ANNUAL RIDERSHIP AND FINANCIAL PERFORMANCE OF THE CITY OF WAUKESHA TRANSIT SYSTEM UNDER BASIC SERVICE ALTERNATIVES WITH RESTRUCTURED WAUKESHA-BROOKFIELD SQUARE BUS SERVICE: 1988-1992

Operating Characateristics	Actual 1988	Under Alternative 1			Under Alterntive 2			Under Alternative 3		
		Without Service Change	With Service Change		Without Service Change	With Service Change		Without Service Change	With Service Change	
			Increment	Total		Increment	Total		Increment	Total
Annual Service Provided										
Revenue Vehicle Hours	28,530	28,590	4,580	33,170	33,060	4,580	37,640	35,540	4,580	40,120
Total Vehicle Hours	30,920	31,000	4,970	35,972	35,850	4,970	40,820	38,540	4,970	43,510
Service Productivity										
Annual Revenue Passengers	374,000	393,000	41,300	434,300	454,100	41,300	495,400	469,800	41,300	511,100
Passengers per Revenue Hour	13.1	13.7	9.0	13.1	13.7	9.0	13.2	13.2	9.0	12.7
Service Cost										
Total Annual Operating Expenses	$989,200	$1,184,800	$110,700	$1,295,500	$1,269,000	$110,700	$1,379,700	$1,315,800	$110,700	$1,426,500
Total Annual Operating Revenue	175,000	183,300	24,700	208,000	208,800	24,700	233,500	215,800	24,700	240,500
Total Annual Operating Deficit	814,200	1,001,500	86,000	1,087,500	1,060,200	86,000	1,146,200	1,100,000	86,000	1,186,000
Sources of Required Public Funds										
Federal Operating Assistance	$183,300	$ 155,500	$ 0	$ 155,500	$ 155,500	$ 0	$ 155,500	$ 155,500	$ 0	$ 155,500
State Operating Assistance	371,000	456,100	42,700	498,800	488,500	42,700	531,200	506,500	42,700	549,200
Local Operating Assistance	259,900	389,900	43,300	433,200	416,200	43,300	459,500	438,000	43,300	481,300
Service Effectiveness										
Total Expense per Passenger	$2.65	$3.02	$2.68	$2.98	$2.79	$2.68	$2.78	$2.80	$2.68	$2.79
Total Revenue per Passenger	0.47	0.47	0.60	0.48	0.46	0.60	0.47	0.46	0.60	0.47
Total Deficit per Passenger	2.18	2.55	2.08	2.50	2.33	2.08	2.31	2.34	2.08	2.32
Percent of Expenses Recovered Through Operating Expenses	17.7	15.5	22.3	16.1	16.5	22.3	16.9	16.4	22.3	16.9

Source: City of Waukesha Transit System Utility and SEWRPC.

Provision of Peak Hour Express Bus Service on Route No. 9: This service change has been proposed by the City of Waukesha to reduce the travel time for system passengers traveling between downtown Waukesha and two major traffic generators located in the far northwest portion of the study area—the General Electric Company Medical Systems Division plant in the City of Waukesha and the Waukesha County Technical College in the Village of Pewaukee. By bypassing portions of Route No. 9 currently serving the Waukesha County Courthouse and office building and the Pebble Valley and Windings subdivisions within the City of Waukesha, the proposed express routing would reduce travel times between the downtown terminal and these major traffic generators by 10 to 12 minutes. System patrons benefiting from this proposed service would include not only students traveling to and from the Waukesha County Technical College, but also employees of the General Electric Company Medical Systems Division plant—in particular, potential reverse commuters using improved county transit services which have been proposed to be provided between Milwaukee and Waukesha County under the recommendations of the recently completed transit study for the Waukesha County transit system. The proposed routing of the peak hour express service on Route No. 9 is shown on Map 36. The changes to the operating characteristics of the transit system under each of the basic service alternatives with this service change are presented in Table 62.

The proposed peak hour express service would increase 1992 service levels on the transit system by 3 to 4 percent over service levels under the basic service alternatives without the proposed express service. By 1992, annual ridership on the transit system would be expected to increase to between about 404,000 and 481,000 revenue passengers, representing an increase of about 11,000 revenue passengers, or 2 to 3 percent over 1992 ridership levels under the basic service alternatives without the proposed express service. The City's share of the operating deficit would be expected to increase to between about $407,000 and $455,000 in 1992, representing an increase of between $147,000 and $195,000, or 56

Table 58

ADDITIONAL CAPITAL PROJECT EXPENDITURES REQUIRED FOR CITY OF WAUKESHA TRANSIT SYSTEM ASSUMING CITY OPERATION OF RESTRUCTURED WAUKESHA-BROOKFIELD SQUARE BUS SERVICE

Capital Equipment or Project		Unit Cost[a]	Total Cost[a]
Quantity	Description		
1	35-foot-long air-conditioned urban motor coach	$126,000	$126,000
1	Nonregistering locked double-vault farebox	700	700
1	Mobile radio unit	1,700	1,700
1	Electric message sign	300	300
30	Bus stop signs	70[b]	2,100
	Total acquisition and construction costs		$130,800
	Contingencies[c]		12,800
	Project administration[d]		6,400
	Total Capital Project Costs		$150,000
	Less costs not eligible for federal funding[e]		$ 2,200
	Total capital project costs for federal grant purposes		$147,800
	Federal share of eligible capital costs[f]		$118,200
	Local share of capital costs[g]		$ 31,800

[a] *Expressed in constant 1989 dollars. All costs would be in addition to capital costs for basic service alternatives.*

[b] *Installed.*

[c] *Estimated at 10 percent of total acquisition costs for buses and 5 percent of total acquisition and construction costs for all other equipment and facilities.*

[d] *Estimated at 5 percent of total acquisition costs for buses and 2 percent of total acquisition and construction costs for all other equipment and facilities.*

[e] *Includes costs for bus stop signs with related contingency and project administration costs.*

[f] *Assumes 80 percent of eligible capital costs funded through UMTA Section 9 formula grant program.*

[g] *Includes 20 percent matching funds for capital costs eligible for 80 percent federal funding plus 100 percent of capital costs not eligible for federal funding.*

Source: City of Waukesha Transit System Utility and SEWRPC.

to 75 percent over the 1988 local operating subsidy of $260,000; and an increase of about $17,000, or 4 percent over the city funds required in 1992 under the basic service alternatives without the express service. The projected ridership and financial performance of the City of Waukesha transit system under the basic service alternatives with reduced off-peak headways are presented in Table 63.

Implementation of the proposed express service was not assumed to occur before 1991, and would be tied to the implementation of the recommended improvements in rapid transit service between the City of Waukesha central business district and the City of Milwaukee central business district, as proposed for the Waukesha County transit system under the Waukesha County transit plan. The proposed express service would require the acquisition of one additional bus for the city transit system, which would initially be leased by the City until a new bus could be purchased and delivered. As shown in Table 64, the total capital cost for acquisition of this vehicle is estimated at $148,000, with the City's share estimated at $30,000.

Table 59

CHANGES IN OPERATING AND SERVICE CHARACTERISTICS OF CITY OF WAUKESHA BUS ROUTES AFFECTED BY REDUCED OFF-PEAK HEADWAYS UNDER BASIC SERVICE ALTERNATIVES

Bus Route[b]	Service Characteristics													
	Length (round-trip route miles)	Daily Bus Trips (one-way)			Service Frequency (minutes)				Buses Required					
									For Daily Scheduled Services[a]					
		Weekdays		Saturdays	Weekdays			Saturdays	Weekdays			Saturdays	For Spare Buses	Total Fleet
		Schooldays	Nonschooldays		A.M. Peak	Midday Off-Peak	P.M. Peak	All Day	A.M. Peak	Midday Off-Peak	P.M. Peak	All Day		
Alternative 1														
Incremental Change														
1. Westbrook/Target	--	12	13	18	--	-30	--	-30	--	1.0	1.0	1.0	--	--
3. Hartwell	--	13	13	--	--	-30	--	--	--	0.5	0.5	--	--	--
4. Grand	--	14	14	--	--	-30	--	--	--	0.5	0.5	--	--	--
7. Madison	--	13	13	--	--	-30	--	--	--	0.5	--	--	--	--
8. Summit	--	12	12	--	--	-30	--	--	--	0.5	--	--	--	--
Total	--	76	76	18	--	--	--	--	--	3.0	2.0	1.0	--	--
Total System with Service Changes	100.85	345	335	162	30/70	30/60	30/70	30/60	10.0	9.0	14.0	7.0	2.0	16.0
Alternative 2														
Incremental Change														
1. Westbrook/Target	--	12	13	18	--	-30	--	-30	--	1.0	--	1.0	--	--
3. Hartwell	--	13	13	--	--	-30	--	--	--	0.5	0.5	--	--	--
4. Grand	--	14	14	--	--	-30	--	--	--	0.5	0.5	--	--	--
7. Madison	--	13	13	--	--	-30	--	--	--	0.5	--	--	--	--
10. New Route	--	16	16	--	--	-30	--	--	1.0	0.5	1.0	--	--	--
Total	--	68	69	18	--	--	--	--	1.0	1.0	2.0	1.0	1.0	3.0
Total System with Service Changes	107.55	395	373	198	30/70	30/60	30/70	30/60	14.0	10.0	16.0	8.0	3.0	19.0
Alternative 3														
Incremental Change														
1. Westbrook/Target	--	12	13	18	--	-30	--	-30	--	1.0	--	1.0	--	--
2. Arcadian/Racine	--	-1	--	--	--	--	--	--	--	--	--	--	--	--
3. Hartwell	--	13	14	--	--	-30	--	--	--	1.0	0.5	--	--	--
4. Grand	--	14	14	18	--	-30	--	-30	--	0.5	0.5	0.5	--	--
6. Fox Run	--	14	14	18	--	-30	--	-30	--	0.5	--	0.5	--	--
7. Madison	--	13	13	--	--	-30	--	--	--	0.5	1.0	--	--	--
8. Summit	--	12	12	--	--	-30	--	--	--	0.5	--	--	--	--
Total	--	77	80	54	--	--	--	--	--	4.0	2.0	2.0	1.0	3.0
Total System with Service Changes	111.05	429	405	234	30/70	30/60	30/70	30/60	15.0	11.0	17.0	9.0	3.0	20.0

[a] *Weekday vehicle requirements based on schoolday service needs. Fractions indicate a single vehicle is operated over two routes during a time period.*

[b] *Only bus routes affected by proposed service change are listed.*

Source: City of Waukesha Transit System Utility and SEWRPC.

Evaluation of Alternative Service Changes

A comparative evaluation of the basic service alternatives for the City of Waukesha transit system is presented in Table 65. The comparative evaluation of alternatives was based upon information concerning the additional areas served by each alternative, increases in transit service levels, projected annual ridership levels, projected local costs for each alternative, and projected efficiency and effectiveness of the proposed transit services. The comparative evaluation of the additional service changes proposed for the basic service alternatives based upon similar information is presented in Table 66.

Alternative 1 proposes maintaining the existing transit system throughout the planning period. Consequently, it would not provide for any expansion of transit service to respond to the growth of the City through new, expanding areas of development, or to respond to the need

Table 60

ANNUAL RIDERSHIP AND FINANCIAL PERFORMANCE OF THE CITY OF WAUKESHA TRANSIT SYSTEM UNDER BASIC SERVICE ALTERNATIVES WITH REDUCED OFF-PEAK HEADWAYS: 1988-1992

Operating Characateristics	Actual 1988	Projected 1992								
		Under Alternative 1			Under Alterntive 2			Under Alternative 3		
		Without Service Change	With Service Change		Without Service Change	With Service Change		Without Service Change	With Service Change	
			Increment	Total		Increment	Total		Increment	Total
Annual Service Provided										
Revenue Vehicle Hours	28,530	28,590	5,370	33,960	33,060	5,330	38,390	35,540	7,160	42,700
Total Vehicle Hours	30,920	31,000	5,830	36,830	35,850	5,780	41,630	38,540	7,760	46,300
Service Productivity										
Annual Revenue Passengers	374,000	393,000	57,200	450,200	454,100	50,700	504,800	469,800	61,600	531,400
Passengers per Revenue Hour	13.1	13.7	10.7	13.3	13.7	9.5	13.1	13.2	8.6	12.4
Service Cost										
Total Annual Operating Expenses	$989,200	$1,184,800	$101,300	$1,286,100	$1,269,000	$100,500	$1,369,500	$1,315,800	$134,800	$1,450,600
Total Annual Operating Revenue	175,000	183,300	25,500	208,800	208,800	22,600	231,400	215,800	27,500	243,300
Total Annual Operating Deficit	814,200	1,001,500	75,800	1,077,300	1,060,200	77,900	1,138,100	1,100,000	107,300	1,207,300
Sources of Required Public Funds										
Federal Operating Assistance	$183,300	$ 155,500	$ 0	$ 155,500	$ 155,500	$ 0	$ 155,500	$ 155,500	$ 0	$ 155,500
State Operating Assistance	371,000	456,100	39,000	495,100	488,500	38,800	527,300	506,500	52,000	558,500
Local Operating Assistance	259,900	389,900	36,800	426,700	416,200	39,100	455,300	438,000	55,300	493,300
Service Effectiveness										
Total Expense per Passenger	$2.65	$3.02	$1.77	$2.85	$2.79	$1.98	$2.71	$2.80	$2.19	$2.73
Total Revenue per Passenger	0.47	0.47	0.45	0.46	0.46	0.45	0.46	0.46	0.45	0.46
Total Deficit per Passenger	2.18	2.55	1.32	2.39	2.33	1.54	2.25	2.34	1.74	2.27
Percent of Expenses Recovered Through Operating Expenses	17.7	15.5	25.2	16.2	16.5	22.5	16.9	16.4	20.4	16.8

Source: City of Waukesha Transit System Utility and SEWRPC.

for additional transit services to serve the existing student travel market for the transit system—that is, trips made by students not served by the yellow school bus service provided by the school district. This alternative would, however, require the lowest commitment of city funds for the transit system, although an increase in the city 1988 operating subsidy of $130,000, or 50 percent, would be required by 1992, representing an increase of about 11 percent per year.

Alternative 2 would expand the geographic coverage of the transit system to serve five areas of new or expanding residential development within the City, plus one existing elderly housing complex not served by the current transit system; and also to add transit service to serve unmet student travel needs. The service added under this alternative would be as productive as the existing service in terms of passengers carried per revenue vehicle hour of service and—based upon its incremental ridership, revenues, and costs—would have a lower deficit per passenger and higher farebox recovery rate than that of the system as a whole. However, with the proposed service changes, the annual city operating subsidy would increase by $156,000, or 60 percent, between 1988 and 1992, and by $26,000, or 7 percent, over the city operating subsidy in 1992 required for maintaining the existing system under Alternative 1. The additional capital projects required under this alternative would also increase the total city capital funds required by $63,000 over the funds required to maintain the existing system under Alternative 1.

The transit services provided under Alternative 3 would provide the greatest coverage of the basic service alternatives considered for areas of new and expanding development identified within the City of Waukesha. The additional transit service provided under Alternative 3 would expand the geographic coverage of the transit system to serve fully three more areas of new or expanding residential development, plus five existing employment centers which would not be served under Alternative 2, while providing for the same expansion of student transit service as Alternative 2. The additional service provided under Alternative 3 would not be as

Table 61

ADDITIONAL CAPITAL PROJECT EXPENDITURES REQUIRED FOR THE CITY OF WAUKESHA TRANSIT SYSTEM FOR REDUCING OFF-PEAK HEADWAYS

Capital Equipment or Project				Total Cost[a]	
Quantity					
Under Alternative 1	Under Alternatives 2 and 3	Description	Unit Cost[a]	Under Alternative 1	Under Alternatives 2 and 3
2	3	35-foot-long air-conditioned urban motor coaches	$126,000	$252,000	$ 378,000
2	3	Nonregistering locked double-vault fareboxes	700	1,400	2,100
2	3	Mobile radio units	1,700	3,400	5,100
2	3	Electronic message signs	300	600	900
--	--	Expansion of transit system operations and maintenance facility to accommodate expanded bus fleet (approximately 6,300 square feet)[b]	80[c]	--	504,000
--	1	Automatic bus washer system	100,000	--	100,000
--	--	Architectural and engineering services[d]	35,300	--	35,300
Total acquisition and construction costs				$257,400	$1,025,400
Contingencies[e]				25,500	97,100
Project administration[f]				12,700	48,000
Total Capital Project Costs				$295,600	$1,170,500
Less costs not eligible for federal funding				$ 0	$ 0
Total capital project costs for federal grant purposes				$295,600	$1,170,500
Federal share of eligible capital costs[g]				$236,500	$ 936,400
Local share of total capital costs[h]				$ 59,100	$ 234,100

[a] *Expressed in constant 1989 dollars. All costs would be in addition to capital costs for basic service alternatives.*

[b] *Expansion of the existing facility would entail the following:*

1. Addition of six bus storage berths	*3,500 square feet*
2. Addition of one bus maintenance bay	*1,150 square feet*
3. Expansion of existing parts and equipment storage area	*900 square feet*
4. Expansion of existing office space	*750 square feet*
Total Additional Space Needed	*6,300 square feet*

[c] *Per square foot.*

[d] *Estimated at 7 percent of total construction costs for expansion of transit system operations and maintenance facility.*

[e] *Estimated at 10 percent of total acquisition costs for buses; 10 percent of construction, architectural, and engineering costs for expanding the existing operations and maintenance facility; and 5 percent of total acquisition and constructions costs for all other equipment.*

[f] *Estimated at 5 percent of total acquisition costs for buses; 5 percent of construction, architectural, and engineering costs for expanding the existing operations and maintenance facility; and 2 percent of total acquisition and construction costs for all other equipment.*

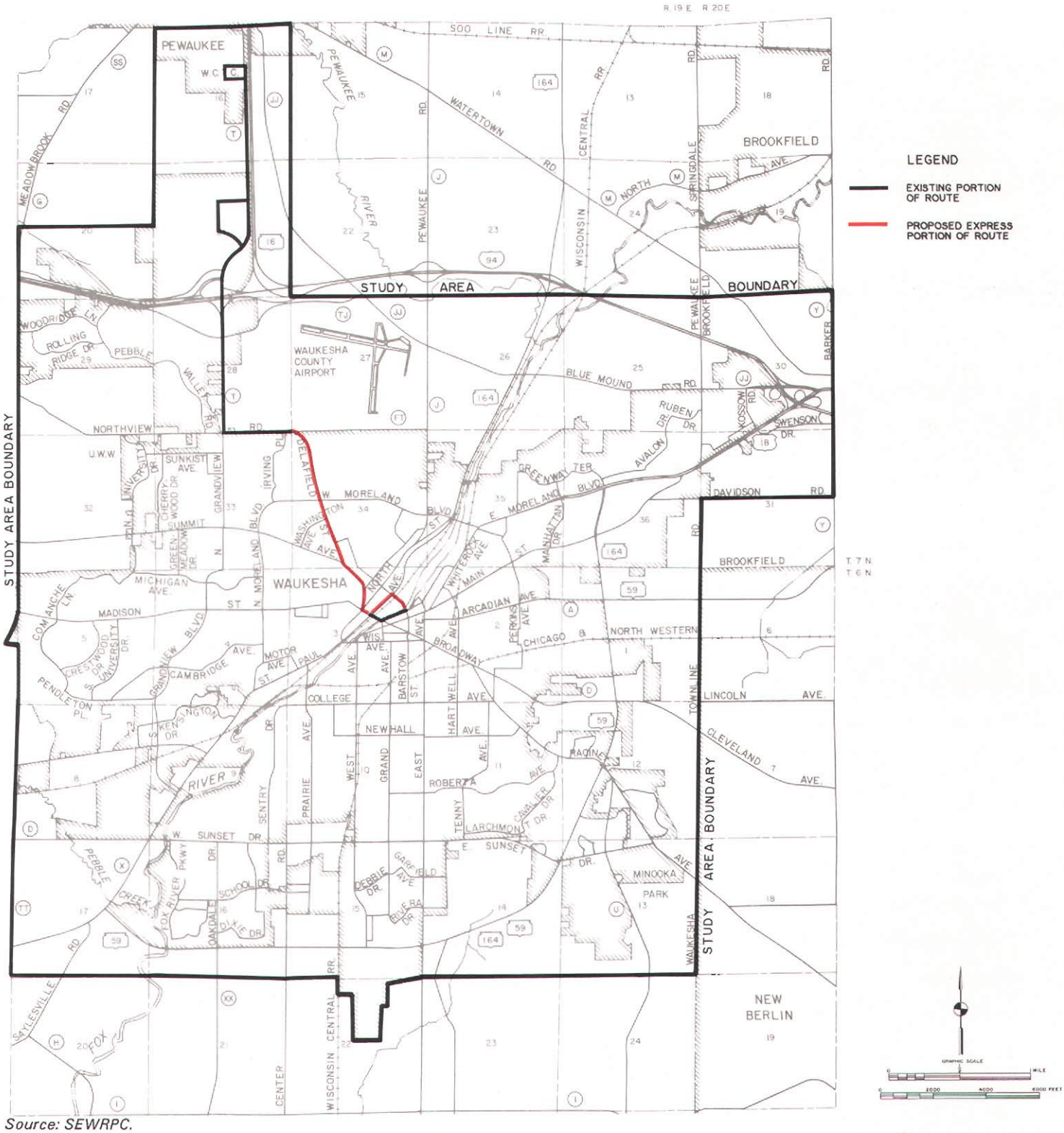
[g] *Assumes 80 percent of eligible capital costs funded through UMTA Section 9 formula grant program.*

[h] *Includes 20 percent matching funds for capital costs eligible for 80 percent federal funding.*

Source: City of Waukesha Transit System Utility and SEWRPC.

Map 36

ROUTING OF PROPOSED PEAK HOUR EXPRESS SERVICE ON ROUTE NO. 9



Source: SEWRPC.

Table 62

CHANGES IN OPERATING AND SERVICE CHARACTERISTICS OF CITY OF WAUKESHA BUS ROUTES UNDER BASIC SERVICE ALTERNATIVES WITH PEAK HOUR EXPRESS SERVICE ON ROUTE NO. 9

Bus Route[b]	Service Characteristics													
	Length (round-trip route miles)	Daily Bus Trips (one-way)			Service Frequency (minutes)				Buses Required For Daily Scheduled Services[a]				For Spare Buses	Total Fleet
		Weekdays		Saturdays	Weekdays			Saturdays	Weekdays			Saturdays		
		Schooldays	Nonschooldays		A.M. Peak	Midday Off-Peak	P.M. Peak	All Day	A.M. Peak	Midday Off-Peak	P.M. Peak	All Day		
Alternative 1														
Incremental Change														
9. Northview	3.20	16	16	--	--	--	--	--	1.0	--	1.0	--	--	1.0
Total System with Service Changes	104.05	285	275	144	30/70	60	30/70	60	11.0	6.0	13.0	6.0	2.0	15.0
Alternative 2														
Incremental Change														
9. Northview	3.20	16	16	--	--	--	--	--	1.0	--	1.0	--	--	1.0
Total System with Service Changes	110.75	343	320	180	30/70	30/60	30/70	30/60	14.0	7.0	15.0	7.0	2.0	17.0
Alternative 3														
Incremental Change														
9. Northview	3.20	16	16	--	--	--	--	--	1.0	--	1.0	--	--	1.0
Total System	114.25	368	341	180	30/70	60	30/70	60	16.0	7.0	16.0	7.0	2.0	18.0

[a] *Weekday vehicle requirements based on schoolday service needs. Fractions indicate a single vehicle is operated over two routes during a time period.*

[b] *Service characteristics shown for only those bus routes affected by proposed service change.*

Source: City of Waukesha Transit System Utility and SEWRPC.

Table 63

ANNUAL RIDERSHIP AND FINANCIAL PERFORMANCE OF THE CITY OF WAUKESHA TRANSIT SYSTEM UNDER BASIC SERVICE ALTERNATIVES WITH PEAK HOUR EXPRESS SERVICE ON ROUTE NO. 9

Operating Characteristics	Actual 1988	Projected 1992								
		Under Alternative 1			Under Alterntive 2			Under Alternative 3		
		Without Service Change	With Service Change		Without Service Change	With Service Change		Without Service Change	With Service Change	
			Increment	Total		Increment	Total		Increment	Total
Annual Service Provided										
Revenue Vehicle Hours	28,530	28,590	1,050	29,640	33,060	1,050	34,110	35,540	1,050	36,590
Total Vehicle Hours	30,920	31,000	1,350	32,350	35,850	1,350	37,190	38,540	1,350	39,890
Service Productivity										
Annual Revenue Passengers	374,000	393,000	11,200	404,200	454,100	11,200	465,300	469,800	11,200	481,000
Passengers per Revenue Hour	13.1	13.7	10.7	13.6	13.7	10.7	13.6	13.2	10.7	13.1
Service Cost										
Total Annual Operating Expenses	$989,200	$1,184,800	$35,400	$1,220,200	$1,269,000	$35,400	$1,304,400	$1,315,800	$35,400	$1,351,200
Total Annual Operating Revenue	175,000	183,300	5,000	188,800	208,800	5,000	213,800	215,800	5,000	220,800
Total Annual Operating Deficit	814,200	1,001,500	30,400	1,031,900	1,060,200	30,400	1,090,600	1,100,000	30,400	1,130,400
Sources of Required Public Funds										
Federal Operating Assistance	$183,300	$ 155,500	$ 0	$ 155,500	$ 155,500	$ 0	$ 155,500	$ 155,500	$ 0	$ 155,500
State Operating Assistance	371,000	456,100	13,700	469,800	488,500	13,700	502,200	506,500	13,700	520,200
Local Operating Assistance	259,900	389,900	16,700	406,600	416,200	16,700	432,900	438,000	16,700	454,700
Service Effectiveness										
Total Expense per Passenger	$2.65	$3.02	$3.16	$3.02	$2.79	$3.16	$2.80	$2.80	$3.16	$2.81
Total Revenue per Passenger	0.47	0.47	0.45	0.47	0.46	0.45	0.46	0.46	0.45	0.46
Total Deficit per Passenger	2.18	2.55	2.71	2.55	2.33	2.71	2.34	2.34	2.71	2.35
Percent of Expenses Recovered Through Operating Expenses	17.7	15.5	14.1	15.4	16.5	14.1	16.4	16.4	14.1	16.3

Source: City of Waukesha Transit System Utility and SEWRPC.

Table 64

ADDITIONAL CAPITAL PROJECT EXPENDITURES REQUIRED FOR THE CITY OF WAUKESHA TRANSIT SYSTEM TO PROVIDE PEAK HOUR EXPRESS SERVICE ON ROUTE NO. 9

Capital Equipment or Project		Unit Cost[a]	Total Cost[a]
Quantity	Description		
1	35-foot-long air-conditioned urban motor coach	$126,000	$126,000
1	Nonregistering locked double-vault farebox	700	700
1	Mobile radio unit	1,700	1,700
1	Electric message sign	300	300
	Total acquisition and construction costs		$128,700
	Contingencies[b]		12,700
	Project administration[c]		6,400
	Total Capital Project Costs		$147,800
	Less costs not eligible for federal funding		$ 0
	Total capital project costs for federal grant purposes		$147,800
	Federal share of eligible capital costs[d]		$118,200
	Local share of total capital costs[e]		$ 29,600

[a]*Expressed in constant 1989 dollars. All costs would be in addition to capital costs for basic service alternatives.*

[b]*Estimated at 10 percent of total acquisition costs for buses, and 5 percent of total acquisition and construction costs for all other equipment and facilities.*

[c]*Estimated at 5 percent of total acquisition costs for buses and 2 percent of total acquisition and construction costs for all other equipment and facilities.*

[d]*Assumes 80 percent of eligible capital costs funded through UMTA Section 9 formula grant program.*

[e]*Includes 20 percent matching funds for capital costs eligible for 80 percent federal funding.*

Source: City of Waukesha Transit System Utility and SEWRPC.

productive as the existing service, since the projected 24 percent increase in service levels would generate only a 20 percent increase in ridership levels by 1992. The additional service would still have a higher incremental farebox recovery rate and lower incremental deficit per passenger than the transit system as a whole. Along with the greatest extent of geographic coverage, this alternative would also require the largest commitment of city funds for the basic service alternatives. The expanded city transit system under this alternative would result in an increase of $178,000, or 68 percent, in the annual city operating subsidy over the 1988 city operating subsidy; an increase of $48,000, or 12 percent over the city operating subsidy in 1992 for the existing system under Alternative 1; and an increase of $22,000, or 5 percent over the city operating subsidy in 1992 for the system under Alternative 2. This alternative would also increase the total city funds required for capital projects by $95,000 over the city funds required to maintain the existing system, and by $32,000 over the city funds required under Alternative 2.

With respect to the additional service changes considered for the basic service alternatives, the service change proposing restructuring of bus service between the City of Waukesha and the Blue Mound Road corridor was considered previously under the transit study conducted by the Regional Planning Commission for the Waukesha County transit system, and has been included as one of the recommended actions by the Advisory Committee guiding that study. Analyses conducted under that study, as well as under the city transit study, indicated a short-range future need for expansion of local transit service between downtown Waukesha and Brookfield Square Shopping Center. The service change proposes that this be accomplished by

combining the existing city bus service operated between downtown Waukesha and Goerke's Corners and the existing county bus service operated between downtown Waukesha and Brookfield Square Shopping Center into one bus service operated by either entity, but jointly funded by both entities. If, contrary to the service proposal, the City were to continue to operate its bus service between downtown Waukesha and Goerke's Corners, and the County were independently to increase its bus service between downtown Waukesha and Brookfield Square to provide the expanded service within the Blue Mound Road corridor found warranted under the county transit study, a substantial duplication of transit services could exist. If operated by the city transit system, this proposed change would add about $43,000 to the total local funds required under any of the basic service alternatives in 1992, resulting in a total increase over the 1988 local operating subsidy for the transit system by 1992 of between $173,000 and $221,000, or between 67 and 85 percent. City operation of the proposed service would also increase the local funds required for capital projects by $32,000 over the local capital funds required for the basic service alternatives.

The proposed reduction of off-peak headways would improve service coordination for transferring passengers at the downtown terminal by providing for the operation of several bus routes with 30 minute headways all day on weekdays and Saturdays, allowing them to meet with the other bus routes at regular intervals throughout the service day. While this service change could eliminate many transfer problems noted within the Waukesha transit system and result in significant ridership increases ranging from 51,000 to 62,000 revenue passengers—increases of 11 to 15 percent over the ridership under the basic alternatives—the service change would also require a substantial increase in the local funds required under the basic service alternatives. In this respect, implementation of reduced headways would result in an increase by 1992 in the annual city operating subsidy of between $167,000 and $233,000, or between 64 and 90 percent, over the 1988 city operating subsidy; and an increase of between $37,000 and $55,000, or 9 to 13 percent over the 1992 city operating subsidy for the basic service alternatives without reduced headways. The service change would also increase the local funds for capital projects by between $59,000 and $234,000. Consequently, while the proposed service change could be considered as desirable in order to significantly increase total system ridership, its impact on the local financial requirements for the transit system may make this service change economically infeasible for implementation during the planning period.

With respect to the express service on Route No. 9, the proposed service would not be as productive as the other transit services provided by the system, would recover a smaller proportion of its incremental expenses from the additional revenues generated, and would have a higher incremental deficit per passenger than the system as a whole. The service change would, however, require the smallest increase in required city funds of the additional service changes considered, with an increase of $17,000, or 4 percent over the 1992 city operating subsidy, and an increase of $30,000 over the city capital funds required for the basic service alternative.

Reaction of Advisory Committee to Alternative Service Changes

The alternative service changes described and evaluated in the preceding sections of this chapter were considered by the City of Waukesha Transit Development Planning Advisory Committee at a meeting held on December 5, 1988. At that meeting, the Committee indicated that additional information was needed on the issue of student transportation within the Waukesha area. Currently, yellow school bus service is provided to all Waukesha Unified School District students who reside two or more miles from their schools. The Advisory Committee requested an analysis of the merits of replacing this existing yellow school bus service provided to students residing within the City with service provided by the city transit system. A similar analysis had been conducted by the Commission during the preparation of the previous transit development plan for the City.[1]

[1] *See SEWRPC Community Assistance Planning Report No. 83, A Transit System Operations Analysis for the City of Waukesha Transit System, February 1983, pp. 148-156.*

Table 65

COMPARATIVE EVALUATION OF BASIC ALTERNATIVE SERVICE PLANS FOR THE CITY OF WAUKESHA TRANSIT SYSTEM

Evaluation Criteria	Transit Service Alternative		
	Alternative 1 Status Quo Alternative	Alternative 2 One New Route and Special Student Services	Alternative 3 Two New Routes and Special Student Services
Geographic Coverage			
Additional Waukesha Area Land Uses Fully Served[a]			
Existing Major Traffic Generators	--	--	6
Existing Facilities for Elderly and/or Handicapped Persons	--	1	1
Proposed New or Expanding Areas of Development	--	5	8
Annual Service Provided			
Annual Revenue Vehicle Hours in 1992	28,590	33,060	35,540
Change from 1992 Revenue Vehicle Hours Under Existing System			
Absolute Change	--	4,470	6,950
Percentage Change	--	15.6	24.3
Ridership			
Annual Revenue Passengers in 1992	393,000	454,100	469,800
Change from 1992 Revenue Passengers Under Existing System			
Absolute Change	--	61,100	76,800
Percentage Change	--	15.5	19.5
Cost			
Operating Expenses, Revenues, and Deficits in 1992			
Total Operating Expenses	$1,184,800	$1,269,000	$1,315,800
Total Operating Revenues	183,300	208,800	215,800
Total Operating Deficit	1,001,500	1,060,200	1,100,000
Federal Share of Deficit	155,500	155,500	155,500
State Share of Deficit	456,100	488,500	506,500
Local Share of Deficit	389,900	416,200	438,000
Change from 1988 Operating Expenses, Revenues, and Deficits by 1992			
Total Operating Expenses	$ 195,600	$ 279,800	$ 326,600
Total Operating Revenues	8,300	33,800	40,800
Total Operating Deficit	187,300	246,000	285,800
Federal Share of Deficit	-27,800	-27,800	-27,800
State Share of Deficit	85,100	117,500	135,500
Local Share of Deficit	130,000	156,300	178,100
Capital Project Costs 1988-1992[b]			
Total Capital Costs			
Federal Share	$ 74,500	$ 313,300	$ 431,500
Local Share	18,600	82,000	113,900
Total	$ 93,100	$ 395,300	$ 545,400
Average Annual Capital Costs[c]			
Federal Share	$ 7,300	$ 27,200	$ 37,000
Local Share	1,800	7,100	9,800
Total	$ 9,100	$ 34,300	$ 46,800

Table 65 (continued)

Evaluation Criteria	Transit Service Alternative		
	Alternative 1 Status Quo Alternative	Alternative 2 One New Route and Special Student Services	Alternative 3 Two New Routes and Special Student Services
Efficiency/Effectiveness			
Percentage Change in Service/Percentage Change in Ridership in 1992	--	16/16	24/20
Revenue Passengers per Revenue Vehicle Hour in 1992			
Systemwide	13.7	13.7	13.2
For Proposed Service Changes	--	13.7	11.1
Percent of Operating Expenses Recovered from Operating Revenues in 1992			
Systemwide	15.5	16.5	16.4
For Proposed Service Changes[d]	--	30.3	24.8
Total Operating Deficit per Revenue Passenger in 1992			
Systemwide	$2.55	$2.33	$2.34
For Proposed Service Changes[d]	--	0.96	1.28
Total Operating and Capital Cost per Revenue Passenger in 1992			
Systemwide[e]	$3.49	$3.26	$3.28
For Proposed Service Changes[f]	--	1.94	2.32

[a]The additional geographic coverage provided by Alternatives 2 and 3 over Alternative 1 is illustrated on Maps 32 and 34, respectively.

[b]Includes only the costs of capital projects which would be required to be undertaken under each transit service alternative over the planning period.

[c]Based on the expected useful life of the operating equipment and facilities included in the capital projects required for each alternative. Does not include the average annual capital costs for the existing capital equipment and facilities of the transit system which, based on the depreciation of capital assets reported by the transit system for 1988, would be estimated at $178,500.

[d]Based upon the projected 1992 incremental operating expenses and revenues for the service changes proposed under each alternative.

[e]Based upon the projected 1992 total annual operating expenses and average annual capital costs for each service alternative, and an estimated average annual capital cost of $178,500 for the existing capital equipment and facilities of the transit system.

[f]Based upon the projected incremental operating expenses and average annual capital costs for the service changes proposed under each alternative.

Source: SEWRPC.

Table 66

COMPARATIVE EVALUATION OF ADDITIONAL SERVICE CHANGES FOR THE CITY OF WAUKESHA TRANSIT SYSTEM UNDER BASIC SERVICE ALTERNATIVES

Evaluation Criteria	Additional Service Changes		
	Restructure Waukesha to Brookfield Square Bus Service	Reduce Off-Peak Headways On Selected Bus Routes	Provide Peak-Hour Express Service On Route No. 9
Annual Service Provided			
Annual Revenue Vehicle Hours on System in 1992	33,170-40,120	33,960-42,700	29,640-36,590
Change from 1992 Revenue Vehicle Hours Under Basic Service Alternatives			
Absolute Change	4,580	5,330-7,160	1,050
Percentage Change	12.9-16.0	16.1-20.1	3.0-3.7
Ridership			
Annual Revenue Passengers Carried on System in 1992	434,300-511,100	450,200-531,400	404,200-481,000
Change from 1992 Revenue Passengers Under Basic Service Alternatives			
Absolute Change	41,300	50,700-61,600	11,200
Percentage Change	8.8-10.5	11.2-14.6	2.4-2.8
Cost			
Operating Expenses, Revenues, and Deficits in 1992			
Total Operating Expenses	$1,295,500-$1,426,500	$1,286,100-$1,450,600	$1,220,200-$1,351,200
Total Operating Revenues	$208,800-$240,500	$208,800-$243,300	$188,800-$220,800
Total Operating Deficit	$1,087,500-$1,186,000	$1,077,300-$1,207,300	$1,031,900-$1,130,400
Federal Share of Deficit	$155,500	$155,500	$155,500
State Share of Deficit	$498,800-$549,200	$495,100-$558,500	$469,800-$520,200
Local Share of Deficit	$433,200-$481,300	$426,700-$493,300	$406,600-$454,700
Change from 1992 Operating Expenses, Revenues, and Deficits Under Basic Service Alternatives			
Total Operating Expenses	$110,700	$100,500-$134,800	$ 35,400
Total Operating Revenues	24,700	$22,600-$27,500	5,000
Total Operating Deficit	86,000	$75,800-$107,300	30,400
Federal Share of Deficit	0	0	0
State Share of Deficit	42,700	$38,800-$52,000	13,700
Local Share of Deficit	43,300	$36,800-$55,300	16,700
Additional Capital Project Costs Over Basic Service Alternatives 1988-1992[a]			
Total Capital Costs			
Federal Share	$118,200	$236,500-$936,400	$118,200
Local Share	31,800	$59,100-$234,100	29,600
Total	$150,000	$295,600-$1,170,500	$147,800
Average Annual Capital Costs[b]			
Federal Share	$ 9,900	$19,700-$52,600	$ 9,900
Local Share	2,600	$4,900-$13,100	2,400
Total	$ 12,500	$24,600-$65,700	$ 12,300

Table 66 (continued)

Evaluation Criteria	Additional Service Changes		
	Restructure Waukesha to Brookfield Square Bus Service	Reduce Off-Peak Headways On Selected Bus Routes	Provide Peak-Hour Express Service On Route No. 9
Efficiency/Effectiveness			
Percentage Change in Service/Percentage Change in Ridership in 1992	13-16/9-11	16-20/11-15	3-4/2-3
Revenue Passengers per Revenue Vehicle Hour in 1992			
Systemwide	12.8-13.1	12.5-13.3	13.2-13.7
For Proposed Service Changes	9.0	8.6-10.7	10.7
Percent of Operating Expenses Recovered from Operating Expenses in 1992			
Systemwide	16.1-16.9	16.2-16.9	15.4-16.4
For Proposed Service Changes[c]	22.3	20.4-25.2	14.1
Total Operating Deficit per Revenue Passenger in 1992			
Systemwide	$2.31-$2.50	$2.25-$2.39	$2.34-$2.55
For Proposed Service Changes[c]	$2.08	$1.32-$1.74	$2.71
Total Operating and Capital Cost per Revenue Passenger in 1992			
Systemwide[d]	$3.24-$3.44	$3.26-$3.33	$3.29-$3.51
For Proposed Service Changes[e]	$2.98	$2.20-$3.28	$4.26

[a]*Includes only the costs of capital projects which would be required to be undertaken under each additional transit service change over the planning period. Costs would be in addition to those under the basic service alternatives.*

[b]*Based on the expected useful life of the operating equipment and facilities included in the capital projects required for each additional service change. Does not include the average annual capital costs for the basic service alternatives, which are presented in Table 65; or for the existing capital equipment and facilities of the transit system which, based on the depreciation of capital assets reported by the transit system for 1988, would be estimated at $178,500.*

[c]*Based upon the projected 1992 incremental operating expenses and revenues in 1992 for the additional service changes under each basic service alternative.*

[d]*Based upon the projected total annual operating expenses and the total average annual capital costs in 1992 for each basic service alternative with the proposed additional service changes, and an estimated average annual capital cost of $178,500 for the existing capital equipment and facilities of the transit system.*

[e]*Based upon the projected incremental operating expenses and average annual capital costs for the additional service changes proposed for each basic service alternative.*

Source: SEWRPC.

The Committee also requested an analysis of the impacts on the city transit system of an expansion of yellow school bus service by the School District which would provide district students residing one mile or more from their schools with yellow school bus service. It was noted that the School District has in the past considered reducing the current two-mile limit for students to qualify for school bus service.

In response to this request for additional information, the Commission staff undertook a reexamination of the issue of school bus service for students residing within the City. The following sections present the findings of this recommendation.

Replacement of Yellow School Bus Services for In-City Students with City Transit System Service: The Waukesha Unified School District contracts with a private school bus operator—Dairyland Buses, Inc.—to provide yellow school bus service to approximately 4,600 students within the School District who reside two miles or more from the schools they are entitled to attend. Data on the number of students eligible to be served by the yellow school bus service are provided in Table 67. Dairyland Buses, Inc., operates 213 bus trips each school day over 46 school bus routes to provide transportation to and from 13 elementary, three middle, and three high schools to these 4,600 students. About 1,400 of the 4,600 students eligible for yellow school bus service within the District, or about 30 percent, reside within the City of Waukesha. About 1,200 of these city students, or 86 percent, attend middle school and high schools within the District.

The requested analysis assumes replacement of the yellow school bus service with city transit system service only for City of Waukesha public and private high school and middle school students now using the yellow school bus service, and was conducted using data for the year 1989. These students represent the student market which could best be served by the city fixed route transit system. Yellow school bus service for elementary school students is presently limited primarily to intact busing of entire classes to avoid overcrowding of schools or hazardous walking conditions. Yellow school bus service is better suited for these purposes, as well as to meeting the needs of students participating in the exceptional educational program offered by the School District.

The 1988-1989 budget for the Waukesha School Board includes about $818,000 for school bus service within the School District for regular students, as shown in Table 68. It should be noted that the current contract for the yellow school bus service within the School District was re-negotiated in 1988 and now runs through the 1993-1994 school year. Therefore, the earliest that the City could assume responsibility for providing transportation to in-city students would be the fall of 1994 at the beginning of the 1994-1995 school year.

The analysis identified the modifications which would need to be made to the existing, "status quo," transit system as proposed under Alternative No. 1. Most of the in-city middle and high school students now receiving yellow school bus service reside within the existing city transit system service area and could be served by existing city transit system routes and stops. Only minor adjustments to Routes No. 2, 7, and 9, as shown on Map 37, would need to be made to serve students residing outside the existing service area. Additional bus trips, however, would need to be added to six of the eight existing bus routes, as shown in Table 69, to accommodate the additional in-city students. The City would also need to purchase 10 new buses and related operating equipment and expand the existing transit system operation and maintenance facility to accommodate a total fleet of 24 buses. The expansion of the bus fleet would be in addition to any expansion proposed under the previous transit service alternatives.

For this analysis it was assumed that the additional bus trips would be selectively added to serve city students. Such trips would be open to the general public, but would be operated only where and when needed to serve the additional student ridership demand. That is, the additional bus trips would be operated only over route segments serving city students, and at times which would provide all students with school arrival and departure times similar to those provided by the existing yellow school bus service. The assumed number of additional bus trips would also provide sufficient additional passenger capacity to ensure that average passenger loads would not exceed a peak load factor of 1.25 passengers per seat—50 passengers per bus—specified under the adopted transit service objectives and standards presented in Chapter V of this report.

Table 67

STUDENTS ATTENDING PUBLIC AND PRIVATE SCHOOLS IN THE WAUKESHA SCHOOL DISTRICT ELIGIBLE FOR YELLOW SCHOOL BUS SERVICE: FALL 1988

School	Address[a]	Public/ Private	Total Enrollment[b]	Students Eligible for Yellow School Bus Service[c]		
				Within City	Outside City	Total
Secondary Schools						
Butler Middle School	310 N. Hine Avenue	Public	841	132	108	240
Catholic Memorial High School	601 E. College Avenue	Private	806	82	111	193
Central Middle School	400 N. Grand Avenue	Public	1,039	231	224	455
Horning Middle School	2000 Wolf Road	Public	821	152	367	519
North High School	2222 Michigan Avenue	Public	1,301	193	395	588
South High School	401 E. Robert Avenue	Public	1,507	374	392	766
Subtotal	--	--	6,315	1,164	1,597	2,761
Elementary Schools						
Banting	2019 Butler Drive	Public	484	0	0	0
Bethesda	730 S. University Drive	Public	650	26	85	111
Blair	301 Hyde Park	Public	462	0	0	0
Hadfield	618 Oakland Avenue	Public	351	0	0	0
Hawthorne	1111 Maitland Avenue	Public	293	0	0	0
Heyer	1209 Heyer Drive	Public	414	0	118	118
Hillcrest	21950 Davidson Road	Public	259	4	116	120
Lowell	140 N. Grandview Boulevard	Public	547	0	0	0
Meadowbrook	3130 Rolling Ridge Drive	Public	322	2	64	66
Mt. Calvary Lutheran	1941 Madison Street	Private	98	0	0	0
Northview	1721 Northview Road	Public	342	0	0	0
Pleasant Hill	175 Barker Road, Town of Brookfield	Public	339	1	326	327
Prairie	1801 Center Road	Public	453	0	0	0
Randall	114 S. Charles Street	Public	310	0	0	0
Rose Glen	W273 S3845 Brookhill Drive, Town of Waukesha	Public	618	9	545	554
St. Anthony's	W280 N2101 Hwy. SS, Town of Pewaukee[d]	Private	123	0	28	28
St. John Vianney	17500 Gebhardt Road, City of Brookfield[d]	Private	469	0	98	98
St. Joseph's	841 Martin Street	Private	177	16	5	21
St. Mary's	520 Newhall Avenue	Private	362	24	100	124
St. Williams's	444 N. Moreland Boulevard	Private	215	43	6	49
Saratoga	130 Walton Avenue	Public	297	0	0	0
Trinity Lutheran	1060 White Rock Avenue	Private	245	83	32	115
White Rock	1150 White Rock Avenue	Public	217	76	0	76
Whittier	1103 S. East Avenue	Public	506	0	0	0
Subtotal	--	--	8,553	284	1,523	1,807
Total	--	--	14,868	1,448	3,120	4,568

[a] *Except where noted, all addresses are in the City of Waukesha.*

[b] *Enrollment figures are as of February 1989 and include 540 students in the exceptional education program at public elementary schools in the School District.*

[c] *Excludes approximately 300 students with parent contracts with school district for individual student transportation. Not all students eligible for yellow school bus service use the service provided. In this respect, school district officials estimate that, while all eligible elementary and middle school students generally are regular users, only about 60 percent of eligible high school students are regular users.*

[d] *While this private school is outside the school district boundaries, students residing within the School District are eligible for transportation provided by the School District.*

Source: Waukesha Unified School District and SEWRPC.

Table 68

WAUKESHA SCHOOL DISTRICT YELLOW SCHOOL BUS SERVICE BUDGETED COSTS AND SERVICE CHARACTERISTICS FOR REGULAR EDUCATION: 1988-1989 SCHOOL YEAR

Budget Element	Amount Budgeted for Yellow School Bus Service for Regular Education[a]
Base Service Contract	$752,000
Bus Contract Insurance	19,000[b]
Gas for Buses	47,000[b]
Total	$818,000

Characteristics of Yellow School Bus Transportation	Number
Total Eligible Students[c]	4,600
Estimated Regular Student Users[c]	3,950
Total Cost per Student per Year	
Per Eligible Student	$178
Per Regular Student User	207
Total School Days per Year	180
Total Cost per Student per Day	
Per Eligible Student	$0.99
Per Regular Student User	1.15
Estimated One-Way Student Trips per Day[d]	7,900
Estimated Total Cost per One-Way Student Trip per Day	$0.58

[a]Excludes budget cost of $50,000 for parent contracts with School District for individual student transportation.

[b]Based on 60 percent of total budgeted costs of $32,000 for bus contract insurance and $79,000 for fuel for buses included in 1988-1989 budget. The remaining 40 percent of these total costs would be incurred by the yellow school bus service provided for exceptional education students.

[c]Excludes approximately 300 students with parent contracts with School District for individual student transportation.

[d]Assumes two one-way trips per day per regular student rider.

Source: Waukesha Unified School District and SEWRPC.

An alternative method for providing additional bus service for city students would be to uniformly reduce peak hour headways on system bus routes to 15 minutes on school days. This action would provide additional bus trips over the entire length of each route during the entire peak period which, in addition to serving student travel demand, could also encourage increased use of the transit system by the general public. However, with this alternative method, student passengers would be inconvenienced by the limited number of bus trips which would conveniently serve the class start and dismissal times at middle and high schools within the City. This could require students to endure overcrowded conditions on the most convenient bus trips or alter their trip times to use earlier or later bus trips which do not conveniently serve class start and dismissal times. For this reason, it was believed that the service provided to city students under this alternative method would be of lower quality than that provided under the existing yellow school bus service or first alternative to such service considered. In addition, the additional service required for operation of the transit system with 15-minute headways during the entire peak periods would entail approximately twice the additional operating costs required for the method of selectively adding bus trips without generating a corresponding increase in ridership. For these reasons, uniformly reducing peak period headways on system routes was rejected as a method for serving the additional student travel demand.

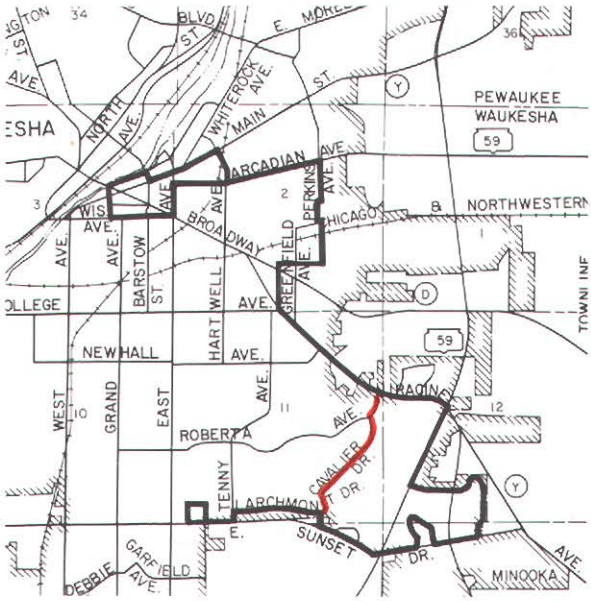
Because the City would assume responsibility for providing transportation service to middle and high school students within the City under this proposal, less yellow school bus service would be needed, and the total costs of the school bus contract could be reduced. The current contract between the school bus operator and the School District establishes contract costs based on a specified cost per bus trip operated. Based on all specified contract costs—including estimated fuel and insurance costs—and the estimated reduction in yellow school bus trips, the elimination of yellow school bus service for in-city students attending middle and high schools may be expected to reduce the total annual costs for yellow school bus service within the School District by an estimated $50,000 to $70,000 per year.[2]

[2]*The range in the estimated reduction in contract yellow school bus costs is based on separate estimates of $50,000 made by the existing private yellow school bus operator and $70,000 made by the Commission staff.*

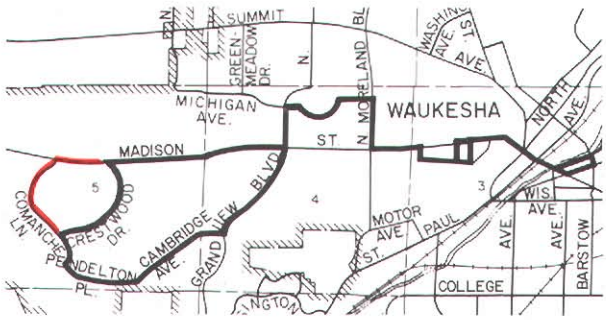
Map 37

PROPOSED CHANGES TO EXISTING CITY OF WAUKESHA BUS ROUTES TO SERVE IN-CITY SECONDARY SCHOOL STUDENTS PROVIDED WITH YELLOW SCHOOL BUS SERVICE

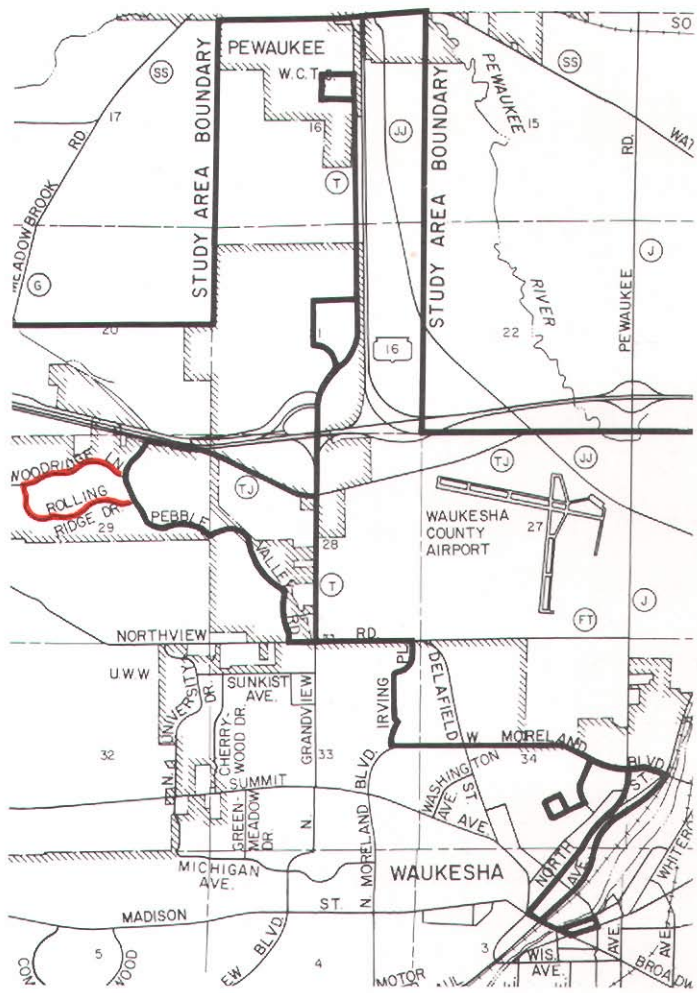
ROUTE 2 - ARCADIAN / RACINE



ROUTE 7 - MADISON



ROUTE 9 - NORTHVIEW



LEGEND

EXISTING ROUTE SEGMENT

PROPOSED ROUTE SEGMENT

GRAPHIC SCALE

0 1 MILE

0 2000 4000 6000 FEET

Source: SEWRPC.

A summary of the total additional annual costs—including capital and operating costs—for the replacement city bus service, along with a description of this proposed change in student transportation policy, is presented in Table 70. A detailed description of the required capital projects for the city transit system and their attendant costs is presented in Table 71. The total additional annual cost to the city transit system for the replacement city bus service is estimated to be approximately $244,000, substantially more than the estimated reduction in

Table 69

CHANGES IN OPERATING AND SERVICE CHARACTERISTICS OF CITY OF WAUKESHA BUS ROUTES AFFECTED BY SERVICE PROVIDED TO REPLACE YELLOW SCHOOL BUS SERVICE FOR IN-CITY STUDENTS UNDER EXISTING TRANSIT SYSTEM

Bus Route[b]	Service Characteristics													
	Length (round-trip route miles)	Daily Bus Trips (one-way)			Service Frequency (minutes)				Buses Required					
									For Daily Scheduled Services[a]				For Spare Buses	Total Fleet
		Weekdays		Saturdays	Weekdays			Saturdays	Weekdays			Saturdays		
		Schooldays	Nonschooldays		A.M. Peak	Midday Off-Peak	P.M. Peak	All Day	A.M. Peak	Midday Off-Peak	P.M. Peak	All Day		
Total Existing System	100.85	269	259	144	30/70	60	30/70	60	10.00	6.00	12.00	6.0	2.0	14.0
Incremental Change														
1. Westbrook/Target	--	10	--	--	--	--	--	--	1.50	--	1.50	--	--	--
2. Arcadian/Racine	--	4	--	--	--	--	--	--	0.75	--	0.75	--	--	--
3. Hartwell	--	4	--	--	--	--	--	--	0.50	--	0.50	--	--	--
6. Prairie	--	12	--	--	--	--	--	--	3.25	--	3.25	--	--	--
7. Madison	--	6	--	--	--	--	--	--	1.25	--	1.25	--	--	--
8. Summit	--	2	--	--	--	--	--	--	0.25	--	0.25	--	--	--
9 .Northview	--	8	--	--	--	--	--	--	1.50	--	1.50	--	--	--
Total	--	44	--	--	--	--	--	--	9.00	--	9.00	--	1.0	10.0
Total System with Service Changes	100.85	313	259	144	30/70	60	30/70	60	19.00	6.00	21.00	6.0	3.0	24.0

[a] *Weekday vehicle requirements based on schoolday service needs. Fractions indicate a single vehicle is operated over more than one route during a time period.*

[b] *Only bus routes affected by proposed service change are listed.*

Source: City of Waukesha Transit System Utility and SEWRPC.

contract yellow school bus costs to the School District of approximately $50,000 to $70,000. Therefore, on a total cost basis, serving in-city middle and high school students with the existing yellow school bus service is more efficient than serving the students with the fixed route city transit system.

The Advisory Committee also directed that a comparison be made of the relative "net" costs of the existing yellow school bus service and the potential replacement city transit system service—that is, the total costs minus off-setting federal and state aids. The resultant "net" local City of Waukesha cost of the replacement city transit system service would be a savings of approximately $13,200. The "net" cost reflects $32,500 in state transit operating assistance, $127,000 in federal capital assistance, and $98,000 in subsidy from the School District in lieu of student fares.[3] The "net" cost to the School District of the change in student transportation is an estimated annual increase of $28,000 to $48,000, as the estimated cost savings of $50,000 to $70,000 realized by the School District for eliminating yellow school bus service for in-city

[3] *It was assumed that the School District would pay the city transit system $0.40 per ride for each of the approximately 245,000 student rides expected to be made on the replacement city transit system service per year. Otherwise, the School District would be providing bus service at no cost to students residing outside the City, and charging students residing within the City $0.80 per day for bus service. An alternative would be to assume that the School District would not subsidize the student fares. Under such an assumption, city students would be responsible for paying annually $98,000 in transit fares. In addition, the School District would have the state transportation aid it receives annually to offset school district expenditures for student transportation reduced by about $36,000 because it would no longer be providing transportation for city middle and high school students. Under this assumption, the net cost to the School District would be an annual savings of between $14,000 and $34,000; and the total net cost to the City and the School District for the proposed changes in student transportation would be an annual savings of between $27,200 and $47,200.*

Table 70

SUMMARY OF PROPOSAL TO CARRY ON THE CITY OF WAUKESHA TRANSIT SYSTEM CITY STUDENTS NOW ELIGIBLE TO RECEIVE YELLOW SCHOOL BUS SERVICE

Proposal Element	Description	
Ridership Market	High school and middle school students residing within the City of Waukesha two miles or more from their school would no longer be eligible for "yellow" school bus service provided by the Waukesha School District, and would, instead, use bus service provided by the city fixed route transit system. About 1,200 of the 4,600 regular students currently eligible for yellow school bus service within the Waukesha School District would be affected by the service change. About 3,950 of the 4,600 eligible students are estimated to regularly use the yellow school bus service, with about 1,200 of these regular users residing within the City and about 900 of these regular city users being middle and high school students	
Service	Service would be provided by existing transit system routes and stops, with minor routing adjustments to Routes No. 2, 7, and 9, to serve additional in-city students now served by yellow school bus routes. Approximately 90 percent of additional students would be served with existing route structure. Extra bus trips would need to be added to Routes No. 1, 2, 3, 6, 7, and 9, increasing total bus hours operated by about 25 hours per day, or 4,500 per year. About 10 percent of the students would be carried on existing bus runs. An increase in transit vehicle fleet of 10 buses—nine additional buses to provide service plus one additional spare bus—would be required Regular student fares of 40 cents per one-way trip would be charged and subsidized by the Waukesha School District. The current policy of the Waukesha School District is to provide student transportation at no direct cost to eligible students[a] All additional service would be open to use by the general public	
Ridership	About 680 students per school day may be expected to use the replacement city bus service. This represents about 57 percent of the 1,200 eligible in-city secondary school students, and about 75 percent of the 900 eligible in-city secondary school students who now use yellow school bus service. About 245,000 rides per year would be added to city transit system, an approximately 66 percent increase over projected 1989 ridership levels	
Incremental Costs	Total annual cost[b]	$244,300
	Estimated annual revenue	
	a. School Board contract in lieu of student fares	$ 98,000
	b. State transit operating assistance	32,100
	c. Federal transit capital assistance	127,000
	Total	$257,100
	Net Annual Cost to City Transit System	$ -12,800

[a]*It was assumed that the School District would pay the city transit system $0.40 per ride for each of the approximately 245,000 student rides which may be expected to be made on the replacement city transit system service per year. Otherwise, the School District would be providing bus service at no cost to students outside the City, and charging students residing within the City $0.80 per day for bus service. An alternative would be to assume that the School District would not subsidize the student fares. Under such an assumption, city students would be responsible for paying annually $98,000 in transit fares. In addition, the School district would have the state transportation aid it receives annually to offset school district expenditures for student transportation reduced by about $36,000 because it would no longer be providing transportation for city middle and high school students.*

[b]*Includes annual operating expenses of $85,500, and average annual capital costs of $158,800 for the purchase of 10 new buses at an average cost of $122,500 per year and for the expansion of the transit system operations and maintenance facility at an average cost of $36,300 per year. Average annual capital costs assume a useful life of 12 years for buses and 25 years for improvements to the transit system operations and maintenance facility. A more detailed description of the capital costs is presented in Table 71.*

Source: SEWRPC.

Table 71

ADDITIONAL CAPITAL PROJECT EXPENDITURES REQUIRED FOR THE EXISTING CITY OF WAUKESHA TRANSIT SYSTEM FOR THE ADDITIONAL SERVICE NEEDED TO REPLACE YELLOW SCHOOL BUS SERVICE FOR IN-CITY STUDENTS

Capital Equipment or Project		Unit Cost[a]	Total Cost[a]
Quantity	Description		
10	35-foot-long air-conditioned urban motor coaches	$126,000	$1,260,000
10	Nonregistering locked double-vault fareboxes	700	7,000
10	Mobile radio units	1,700	17,000
10	Electronic message signs	300	3,000
--	Expansion of transit system operations and maintenance facility to accommodate expanded bus fleet (approximately 8,050 square feet)[b]	80[c]	644,000
--	Automatic bus washer system	100,000	100,000
--	Architectural and engineering services[d]	35,300	35,300
	Total acquisition and construction costs		$2,076,100
	Contingencies[e]		201,300
	Project administration[f]		100,000
	Total Capital Project Costs		$2,377,400
	Less costs not eligible for federal funding		$ 0
	Total capital project costs for federal grant purposes		$2,377,400
	Federal share of eligible capital costs[g]		$1,901,900
	Local share of total capital costs[h]		$ 475,500

[a]Expressed in constant 1989 dollars. All costs would be in addition to capital costs for basic service alternatives.

[b]Expansion of the existing facility would entail the following:

1. Addition of nine bus storage berths	*5,250 square feet*
2. Addition of one bus maintenance bay	*1,150 square feet*
3. Expansion of existing parts and equipment storage area	*900 square feet*
4. Expansion of existing office space	*750 square feet*
Total Additional Space Needed	*8,250 square feet*

[c]Per square foot.

[d]Estimated at 7 percent of total construction costs for expansion of transit system operations and maintenance facility.

[e]Estimated at 10 percent of total acquisition costs for buses; 10 percent of construction, architectural, and engineering costs for expanding the existing operations and maintenance facility; and 5 percent of total acquisition and constructions costs for all other equipment.

[f]Estimated at 5 percent of total acquisition costs for buses; 5 percent of construction, architectural, and engineering costs for expanding the existing operations and maintenance facility; and 2 percent of total acquisition and construction costs for all other equipment.

[g]Assumes 80 percent of eligible capital costs funded through UMTA Section 9 formula grant program.

[h]Includes 20 percent matching funds for capital costs eligible for 80 percent federal funding.

Source: City of Waukesha Transit System Utility and SEWRPC.

middle and high school students would be more than offset by the estimated $98,000 in School District subsidy of fares for students on the city transit system. Thus, even with compensating federal and state aids, there would be an increase in the "net" costs for student transportation through the replacement of yellow school bus service with the city transit service, estimated at $14,800 to $34,800 annually.[4]

The proposed replacement of yellow school bus service with city transit system service may also be inconsistent with a current federal policy encouraging contracting with the private sector for public transit services as it could adversely affect the existing private yellow school bus operator. Current federal guidelines encourage consideration of all costs attributable to the provision of transit service by the public operator when specific transit service proposals submitted as competitive bids by private and public transit operators are evaluated by local public bodies. Based on the preceding analysis, the total costs of providing student transportation service to in-city students with the city transit system would be more than the total costs of providing yellow school bus service to such students.

It may be noted that the replacement of yellow school bus service with city transit system service would substantially improve the operating performance of the city transit system, as shown in Table 72. Ridership on the city transit system could be expected to increase by about 245,000 revenue passengers, or by about 64 percent; the farebox recovery rate to increase from 18 to 25 percent of operating expenses, or by 39 percent; and the total deficit per revenue passenger to decrease from $2.19 to $1.32, or by 40 percent.

It may also be noted that the findings of the preceding analysis of the replacement of yellow school bus service with city transit system service are consistent with the findings of a similar analysis conducted by the Commission during the preparation of the previous transit plan for the City. That analysis found that, while the replacement of yellow school bus service for in-city middle and high school students with city transit system service would substantially improve the operating performance of the city transit system, it was more efficient on a total cost basis to serve such students with the existing yellow school bus service.

Expansion of Yellow School Bus Service to Serve Students Residing Within One to Two Miles of School: The Waukesha School Board has in the past considered the possibility of expanding yellow school bus service to more students within the School District by reducing the current two-mile limit for students to qualify for yellow school bus service. Representatives of the Waukesha Unified School District on the Advisory Committee noted that, based on the interest expressed in the past on this issue by the School Board and by residents within the School District, it was possible that the School Board could at some future time consider changing its student transportation policy to expand eligibility for yellow school bus service to elementary, middle, and high school students residing between one and two miles from school. Such a policy change within the School District could affect the need for both the existing city transit service and the alternative service changes proposed earlier in this chapter to serve in-city students. The Advisory Committee accordingly directed the Commission staff to analyze the impacts of extending yellow school bus service to students residing between one and two miles from their schools. The analysis was to address

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[4]*The total and "net" costs for the replacement city bus service would be somewhat different under Alternatives 2 and 3. These alternatives included additional student bus services which, while designed to serve students residing less than two miles from school, could also be used by students currently provided with yellow school bus service. Less bus service and equipment would, consequently, be needed for the city transit system to replace yellow school bus service for city middle and high school students. The total additional annual cost to the city transit system for the replacement bus service under these alternatives is estimated to be $228,000, including annual operating expenses of $81,500 and average annual capital costs of $146,500; and the "net" additional annual cost would be an estimated $18,200 savings with $31,000 in state operating assistance, $117,200 in federal capital assistance, and $98,000 in school district contract for subsidy in lieu of fares. Thus, under Alternatives 2 and 3, both the total costs and the overall "net" costs to the City and School District would also increase with the replacement transit service.*

Table 72

ANNUAL RIDERSHIP AND FINANCIAL PERFORMANCE OF THE EXISTING CITY OF WAUKESHA TRANSIT SYSTEM WITH ADDITIONAL SERVICE NEEDED TO REPLACE YELLOW SCHOOL BUS SERVICE FOR IN-CITY STUDENTS: 1989

Operating Characteristic	Projected 1989 with Existing System	Projected 1989 with Additional Service for In-City Students	
		Incremental Change	Total System
Annual Service Provided			
Revenue Vehicle Hours	28,350	4,150	32,500
Total Vehicle Hours	30,740	4,500	35,240
Service Productivity			
Annual Revenue Passengers	381,500	245,000	626,500
Passengers per Vehicle Hour	13.5	59.0	19.3
Service Cost			
Total Annual Operating Expenses	$1,014,900	$85,500	$1,100,400
Total Annual Operating Revenue	178,300	98,000	276,300
Total Annual Operating Deficit	836,600	-12,500	824,100
Sources of Required Public Funds			
Federal Operating Assistance	$ 181,400	$ 0	$ 181,400
State Operating Assistance	385,700	32,500	418,200
Local Operating Assistance	269,500	-45,000	224,500
Service Effectiveness			
Total Expense per Passenger	$2.66	$0.35	$1.76
Total Revenue per Passenger	0.47	0.40	0.44
Total Deficit per Passenger	2.19	-0.05	1.32
Percent of Expenses Recovered Through Operating Revenues	17.6	114.6	25.1

Source: SEWRPC.

the impacts not only on the existing transit system, but also on a potential expanded transit system, as under Alternatives 2 and 3, which include proposals for expanded service for students residing between one and two miles from their schools within the City. The analysis was conducted for the year 1992 to permit consideration of these alternatives.

During the 1988-1989 school year about 4,900 students, or about one-third of the regular students within the School District, were eligible for school transportation service, including 4,600 students provided with yellow school bus service and 300 students with parent contracts with the School District to provide their own transportation. By expanding eligibility for yellow bus service to students residing between one and two miles from school, it is estimated that an additional 2,000 students would become eligible for yellow school bus service.[5] Since this service, like

[5]*Based upon the estimated population and households within two miles, and within one to two miles, of the schools within the School District, it is estimated that about 55 percent of the public high school students, 40 percent of the public middle school students, 5 percent of the public elementary school students, and 25 percent of the private and parochial school students who are not now eligible for yellow school bus service would become eligible for such service if the School District were to provide yellow school bus service to students residing between one and two miles from school.*

Table 73

ANNUAL RIDERSHIP AND FINANCIAL PERFORMANCE OF THE CITY OF WAUKESHA TRANSIT SYSTEM UNDER BASIC SERVICE ALTERNATIVES ASSUMING REDUCED SERVICE DUE TO EXPANDED YELLOW SCHOOL BUS SERVICE FOR IN-CITY STUDENTS: 1992

Operating Characteristic	Projected 1992								
	Under Alternative 1			Under Alternative 2			Under Alternative 3		
	With Existing Schoolday Service	Incremental Change	With Reduced Schoolday Service	With Proposed Schoolday Service	Incremental Change	With Reduced Schoolday Service	With Proposed Schoolday Service	Incremental Change	With Reduced Schoolday Service
Total Vehicle Hours	31,000	-760	30,240	35,850	-1,810	34,030	38,540	-1,910	36,630
Annual Revenue Passengers	393,000	-108,000	285,000	454,100	-139,000	315,100	469,800	-139,000	330,800
Total Annual Operating Expenses	$1,184,800	$-13,200	$1,171,600	$1,269,000	$-31,500	$1,237,500	$1,315,800	$-33,200	$1,282,600
Total Annual Operating Revenue	183,300	-42,000	141,300	208,800	-54,000	154,800	215,800	-54,000	161,800
Total Annual Operating Deficit	1,001,500	28,800	1,030,300	1,060,200	22,500	1,082,700	1,100,000	20,800	1,120,800
Sources of Required Public Funds									
Federal Operating Assistance	$ 155,500	$ 0	$ 155,500	$ 155,500	$ 0	$ 155,500	$ 155,500	$ 0	$ 155,500
State Operating Assistance	456,100	-5,000	451,100	488,500	-12,100	476,400	506,500	-12,800	493,700
Local Operating Assistance	389,900	33,800	423,700	416,200	34,600	450,800	438,000	33,600	471,600

Source: SEWRPC.

the existing yellow school bus service, would be provided at no direct charge to students, those students who reside between one and two miles from school and currently use regular bus service provided by the city fixed route transit system would no longer be required to pay $0.80 per day, or $15 per month, for school transportation.

Such a policy change within the School District may be expected to have a significant impact on the school district budget for yellow school bus service. Based on the budgeted costs for yellow school bus service during the 1988-1989 school year, as shown in Table 68, and on the number of additional students who would become eligible for yellow school bus service through the expansion of eligibility requirements, it is estimated that the contract costs for yellow school bus service within the School District would increase by $200,000 to $350,000 per year.[6] No additional offsetting state aids would be available for providing the additional yellow school bus service to students residing between one and two miles from school.

With the potential expansion of yellow school bus service, city transit system ridership and farebox revenue may be expected to decline, and the necessary annual operating subsidy may be expected to increase. It was assumed that, with the potential expansion of yellow school bus service, all elementary, middle, and high school students currently using the city transit system to travel between home and school would use the expanded yellow school bus service. As shown in Table 73, the estimated decrease in ridership for the existing city transit system may be expected to be about 108,000 revenue passengers, or about 28 percent.[7] The resultant estimated decrease in annual farebox revenue is $42,000, or about 24 percent. Only a very small amount of existing city transit system service consists of special bus runs operated on school days. That is, only about 760, or 2 percent, of the total 31,000 annual vehicle hours operated by the existing transit system are such special runs. Elimination of these special runs represents an estimated reduction in transit system annual operating expenses of only $13,200, or 1 percent. The estimated impact on the total operating subsidy for the city transit system would be an increase of about $28,800, or less than 3 percent. The estimated impact on the city portion of the

[6] *The range in the estimated increase in contract yellow school bus costs is based upon separate estimates of $200,000 to $260,000 made by the existing private yellow school bus operator and $350,000 made by Commission staff.*

[7] *It may be noted that about 28 percent of the annual system ridership is by students aged 5 through 18 traveling between home and school. On an average weekday when school is in session, these students constitute about 35 percent of the system ridership. The vast majority of these students reside between one and two miles from school.*

operating subsidy for the transit system would be an increase of about $33,800, or about 8 percent.

The very modest increases in the total operating deficit and the city share of the operating deficit do not warrant substantial changes in the city transit system. This is particularly true because the city transit system minimally meets desirable standards for a fixed route transit system. That is, each route of the transit system is essential to the current provision of virtually complete areal coverage of the existing residential areas of the City, with over 98 percent of the resident city population currently located within one-quarter mile of a bus route. The frequency of service offered by the city transit system of 30 to 60 minute headways during peak periods, and 60 minute headways during off-peak periods, represents minimum service frequencies which are necessary to serve conveniently the work trips of employees at area employment centers with varying job start and stop times, along with trips made for shopping and other purposes throughout the day. Eliminating routes or reducing frequencies of service would dramatically reduce the availability of service and the level of service for the system ridership remaining after loss of the elementary, middle, and high school student ridership. Consequently, no corresponding substantial reduction in city transit service may be recommended as a result of the expansion of yellow school bus service within the School District.

Therefore, the impact of a Waukesha School District decision to extend yellow school bus service to students residing between one and two miles from school would be an increase in school district costs of approximately $350,000, and an increase in the total operating deficit for the city transit system of approximately $28,800.

Recommendations Concerning School Transportation Options for City Students: Based on the information presented in the previous sections of this chapter, it is recommended that both student transportation options examined be rejected, since neither option has sufficient benefits to warrant recommending a change in the existing student transportation policy of the School District of Waukesha. In this respect, while replacing the existing yellow school bus service provided to city middle and high school students residing two or more miles from school with city transit service would substantially improve the operating performance of the city transit system, an examination of both the total costs and the local, or net, costs associated with this proposed change indicates that serving city middle and high school students with existing yellow school bus service would be less costly and more efficient than serving them with city fixed route transit service. With respect to the proposed expansion of yellow school bus service to serve city elementary, middle, and high school students residing one to two miles from school, it was found that this would require a significant increase in School District expenditures for yellow school bus service, but that no corresponding substantial reduction in city transit service and, consequently, city expenditures for such service, could be expected.

On August 21, 1989, the Advisory Committee accepted the above recommendation to reject both the proposed changes to the current student transportation policy of the School District.

Recommendations Concerning Transit Service Alternatives

Based on the comparative evaluation of the three basic service alternatives—which proposed changes affecting the basic geographic coverage of the transit system—it is recommended that Alternative 1, which would maintain the existing transit system through the planning period, be rejected. This alternative would not provide for any transit improvements to respond to the development of the City or to unmet student and other travel needs.

Alternatives 2 and 3 are recommended for implementation by the City as they are determined to be practical by City staff. Alternative 1 would add one new regular bus route and restructure an existing bus route—Route No. 7—to improve transit service in the western portion of the City where new residential development is taking place, and to increase the special school day-only transit services provided by the transit system to students not served by the existing yellow school bus service. In addition, it is recommended that the additional transit services proposed under Alternative 3 be also implemented. The restructuring of Routes No. 2 and 3 proposed under this alternative would be implemented if and as the additional residential development envisioned in the southeast portion of the City actually occurs. Both Alternative 2 and Alternative 3 would result in improvement in the overall effectiveness and efficiency of the

transit system, as these alternatives would reduce the total systemwide operating and capital costs per revenue passenger and the total systemwide operating deficit per revenue passenger and increase the systemwide farebox recovery rate.

With respect to the additional alternative service changes which could be made under any of the basic service alternatives, the restructuring of bus service between downtown Waukesha and the Brookfield Square Shopping Center is recommended for implementation by both the City of Waukesha and Waukesha County. The proposed restructuring of the existing bus service between these points is a key element of the recently completed transit plan for the Waukesha County system, since it would facilitate a major restructuring of the existing Waukesha-Milwaukee rapid transit service. The restructuring would allow Waukesha-Milwaukee bus trips currently operating over Blue Mound Road and Greenfield Avenue and serving the Blue Mound Road corridor and Brookfield Square Shopping Center to operate instead over the freeway, resulting in faster travel times. This recommendation recognizes the proposed service could be provided by either the County or the City, and would require agreement between the City and the County on issues relating to the administration, operation, and funding of the service.

Two alternative additional service changes are not recommended for implementation at this time. The service change proposing peak hour express bus service on Route No. 9 between downtown Waukesha and the Waukesha County Technical College is not recommended primarily because it would not be as effective as the rest of the service on the city transit system. While the additional transit service which would be provided through the reduction in off-peak headways on selected bus routes would be more effective than the rest of the service provided by the transit system, this service change was not recommended because of the significant additional capital costs which would be entailed in reducing off-peak headways under the recommended basic service alternatives.

The Advisory Committee acted on August 21, 1989, to accept the staff recommendations presented above, calling for the ultimate implementation of the transit service changes proposed under basic service Alternatives 2 and 3, along with the actions recommended to implement the restructuring of bus service between downtown Waukesha and the Brookfield Square Shopping Center.

SUMMARY

This chapter has described the alternative service plans considered for the City of Waukesha transit system and the plan chosen by the Advisory Committee for adoption and implementation.

Three basic service plans were formulated and evaluated for the City of Waukesha transit system which proposed changes to the basic geographic coverage of the transit system and to the service currently provided to Waukesha area schools. These alternatives included:

- A status quo alternative, under which no changes would be made to the existing transit system as operated in the fall of 1988. In 1992, the annual ridership on the transit system under this alternative was projected to increase to about 393,000 revenue passengers, or by about 5 percent over the 1988 ridership level of 374,000 revenue passengers, and the annual city operating subsidy for the transit system was projected to increase to about $390,000, or by about 50 percent over the 1988 level. The total cost of capital projects required to maintain the existing transit system was estimated at about $93,000, with the city share estimated at about $19,000.

- An alternative proposing the addition of one new regular bus route and an expansion of the transit service provided to serve in-city students not now provided with yellow school bus service. This alternative proposed specific routing changes to four of the eight existing bus routes and the addition of a new ninth bus route to provide transit service to new residential areas in the western portion of the City and to unserved elderly housing complexes. By 1992, the annual ridership on the city transit system under this alternative was projected to increase to about 454,000 revenue passengers, or by about 21 percent over the 1988 level, and the annual city operating subsidy was projected to increase to about $416,000, or by about 60 percent over the 1988 level. The total cost of capital projects required for this alternative, which included the purchase of two new buses and

other related equipment, was estimated at $395,000, with the city share estimated at $82,000.

- An alternative proposing the addition of two new regular bus routes plus expanded student transit services. This alternative included the same routing changes proposed under Alternative 2 together with further modifications to three existing bus routes and the addition of a second new bus route to fully serve new residential areas in the southeastern portion of the City. By 1992, the annual ridership on the transit system under this alternative was projected to increase to about 470,000 revenue passengers, or by about 26 percent over the 1988 ridership level, and the annual city operating subsidy was projected to increase to about $438,000, or by about 68 percent over the 1988 level. The total cost of capital projects required under this alternative, which included the purchase of three new buses and other related operating equipment, was estimated at about $545,000, with the city share estimated at about $114,000.

Additional alternative service changes which could be made under any of the three basic service alternatives were also considered at the specific request of the City of Waukesha. These additional service changes included:

- The restructuring of bus service between the City of Waukesha and land uses along the Blue Mound Road corridor, including the Brookfield Square Shopping Center. This service change was based upon analyses conducted under the transit studies for both the City of Waukesha and Waukesha County transit systems. These analyses identified a potential short-range future need to improve local transit service in the Blue Mound Road corridor for trips between the City of Waukesha and land uses in the corridor, and also to separate local transit service from the rapid transit service provided between the Milwaukee central business district and the City of Waukesha central business district. The service change proposed that the City and the County agree to combine the separate transit services which each agency currently operates within the corridor into one bus service between downtown Waukesha and Brookfield Square. That service could be operated by either the City or the County. The successful implementation of this change would require agreement between the City and the County on issues related to the administration, operation, and funding of the service. If the City were to operate the revised bus service between downtown Waukesha and the Brookfield Square Shopping Center, annual ridership on the city transit system by 1992 would be expected to increase to between 434,000 and 511,000 revenue passengers, or by 9 to 10 percent over the 1992 ridership under the basic service alternatives. The total local funding requirement for the city transit system would be expected to increase to between $433,000 and $481,000 by 1992, or by 10 to 11 percent over the local funds required under the basic service alternatives. The total cost of the capital projects required for the City to operate this service, which would include the purchase of one new bus and related operating equipment, was estimated at about $150,000, with the city share estimated at about $32,000. The costs for the restructured bus service could be lower if the service contract for the combined city-county bus route were awarded to a private operator, using a procurement process similar to that followed by Waukesha County in 1987.

- The reduction of off-peak headways on selected transit system routes. This service change proposed that headways on some transit system routes be reduced from 60 to 30 minutes during weekday mid-day periods and all day Saturday in order to improve transfer coordination between city bus routes at the downtown transfer terminal. By 1992, annual ridership on the transit system would be expected to increase to between 450,000 and 531,000 revenue passengers, or by 11 to 15 percent over the projected 1992 ridership for the basic service alternatives. The annual city operating subsidy would be expected to increase to between $427,000 to $493,000, or by 9 to 13 percent over the local funds required under the basic service alternatives. The total cost of required capital projects, which would include the purchase of two buses under Alternative 1 and the purchase of three buses plus the expansion of the transit system operating and maintenance facility under Alternatives 2 and 3, was estimated

to range from $296,000 to $1.17 million, with the City's share estimated at between $59,000 and $234,000.

- The provision of peak hour express bus service on Route No. 9. This service change would add express routing to reduce travel times between the downtown terminal and two major traffic generators—the General Electric Company, Medical Systems Division plant and the Waukesha County Technical College—located in the far northwest portion of the study area. By 1992, annual ridership on the transit system would be expected to increase to between 404,000 and 481,000 revenue passengers, or by 2 to 3 percent over the ridership levels under the basic service alternatives. The annual city operating subsidy would be expected to increase to between $407,000 and $455,000, or by 4 percent over the local funds required under the basic service alternatives. The total cost of estimated capital projects, which would include the purchase of one additional bus, was estimated at about $148,000, with the City's share estimated at about $30,000.

A comparative evaluation of the alternatives was conducted based upon the additional areas served by each alternative, increases in transit service levels, projected annual ridership levels, projected local cost for each alternative, and the projected efficiency and effectiveness of the proposed transit services. With respect to the three basic service alternatives, the evaluation found that the city funds required to subsidize the annual operation of the transit system could be expected to increase substantially under all three alternatives. In this respect, the annual city operating subsidy would increase by 50 percent between 1988 and 1992—representing an annual increase of about 11 percent—if the City were simply to maintain the existing transit system as proposed under Alternative 1. Under Alternatives 2 and 3, increases in the annual city operating subsidy of 60 percent and 68 percent, respectively, would be required between 1988 and 1992. These alternatives would, however, provide for an expansion of the city transit system to serve areas of new or expanding residential development, unserved employment centers, and elderly housing facilities, plus add additional transit service for students not currently served by yellow school bus service.

Each of the three additional alternative service changes considered for the basic service alternatives would provide for improvements which would stimulate increased ridership on the transit system, but which would also require further increases in the annual city operating subsidy for the transit system.

At the specific request of the Advisory Committee, the Commission staff also reexamined the issue of replacing the yellow school bus service for city secondary school students provided by the Waukesha School Board with bus service provided by the city fixed route transit system. This analysis indicated that, on a total cost basis, continuing to serve city middle and high school students with yellow school bus service was more efficient than serving these students with the city fixed route transit system. The total additional cost to the City for the replacement city bus service was estimated at about $244,000, but the estimated reduction in contract yellow school bus costs would be only $50,000 to $70,000. Thus, total costs were estimated to increase by $144,000 to $194,000.

A comparison of the costs of this proposed change was also made on a local basis—that is, total costs minus offsetting federal and state aids. The analysis indicated that, even with offsetting federal and state aids, there would be an increase in the local costs for student transportation through the replacement of yellow school bus services with the city transit service. This increase in local costs was estimated at between $14,800 and $34,800.

In addition, it was found that such a change was likely to be inconsistent with a current federal policy encouraging contracting with private transit operators for public transit services because it would probably adversely affect the existing private school bus operator. This service proposal did, however, have the potential to substantially improve the ridership and financial performance of the city fixed route transit system.

The Commission staff also examined the potential impacts on the city transit system of a change in school board policy to expand yellow school bus service to students living between one and two miles from school. It was found that, while this may be a desirable goal of the Waukesha School Board, it would increase expenditures for yellow school bus service within

the School District by between $200,000 and $350,000. With the expansion of yellow school bus service, it was assumed that all elementary, middle, and high school students currently using the city transit system to travel between home and school would use the expanded yellow school bus service. A decrease in annual ridership for the existing city transit system of about 108,000 revenue passengers, or about 28 percent, and a decrease in annual farebox revenue of about $42,000, or about 24 percent, could be expected. Since only a very small amount of the existing transit system service, about 2 percent, consists of special bus runs operated on school days to serve student ridership, the elimination of these special bus runs would be expected to reduce the 1992 transit system annual operating expenses by only $13,200, or by about 1 percent; to increase the total operating subsidy for the city transit system by about $28,800, or by less than 3 percent; and to increase the city portion of the operating subsidy for the transit system by about $33,800, or by about 8 percent. These very modest increases in the total operating deficit and the city share of the operating deficit would not create an urgent need for more substantial changes in the city transit system, principally because the city transit system minimally meets desirable standards for a fixed route transit system at present. Consequently, no corresponding substantial reduction in city transit service and city expenditures would be expected to result from the expansion of yellow school bus service within the School District.

It was recommended that the Advisory Committee reject both the school transportation options for City students considered, because analyses of these options indicated that neither of the proposed changes in student transportation services within the School District had sufficient benefits to warrant the change. With respect to the three basic service alternatives, which proposed changes affecting the basic geographic coverage of the transit system, the alternative which proposed maintaining the existing system throughout the planning period was not recommended, as it would not provide for any transit improvements to respond to the growth of the City or to unmet student or other travel needs. Rather, it was recommended that the City of Waukesha implement Alternatives 2 and 3 as they are determined to be practical by City staff. Both these alternatives would expand transit service to provide full coverage of the new and expanding residential areas within the City, and also increase the regular school day-only transit service which the transit system provides for students not served by the existing yellow school bus service. Both alternatives would also result in some improvement in the overall effectiveness and efficiency of the transit system from that projected for the system assuming no changes in service over the planning period.

With respect to the alternative additional service changes which could be made under any of the basic service alternatives, it was recommended that only the service change which proposed the restructuring of bus service between downtown Waukesha and the Brookfield Square Shopping Center be implemented. Because it was recognized that implementation of this change would require agreement between the City and the County on issues relating to the administration, operation, and funding of the restructured bus service, it was also recommended that the City and the County reach agreement on restructuring the existing bus service. The additional service changes proposing the reduction of off-peak headways on selected bus routes and the provision of express bus service on Route No. 9 were not recommended for implementation at this time.

All the above recommendations were accepted by the Advisory Committee at its August 21, 1989, meeting.

Chapter VIII

RECOMMENDED TRANSIT PLAN

INTRODUCTION

Three basic alternative transit service plans for the City of Waukesha transit system were described in Chapter VII of this report. Based upon careful evaluation of these alternatives, the Advisory Committee recommended the implementation of the service changes proposed under Alternatives 2 and 3 as soon as practicable, based upon ridership trends and the pace of new residential development within the City. Additional service changes which could be made under any of the basic service alternatives were also described in Chapter VII. Of the three additional service changes considered, the Advisory Committee recommended the implementation of the restructuring of bus service within the corridor between downtown Waukesha and the Brookfield Square Shopping Center.

This chapter describes the recommended transit plan for the five-year period 1988 through 1992. Presented first is the description of the recommended fixed-route transit service changes for the City of Waukesha transit system. This is followed by a discussion of the alternative operating and administrative strategies which could be used by the City of Waukesha to provide the recommended fixed-route city transit services, and an analysis of the alternative operating agencies and institutions which could be used by the City or Waukesha County to provide these recommended city and county transit services. This chapter then describes the city program for providing specialized transportation service to handicapped persons within the area served by the City's regular fixed-route transit services. This is followed by a summary of the financial requirements entailed, including an analysis of alternative methods for distributing federal transit operating assistance between Waukesha County and the City of Waukesha and an analysis of the financial capacity of the City of Waukesha to implement the plan recommendations. Finally, the actions required by various agencies to achieve plan implementation are identified.

RECOMMENDED FIXED-ROUTE TRANSIT SERVICE

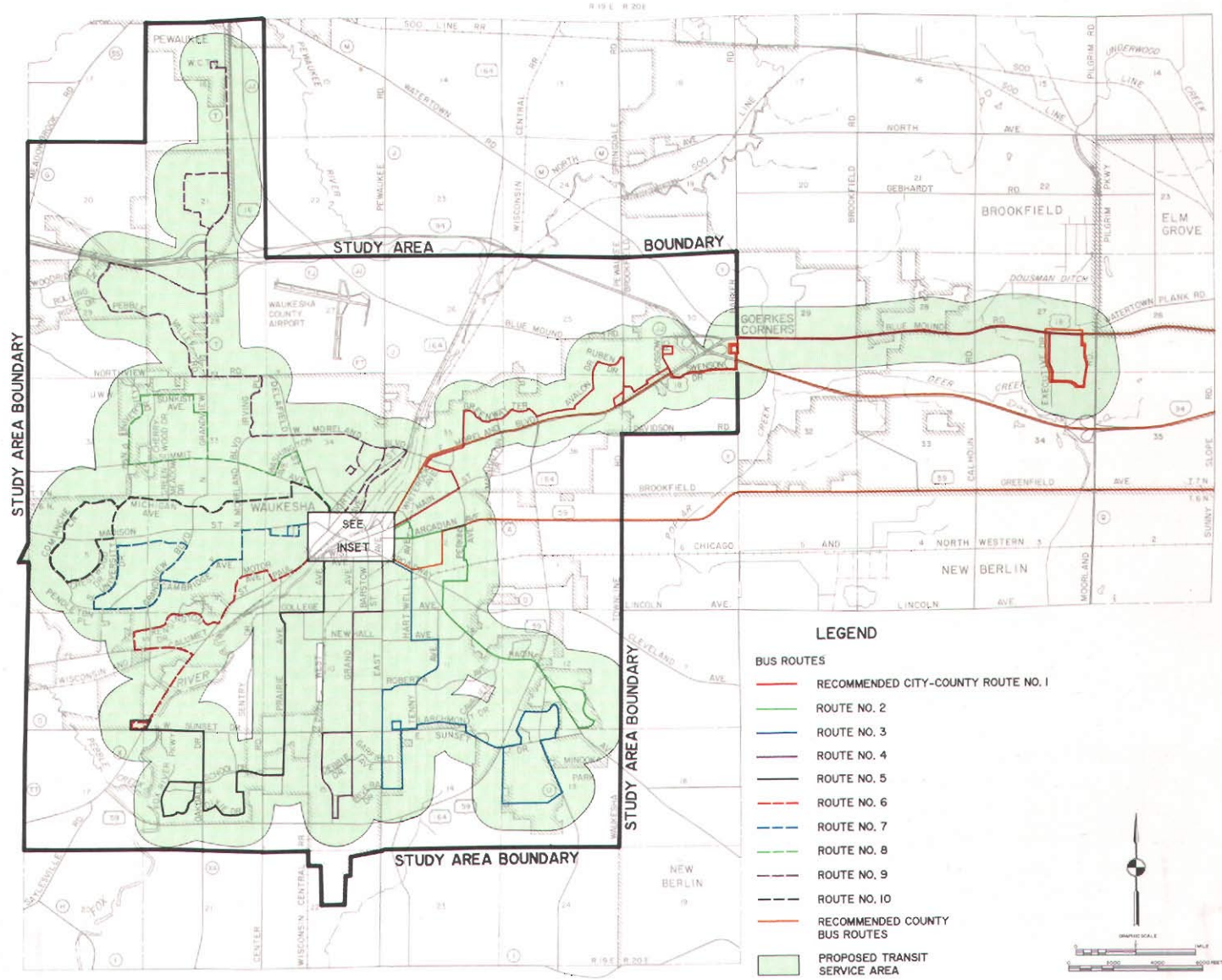
The recommended plan for city fixed-route transit service calls for a number of changes in the existing route structure of the city transit system in order to expand the basic geographic coverage of the system to include areas of proposed new or expanding residential development. The specific routing changes are those proposed under basic service Alternatives 2 and 3, as described in Table 44 and shown on Maps 31 and 33 in Chapter VII. The recommended plan also calls for the restructuring of the bus service provided by the City of Waukesha and Waukesha County within the corridor between downtown Waukesha and the Brookfield Square Shopping Center, as described in Table 54 and shown on Map 35 in Chapter VII. Finally, the recommended plan calls for improved coordination between the local bus service provided within the City of Waukesha and the Waukesha County commuter bus service provided between downtown Waukesha and downtown Milwaukee. The extent of fixed-route bus services that would be provided by or within the City, assuming the implementation of all proposed service changes, is shown on Map 38 in Chapter VII.

Expanded Service Area Coverage

The recommended plan calls for the implementation of the routing and service changes proposed under Alternative 2 and Alternative 3 as they are determined to be practical by city staff. Foremost among the changes proposed under Alternative 2 would be the restructuring of Route No. 7 and the addition of one new regular bus route to improve transit service in the western portion of the City, where new residential development has been completed or is taking place; and the addition of special school day-only transit services to increase the transit service provided by the transit system to city elementary and secondary school students who reside less than two miles from their school and are, consequently, not served by the yellow

Map 38

RECOMMENDED FIXED-ROUTE TRANSIT SERVICES FOR THE CITY OF WAUKESHA

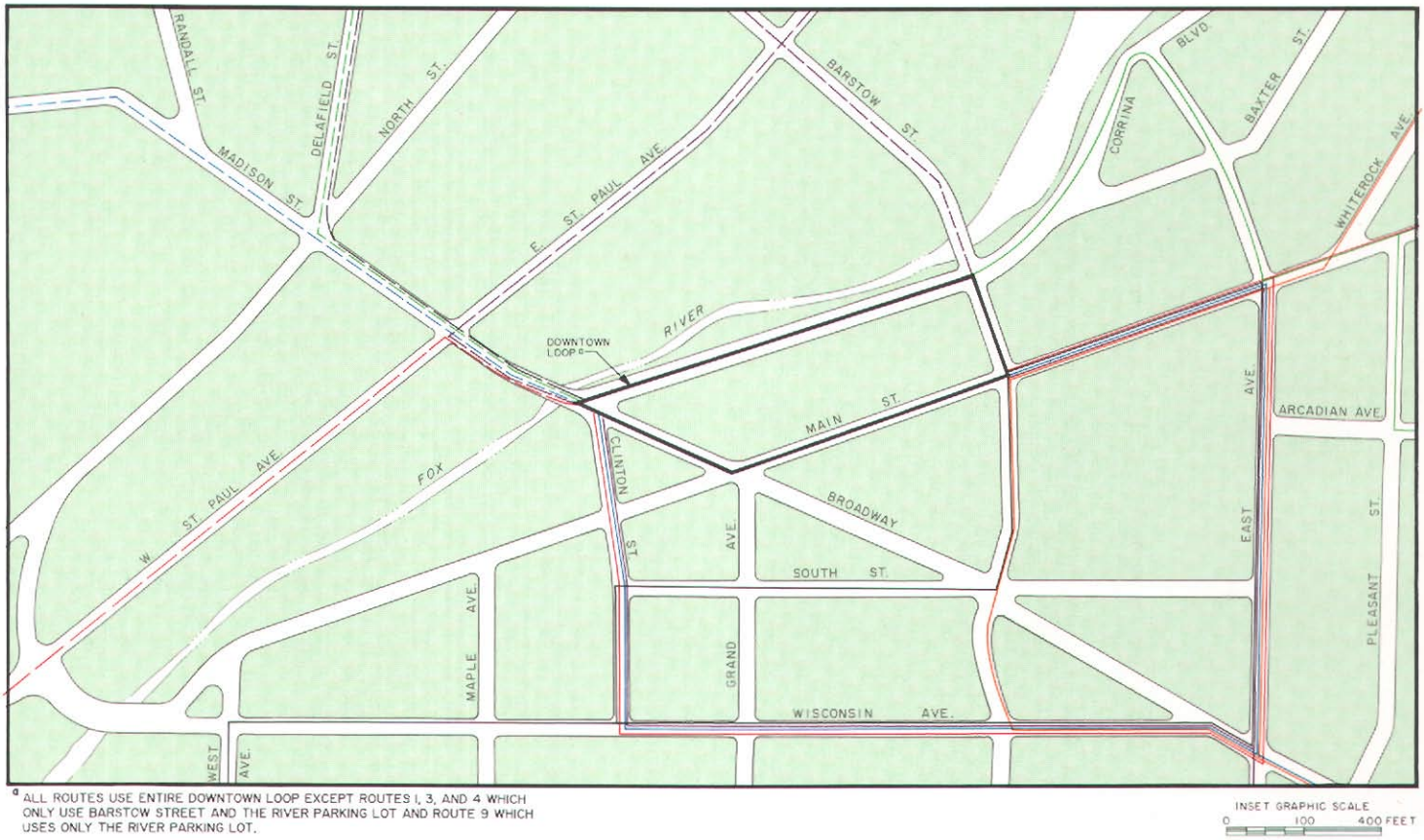


Source: SEWRPC.

school bus service provided by the School District of Waukesha. Other service changes proposed under Alternative 2 would include making minor changes in the downtown routing for Route Nos. 2, 6, and 9, and a reduction in headways from 60 to 30 minutes on Route No. 8 during weekday midday periods and on Route No. 4 all day Saturdays. All these service changes could be considered for immediate implementation.

The recommended plan also calls for the ultimate implementation of the routing and service changes proposed under Alternative 3 which were not also proposed under Alternative 2. One additional change proposed under Alternative 3 calls for creating a second new bus route for the transit system by splitting the existing Route No. 6 into two separate routes to provide for more direct travel between existing residential areas in the southwest portion of the City and

Map 38 Inset



[a] ALL ROUTES USE ENTIRE DOWNTOWN LOOP EXCEPT ROUTES 1, 3, AND 4 WHICH ONLY USE BARSTOW STREET AND THE RIVER PARKING LOT AND ROUTE 9 WHICH USES ONLY THE RIVER PARKING LOT.

downtown Waukesha, as well as to expand transit service to several existing unserved employment centers along Prairie Avenue. This service change could be considered immediately for implementation based upon current conditions along the existing bus route. A second additional change proposed under Alternative 3 calls for restructuring Route Nos. 2 and 3 to provide transit service to three new areas of residential development—David's Park, Legend Hills, and Springbrook—which have been proposed in the southeast portion of the City. This service change would be implemented if and as the proposed additional residential development within the southeast portion of the City actually occurs, which at the present time would appear to be in 1992.

Restructured Bus Service
Within Blue Mound Road Corridor

The recommended plan includes the restructuring of the existing city and county bus services in the corridor between downtown Waukesha and the Brookfield Square Shopping Center. The restructuring of these services would facilitate a major restructuring of the existing Waukesha-to-Milwaukee rapid transit service recommended under the recently completed transit plan for Waukesha County,[1] by shifting Waukesha-to-Milwaukee bus trips currently operating over Blue Mound Road and Greenfield Avenue—and serving the Brookfield Square Shopping Center and the Blue Mound Road corridor—to operate instead over the freeway, thereby resulting in faster travel times for commuters between these points. The proposed restructuring entails essentially the combining of the existing services operated in the corridor by the City of Waukesha and Waukesha County into a single bus service

[1] *See SEWRPC Community Assistance Planning Report No. 105, Waukesha County Transit Plan: 1988-1992, September 1988.*

which could be operated by either the City or the County, and would result in improved service for passengers traveling in the corridor.

The successful implementation of this service restructuring will require agreement between the City and the County on matters related to the administration, operation, and funding of the proposed bus service. It is, therefore, recommended that the City of Waukesha and Waukesha County initiate discussions directed at such implementation, including agreement on the lead agency for operation and for application for supporting federal and state transit assistance funds, on the transit operator for the route, and on the funding of the local subsidy for the service.

Initiation of the restructured bus service between downtown Waukesha and the Brookfield Square Shopping Center will require a significant level of effort, as well as a willingness to negotiate, on the part of both the City and the County. Since it may require some time for the issues associated with this service change to be resolved, the proposed service restructuring may not occur until the end of the planning period.

Improved Coordination with Waukesha County Commuter Bus Services

The recommended plan also calls for improved coordination between the local bus services provided by the City of Waukesha and the commuter bus services provided by Waukesha County. As noted above, the proposed restructuring of city and county bus services within the Blue Mound Road corridor will facilitate the implementation of a major restructuring of the existing Waukesha-to-Milwaukee rapid transit service as recommended under the recently completed transit plan for Waukesha County. In addition to restructuring the existing Waukesha-to-Milwaukee rapid transit service to provide for more direct, high-speed rapid transit service between Waukesha and downtown Milwaukee, the county transit plan also recommends that arrival and departure times of the county and city bus trips serving the downtown Waukesha bus terminal be coordinated. Such schedule coordination should reduce waiting times for passengers transferring between transit systems and promote increased use of both transit systems. It is therefore recommended that Waukesha County work with the City of Waukesha in coordinating the schedules of the County's restructured Waukesha-to-Milwaukee bus routes with the schedules of the City's local bus routes.

The modifications to county transit services between Waukesha and Milwaukee that have been proposed under the county transit plan cannot be implemented until the issues associated with the restructuring of the city and county transit services within the Blue Mound Road corridor described above are resolved. In the interim, it is recommended that actions be taken by both the City and the County to encourage the use of existing county bus routes serving the City of Waukesha. This action would include:

- Showing county bus routes serving the City of Waukesha on the route map for the City's transit system;
- Providing schedule and fare information for each county bus route in the schedules for the city bus routes;
- Coordinating telephone information services so that passengers calling one operation with questions concerning the services provided by the other operation either have their questions properly answered by the operation first contacted or be referred directly to the second transit operation; and
- Coordinating the stops and schedules for such county bus routes, with the posted arrival and departure times of city bus routes at the City's downtown transfer terminal.

ALTERNATIVE ADMINISTRATIVE STRUCTURES AND OPERATING AGENCIES

Alternative Operating and Administrative Strategies for City Transit System

For the purpose of the financial analyses presented in a later section of this chapter, it has been assumed that the City would continue its existing operating and administrative practices to provide the recommended bus routes and service levels described in the preceding section. In this respect, the City of Waukesha owns the equipment and facilities used to provide its fixed-route transit service, but has elected to contract with a private management firm to oversee the day-to-day operation of the transit system. The fee charged by the private firm to manage the city transit system covers the costs of the general manager provided by the management firm to oversee all operations and maintenance functions necessary for the operation of the

transit system, as well as the costs of other services and activities provided by the management company, the most important of these being assistance with labor negotiations. All other transit system personnel involved in the day-to-day operation of the transit system are employees of a local management company subsidiary created by the national management company. With this arrangement, all transit system personnel—with the exception of the Transit Coordinator, who is a member of the staff of the City of Waukesha Department of Public Works—are employed by private enterprise. The Transit Coordinator is specifically responsible for the supervision of the activities of the management firm, as well as the administrative affairs associated with transit planning and programming, federal and state grants administration, and marketing and policy implementation.

This operating and administrative strategy has been used by the City since it began operation of the transit system in 1981. It has worked well for the City, providing it with skilled transit system management personnel. The City has adhered to a policy of competitively awarding the management service contract for its transit system beginning during the formation of the transit system during 1981 and continuing with the most recent management contract, which runs through July 1990.

During the course of the transit study, alternatives to the current operating and administrative strategy were identified. One alternative would have the City contract with a private transit operator for the operation of its fixed-route transit system. Under this strategy, the contract with the private transit operator would provide for more than just day-to-day management activities of the general manager, but also for the activities of all other transit system personnel, with the exception of the Transit Coordinator. The vast majority of transit system operating expenses, and not just management service fees, would, therefore, be subject to a competitive bidding process involving interested private transit operators. Under this arrangement, the City could lease the existing publicly owned transit operating equipment and facilities to the private transit operator for use in operating the city transit system. The City could also use operating equipment and facilities supplied by the private transit operator under a contract with the City, in which case the City could dispose of the existing publicly owned operating equipment and facilities. This second equipment option would be similar to a proposal made to the City and to the study advisory committee by the private transit operator represented on the Advisory Committee. In either case, the City would also have to determine whether or not the private transit operator would be required to use the existing transit system personnel, or be allowed to supply its own personnel.

A second alternative to the existing operating and administrative strategy for the city transit system would be to convert the system to full municipal operation. Under this arrangement, the City would no longer contract for management services, but would retain its own general manager and operate the system entirely with public employees. The City would need to consider whether the reduction in transit system expenditures which would result from elimination of the fee for private management services would be sufficient to offset any increase in personnel costs which could result from providing transit system employees with wages and benefits commensurate with city employees holding similar positions.

While the staff and elected officials of the City of Waukesha have indicated that they are satisfied with the current operating and administrative arrangement for the city transit system, they have also expressed an interest in exploring alternatives to the current arrangement which could result in a reduction in public expenditures for transit service. The need to reexamine the current administrative structure of the city transit system was also suggested in the findings of a management performance audit of the city transit system conducted during 1989 by a consultant retained by the Wisconsin Department of Transportation. Accordingly, the City of Waukesha Transit System Utility Board, in October 1989, created a special subcommittee of the Board comprising city officials and representatives from the Wisconsin Department of Transportation and the Southeastern Wisconsin Regional Planning Commission. The subcommittee was charged with identifying alternative operational and administrative arrangements for the city transit system and assessing the advantages and disadvantages of each alternative identified. This special subcommittee is to report its findings by March 15, 1990, to the

Waukesha Transit System Utility Board. That Board will then determine whether the City should continue its current practice of contracting for management services from a private management firm or pursue some other operating and administrative arrangement identified and recommended by the special study subcommittee. A decision by the Transit System Utility Board in early 1990 would allow sufficient time for the City to competitively award contracts either for management services with private management firms or for operation of the transit system by a private transit operator.

Alternative City-County Operating Agencies and Institutions

During the course of the transit study, and of a separate transit study also conducted by he Commission for Waukesha County, concerns were raised by members of the two Advisory Committees overseeing the studies concerning the most appropriate strategy for overseeing the operation and administration of all public transit services in Waukesha County. In response to these concerns, an analysis was undertaken of alternative operating agencies and institutions which could be used to oversee the operation of both the contract transit services provided by Waukesha County and the local transit service provided by the City of Waukesha. These alternatives include: 1) the operation of all transit services in the County by Waukesha County; 2) operation of all transit services in the County by the City of Waukesha; 3) operation of all transit services in the County by a transit authority; and 4) separate, but coordinated operation of city and county transit services.

In reviewing these four alternative strategies, consideration was given to the transit services provided to both the general public and to handicapped persons by the County and the City. It was concluded that, because the provision of specialized transportation service to handicapped persons is necessary in order for both operators to continue to receive federal transit assistance funds, the specialized transportation services provided under the handicapped transit programs for the county and city transit systems[2] should be included in the transit services for which operating and administrative strategies were to be evaluated. In this respect, the City transit system provides such specialized transportation services by contracting with a private school bus operator; while Waukesha County provides such specialized transportation services as part of the transportation services offered by the Waukesha County Department of Aging.

It was also concluded that the Department of Aging's other specialized transportation services should not be included in the transit services for which operating and administrative strategies would be evaluated. This conclusion was based upon the determination that the Department's other services have no direct relationship to either the county or the city public transit programs, and are designed to serve a different clientele and market than services for the general public. In addition, it was also determined that Waukesha County could contract for part or all the specialized transit services provided under the county handicapped public transportation program from a private transit operator instead of using the services provided by the Department. For these reasons, it was determined that the Department of Aging's other specialized transportation services should continue to be operated and administered separately from the general public transportation services provided by Waukesha County and the City of Waukesha. It should be noted that the Commission staff has been requested by the Waukesha County Department of Aging to conduct a study of specialized transit services within Waukesha County. This study will again address the administration and operation of the county specialized transit services.

Alternative Evaluation and Recommendation: Table 74 presents a comparative analysis of the four alternative operating and administrative strategies considered. Two of these strategies basically call for either the County or the City to assume responsibility for overseeing the operation and administration of both public transit systems. The City would be well equipped to assume an expanded role in providing transit services, as it currently has more extensive transit operation and staff resources than the County. The City also has shown a higher level of commitment to the provision of public transit services based upon the history of the local funding it has provided for its transit system. It may also be practical for the City to operate

[2] *See SEWRPC Memorandum Reports No. 17, A Public Transit Program for Handicapped Persons—City of Waukesha Transit System Utility, May 1987; and No. 22, A Public Transit Program for Handicapped Persons—Waukesha County Transit System, June 1987.*

Table 74

COMPARATIVE ANALYSIS OF ALTERNATIVE STRATEGIES FOR OVERSEEING OPERATION AND ADMINISTRATION OF EXISTING WAUKESHA COUNTY AND CITY OF WAUKESHA PUBLIC TRANSIT SERVICES

Characteristic	Alternative Operating/Administrative Strategy			
	City Operation of All Transit Service	County Operation of All Transit Service	Operation of All Transit Service by Transit Authority	Separate, But Coordinated, Operation of City and County Transit Services
Description	Requires City to assume responsibility for overseeing operation and administratration of Waukesha County contract bus services in addition to city transit system	Requires County to assume responsibility for overseeing operation and administration of City of Waukesha transit system in addition to existing contract bus services	Requires the creation of a transit authority pursuant to Section 66.94 of Wisconsin Statutes to oversee operation and administration of both Waukesha County contract bus services and City of Waukesha transit system Creation of authority within Waukesha County would entail: 1. Adoption of authorizing state statute by the municipalities within the district to be served by the transit authority, with the district having a population in the aggregate of more than 100,000 persons. At a minimum, district would need to include Cities of Waukesha and Brookfield, and Village of Menomonee Falls 2. Enactment of an ordinance by the municipality having more than 50 percent of existing transit route miles in the district —City of Waukesha—which indicates acceptance of the authority by the municipality and designates date on which authority is to commence to exercise its powers 3. Appointment of seven members to the governing board of authority, including: a. Three members appointed by mayor of municipality in district having largest population—City of Waukesha b. Three members appointed by Governor c. One member nominated by previous six 4. Appointment of a general manager by the governing board and the hiring of necessary staff	Requires County and City to improve coordination of certain elements of both transit programs, including staff resources and selection of contract operators/management firms
Advantages	1. Would relieve County of direct responsibilities associated with operation and administration of its transit services 2. City is better suited for expanded role in providing county transit services as it has more extensive transit operation and staff resources than County 3. City has indicated a substantial level of commitment to public transit based on history of city funding for transit system	1. County represents most logical provider of transit services, because: a. Its area of jurisdiction encompasses entire County b. It is the designated recipient of federal formula transit assistance funds used by both County and City	1. Would relieve City and County of direct responsibilities associated with operation and administration of transit services	1. Would not require County or City to give up direct control of existing transit programs 2. Staff coordination would facilitate better coordination in the planning and operation of city and county transit services, particularly with regard to route and stop locations, service schedules, fares, and transfers between systems 3. Could allow County to develop or utilize staff resources with more expertise on transit matters, including grant management 4. Could possibly result in efficiencies for both operations by facilitating the selection of a common operator to operate and manage both systems
Disadvantages	1. Would require City to be responsible for transit services for general public and handicapped persons not directly benefiting city residents—i.e., freeway flyer service between Menomonee Falls and downtown Milwaukee 2. Would require local public funds from sources other than City, such as Waukesha County, to continue operation of bus services outside City of Waukesha	1. Would require City to give up direct control of its local bus system 2. Would require County to acquire, by lease or purchase, the operating equipment and facilities of city transit system 3. Would require a substantially greater level of county commitment to transit service than County has at present	1. Would require City to give up direct control of its local bus system 2. Would require local funds from County and City or passage of new state legislation giving transit authority power to levy taxes 3. Assuming passage of such legislation, creation of authority could be opposed by population, as it would represent a taxing body composed of nonelected officials 4. Large representation on governing board from one municipality—the City of Waukesha—may raise issue of the authority's impartiality in providing transit services	1. Would require County to explore means of increasing staff resources available to county transit program, including possibility of contracting with City for use of city staff, or reassigning existing county staff from County's specialized transportation program 2. Selection of common firm to operate and manage both transit systems cannot be assured as a result of competitive bid process followed by both County and City
Conclusion	Not recommended	Not recommended	Not recommended	Recommended for implementation

Source: SEWRPC.

certain portions of the county bus system which currently serve City of Waukesha residents—such as county bus routes operated between downtown Waukesha and Goerke's Corners and downtown Milwaukee. However, these routes also serve other communities within the County. In addition, other county bus routes—such as freeway flyer bus service between the Village of Menomonee Falls and the City of Milwaukee central business district—provide no transit service for City of Waukesha residents. It may be difficult, therefore, to justify to city taxpayers the time and effort spent by city staff in supervision of the operation of such services or in obtaining funds to subsidize their continued operation.

Along with responsibility for the provision of county transit services for the general public, the City would also be required to assume the County's responsibility for meeting all federal guidelines pertaining to the use of federal transit assistance funds. This would include the provision of specialized transit services for handicapped persons within the areas served by county bus routes. A recent analysis of the county handicapped transit program conducted by the Commission found that the County will need to expand the specialized transit service it currently provides to meet federal requirements. As of this time, no expansion of the service has been implemented. Consequently, the City may also be required to assume this responsibility. Failure to meet this or any other federal guideline could jeopardize federal funding for city as well as county transit services.

It is also possible that county funds for the existing and proposed county transit services would be discontinued once the City agreed to assume responsibility for the operation. The County has already indicated an intention to do so in a recent proposal—since withdrawn—which it made to the City for assuming responsibilities for the contract county transit services. Under this proposal, the County would continue to provide a limited amount of funds through 1990 to subsidize the county bus routes if operated by the City. After 1990, the County would discontinue funds for the transit services. The City would then be required to directly provide or obtain from other local governments any local funds needed for county transit services—including specialized public transit services for handicapped persons required by current federal guidelines—or to assume responsibility for the elimination of county transit services, including some which may warrant retention. For all these reasons, city operation of all transit services is not recommended.

Operation of all transit services by Waukesha County would represent a more logical operating and administrative alternative by virtue of the fact that the county area of jurisdiction encompasses all the communities in Waukesha County currently provided with public transit service. This strategy would, however, require a substantially higher level of commitment to transit service than the County has been willing to make in the past. In addition, it would also require recognition by the County that transit service is warranted only for specific areas of the County, and should only be provided to serve those areas. It is also doubtful that the City would agree to transfer control of its public transit system to the County, given the past level of commitment exhibited by the County toward its own transit program. Accordingly, this alternative is also not recommended.

Under the third operating and administrative strategy, an independent transit authority would be created to oversee the operation and administration of both Waukesha County and the City of Waukesha transit services. Creation of such authority in any county having a population of 125,000 or more persons is authorized under Section 66.94 of the Wisconsin Statutes. While the authorizing Statute prescribes the specific steps which must be taken to create the transit authority and governing board for a specific area, or district, within the County, and empowers the authority to acquire, construct, operate, and maintain public transit systems serving the district, the Statute provides the authority with no powers of taxation. The operating and capital costs incurred for the public transit services provided by the authority must be covered by the combination of revenues generated by the users of the authority's public transportation services, and grants and loans secured from federal, state, or municipal governments. Consequently, if local funds are required to support the operation of the transit services, the authority would need to request that such funds be included in the annual budgets of Waukesha County, the City of Waukesha, or other municipalities within the district. This could make it difficult for a transit authority to obtain the local funds needed to support the transit services to be provided. Accordingly, this alternative is also not recommended.

Based on the problems associated with the first three alternative strategies, the operating and administrative strategy outlined under the fourth alternative would appear to represent the most practical arrangement for the County and the City, and is, therefore, recommended. Under this alternative, both Waukesha County and the City of Waukesha would continue to provide public transit services, but would make efforts to improve the coordination of the two transit programs, including the shared use of the staff resources required. A further step toward coordinating both transit programs would be for the County to contract with the City of Waukesha for the use of existing city staff to assist the county staff in transit matters where the city staff has more expertise. Such shared use of staff by both the City and the County would also facilitate better coordination in the planning and operation of both city and county transit services, particularly with regard to route and stop locations, service schedules, fares, and transfers between systems.

In addition, the fourth alternative strategy proposes that the City and County make an effort to coordinate the separate competitive bid processes followed to award contracts for the operation of the county bus services and the operation and management of the city transit system. In this respect, the selection of a common firm to operate and manage both the city and county transit systems may have the potential for increased efficiencies and lower costs for both operations. Whether it would be possible for a common firm to be awarded contracts for both systems, or for the City and the County to realize a savings in the costs of system operation by contracting with a common firm, is uncertain, as those possibilities would depend upon the bids submitted by the private firms competing for both the city and county contracts. The possibility of city and county coordination in this area would also be dependent upon a decision by the Waukesha Transit System Utility Board to competitively award contracts for either management services or for operation of the city transit system. As already noted, a special subcommittee of the Transit System Utility Board has been formed to advise the Board on alternative operating and administrative strategies for the city transit system.

Should both Waukesha County and the City of Waukesha solicit bids for operation and management of the respective transit services during 1990, efforts to coordinate the two bid processes could be made. At a minimum, such efforts should include following a common timetable for the competitive bid processes for both systems, and awarding contracts for the same period of time. Further efforts at coordination could possibly include issuing a common announcement indicating that separate requests for proposals were being solicited by the City and the County, or combining county and city contract operation management services into a single request for proposals. These last two coordination efforts may be more difficult to implement as they would require one unit of government or the other to act as the lead agency in soliciting service proposals for both the County and the City.

SPECIALIZED TRANSPORTATION SERVICE FOR HANDICAPPED PERSONS

As a condition of federal transit assistance, the City of Waukesha is required to provide public transit services which can be effectively used by handicapped persons who are unable to use the transit services provided for the general public. This requirement has been most recently specified in regulations issued by the U. S. Department of Transportation, Urban Mass Transportation Administration (UMTA) on May 23, 1986, which amended regulations previously issued by the Department governing nondiscrimination on the basis of handicap in federally assisted public transportation programs relative to the nondiscrimination requirements of Section 504 of the Federal Rehabilitation Act of 1973. The amended regulations issued by UMTA required each recipient of federal transit assistance under the UMTA Sections 3, 5, 9, or 9A programs that operate a bus system serving the general public to document and submit to UMTA for review a program for providing public transportation service to handicapped persons. A report presenting the City of Waukesha Transit System Utility's proposed public transportation program for handicapped persons was completed by the Regional Planning Commission staff at the request of the City of Waukesha and transmitted to UMTA in June 1987.[3]

[3]*See SEWRPC Memorandum Report No. 17, A Public Transit Program for Handicapped Persons—City of Waukesha Transit System Utility, May 1987.*

Since 1982, the City of Waukesha Transit System Utility has provided public transportation services for handicapped persons in compliance with previously issued federal regulations through the Waukesha Metrolift Program. The specialized transportation service provided under this program is designed to provide mobility to handicapped persons who are unable to use the regular city bus service due to a physical disability. Under the current program, the Transit System Utility offers a door-to-door lift-equipped bus service to handicapped individuals for trips with origins or destinations within the service area of the City's fixed-route bus system. To provide the service offered under the program, the City contracts with Dairyland Buses, Inc., a private yellow school bus operator in the area.

The current federal regulation allows recipients of federal transit assistance a choice of three alternative service options for providing transportation service to handicapped persons: 1) providing some form of specialized transportation service; 2) providing accessible bus service; or 3) providing some combination of specialized transportation and accessible bus service. The Waukesha Transit System Utility reevaluated the potential of each of these basic service options to meet the transportation needs of the handicapped persons in the Waukesha area. Based upon this reevaluation of alternative options, the Transit System Utility determined that it would comply with the current federal regulations by providing a specialized transportation service for handicapped persons and by retaining the existing Metrolift Program to provide this service.

No changes in the operating service characteristics of the existing Metrolift Program were proposed by the Transit System Utility in order to meet current federal regulations. In this respect, the service characteristics of the Metrolift Program were found to satisfy the minimum service criteria specified under the final federal regulation for specialized transportation service, as shown in Table 75. More importantly, the service provided by the Metrolift Program is believed to best address the mobility problems experienced by the transportation handicapped population in the Waukesha area. In addition, because the specialized transportation service currently provided under the Metrolift Program meets all the minimum service criteria set forth in the final regulation, the Waukesha Transit System Utility is not required to increase expenditures on the Metrolift Program, even though the actual program expenditures are below the "cap level" of expenditures prescribed under the current federal regulation.[4] The Metrolift Program in its current form, was approved by UMTA as the City's required public transportation program for handicapped persons in June 1988.

No significant changes to the Waukesha Metrolift Program are proposed to be made as a result of the recommended changes in the fixed-route transit system operated by the City. The only change envisioned for the Metrolift Program would be an expansion of the Metrolift service area to coincide with the expansion of the service area for the City's fixed-route transit system. In the event that significant changes to the City's public transit program for handicapped persons are proposed in the future, the

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[4] *Under the current regulation, each recipient of federal transit assistance funds is required to meet the minimum service criteria for whichever service option it chooses to provide transit service to handicapped persons subject to a "cap," or maximum required, annual level of expenditures by the recipient. A cap level of annual expenditures equal to 3 percent of the recipient's average operating expenses for all public transportation services provided, calculated upon projected current year expenditures and expenditures for the two immediately preceding fiscal years, has been set forth in the current regulation. The recipient is not required to spend more than this limit even if, as a result, it cannot provide a level of service which fully meets all the service criteria for the service option it has selected. A recipient can also provide a level of service which fully meets the minimum service criteria for an amount less than the specified cap, as is the case with the City of Waukesha's Metrolift Program. It should be noted that a federal appeals court ruled in July 1989 that the section of the current regulation pertaining to the "cost cap" was invalid, and ordered the U. S. Department of Transportation to redefine the required expenditure limits and issue amended current regulations. In the interim, the current regulation remains in effect.*

Table 75

COMPARISON OF CHARACTERISTICS OF THE SPECIALIZED TRANSPORTATION CURRENTLY PROVIDED UNDER THE METROLIFT PROGRAM WITH THE MINIMUM SERVICE CRITERIA SPECIFIED UNDER THE FINAL RULE

Service Characteristic	Minimum Service Criteria for Specialized Transportation Service Prescribed Under Final Rule	Characteristics of Specialized Transportation Service Provided Under METROLIFT Program	Characteristics of Regular Transit Service Provided by Waukesha METRO Fixed-Route Bus System
Eligibility	All persons who, by nature of their handicap, are physically unable to use the recipient's regular bus service for the general public	All elderly and nonelderly persons whose handicap makes it absolutely impossible for them to use the regular fixed-route bus service provided by Waukesha Metro Transit	All persons physically capable of using regular transit buses
Response Time	Service provided within 24 hours of request for service	Service on a 24-hour advance-reservation basis	Service provided on basis of regular fixed schedules
Restrictions or Priorities Placed on Trips	None	None	None
Fares	Fares comparable to fares for a trip of similar length made at a similar time of day charged to a user of the recipient's regular bus service for the general public[a]	Fare of $1.75 charged to all users regardless of length of trip or time of day	Base adult fare of $0.60 charged regardless of length of trip or time of day
Hours and Days of Operation	Service provided on same days and during same hours as the recipient's regular bus service for the general public	Weekdays: 6:15 a.m.-6:00 p.m. Saturdays: 9:00 a.m.-6:00 p.m. Sundays and Holidays: No service	Weekdays: 6:00 a.m.-6:00 p.m. Saturdays: 9:00 a.m.-6:00 p.m. Sundays and Holidays: No service
Service Area	Service provided throughout the same geographic area as served by the recipient's regular bus service for the general public	Service provided to all areas within one-quarter mile of fixed bus routes for the general public operated by Waukesha Metro Transit	Area within one-quarter mile of regular bus route

[a] *In determining the comparability of fares charged on a recipient's fixed-route bus service and specialized transportation service, UMTA will consider, as the basis for making this comparison, the fare which the individual would be charged for making the trip on the recipient's fixed-route bus service if he or she were not handicapped.*

Source: U. S. Department of Transportation, City of Waukesha Transit System Utility, and SEWRPC.

Waukesha Transit System Utility has indicated that it will continue to work with the special advisory committee—the Advisory Committee on Transportation for Disabled Persons in the City of Waukesha—created by the City of Waukesha to oversee the development and documentation of the City's public transportation program for handicapped persons. Any proposed changes to the program would also be presented to the handicapped community in accordance with the public participation process outlined in the final federal regulation, including soliciting comments from the handicapped community through a formal public comment period and through a public hearing. A report would then be prepared by the Transit System Utility documenting any proposed revisions to the public transportation program for handicapped persons, the schedule for implementing any proposed changes, the public comments received from the handicapped community concerning the proposed program revisions, and the Transit System Utility's responses to any significant comments received. This report would be submitted to UMTA for its review and ultimate approval in accordance with the procedures described under the final federal regulations.

It should be noted that changes to the current federal regulations governing public transportation service for handicapped persons, which would affect the City's handicapped transportation program, may occur in the near future. Proposed legislation in the U. S. Congress would essentially require that all new vehicles purchased by public transit operators providing fixed-route transit services be equipped with wheelchair lifts or ramps to make them readily accessible to disabled persons. In addition to mandating the provision of accessible mainline transit service, the legislation would require that supplementary specialized transit services also be provided by such public transit operators. The City of Waukesha will, consequently, need to monitor closely the situation to ensure that

future vehicle purchases will comply with any revised federal regulations promulgated as a result of passage of the proposed legislation.

FINANCIAL COMMITMENT

A commitment of funds will be required to subsidize the annual operation of the recommended transit system. Available federal and state funds are recommended to be drawn upon to reduce the city financial commitment toward the annual operating costs of the transit system and the costs of acquiring the necessary operating equipment. This section of the chapter identifies the required financial commitment for the recommended transit system over the planning period, suggests how this commitment might be shared among available funding sources, and presents an analysis of the capacity of available funding sources to provide the required monies over the planning period.

Financial Performance

Projections of ridership, expenses, revenues, and public subsidies presented in the previous chapter for the recommended service changes proposed under basic service Alternatives 2 and 3 assume implementation of all proposed service changes in 1990. The financial performance projections in this chapter assume the staged implementation of all recommended service changes, with those proposed under Alternative 2 implemented in 1990, and the additional service changes proposed under Alternative 3 implemented in 1992. All financial projections are expressed in estimated year of expenditure dollars and reflect the assumptions concerning factors affecting forecast transit ridership and local funding levels described in the previous chapter (see Table 43 in Chapter VII). Such projections for the city transit system also serve as a basis for the assessment of financial capacity presented in a later section of this chapter.

Table 76 presents information on the ridership and financial performance of the city transit system with the recommended service changes for the period 1988 through 1992. With the staged implementation of the recommended basic service changes, both ridership and service levels on the transit system may be expected to increase by about 25 percent by 1992 over 1988 levels. Operating expenses and operating deficits for the transit system are projected to increase by about 33 and 35 percent, respectively, between 1988 and 1992. The projected increase in the operating deficit, coupled with projected decreases in federal transit operating assistance funds, may be expected to result in an increase of about 70 percent in the city operating subsidy for the transit system between 1988 and 1992.

In addition, the City will also be responsible for providing a portion of the local funds required to operate the single bus route which is recommended to replace the existing city and county bus routes currently operated in the corridor between downtown Waukesha and the Brookfield Square Shopping Center. It is assumed that the issues associated with the implementation of this service could be resolved by the City and the County in time for the proposed service to be initiated in 1991. As the responsibility for overseeing the operation of this bus route could rest with either the City or the County, the ridership and financial projections for this recommended service have been presented in two ways. The impacts of the recommended bus service on the City of Waukesha transit system with the recommended basic transit service changes are shown in Table 76. Table 77 identifies the ridership and financial performance of the recommended transit service as a separate bus route removed from the City of Waukesha transit system. Assuming operation of the route by the City of Waukesha transit system, the total local public funding requirement for the proposed service is projected to be about $43,000 by 1992. Of this amount, the City of Waukesha would be responsible for about $24,000, or 56 percent, and Waukesha County would be responsible for about $19,000, or 44 percent.

Fares

Fares are among the most sensitive and visible elements of transit services. Motorists, although aware of the costs incurred for motor fuel, can travel from interstate highways to county roads to city streets without ever being fully cognizant of the financial outlays required to construct and maintain the street and highway system they are using. In contrast, the transit user is reminded of the cost of his journey each time he boards the bus and pays the fare for his trip. Perhaps for this reason, questions often arise concerning the reasonableness of transit fares.

The preceding analysis was conducted assuming no changes in the existing fare structure for the City of Waukesha transit system would be made over the planning period. The fare structure for

Table 76

ANNUAL RIDERSHIP AND FINANCIAL PERFORMANCE OF THE CITY OF WAUKESHA TRANSIT SYSTEM WITH RECOMMENDED SERVICE CHANGES

Operating Characteristic	1988 Actual	Projected 1989-1992[a]							
		Under Recommended Transit System with Only Basic Service Changes				Under Recommended Transit System Including Restructured Bus Service in the Blue Mound Road Corridor[b]			
						Incremental Change		Total System	
		1989	1990	1991	1992	1991	1992	1991	1992
Annual Service Provided									
Revenue Vehicle Hours	28,530	28,350	32,790	32,790	35,540	4,520	4,580	37,310	40,120
Total Vehicle Hours	30,920	30,740	35,560	35,560	38,540	4,910	4,970	40,460	43,510
Service Productivity									
Annual Revenue Passengers	374,000	381,500	441,800	448,600	467,900	29,800	41,300	478,400	509,200
Passengers per Vehicle Hour	13.1	13.5	13.5	13.7	13.2	6.6	9.0	12.8	12.7
Service Cost[c]									
Total Annual Operating Expenses	$989,200	$1,014,900	$1,165,700	$1,198,500	$1,315,800	$104,400	$110,700	$1,302,900	$1,426,500
Total Annual Operating Revenue	175,000	178,300	203,500	206,500	215,000	17,700	24,700	224,200	239,700
Total Annual Operating Deficit	814,200	836,600	962,200	992,000	1,100,800	86,700	86,000	1,078,700	1,186,800
Sources of Required Public Funds									
Federal Operating Assistance	$183,300	$ 181,400	$ 172,300	$ 163,700	$ 155,500	$ 0	$ 0	$ 163,700	$ 155,500
State Operating Assistance	371,000	385,700	448,800	461,400	506,500	40,200	42,700	501,600	549,200
Local Operating Assistance	259,900	269,500	341,100	366,900	438,800	46,500[d]	43,300[d]	413,400	482,100
Service Effectiveness									
Total Expense per Passenger	$2.65	$2.66	$2.64	$2.67	$2.81	$3.50	$2.68	$2.72	$2.80
Total Revenue per Passenger	0.47	0.47	0.46	0.46	0.46	0.59	0.60	0.47	0.47
Total Deficit per Passenger	2.18	2.19	2.18	2.21	2.35	2.91	2.08	2.25	2.33
Percent of Expenses Recovered Through Operating Revenues	17.7	17.6	17.5	17.2	16.3	17.0	22.3	17.2	16.8

[a] *Based upon assumptions affecting ridership and financial projections shown in Table 43 in Chapter VII.*

[b] *Assumes operation of the restructured bus service between downtown Waukesha and the Brookfield Square Shopping Center by the City of Waukesha. The costs for the service could be different if the service contract for the route were awarded to a different operator through a competitive procurement process. Table 77 identifies the ridership and financial performance of this recommended bus service as a separate bus route removed from the City of Waukesha transit system.*

[c] *Includes operating costs associated with providing both fixed-route transit service for the general public and specialized transportation service for disabled persons.*

[d] *It is recommended that the restructured bus service between downtown Waukesha and the Brookfield Square Shopping Center be jointly funded by both the City of Waukesha and Waukesha County. The City's share of the incremental operating deficit for this service is projected to be $24,500 in 1991 and $24,200 in 1992. The County's share of the incremental operating deficit for this service is projected to be $21,100 in 1991 and $19,100 in 1992.*

Source: SEWRPC.

the city transit system has undergone only one change since it was implemented in 1981, in August 1985. At that time, the base adult cash fare was raised from $0.50 to $0.60 per one-way trip; the student fare was raised from $0.35 to $0.40 per one-way trip; and senior citizen and disabled person fares were raised from $0.25 to $0.30 per one-way trip. During the two years following the fare increase, the transit system experienced for the first time decreases in the number of revenue passengers carried, with the fare increases cited by city officials as a significant factor contributing to declining system ridership. The decision to assume no changes from the existing system ridership under the alternative service plans was made in light of the impacts of past fare increases on system ridership in order that the ridership changes projected under each service alternative would reflect only the impacts of the proposed changes in transit system routes and service levels.

Some changes in passenger fares over the planning period could, however, be warranted, both to reduce the annual local public funding requirement for the transit system and to maintain the existing farebox recovery rate. In this respect, projected increases in the total system operating deficit resulting from general price inflation, increased service levels, and decreases in the amount of federal transit operating assistance funds available to the City

Table 77

ANNUAL RIDERSHIP AND FINANCIAL PERFORMANCE OF THE RECOMMENDED JOINT WAUKESHA COUNTY-CITY OF WAUKESHA BUS SERVICE BETWEEN DOWNTOWN WAUKESHA AND THE BROOKFIELD SQUARE SHOPPING CENTER: 1991 AND 1992

Operating Characteristic	Projected	
	1991	1992
Annual Service Provided		
Revenue Vehicle Hours	9,800	9,870
Revenue Vehicle Miles	135,300	136,400
Service Productivity		
Annual Revenue Passengers	125,500	138,000
Passengers per Vehicle Hour	12.8	14.0
Passengers per Vehicle Mile	0.93	1.01
Service Cost[a]		
Total Annual Operating Expenses	$290,400	$299,600
Total Annual Operating Revenue	61,100	68,400
Total Annual Operating Deficit	229,300	231,200
Sources of Required Public Funds		
Federal Operating Assistance	$ 36,500	$ 32,700
State Operating Assistance	111,800	115,300
Local Operating Assistance		
City of Waukesha Funds	$ 59,900	$ 64,100
Waukesha County Funds	21,100	19,100
Subtotal	$ 81,000	$ 83,200
Service Effectiveness		
Total Expense per Passenger	$2.31	$2.17
Total Revenue per Passenger	0.49	0.50
Total Deficit per Passenger	1.82	1.67
Percent of Expenses Recovered Through Operating Revenues	21.0	22.8

[a]*Assumes operation of the restructured bus service by the City of Waukesha. The costs for the service could be different if the service contract for the route were awarded to a different operator through a competitive procurement process. Costs shown include those for operation of the proposed fixed-route service for the general public and the required specialized transportation service for disabled persons.*

Source: SEWRPC.

of Waukesha are expected to significantly increase the amount of city funds required annually to operate the transit system. In this event, a policy determination will have to be made by the responsible city officials as to whether to raise fares or increase the local public funding requirement. The farebox recovery rate for the transit system has been gradually declining since 1985, when the transit system recovered about 20 percent of operating expenses from operating revenues. By 1992, the recommended transit system is expected to recover about 17 percent of its operating expenses from operating revenues. The transit system would recover about 15 percent of operating expenses from operating revenues in 1992 if none of the recommended service changes were made.

If the City determines that fares should be increased, it is recommended that the City follow a policy under which fare increases would be based upon increases in operating expenses which result from the effects of general price inflation. Under such a policy, fares for the transit system would keep pace with increases in operating expenses and could at least maintain the existing farebox recovery rate for the transit system. Under this policy, increases in fares should be considered to be warranted when operating expenses per unit of service provided have escalated between 15 and 20 percent since the fare structure was established. At that time, the fares should be increased by a comparable percentage. This policy could result in the implementation of fare increases every two or three years in amounts equivalent to $0.10 for the adult cash fare. This policy would also relate increases in fares directly to increases in the costs of providing transit service.

It is recommended that the City continue its special transfer fare program for passengers transferring between city bus routes and the Waukesha-to-Milwaukee bus routes operated by Waukesha County. The current transfer program allows passengers transferring between the separate city and county bus services to receive up to a $0.40 discount from the applicable fare for the transit service to which they are transferring. The importance of this transfer program may be expected to increase upon the restructuring of the existing Waukesha-to-Milwaukee bus service recommended under the recently completed Waukesha County transit plan. As part of restructuring this service, it was recommended that attempts be made to maximize the coordination of arrival and departure times of the city and county bus trips serving the downtown Waukesha bus terminal to reduce waiting times for passengers transferring between the two transit systems. The coordination of the fares as well as the schedules for the same county transit services could be expected to promote increased use of both transit systems.

For similar reasons, it is recommended that the City and the County consider implementing a special transfer fare program as part of the recommended restructuring of bus service in the corridor between downtown Waukesha and the

Brookfield Square Shopping Center. Such a program would be directed toward passengers transferring between the proposed bus service within the corridor and the existing Waukesha County bus service provided through the extension of Milwaukee County Transit System Route No. 10 from the Waukesha-Milwaukee county line to the Brookfield Square Shopping Center. The transfer fare program could be modeled after the current transfer fare program for the city and county bus routes and should allow for passengers to transfer between the existing Route No. 10 service and the proposed services between downtown Waukesha and the Brookfield Square Shopping Center for less than the full fare for each service.

Capital Project Expenditures

The total capital expenditures associated with implementing the recommended basic service changes are estimated at $545,000, as shown in Table 53 in Chapter VII. These capital expenditures would be required for several recommended projects, including the purchase of three new 35-foot-long air-conditioned urban motor coaches and related operating equipment; the purchase and installation of 80 bus stop signs; and the purchase of other service, office, and maintenance equipment required to maintain the existing transit system through 1992. If it is determined that the City is to assume responsibility for the proposed city-county bus route between downtown Waukesha and the Brookfield Square Shopping Center, additional capital expenditures for the city transit system would be required. These additional expenditures totaling about $150,000 would be for the purchase of one 35-foot-long air-conditioned urban motor coach and related bus operating equipment, plus the purchase and installation of 30 bus stop signs along the restructured bus route. The total potential cost of implementing all the recommended capital projects—including those required for both basic service changes and a proposed bus service between Waukesha and Brookfield Square—would be about $695,000.

The estimates for all capital project costs are expressed in constant 1989 dollars and represent current average industry costs. When actual design specifications for new items such as new buses are determined, it is possible that the costs will be somewhat higher or lower than estimated. It is also possible that additional deficiencies will be identified during the planning period which require capital expenditures for their solution. Continual monitoring and updating of the transit plan is thus essential in order to prepare for such contingencies.

Sources of Funding

Distribution of the projected annual operating deficit for the recommended City of Waukesha transit system is presented in Tables 76 and 77. As noted in Chapter IV of this report, there are two major nonlocal sources of funds which could be drawn upon to reduce the local financial commitment required for the implementation and subsequent operation of the recommended transit system: the U. S. Department of Transportation, Urban Mass Transportation Administration (UMTA); and the Wisconsin Department of Transportation. It is recommended that transit assistance funds available under the various programs offered by these governmental agencies continue to be sought as they have in the past by the City of Waukesha.

Federal Funds: It is recommended that federal transit formula assistance funds continue to be sought to defray a portion of the capital project expenditures and the annual operating deficit of the City of Waukesha transit system. The current source of such funds is the UMTA Section 9 formula block grant program, which makes federal transit assistance available to designated recipients within urbanized areas for planning, capital improvement, and operating assistance projects. Both Waukesha County and the City of Waukesha have historically made use of federal transit operating and capital assistance funds available under the UMTA Section 9 program—and its predecessor, the UMTA Section 5 program—with use of such funds dating back to 1977 for Waukesha County and 1981 for the City of Waukesha.

As noted in Chapter IV of this report, the Section 9 program is a formula-apportioned block grant program that distributes transit assistance funds among the nation's urbanized areas on the basis of a statutory formula which, for urbanized areas with more than 200,000 population—such as the greater Milwaukee area, which includes the eastern portion of Waukesha County and all of the City of Waukesha—takes into consideration population, population density, fixed-guideway route miles, bus-on-fixed-guideway revenue vehicle miles, and transit system efficiency. Currently, the Section 9

formula funds allocated to the Milwaukee urbanized area are distributed among the designated recipient counties that have subsidized transit operations within their jurisdiction—Milwaukee County and Waukesha County—using a procedure which has been agreed upon by the three public transit operators within the urbanized area—Milwaukee County, Waukesha County, and the City of Waukesha. Under this method, the Section 9 funds available for capital assistance are distributed among the three transit operators on the basis of need through a program of capital assistance projects jointly developed by the transit operators. Section 9 funds available for operating assistance within the urbanized area are distributed between Milwaukee and Waukesha Counties by applying the formula that was used to distribute Section 9 funds among the nation's urbanized areas. The formula transit operating assistance funds allocated to Waukesha County under this method are then divided between Waukesha County and the City of Waukesha based upon an agreement which is annually negotiated between these two parties. Since 1987, the City and the County have agreed to share equally the total amount of federal transit operating assistance funds allocated to Waukesha County by the method applied within the Milwaukee urbanized area. The amounts of UMTA transit formula assistance funds, including both capital and operating assistance funds, obligated for use by Waukesha County and the City of Waukesha during 1989 and prior years are shown in Table 78.

At the request of the Waukesha County Highway and Transportation Committee and the City of Waukesha, alternative quantitative methods for dividing the total amount of federal transit operating assistance allocated each year to the transit operators within Waukesha County were considered by the Regional Planning Commission. This request was made because of difficulties experienced by the County and the City in reaching agreement concerning a negotiated division of Section 9 operating assistance funds available within Waukesha County for 1987 and 1988. A number of alternative quantitative methods were considered by the Commission with respect to the division of federal transit operating assistance funds available, including applying a modified national formula to distribute funds; distributing funds based upon specific characteristics of each transit operation, including measures of ridership, service provided, system efficiency, and local funding commitment; and distributing funds based upon a weighted allocation method using measures of service utilization and service provided.

Should Waukesha County and the City of Waukesha be unable in future years to negotiate an agreement concerning the division of federal transit operating assistance, the best quantitative method for distributing such funds between the County and the City would be one which considered a number of factors reflecting the need for transit service. The most important of such factors would be found in measures of the level of use of each transit service and the amount of service provided by each transit operator. Such a method would provide for a weighted allocation of funds based upon revenue passengers and passenger miles of travel as measures of service utilization and on revenue vehicle miles and revenue vehicle hours as measures of the amount of service provided—that is, 25 percent of the total amount of federal operating assistance funds available within the County would be distributed based upon each of these criteria, with the funds distributed in direct proportion to the measures for each operator. The use of this method would, in all likelihood, require the assistance of an independent third party—such as the Regional Planning Commission—to verify the accuracy of the transit utilization and service measures reported by the County and the City or, if necessary, to conduct special surveys to develop the information needed. It is estimated that the application of this quantitative method for the year 1989 would have resulted in approximately 50 percent of the funds available within the County being distributed to both the County and the City, or about the same amount of operating assistance funds for each party as has been agreed upon in recent years under the current negotiated methods. Each transit operator's share of the funds available, however, would be related to and supported by actual measures of service need.

Based on the preceding analysis, the Commission staff recommended that, should Waukesha County and the City of Waukesha fail to reach agreement concerning the division of Section 9 operating assistance funds available within Waukesha County in future years, these parties use the weighted allocation method described above for dividing the federal transit operating

Table 78

USE OF UMTA TRANSIT FORMULA ASSISTANCE FUNDS BY THE CITY OF WAUKESHA AND WAUKESHA COUNTY: 1977-1989

Year	UMTA Transit Formula Assistance Funds[a]					
	Waukesha County			City of Waukesha		
	Operating Assistance	Capital Assistance	Total	Operating Assistance	Capital Assistance	Total
1977	$ 48,800	$ --	$ 48,800	$ --	$ --	$ --
1978	68,100	--	68,100	--	--	--
1979	78,200	2,800	81,000	--	--	--
1980	91,200	--	91,200	--	--	--
1981	281,000	--	281,000	127,200	50,900	178,100
1982	259,600	--	259,600	267,100	--	267,100
1983	252,000	--	252,000	275,200	--	275,200
1984	183,600	--	183,600	366,100	765,500	1,131,600
1985	167,700	--	167,700	231,800	320,800	552,600
1986	199,500	--	199,500	206,000	69,200	275,200
1987	226,900	--	226,900	226,900	25,500	252,400
1988	183,250	81,200	264,450	183,250	61,300	244,550
1989	181,350	105,000	286,350	181,350	489,950	671,300

[a]*Includes formula assistance funds made available through the UMTA Section 5, 9, and 9A funding programs. Figures reflect amount of funds obligated for each year.*

Source: Wisconsin Department of Transportation, Bureau of Transit; Waukesha County Transportation Department; City of Waukesha Transit System Utility; and SEWRPC.

assistance funds available or as the basis for negotiations between these parties concerning the division of available funds. It should be noted that the difficulties experienced previously by the County and the City in reaching agreement concerning the division of available federal transit operating assistance funds did not occur during 1989 or 1990, when both parties amicably agreed to share equally the federal transit operating assistance funds available.

The amount of federal transit operating assistance funds available to the City of Waukesha over the planning period was assumed to range from $183,300 in 1988 to $155,500 in 1992, based upon the current method of distributing funds available within Waukesha County. It is also recommended that the City of Waukesha continue to seek federal transit formula capital assistance funds available through the UMTA Section 9 program to offset a portion of the costs incurred in purchasing the necessary capital equipment for implementation of the recommended service improvements. Under the UMTA Section 9 program, grants are provided for up to 80 percent of eligible capital expenditures, including the purchase of buses and bus-related equipment, spare parts, tools, service equipment and vehicles, and office equipment. The total capital investment required for the recommended basic service changes is estimated at $545,000, including contingency and project administration costs. Assuming that federal capital assistance funds under the UMTA Section 9 formula assistance program would be available to provide about $431,000, or 80 percent of the total project costs, the City of Waukesha would need to provide about $114,000, or 20 percent. In addition, if it is determined that the City is to assume responsibility for the proposed city-county bus route between downtown Waukesha and the Brookfield Square Shopping Center, additional capital expenditures for the city transit system would be required. These expenditures were estimated to total $150,000, of which about $118,000, or

80 percent, would be the federal share under the UMTA Section 9 program. The nonfederal portion of the capital project expenditures for the city-county bus route between downtown Waukesha and the Brookfield Square Shopping Center would amount to about $32,000.

State Funds: It is also recommended that the City of Waukesha continue to seek funds to offset a portion of the operating deficit from the state urban mass transit operating assistance program administered by the Wisconsin Department of Transportation. This program, authorized under Section 85.20 of the Wisconsin Statutes, provides operating assistance to all communities of 2,500 or more persons with publicly supported transit systems. It has been assumed that sufficient state funds would be available over the planning period to provide the current maximum level of state funding, which, beginning on July 1, 1989, was raised to 38.5 percent of the total operating expenses of the transit system. The state funds available annually over the planning period were assumed to range from $371,000 in 1988 to $549,200 in 1992.

Local Funds: The City of Waukesha would be responsible for that portion of the annual operating deficit and the projected capital project expenditures which would not be covered by federal or state transit assistance funds. The City's share of the operating deficit for city transit services, except the bus service proposed to be operated between downtown Waukesha and the Brookfield Square Shopping Center, is expected to range from $260,000 in 1988 to $438,800 by 1992. The recommended bus service between downtown Waukesha and the Brookfield Square Shopping Center is expected to be jointly funded by Waukesha County and the City of Waukesha and was assumed to be implemented by 1991. By 1992, the City's share of the incremental operating deficit for this bus service—assuming operation by the City of Waukesha transit system—would be about $24,200, which would bring the total amount of city funds required in that year to about $463,000. The County's share of the incremental operating deficit would be about $19,100 by 1992. As already noted, however, should that service be competitively bid, it may be possible to reduce the both the city and county funds required to subsidize the service based upon the results of the county actions to competitively procure transit services in 1988. The City's share of the costs of the recommended capital improvement projects for the basic service changes is expected to be about $114,000. The local cost of $32,000 for the capital projects associated with city operation of the proposed city-county bus route between downtown Waukesha and the Brookfield Square Shopping Center would need to be shared by the City and Waukesha County. The City could recover some or all of these capital costs through its charges for providing the proposed bus service.

Assessment of Financial Capacity

To comply with current federal guidelines, an analysis of the financial capacity of the City of Waukesha to implement the plan recommendations was conducted. This analysis was conducted by assessing the past financial condition of the City of Waukesha transit system and the City's probable future financial capacity to fund the operation of the recommended transit system. The existing financial condition and future financial capacity of the City were assessed based on a number of key indicators presenting information on historical and projected expenditures, revenues, service levels, and service utilization for the city transit system, as shown on Table 79. These indicators were drawn from a much broader check-list used by UMTA in assessing the financial capacity of recipients of UMTA funds during its review of the projects proposed by each transit operator for federal funding.

The ridership and service levels on the transit system for a 10-year period covering the five years immediately preceding the planning period—1983 through 1987—and the five-year planning period—1988 through 1992—are shown in Figure 28. The transit system operating expenses, revenues, and deficits for this period are shown in Figure 29. Based upon this information, it may be concluded that the projections made for the recommended transit system—including those for ridership, operating expenses, operating revenues, and operating deficits—are reasonable based upon historic trends observed for the transit system and projected service levels under the recommended plan. In this respect, past trends in system ridership have closely followed trends in service levels, with the exception of during 1986 and 1987, which were the two years immediately following the fare increase implemented in

Table 79

KEY INDICATORS OF FINANCIAL CAPACITY FOR THE CITY OF WAUKESHA TRANSIT SYSTEM: 1983-1992

Financial Capacity Indicator	Actual						Projected Under Recommended Plan[a]			
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Transit Service Levels and Utilization										
Annual Revenue Vehicle Miles Operated	338,300	368,900	402,900	403,100	389,600	396,900	400,800	463,600	539,800	579,200
Annual Revenue Vehicle Hours Operated	24,100	25,100	25,700	27,600	27,300	28,500	28,350	32,800	37,300	40,100
Annual Revenue Passenger Trips	269,200	378,500	406,200	381,900	347,300	374,000	381,500	441,800	478,400	509,200
Annual Total Passenger Trips	341,900	464,100	496,500	466,700	428,100	459,700	468,900	536,000	580,900	618,700
Annual Passenger Miles	1,026,100	1,223,900	1,412,600	1,306,600	1,165,700	1,255,224	1,280,400	1,426,000	1,617,800	1,747,500
Revenue Passengers per										
Revenue Vehicle Mile	0.80	1.03	1.01	0.95	0.89	0.94	0.95	0.95	0.89	0.88
Revenue Vehicle Hour	11.2	15.1	15.8	13.3	12.7	13.1	13.5	13.5	12.8	12.7
Transit Service Financial Information										
Total System Operating Expenses	$732,700	$774,100	$858,700	$931,600	$948,000	$989,200	$1,014,900	$1,165,700	$1,302,900	$1,426,500
Total System Operating Revenues	112,000	150,100	169,200	176,100	159,600	175,000	178,300	203,500	224,200	239,700
System Operating Deficit										
Federal Share of Deficit	$275,200	$313,900	$267,000	$206,000	$226,900	$183,300	$ 181,400	$ 172,300	$ 163,700	$ 155,500
State Share of Deficit	219,800	271,000	300,300	348,900	355,300	371,000	385,700	448,800	501,600	549,200
Local Share of Deficit	125,700	39,100	122,200	200,600	206,200	259,900	269,500	341,100	413,400[b]	482,100[b]
Subtotal	$620,700	$624,000	$689,500	$755,500	$788,400	$814,200	$ 836,600	$ 962,200	$1,078,700	$1,186,800
Percent of Operating Expenses Recovered Through Operating Revenues	15.3	19.4	19.7	18.9	16.8	17.7	17.6	17.5	17.2	16.8
Operating Expense per										
Revenue Vehicle Mile	$2.17	$2.10	$2.13	$2.31	$2.43	$2.49	$2.53	$2.51	$2.41	$2.46
Revenue Vehicle Hour	30.40	30.84	33.41	33.75	34.73	34.71	35.80	35.54	34.93	35.57
Revenue Passenger	2.72	2.05	2.11	2.44	2.73	2.64	2.66	2.64	2.72	2.80
Passenger Mile	0.71	0.63	0.61	0.71	0.81	0.79	0.79	0.82	0.81	0.82

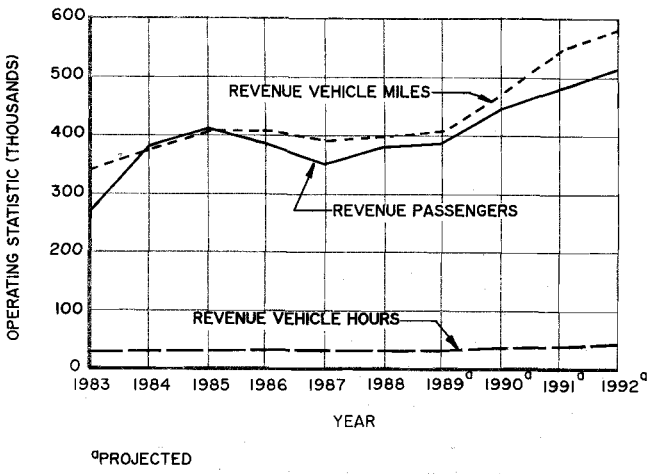
[a] *Includes the restructuring of bus service in the corridor between downtown Waukesha and the Brookfield Square Shopping Center.*

[b] *Includes funds from both the City of Waukesha and Waukesha County for the city-county bus route between downtown Waukesha and the Brookfield Square Shopping Center. The city funding requirement for 1991 and 1992 would be $392,300 and $463,000, respectively.*

Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 28

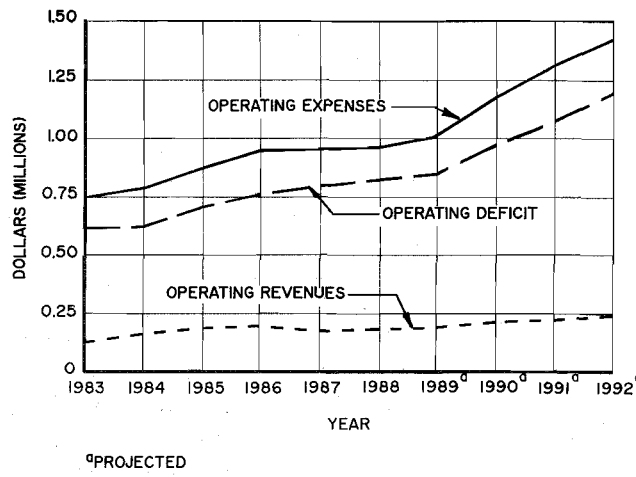
ANNUAL RIDERSHIP AND SERVICE LEVELS ON THE CITY OF WAUKESHA TRANSIT SYSTEM: 1983-1992



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 29

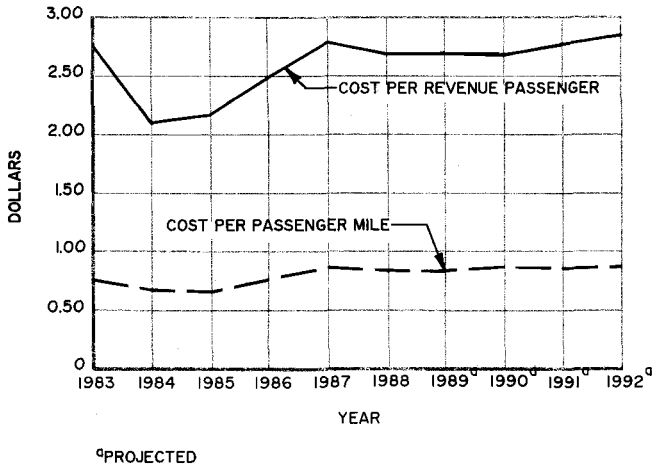
ANNUAL OPERATING EXPENSES, REVENUES, AND DEFICITS ON THE CITY OF WAUKESHA TRANSIT SYSTEM: 1983-1992



Source: City of Waukesha Transit System Utility and SEWRPC.

Figure 30

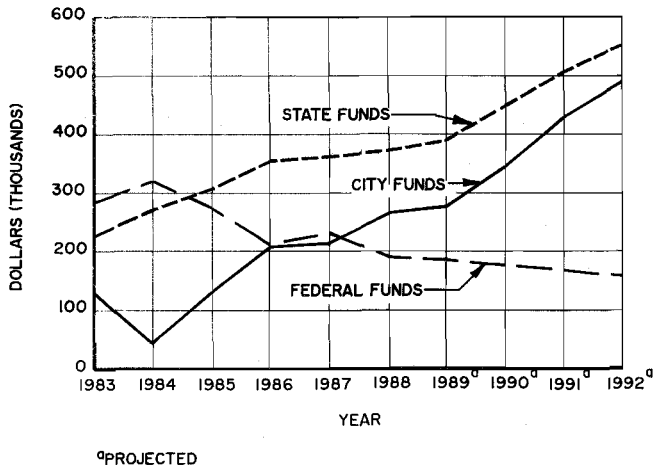
TOTAL OPERATING COST PER PASSENGER AND PER PASSENGER MILE ON THE CITY OF WAUKESHA TRANSIT SYSTEM: 1983-1992



Source: SEWRPC.

Figure 31

FEDERAL, STATE, AND LOCAL FUNDS REQUIRED TO SUBSIDIZE THE OPERATING DEFICIT OF THE CITY OF WAUKESHA TRANSIT SYSTEM: 1983-1992



Source: City of Waukesha Transit System Utility and SEWRPC.

August 1985. The increases in ridership projected to occur over the planning period are directly related to increases in service levels on the transit system resulting from implementation of the recommended service changes. Similarly, the projected increases in service levels are expected to result in substantial increases in total operating expenses for the transit system. However, due to the significant increases in system ridership which are also projected to occur, the total operating costs per passenger and per passenger mile, as shown in Figure 30, are projected to remain relatively stable over the planning period.

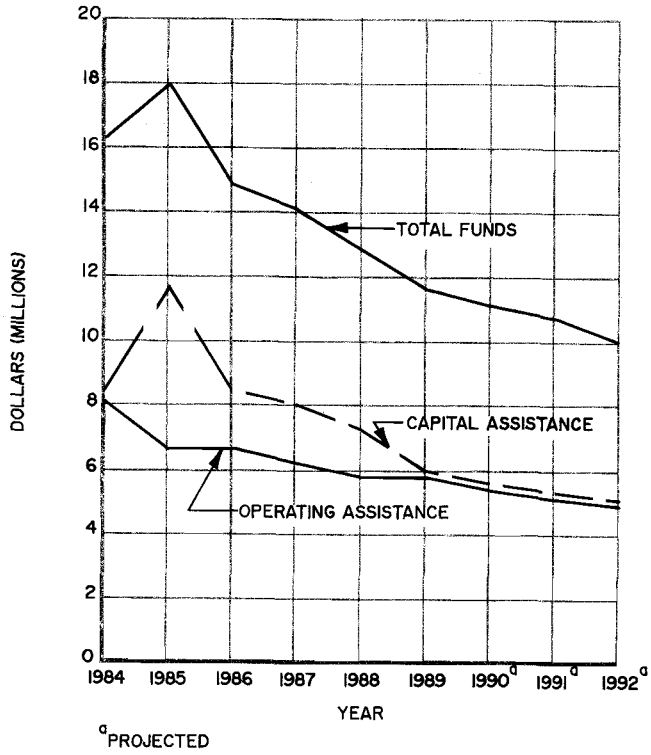
Transit system operating revenues are expected to continue to follow trends in transit system ridership over the planning period. However, because total system operating expenses are projected to increase at a faster rate than operating revenues over the planning period, there would be a significant increase in the total operating deficit for the transit system under the recommended transit plan. Overall, the operating deficit would increase by about 46 percent by 1992 over 1988 levels, an average annual increase of about 10 percent per year. Accordingly, the major focus of this financial capacity analysis was the ability of available funding sources to provide the monies needed to subsidize this operating deficit over the planning period. The actual and projected amounts of federal, state, and city funds needed to subsidize the annual operating deficit of the City of Waukesha transit system are provided in Figure 31.

Between 1983 and 1987, federal transit operating assistance funds available to the city transit system ranged from a low of about $206,000 in 1986 to about $314,000 in 1984. The allocations of federal transit assistance funds made available to the City during 1988 and 1989 amounted to about $180,000. As can be seen in Figure 32, federal formula transit operating and capital assistance funds made available to the Milwaukee urbanized area have decreased steadily since 1985. Projections of federal formula transit assistance funds available for use by the City assume that such funds will continue to decrease through 1992.

In contrast, state urban mass transit operating assistance funds available to the City of Waukesha transit system have increased steadily since 1983. In 1988, the City received approximately $371,000 in state aid, or about 69 percent more than the $220,000 it received during 1983. The increased levels of state assistance during this period were the direct result of an increase—from 30 to 37.5 percent—in the amount of state aids for operating expenses each transit system was eligible to receive. An increase in the amount of state aids for operating expenses to 38.5 percent, effective July 1, 1989, was recently approved by

Figure 32

ALLOCATION OF UMTA SECTION 9 FORMULA ASSISTANCE FUNDS TO THE MILWAUKEE URBANIZED AREA: 1984-1992



Source: City of Waukesha Transit System Utility and SEWRPC.

the Wisconsin State Legislature. The amounts of state aid available to the City are, consequently, projected to continue to increase through 1992, along with projected increases in total system operating expenses. The amount of state aid that the City would be able to receive in 1992 would be about 48 percent more than the amount received by the transit system during 1988.

The funds distributed under the state urban mass transit operating assistance program are obtained through the state transportation fund, which collects revenues through state motor fuel taxes, motor vehicle registration fees, drivers' license fees, and other miscellaneous fees. Table 80 indicates the historical trend in funding of the expenses of the City of Waukesha transit system from the state operating assistance program, and compares the level of state support for this program to the total state transportation funding provided for the years 1983 through 1987. The operating assistance provided by the State of Wisconsin to the city transit system has represented less than 1 percent of the total transit operating assistance program funds available over that period. The table also indicates that the transportation revenue fund and appropriations for the urban transit operating assistance program from the fund have increased steadily over the period. Some increase in the total trust fund and in appropriations for the operating assistance program was, therefore, projected for future years. However, while annual increases in the trust fund from 1983 through 1988 averaged 9 percent, a more modest 5 percent rate of increase in the total trust fund revenues was projected for 1989 through 1992. The proportion of the trust fund revenues appropriated for the urban transit operating assistance program during the period 1988 through 1992 was assumed to be about the same as that for 1988. Based upon these projections, the proportion of state funds that would need to be committed to the City of Waukesha transit system over the planning period would be about the same as the proportion committed during the previous five years.

The City of Waukesha has relied on the city property tax as the local source of funds used to subsidize the transit system operating deficit since it began operation in 1981. Table 81 presents information on the actual amount of property taxes levied by the City in total and for the transit system operating deficit between 1983 and 1988; and on projections of these figures for 1989 through 1992. Between 1983 and 1987, the actual city operating subsidy for the transit system increased from about $39,000 in 1984 to about $206,000 in 1987—an increase of about $167,000, or 428 percent. During the same period, the total city property tax levy increased from about $9.2 million in 1983 to about $13.7 million in 1987, or by about 49 percent—an average increase of about 11 percent per year. The proportion of the tax levy spent on operating subsidies for the city transit system during this period has been very small, averaging slightly more than one percent per year.

The city operating subsidy for the transit system in 1988 was about $260,000, which represented an increase of about $54,000, or 26 percent over the 1987 level. By 1992, the city operating subsidy for the transit system—including the City's share of the operating subsidy for the bus service between downtown Waukesha and the Brookfield Square Shopping Center recom-

Table 80

ACTUAL AND PROJECTED APPROPRIATIONS FROM THE STATE TRANSPORTATION FUND: 1983-1992

Year	Urban Transit Operating Assistance Program							Other Program Aids and Costs		Total	
	Assistance for City of Waukesha Transit System		Assistance for Other Transit Systems		Total Operating Assistance Program						
	Amount	Percent of Program Total	Amount	Percent of Program Total	Amount	Percent of Program Total	Percent of Fund Total	Amount	Percent of Fund Total	Amount	Percent of Fund Total
1983	$ 219,800	0.59	$ 36,971,200	99.41	$ 37,191,000	100.00	7.93	$ 432,043,600	92.07	$ 469,234,600	100.00
1984	271,000	0.84	31,991,500	99.16	32,262,500	100.00	6.14	493,499,000	93.86	525,761,500	100.00
1985	300,300	0.77	38,742,200	99.23	39,042,500	100.00	7.42	487,284,200	92.58	526,326,700	100.00
1986	348,900	0.91	38,036,100	99.09	38,385,000	100.00	6.55	548,059,600	93.45	586,444,600	100.00
1987	355,300	0.81	43,264,900	99.19	43,620,200	100.00	6.74	603,660,100	93.26	647,280,300	100.00
Total	$1,495,300	0.78	$189,005,900	99.22	$190,501,200	100.00	6.91	$2,564,546,500	93.09	$2,755,047,700	100.00
1988	$ 371,000	0.83	$ 44,364,300	99.17	$ 44,735,300	100.00	6.66	$ 627,262,300	93.34	$ 671,997,600	100.00
1989	385,700	0.79	48,152,000	99.21	48,537,700	100.00	6.88	657,059,800	93.12	705,597,500	100.00
1990	448,800	0.95	46,827,300	99.05	47,276,100	100.00	6.38	693,601,300	93.62	740,877,400	100.00
1991	501,600	0.98	50,515,600	99.02	51,017,200	100.00	6.56	726,904,100	93.44	777,921,300	100.00
1992	549,200	1.03	53,018,900	98.97	53,568,100	100.00	6.56	763,249,300	93.44	816,817,400	100.00
Total	$2,256,300	0.92	$242,878,100	99.08	$245,134,400	100.00	6.60	$3,468,076,800	93.40	$3,713,211,200	100.00

Source: Wisconsin Department of Transportation, Bureau of Transit; and SEWRPC.

Table 81

ACTUAL AND PROJECTED CITY OF WAUKESHA PROPERTY TAXES: 1983-1992

Year	City of Waukesha Property Taxes					
	Transit System Operating Subsidy		Other Programs and Costs		Total	
	Amount	Percent of Total	Amount	Percent of Total	Amount	Percent of Total
1983	$ 125,700	1.37	$ 9,025,900	98.63	$ 9,151,600	100.00
1984	39,100	0.38	10,207,200	99.62	10,246,300	100.00
1985	122,200	1.06	11,350,500	98.94	11,472,000	100.00
1986	200,600	1.54	12,842,900	98.46	13,043,500	100.00
1987	206,200	1.51	13,482,600	98.49	13,688,800	100.00
Total	$ 693,800	1.20	$56,909,100	98.80	$57,602,200	100.00
1988	$ 259,900	1.76	$14,534,900	98.24	$14,794,800	100.00
1989	269,500	1.69	15,667,800	98.31	15,937,300	100.00
1990	341,100	1.93	17,301,000	98.07	17,642,100	100.00
1991	392,300	2.06	18,682,400	97.94	19,074,700	100.00
1992	463,000	2.25	20,160,500	97.95	20,623,500	100.00
Total	$1,725,800	1.96	$86,346,600	98.04	$88,072,400	100.00

Source: City of Waukesha Transit System Utility and SEWRPC.

mended to be jointly funded by the City and Waukesha County—is projected to increase to about $463,000—an increase of about $203,000, or 78 percent over the 1988 funding requirement. During the same period, some increase in the total city property taxes could also be expected. Information provided by the City would indicate that total city property taxes are projected to increase from about $14.7 million in 1988 to about $20.6 million in 1992, or by about 40 percent—an average increase of 9 percent per year. With the projected increase, the proportion of total city property tax dollars that would be required to subsidize the projected city funding requirement for the transit system over this period would average slightly less than two percent per year.

Based upon this analysis, it may be concluded that the amount of public funds that would be required over the planning period from the identified federal, state, and city funding sources appears to be within the funding capability of each public agency. With respect to the City of Waukesha in particular, even assuming that total city property tax revenues would increase between 1988 and 1992 at lower rates than observed during the preceding five-year period, the proportion of total city tax dollars that would be required to be committed to the transit system over the planning period would remain a very small proportion of total city tax dollars, increasing from an average of about one percent to about two percent per year. While this would represent a small increase in the proportion of total tax dollars levied for operation of the transit system, the absolute increase in city tax dollars levied to support the operating subsidies for the transit system would still be substantial, totaling about $203,000 between 1988 and 1992. This increase would, however, be comparable to the total increase in city operating subsidies of about $221,000 incurred during the period 1984 through 1988. This would indicate that the City of Waukesha could fund the recommended transit system during the five-year planning period with a reasonable increase in its past level of local funding commitment.

PLAN IMPLEMENTATION

The operating characteristics and the financial requirements of the recommended transit plan have been described in the previous sections of this chapter. In a practical sense, however, the plan is not complete until the steps required for implementation have been specified. Full implementation of the recommended plan will be dependent upon the coordinated actions of several agencies of government—the City of Waukesha Common Council; the Waukesha County Board of Supervisors; the Southeastern Wisconsin Regional Planning Commission; the Wisconsin Department of Transportation; and the U. S. Department of Transportation, Urban Mass Transportation Administration. These five public bodies have vital roles in providing the endorsement, operations, and financial support required to achieve plan implementation.

City of Waukesha

The City will have the major responsibility for the actions necessary to implement the recommended transit plan for the city transit system since it both owns the equipment and is responsible for the administration of the transit system. Accordingly, it is recommended that the City adopt the city transit plan and use it as a guide in formulating the actions needed for implementation of recommended service changes. Such actions will include refining the recommended routing and service changes affecting transit service within the City of Waukesha. The City will also need to negotiate with Waukesha County over the operation and funding of the recommended bus service in the corridor between downtown Waukesha and the Brookfield Square Shopping Center. Finally, if requested by the County, the City should consider providing staff services to the County in support of the county transit program, as well as considering coordination with the County in the procurement of a private firm to operate/manage the transit system.

The City will also be responsible for satisfying all federal administrative regulations associated with the use of federal funds. While the City is currently in compliance with all such regulations, the regulations will require the City to schedule and hold a public hearing prior to the implementation of the recommended routing changes. In addition, the City will need to closely follow recent developments affecting federal regulations governing public transportation service for handicapped persons in the event that these regulations are changed in the near future.

Waukesha County

The recommended transit plan for the City of Waukesha includes a recommendation to com-

bine the two bus services currently provided by Waukesha County and the City over separate bus routes within the corridor between downtown Waukesha and the Brookfield Square Shopping Center into one bus service using a single route. It is recommended that the City and County enter into discussions directed toward agreeing which level of government is to provide the service, what process should be followed in selecting the transit operator of the service, and how the service is to be jointly funded by the City and the County. Until such an agreement is reached, it is recommended that the County and the City consider actions which would improve coordination of existing county bus services with city bus services. It is also recommended that the County consider further actions to coordinate both programs, including exploring the possibility of obtaining city staff assistance in performing certain activities for the county transit program for which existing county staff lack expertise, and coordinating with the City in the procurement of a private firm to operate the transit systems.

Southeastern Wisconsin
Regional Planning Commission

The Southeastern Wisconsin Regional Planning Commission has the statutory authority for carrying out a continuing, comprehensive, and cooperative areawide land use and transportation planning process in the seven-county Southeastern Wisconsin Region. The Commission has regularly prepared short- and long-range transportation plans for the Region which are consistent with federal laws and regulations. Under such regulations, the Commission is responsible for developing, and annually updating, a transportation improvement program for the Region which identifies both highway and transit-related improvement projects for an upcoming five-year period; provides for the staging of improvements over the five-year program period, including estimates of the costs and revenues over the program period; and relates the improvements recommended in the program to the adopted transportation plan for the Region.

In order for the City of Waukesha to receive the federal transit assistance funds necessary to fully implement the recommended transit plan, operating assistance and capital projects for the recommended transit system must be included in the transportation improvement program annually submitted by the Commission to the U. S. Department of Transportation. Accordingly, it is recommended that the Southeastern Wisconsin Regional Planning Commission adopt the city transit plan and, at the specific request of the City of Waukesha, include the recommended operating and capital projects for the city public transportation program in the transportation improvement program for the Southeastern Wisconsin Region.

U. S. Department of Transportation, Urban Mass Transportation Administration, and the Wisconsin Department of Transportation

Both the U. S. Department of Transportation, Urban Mass Transportation Administration, and the Wisconsin Department of Transportation administer programs which provide financial assistance to public transit systems. It has been recommended that the City of Waukesha continue to make use of funds available under such programs to minimize the local public costs of the recommended transit plan. It is also recommended that both these two agencies endorse the recommendations of the transit plan as a guide for the programming, administration, and granting of federal and state assistance funds for the City's public transportation program.

Subsequent Plan Adjustment

No plan can be permanent in all its aspects. Monitoring of changing conditions and of the effectiveness of implemented plan recommendations is essential if the validity and viability of the adopted plan are to be maintained. It is recommended that the City of Waukesha, with the assistance of the Regional Planning Commission, assume responsibility for periodically reviewing and updating the adopted plan as new urban development occurs and travel patterns and trip making characteristics change and as data on the effectiveness of implemented service changes become available. The plan updating will require the same close cooperation among local, county, and state agencies that was evident in the preparation of the transit plan itself. To achieve this necessary coordination and, therefore, the timely implementation and updating of the plan, it is recommended that the City of Waukesha transit development program advisory committee remain active and meet at the specific request of the City of Waukesha to address any problems which may develop in the implementation of plan recommendations.

SUMMARY

The recommended plan for the city fixed-route transit service calls for a number of changes in the existing route structure of the city transit system in order to expand the basic geographic coverage of the system to include areas of proposed new or expanding residential development. Service changes proposed under Alternative 2 which should be considered for immediate implementation include the restructuring of Route No. 7 and the addition of one new regular bus route to improve transit service in the developing western portion of the City; the addition of special school day-only transit services to increase the transit service provided to city elementary and secondary school students who reside less than two miles from their school; the adjustment of downtown routing of Route Nos. 2, 6, and 9; and the reduction of off-peak headways on Route No. 8 during weekday midday periods and Route No. 4 all day Saturdays. The recommended plan also calls for the ultimate implementation of additional service changes proposed under Alternative 3, including the creation of a second new bus route to provide for more direct travel between the southwest portion of the City and downtown Waukesha by splitting the existing Route No. 6 into two separate routes; and the restructuring of Route Nos. 2 and 3 to provide transit service to three new areas of residential development which have been proposed in the southeast portion of the City. While the restructuring of Route No. 6 could be considered for immediate implementation based upon existing conditions along the route, the restructuring of Route Nos. 2 and 3 would be implemented if, and as, proposed additional residential development actually occurs within the southeast portion of the City, which, at the present time, would appear to be in 1992.

In addition, the recommended plan includes the restructuring of the existing city and county bus services in the corridor between downtown Waukesha and the Brookfield Square Shopping Center. The proposed service restructuring essentially represents the combining of the existing services operated in the corridor by the City of Waukesha and Waukesha County into a single bus route which could be operated by either the City or the County, and would result in improved service for passengers traveling in the corridor. It was recommended that the City of Waukesha and Waukesha County initiate discussions directed at resolving matters related to the administration, operation, and funding of the proposed bus service. Agreement between the City and the County on these matters will be essential to the successful implementation of the recommended service restructuring.

Finally, the recommended plan also calls for improved coordination between the local bus services provided by the City of Waukesha and the commuter bus services provided by Waukesha County. In this respect, the plan recommends that arrival and departure times of the county and city bus trips serving the downtown Waukesha bus terminal be coordinated when a restructuring of the existing Waukesha-to-Milwaukee rapid transit services which has been recommended under the recently completed transit plan for Waukesha County is implemented. Such schedule coordination would be expected to reduce waiting times for passengers transferring between transit systems and promote use of both systems.

In preparing the plan recommendations, it was assumed that the City would continue its existing operating and administrative practice to provide the recommended bus routes and service levels. The City of Waukesha owns the equipment and facilities used to provide its fixed-route transit service, but has elected to contract with a private management firm to oversee the day-to-day operation of the transit system. Alternatives to this operating and administrative strategy were also identified, and included having the City contract with a private transit operator for the operation of its fixed-route transit system, or converting the transit system to full municipal operation. A special subcommittee of the City of Waukesha Transit System Utility Board was created in October 1989 to study such alternative operational and administrative arrangements. The recommendations from this subcommittee will guide the Board in determining whether the City should continue its current operating and administrative practice or pursue some other arrangement when the current contract with the existing private management firm expires at the end of July 1990.

An analysis was also undertaken of alternative operating agencies and institutions which could be used to oversee the operation of both the local transit services provided by the City of Waukesha and the contract transit services provided by

Waukesha County. These alternatives included operation of all transit services in the County by Waukesha County; operation of all transit services in the County by the City of Waukesha; operation of all transit services in the County by a transit authority; and separate but coordinated operation of city and county transit services. Based upon problems associated with the first three alternative strategies, it was recommended that both the City of Waukesha and Waukesha County continue to provide public transit services, but make efforts to improve the coordination of these specific transit programs, including the shared use of the staff resources required and of the private firms contracted with to operate and/or manage the transit services.

The recommended plan also calls for the City to continue to provide the specialized transit services which can effectively be used by handicapped persons. Such services are currently provided through the Waukesha Metrolift Program administered by the City of Waukesha Transit System Utility. The only change envisioned for the Metrolift Program as a result of the recommended changes in the City's fixed-route transit system would be an expansion of the Metrolift service area to coincide with the expansion of the service area for the fixed-route transit system.

With the staged implementation of the recommended basic service changes, ridership and service levels on the transit system would be expected to increase by about 25 percent. While operating revenues are projected to increase by about 22 percent between 1988 and 1992, operating expenses for the transit system are projected to increase by about 33 percent by 1992. As a result, the total operating deficit for the transit system in 1992 may be expected to be about 35 percent higher than that for the system in 1988. The projected increase in the operating deficit, coupled with projected decreases in federal transit operating assistance funds, may be expected to result in an increase of about 70 percent in the city operating subsidy of the transit system between 1988 and 1992.

In addition, the City would also be responsible for providing a portion of the local funds required to operate the single bus route in the corridor between downtown Waukesha and the Brookfield Square Shopping Center, which is recommended to replace the existing city and county bus routes within this corridor. Assuming the initiation of the proposed bus service in 1991 by the City of Waukesha, the total local public funding requirement would be expected to be about $43,000 by 1992. Of this amount, the City of Waukesha would be responsible for about $24,000, or 56 percent, and Waukesha county would be responsible for about $19,000, or 44 percent. However, should this service be competitively bid, it may be possible to reduce both the city and county funding required to subsidize the service. This conclusion is based upon the results of the County's actions to procure through competitive bids, transit services in 1988.

The aforecited amounts of city funds assume that federal and state funds will continue to be drawn upon to reduce the City's financial commitment to the annual operation of the recommended transit system. It is recommended that federal transit operating assistance funds, through the UMTA Section 9 formula block grant program, continue to be sought to defray a portion of the annual operating deficit of the City of Waukesha transit system. At the specific request of both the City of Waukesha and the Waukesha County Highway and Transportation Committee, alternative quantitative methods of dividing the total amount of federal transit operating assistance funds allocated each year to the transit operators within Waukesha County were reviewed. A number of alternative quantitative methods were considered with respect to the division of the federal transit operating assistance funds available, including applying a modified version of the national formula to distribute funds; distributing funds based upon specific characteristics of each transit operation, including measures of ridership, service provided, system efficiency, and local funding commitment; and distributing funds based upon a weighted allocation method based on service utilization and service provided. Based upon a review of the alternatives considered, the Commission staff recommended that, if difficulties in dividing such funds occur in the future, Waukesha County and the City of Waukesha consider using the quantitative method for distributing federal transit operating assistance funds, basing the division of such funds on the most important measures of the actual need for transit service. Use of this method to distribute funds within the County would result in about the same proportionate share of available fed-

eral transit operating assistance funds as has been negotiated under the current method for the past three years.

It is also recommended that federal transit assistance be obtained to offset a portion of the total expenditures for capital improvements identified for the recommended transit services during the planning period. The cost of the capital projects associated with the recommended basic service changes was estimated at $545,000. Of this amount, about $431,000, or 80 percent, could be funded through the UMTA Section 9 formula assistance program, leaving about $114,000, or 20 percent, to be funded by the City of Waukesha. Additional capital project expenditures amounting to about $150,000 would be required for the city transit system if it is decided that the City is to assume responsibility for the proposed city-county bus route between downtown Waukesha and the Brookfield Square Shopping Center. The federal share of these costs would be about $118,000, leaving a local share of about $32,000 to be shared by the City of Waukesha and Waukesha County.

An analysis was conducted of the capacity of the available funding sources to fund the recommended transit system over the five-year planning period. This analysis concluded that the projections made for the recommended transit system—including those for ridership, expenses, operating revenues, and operating deficits for the transit system—are reasonable, based upon past trends. In addition, the amount of public funds that would be required over the planning period from the identified federal, state, and city funding sources appears to be within the funding capability of each public agency.

The City of Waukesha would bear most of the responsibility for implementation of the recommended transit plan. However, Waukesha County would also have significant plan implementation responsibility, as the recommended plan includes changes in the existing county transit services as well as city transit routes. In this respect, the County should act to coordinate its transit program with the city transit program, including exploring the possibility of obtaining city staff assistance to perform certain activities for the county transit program for which existing county staff lack expertise, and coordinating with the City in the procurement of a private firm to operate the transit system.

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Chapter IX

SUMMARY AND CONCLUSIONS

INTRODUCTION

This report sets forth a transit system development plan for the City of Waukesha. The new plan is intended to update the previous transit service plans prepared for the City by the Regional Planning Commission, including a transit system development plan covering the period 1981 through 1985, completed in 1980, and an analysis of transit system operations covering the period from 1983 through 1986, completed in 1983. This new plan was prepared by the Regional Planning Commission at the request of the City of Waukesha Transit System Utility Board. The plan is based upon a thorough evaluation of the performance of the existing transit system; an analysis of the personal travel habits and patterns of the residents of the City and the transportation needs associated with the existing land use pattern; and upon a careful evaluation of alternative service options.

PURPOSE OF THE TRANSIT SYSTEM DEVELOPMENT PLAN

The new transit system plan was intended to serve five purposes. First, the plan was to evaluate the effectiveness of the existing transit system routes in serving the population, major trip generators, and travel patterns within the City. Second, the plan was to evaluate the financial performance of the existing transit system with respect to operating costs, passenger revenues, operating deficit, and proportion of operating costs recovered from passenger revenues. Third, the plan was to recommend potential changes to the existing transit services with respect to operations and areas served. Fourth, the plan was to identify actions needed to better coordinate city transit services with service provided by other transit systems in the area, particularly by the Waukesha County transit system. Fifth, the plan was to identify potential methods for distributing the annual apportionment of federal formula transit operating assistance funds between Waukesha County and the City of Waukesha.

STUDY ORGANIZATION

The preparation of the transit plan was a joint effort by the staffs of the City of Waukesha and the Southeastern Wisconsin Regional Planning Commission. Additional staff assistance was obtained as necessary from certain other agencies concerned with transit development in the City of Waukesha, including the Wisconsin Department of Transportation.

To provide guidance to the technical staffs in the preparation of this plan, and to more directly and actively involve concerned and affected public officials and citizen leaders in the development of transit service policies and improvement proposals, the City created the City of Waukesha Transit Development Program Advisory Committee. The full membership of this Committee is listed on the inside front cover of this report.

EXISTING TRANSIT SYSTEM

Fixed-Route and Specialized Transit Services

The City of Waukesha began operation of Waukesha Metro Transit on August 31, 1981, to provide fixed-route local bus service in the City of Waukesha and environs. As of August 1988, the fixed-route transit system consisted of eight bus routes totaling about 53 unduplicated route miles and about 101 round trip route miles. All the bus routes are radial, terminating at a common transfer facility located in the Waukesha central business district. Cycle, or pulse, scheduling is utilized so that buses meet at the downtown terminal at approximately the same time during peak periods of operation.

In addition to fixed-route transit service, the transit system also provides a specialized transportation service designed to provide mobility to handicapped persons unable to use the regular bus service due to their physical disability. To provide this service, the City contracts with Dairyland Buses, Inc., a private yellow school bus operator in the area. The service coverage for the specialized transportation program

includes all areas within one-quarter mile of the regular bus routes.

Management and Administration

The local bus system is managed by the private firm of ATE Management Service Company, Inc., under the direct supervision of the Transit Coordinator from the City of Waukesha Department of Public Works. The policy-making body overseeing the development and operation of the transit system is the City of Waukesha Transit System Utility Board. However, the Waukesha Common Council is the ultimate authority for review and approval of certain important matters, including the annual budget for the transit system.

Ridership

Transit ridership on the local bus system increased steadily from 1982, the first full year of system operation, to 1985.[1] During this period, annual ridership on the fixed-route and specialized transit services provided by the transit system increased from about 202,700 revenue passengers in 1982 to about 406,200 revenue passengers in 1985, or by about 100 percent. The ridership increases experienced during this period may be attributed to the introduction of the new service and to increases in the extent of service provided over the first few years, the most significant of which occurred in February 1985, when transit service was extended to Saturdays. Ridership on the transit system declined during the next two years, decreasing to about 381,900 revenue passengers, or by about 6 percent, during 1986; and to about 347,300 revenue passengers, or by about 9 percent, during 1987. The declines in ridership experienced during these last two years may be attributed primarily to an increase in transit fares which was implemented in 1985; a substantial reduction in gasoline prices in 1986; and very mild winters during both 1986 and 1987. Ridership on the transit system during 1988 increased to about 374,000 revenue passengers, or by about 8 percent, over the 1987 levels.

Financial Performance

Total annual operating expenses for the transit system have increased from about $706,500, in 1982, to about $948,000, during 1987, an average annual increase of about 6 percent. Total actual operating revenues during this period increased from about $85,700, in 1982, to about $157,600, in 1987, an average annual increase of about 13 percent. The increase in operating revenues reflects the increased ridership resulting in part from the ridership growth which occurred following the introduction of the public transit system in 1981 and in part from an increase in passenger fares implemented in August 1986. Despite this increase in operating revenues, the actual operating deficit for the transit system has increased steadily since 1982, increasing from $620,800 in that year to about $788,400 in 1987, an increase of about $167,600, or 27 percent, during the period.

Although the local bus system is not financially self-supporting, the Waukesha Transit System Utility has minimized the public funding requirement for the City of Waukesha by using available federal and state transit assistance funds. During 1987, about 17 percent of the transit system operating expenses were obtained from operating revenues, about 24 percent were obtained from the federal transit operating assistance program, about 37 percent were obtained from the state transit operating assistance program, and about 22 percent were obtained from property taxes levied by the City of Waukesha. The availability of federal and state transit assistance funds has also enabled the City to implement completely the recommendations of the previous transit plans prepared for the transit system.

Other Public Transit Services

In addition to the public transit services provided by the Waukesha Transit System Utility, there are also other transit services provided within the study area, some of which are coordinated with city transit services to varying degrees. Commuter bus service between the study area and the Milwaukee central business

[1] *Under the previous transit studies conducted for the City of Waukesha by the Commission, annual ridership on the city transit system was projected to increase from 156,000 revenue passengers during its first year of operation to 311,000 revenue passengers during its fifth year of operation. By comparison, actual ridership on the transit system increased from about 202,700 revenue passengers during its first full year of operation in 1982 to about 406,200 revenue passengers during its fourth year of operation, 1985, before declining to about 381,900 revenue passengers during its fifth year of operation, 1986.*

district is provided over four bus routes operated by Wisconsin Coach Lines, Inc., and subsidized by Waukesha County. These routes carried about 143,500 revenue passengers during 1987. Two of these four bus routes originate in downtown Waukesha near the downtown transfer terminal for the City's fixed-route bus system.

Interregional bus service is also provided through the study area by three different carriers: Badger Coaches, Inc.; Greyhound Lines, Inc.; and the Peoria-Rockford Bus Company, with service from stops within the study area to Milwaukee, Madison, Rockford, and Minneapolis-St. Paul. Shared-ride taxicab service is provided within the study area by two taxicab companies: the Best Cab Company and the Checker/Yellow Cab Company. About 30,000 trips were made by taxicab during 1987. The School District of Waukesha provides special school transportation service for regular education within the study area to about 4,600 pupils who either reside within the School District two miles or more from the school they are entitled to attend or who would otherwise face hazardous walking conditions on their journey to and from school. Also, several specialized transportation services intended to serve the needs of elderly and/or handicapped individuals are provided within the study area, the principal providers of which are the Waukesha County Department of Aging and La Casa de Esperanza, Inc.

LAND USE, SOCIOECONOMIC, AND TRAVEL CHARACTERISTICS OF THE STUDY AREA

Study Area

The study area considered in preparing the plan included all of the City of Waukesha; the approximately northern one-half of the Town of Waukesha; the approximately southern one-half of the Town of Pewaukee; and small portions of both the Village of Pewaukee and the Town of Brookfield, where the Waukesha County Technical College and the Goerke's Corners public transit station, respectively, are located. The study area included the entire area served by the fixed-route bus system and the specialized transit service for disabled persons operated by the City of Waukesha Transit System Utility. If deemed appropriate, the inventories and analyses conducted under this study included certain major traffic generators located outside the study area boundaries, including, particularly, the Brookfield Square Shopping Center in the City of Brookfield.

Land Use

With respect to land use, the pattern of historic urban growth in Waukesha County was found to have resulted in a discontinuous and highly diffused pattern throughout much of the County, with few major concentrations of intensive urban development. The City of Waukesha is one of those few areas within the County which are developed at truly urban densities and, therefore, have a good potential to support efficient local transit service. The area within the corporate limits of the City of Waukesha increased from about 6.1 to about 16.8 square miles, or by over 175 percent, from 1960 to 1988. This expansion of the incorporated area has been marked by a diffusion of both commercial and residential development and a decline in the relative importance of the central business district as an employment and shopping center. Within, and adjacent to, the planning area, high-density land uses and substantial areas of medium-density land uses currently exist only within portions of the City of Waukesha and on lands abutting Blue Mound Road (USH 18) generally west of Moorland Road in the Town and City of Brookfield.

Population

The resident population of the study area increased rapidly from 1960 through 1985, from about 33,400 to about 60,300 persons, an 81 percent increase. Of the estimated 1985 resident population of the study area, about 51,800, or 86 percent, resided within the City of Waukesha. The number of households within the study area increased from 9,700 in 1960 to about 21,300 in 1985, an increase of about 120 percent.

Five population groups which exhibit typically high dependence on public transportation for mobility were identified within the study area: school age children, the elderly, low-income families, the handicapped, and persons residing in households with limited automobile availability. Identification of the place of residence of these groups within the study area indicated that, except for school age children, the highest concentrations of transit-dependent persons was located within the older, intensively developed portions of the City of Waukesha, making this area one of high need for transit service.

Employment

Employment within the study area increased from about 10,300 jobs in 1963 to about 38,400 jobs in 1985, an increase of about 273 percent. Employment has increased much faster in some parts of the study area than in others. For example, jobs in the Blue Mound Road corridor—bounded approximately by STH 100 on the east, Greenfield Avenue on the south, CTH T on the west, and North Avenue on the north—a portion of which is located within the study area, are estimated to have increased from 7,400 in 1963 to 47,300 in 1985, a 539 percent increase.

In 1985, the major concentrations of employment within the study area were located in the City of Waukesha within and around the Waukesha central business district, immediately north of the central business district along STH 164, on the south side of the City along Prairie Avenue, on the far northwest side of the City along CTH T, and on the northeast side of the City along E. Moreland Boulevard. The concentration of employment along E. Moreland Boulevard is actually part of a broader concentration of employment within the Blue Mound Road corridor which extends outside the study area to the east along W. Blue Mound Road to about W. Moorland Road.

Major Traffic Generators

The locations of all major traffic generators in the planning area—including shopping areas, major public educational institutions, community and special medical centers, governmental and public institutional centers, employment centers, and recreational areas—were identified in the planning effort. The vast majority of such generators is located within the highly urbanized areas of the City of Waukesha.

Travel Habits and Patterns

Total Person Travel Characteristics: Based upon the results of a household survey undertaken by the Commission in May 1982, a total of 148,000 person trips were made on an average weekday by residents of the City of Waukesha. Of this total, about 99,100 person trips, or about 67 percent, had both their origin and destination within the planning area. The remaining 48,900 person trips, or 33 percent, had either an origin or destination outside the planning area. Within the planning area, the quarter-section containing the Waukesha central business district both attracted and produced the greatest number of internal person trips. Aside from the Waukesha central business district, person trip productions within the study area were generally concentrated within the densely developed residential areas of the City of Waukesha. The greatest number of person trips made by city residents with origins or destinations outside the study area were made between the study area and other municipalities within the Milwaukee urbanized area. The largest numbers of these person trips were made between the study area and the Brookfield-Elm Grove area, the City of Milwaukee, and the west-central portion of Milwaukee County.

About 800 of the 99,100 person trips made within the study area by city residents on an average weekday in May 1982, or about 0.8 percent, were made on the city transit system. Based upon the growth in households and employment which has occurred since 1982 within the study area and the City of Waukesha, the number of person trips made on an average weekday in 1988 within the study area by city residents was estimated to have increased by 5 percent to about 104,000 trips. In comparison, the number of person trips currently made on the transit system increased to 1,400 trips per average weekday, or by about 75 percent, and now represents about 1.3 percent of all person trips made within the study area by City of Waukesha residents.

It was also noted that the travel habits of city residents are not related solely to the characteristics of the Waukesha area, but are strongly related to characteristics of the entire Milwaukee urbanized area. In this respect, about 48,900 of the 148,000 person trips, or about 33 percent, made by city residents on an average weekday in May 1982 were made to or from areas outside the study area. Consequently, a significant portion of all trips made by City of Waukesha residents cannot be served by the city transit system.

Transit Person Travel Characteristics: An onboard bus survey was conducted on the Waukesha Metro Transit bus routes by the City of Waukesha on November 18, 1987, to define the socioeconomic and travel characteristics of the users of the transit system. The survey data collected indicated that the current transit users were predominantly female, were 18 years of age and under, and were without a valid driver's license. Transit riders were also found to come predominantly from households having three or more persons, no automobile or only one automo-

bile available, and an annual income of less than $20,000. Similar survey data concerning the trip characteristics of the transit passengers indicated that the plurality of trips made on the transit system were home based school and home based work trips, with about 47 and 25 percent, respectively, of all transit trips made for these purposes.

The overwhelming majority of transit riders rated the transit system as "good" to "excellent" with respect to the attitudes and abilities of the bus operators and the convenience of the bus routes and schedules. Some comments and suggestions were also received calling for expansion of the days and hours of transit system operation, reduction of operating headways, the modification of existing routes or addition of new routes, and improving bus stops by adding additional passenger amenities.

EXISTING TRANSIT LEGISLATION AND REGULATIONS

Federal Legislation

The federal government is a major source of financial assistance for public transit services through three major programs relevant to the City of Waukesha. The U. S. Department of Transportation, Urban Mass Transportation Administration (UMTA), administers these programs, which are made available under the Urban Mass Transportation Act of 1964, as amended. Financial assistance for urban public transit systems like that operated by the City of Waukesha is currently available under Section 3, primarily for capital improvement projects and rapid transit system construction costs; under Section 8, for planning assistance; and under Section 9, for use toward operating assistance, capital improvement projects, or planning projects, on a formula grant basis to designated recipients within urbanized areas.

Within the Milwaukee urbanized area, the Counties of Milwaukee, Waukesha, Ozaukee, and Washington have been designated as recipients of Section 9 formula funds. The Section 9 funds allocated annually to the urbanized area are distributed among the designated recipients having subsidized transit services within their jurisdictions—Milwaukee County and Waukesha County—using a procedure mutually agreed upon by the three transit operators within the urbanized area—Milwaukee County, Waukesha County, and the City of Waukesha. Section 9 funds available for planning projects or capital assistance projects are distributed on the basis of the need for such funds by each transit operator as reflected in a program of projects jointly developed by the three transit operators. Section 9 funds available for transit operating assistance are distributed using a process which applies within the urbanized area the national formula used to distribute funds among the urbanized areas nationwide. The transit operating assistance funds allocated to Waukesha County in this manner are currently, and have also been in years past, divided between Waukesha County, the designated recipient of such funds, and the City of Waukesha, which is not a designated recipient but owns and operates its own transit system, based upon an agreement which is annually negotiated between the County and the City. The negotiation of such an agreement is consistent with how such matters were envisioned to be settled when each of the four counties was originally designated as a recipient of UMTA formula transit assistance funds in 1975.

A transit assistance program intended to help meet the specialized transportation needs of elderly and handicapped persons was also authorized under the Urban Mass Transportation Act of 1964, as amended, and is administered by UMTA. Section 16 provides financial assistance for the purchase of vehicles and equipment to private nonprofit agencies or corporations that provide specialized transportation to elderly and handicapped individuals. This aid is provided to fill service gaps in areas where transit services for the general public do not operate or do not provide adequate transportation for the elderly and handicapped.

State Legislation

The Wisconsin Statutes provide several programs for financing public transportation services. The Wisconsin Department of Transportation administers these programs, which provide financial assistance for both general and specialized transportation, including: an urban transit operating assistance program authorized under Section 85.20 of the Wisconsin Statutes, which provides operating assistance to communities with populations of more than 2,500 persons supporting general public transit systems; a specialized transportation assistance program, authorized under Section 85.21 of the Wisconsin

Statutes, which provides financial assistance to counties for elderly and handicapped transportation projects; and a specialized transit assistance program, authorized under Section 85.22 of the Wisconsin Statutes, which, together with funds available under the UMTA Section 16(b)(2) program, provides capital assistance to private nonprofit organizations providing specialized transportation services.

The Wisconsin Statutes also provide several organizational alternatives to municipalities for the operation of public transit services. These alternatives include: contracting for services with a private operator, public ownership and operation of municipal utility, and public ownership and operation by a single or joint municipal transit commission. In addition, the Wisconsin Statutes also provide for the creation of public transit authorities.

Local Legislation

Local legislation specifically pertaining to transit system operation is contained in two sections of the Municipal Code of the City of Waukesha. The most significant section establishes and defines the powers of the Waukesha Transit System Utility Board. The other section establishes regulations, standards, and controls relating to the use and operation of public transit systems within the City.

TRANSIT SERVICE OBJECTIVES AND STANDARDS

A set of transit service objectives were developed to provide criteria against which the performance of the existing transit system may be assessed, alternative service options and plans designed and evaluated, and recommendations for improvement made. Complementing each of the objectives is a planning principal and a set of service and design standards. Each set of standards is directly related to an objective and serves to facilitate quantitative application of the objectives in the evaluation of the performance of the existing transit system, provide guidelines for the consideration of new or improved services, and provide warrants for capital projects.

The following four objectives were adopted by the City of Waukesha Transit Development Program Advisory Committee for use in this study:

1. Public transit should serve those areas of the City and its immediate environs which can be efficiently served, including those areas which are fully developed to medium or high densities and, in particular, the transit-dependent population within those areas.

2. The public transit system should promote transit utilization and provide for user convenience, comfort, and safety.

3. The public transit system should promote efficiency in the total transportation system.

4. The transit system should be economical and efficient, meeting all other objectives at the lowest possible cost.

TRANSIT SYSTEM PERFORMANCE EVALUATION

A performance evaluation of the City of Waukesha transit system was conducted at two levels, using specific performance measures related to the attainment of key transit system objectives and standards.

Systemwide Performance Evaluation

At the first level, an assessment of the performance was made on a systemwide basis. This assessment examined the extent to which the transit system serves the major land use centers and resident population groups within the Waukesha area. The conclusions reached from the systemwide performance assessment included:

1. The existing transit system provides excellent areal coverage of the existing residential areas of the City of Waukesha, serving over 98 percent of the resident population of the City.

2. The transit system also provides good coverage of the major nonresidential land use centers in the study area, serving 76 of the 100 centers identified.

3. The transit system provides excellent areal coverage of residential concentrations of transit dependent population groups and good coverage of facilities used by elderly and/or handicapped persons. Nonambulatory and semi-ambulatory handicapped persons within the transit system service

area are also provided with specialized door-to-door transportation service by the Metrolift Program operated by the City of Waukesha Transit System Utility.

4. The existing route structure of the transit system does not well serve much of the proposed new residential, industrial, commercial, and office development within the City of Waukesha. Some routing changes will, therefore, be needed in the near future if all proposed developments are to be served.

5. The existing transit system fully serves fewer than one-half of the existing travel patterns of the existing student ridership market, that is, elementary, middle, and high school students residing less than two miles from school who are not now provided with yellow school bus service by the School District of Waukesha. Routing and scheduling changes in addition to those implemented by the transit system in August 1988 should be considered to address those student trips not fully served by the transit system.

6. Based on March 1988 average weekday operating information for the city transit system, the transit system provided 17.2 passenger miles of travel for every gallon of diesel fuel consumed in providing the service. This compares with an estimated 13.0 to 16.9 passenger miles of travel provided per gallon of gasoline consumed if the transit trips had, instead, been made by automobile during 1988. In general, it can be stated that the City's public transit system does, on a daily basis, provide energy savings comparable to the automobile; and that, like the other transit systems within southeastern Wisconsin, the City's public transit system is more energy efficient than the automobile on its more heavily travel routes and during peak traffic periods, but only marginally more energy efficient or, in some cases, less energy efficient, than the automobile on its more lightly traveled routes and during off-peak traffic periods.

7. It would appear that the City's transit system may contribute to efficiency in the utilization of the total capacity of the transportation system. If the people traveling by public transit were, instead, traveling by automobile, there would be an increase in automobile traffic utilizing arterial streets of the area of from 5 to 10 percent during the peak traffic hour. The effect would be most pronounced on the streets within the City of Waukesha central business district, where the potential exists for traffic congestion to occur during peak traffic hours.

Route Performance Evaluation

The second part of the performance evaluation was an assessment of the performance of each route in the transit system based upon its ridership, productivity, and financial performance. Further analyses of each route were then conducted to identify productive and nonproductive route segments, passenger loading problems, and stop and transfer coordination. The following conclusions were drawn from the assessment of route performance:

1. Certain bus routes have weekday performance levels consistently above system-wide effectiveness levels, including Route Nos. 1, 3, 4, and 7, and can continue to be operated without change.

2. Other bus routes have weekday performance levels consistently below system-wide effectiveness levels for at least some of the performance measures, including Route Nos. 2, 6, and 9. Service changes on these routes should be considered.

3. As some bus routes must pass through areas with little residential development or few major trip generators in order to reach other residential areas or trip generators, such bus routes must be expected to perform at somewhat lower levels of efficiency than other bus routes if the transit system is to continue to provide complete areal coverage of the Waukesha area.

4. The elimination of underutilized bus trips and reductions in the days or hours of system operation could reduce total system operating expenses as well as the public subsidy required for the transit system. However, the decision to make such changes should reflect the judgement of local officials concerning the acceptable balance between what transit service levels are deemed necessary to provide a

reasonable level of service for the existing market, and what the total cost to the public of the transit service should be.

5. Some morning and afternoon bus trips currently carry passenger volumes which approach or exceed the capacity of the buses used. Schedule changes should, accordingly, be considered which would reduce vehicle loading problems.

6. The existing alignments of most routes of the transit system are relatively direct and result in only a minor amount of inconvenient travel. However, the existing alignments for Route Nos. 2, 6, and 9 are circuitous and, consequently, cause a significant amount of inconvenient and indirect travel between the outlying route termini and the City of Waukesha central business district. Alternatives which would correct the indirect alignments of these routes would entail shortening the travel paths over these routes either by eliminating service to some areas of the City or adding new routes to maintain full geographic coverage of the City. In addition, the large one-way loops incorporated at the outer ends of Route Nos. 3, 7, and 8 can inconvenience passengers traveling between points along the loop. Reducing the size of the one-way loops on these routes or converting to two-way service on these route segments would alleviate or eliminate the current inconvenience to passengers traveling entirely along these route segments.

7. While a substantial degree of coordination exists among the routes and schedules of the city transit system, some problems do exist for transferring passengers because not all bus routes meet at the common transfer point at the same time at all times. Coordination of schedules on the routes composing the transit system could be improved through operation of one or more bus routes with 30-minute headways all day to allow buses on these routes to meet with buses of other routes at regular intervals at the common transfer point throughout the service day. The potential impact of this service improvement upon the overall financial performance of the transit system would, however, need to be carefully weighed.

Conclusions

The performance evaluation indicated that changes in the route configuration of the existing transit system will be needed if the City is to maintain its policy of providing complete geographic coverage within the City, including areas of proposed new development. The analyses also indicated that certain changes in the transit system operation, including the elimination of underutilized bus trips and reductions in the days and hours of system operation, should be considered to improve the overall performance of the transit system and reduce public subsidy requirements. In reviewing the feasibility of potential service changes, it was recognized that consideration must be given not only to the potential impact upon system ridership, but also the potential impact upon the total financial requirements for, and overall financial performance of, the transit system.

ALTERNATIVE AND RECOMMENDED TRANSIT SYSTEM CHANGES

The transit service changes considered as alternatives by the Advisory Committee included a set of three basic alternative service plans plus a set of three additional service changes which could be made under any of the three basic service plans. At the specific request of the Advisory Committee, the alternatives examined did not include any of the potential reductions in existing service levels which had been identified during the transit system performance evaluation but, rather, focused on increasing existing service levels to better serve existing ridership markets and expanding the geographic coverage of the transit system to serve areas of new or expanding development within the City.

A number of assumptions concerning the basic factors affecting transit ridership and the required local funding for the city transit system during the period 1989 through 1992 were applied in the analysis of each alternative service change. These assumptions included: 1) that motor fuel prices would remain stable at about $1.00 per gallon over the planning period; 2) that operating expenses would increase over the planning period due to the effects of general price inflation; 3) that passenger fares on the transit system would remain the same as those charged during 1988; 4) that federal transit operating assistance funds available to the City of Waukesha would be reduced by about

Table 82

SUMMARY OF BASIC SERVICE ALTERNATIVES FOR THE CITY OF WAUKESHA TRANSIT SYSTEM

Characteristic	Basic Service Alternatives		
	Alternative 1	Alternative 2	Alternative 3
Proposed Routing and Service Changes	• None—maintain existing system	• Change downtown alignments of Route Nos. 2, 6, and 9 • Change alignment of Route No. 7 west of Moreland Boulevard • Add one new bus route—Route No. 10—to operate over Michigan Avenue to Merrill Crest subdivision • Reduce headways from 60 to 30 minutes on Route No. 8 during weekday midday period and on Route No. 4 all day Saturday • Add bus trips on Route Nos. 1, 2, 3, 4, 6, 7, 9, and 10 to serve students at area schools	• All route and service changes proposed under Alternative 2 except headway reductions on Route Nos. 4 and 8 • Change alignment of Route No. 2 east of STH 59 • Change alignment of Route No. 3 south of E. Roberta Avenue • Add a second new bus route—Route No. 5—by splitting Route No. 6 into two bus routes
System Ridership	• 393,000 revenue passengers in 1992 (5 percent increase over 1988 ridership level)	• 454,000 revenue passengers in 1992 (21 percent increase over 1988 ridership level)	• 470,000 revenue passengers in 1992 (26 percent increase over 1988 ridership level)
Effectiveness of Proposed Service Changes	- -	• 16 percent increase over Alternative 1 service levels in 1992 • 16 percent increase over Alternative 1 ridership levels in 1992 • 7 percent increase over Alternative 1 operating costs in 1992	• 24 percent increase over Alternative 1 service levels in 1992 • 20 percent increase over Alternative 1 ridership levels in 1992 • 11 percent increase over Alternative 1 operating costs in 1992
Costs			
Operating Deficit	• Increase in total deficit of $187,000, 23 percent, over 1988 deficit by 1992 • Increase in city operating subsidy of $130,000, 50 percent, over 1988 city funds by 1992	• Increase in total deficit of $246,000, 30 percent, over 1988 deficit by 1992 • Increase in city operating subsidy of $156,000, 60 percent, over 1988 city funds by 1992	• Increase in total deficit of $286,000, 35 percent, over 1988 deficit by 1992 • Increase in city operating subsidy of $178,000, 68 percent, over 1988 city funds by 1992
Capital Equipment	• Miscellaneous tools, service vehicles, and equipment, and spare bus parts • Total cost: $93,000 • City funds: $19,000	• Alternative 1 equipment plus two new buses and related operating equipment • Total cost: $395,000 • City funds: $82,000	• Alternative 1 equipment plus three new buses and related operating equipment • Total cost: $545,000 • City funds: $114,000

Source: SEWRPC.

5 percent per year between 1989 and 1992; 5) that state transit operating assistance would be available to fund 37.5 percent of eligible operating expenses through June 31, 1989, and 38.5 percent of eligible expenses thereafter; and 6) that no limits would be placed on the local funding requirement by city government.

Basic Alternative Transit Service Plans

Three basic service plans were formulated and evaluated for the City of Waukesha transit system. These three transit service alternatives proposed changes to the basic geographic coverage of the transit system and the service currently provided to Waukesha area schools in response to findings presented during the performance evaluation of the existing transit system. The specific service changes and performance of these alternatives are summarized in Table 82.

Alternative 1—Status Quo: Under this alternative, no changes would be made to the existing transit system as operated in the fall of 1988. In 1992, the annual ridership on the transit system under this alternative was projected to increase to about 393,000 revenue passengers, or by 5 percent over the 1988 ridership level of 374,000 revenue passengers; and the annual city operating subsidy for the transit system was projected to increase to about $390,000, or by 50 percent over the 1988 level of about $260,000. The total cost of capital projects required to maintain the existing transit system was estimated at $93,000, with the city share estimated at $19,000.

Alternative 2—One New Route and Special Student Services: Alternative 2 proposed routing changes to four of the eight existing bus routes, and the addition of a new ninth bus route. These

changes would expand transit service to new residential areas in the western portion of the City and improve the service provided to major apartment and elderly housing complexes located in downtown Waukesha. In addition, this alternative also proposed an expansion of the transit service provided to serve city students not now provided with yellow school bus service.

By 1992, the annual ridership on the city transit system under this alternative was projected to increase to about 454,000 revenue passengers, or by 21 percent over the 1988 level; and the annual city operating subsidy was projected to increase to about $416,000, or by 60 percent over the 1988 level. The total cost of capital projects required for this alternative, which included the purchase of two new buses and other related equipment, was estimated at $395,000, with the city share estimated at $82,000.

Alternative 3—Two New Bus Routes and Special Student Services: Alternative 3 included the same routing changes and additional student transit services proposed under Alternative 2 together with further modifications to three existing bus routes and the addition of a second new bus route. These changes would fully serve new residential areas within the southeast portion of the City and existing employment centers along Prairie Avenue and provide for more direct and faster transit travel between existing residential areas in the southwest portion of the City and downtown Waukesha.

By 1992, the annual ridership on the transit system under this alternative was projected to increase to about 470,000 revenue passengers, or by 26 percent over the 1988 ridership level; and the annual city operating subsidy was projected to increase to about $438,000, or by 68 percent over the 1988 level. The total cost of capital projects required under this alternative, which included the purchase of three new buses and other related operating equipment, was estimated at $545,000, with the city share estimated at $114,000.

Additional Service Changes

Additional service changes which could be made under any of the three basic service alternatives were also considered. These additional service changes were examined at the specific request of the City of Waukesha. The specific service changes and performance of these alternatives are summarized in Table 83.

Improved Bus Service Between the City of Waukesha and the Blue Mound Road Corridor: This service change was based upon analyses conducted under the transit studies for both the City of Waukesha and Waukesha County transit systems. These analyses identified a potential short-range future need to improve local transit service in the Blue Mound Road corridor for trips between the City of Waukesha and the land uses in the corridor, and also to separate local transit service from the rapid transit service provided between the Milwaukee central business district and the City of Waukesha central business district. The service change proposed that the City and the County agree to combine the separate transit services which each agency currently operates within the corridor into one bus service between downtown Waukesha and Brookfield Square. That service could be operated by either the City or the County. In addition, the successful implementation of this change would require agreement between the City and the County on issues related to the administration, operation, and funding of the service.

If the City were to operate the revised bus service between downtown Waukesha and the Brookfield Square Shopping Center, annual ridership on the city transit system by 1992 would be expected to increase to between 434,000 and 511,000 revenue passengers, or by 9 to 11 percent over the 1992 ridership under the basic service alternatives. The local funding requirement for the city transit system would be expected to increase to between $433,000 and $481,000 by 1992, or by 10 to 11 percent over the total local funds required under the basic service alternatives. If the additional $43,000 in local costs for the route were shared between the City and the County, about $24,000, or 56 percent, would need to be provided by the City, and the remaining $19,000, or 44 percent, would need to be provided by the County. The total cost of the capital projects required for the City to operate this service, which would include the purchase of one new bus and related operating equipment, was estimated at $150,000, with the City's share estimated at $32,000.

It was noted that the local costs for the revised service proposed under this service change could possibly be lower if the service contract for the route were awarded to the existing private transit operator under contract with Waukesha County, or to another transit operator, using a procurement process similar to that followed by Wauke-

Table 83

SUMMARY OF THE IMPACTS OF ADDITIONAL SERVICE CHANGES ON BASIC SERVICE ALTERNATIVES FOR THE CITY OF WAUKESHA TRANSIT SYSTEM

Characteristic	Additional Service Changes		
	Restructuring of Bus Service Between Waukesha and Brookfield Square	Reduction of Off-Peak Headways on Selected Bus Routes	Provision of Peak-Hour Express Bus Service on Route No. 9
Proposed Routing and Service Changes	• Existing Waukesha County bus service provided between downtown Waukesha and Brookfield Square *and existing city bus service provided* between downtown Waukesha and Goerkes' Corners would be combined into one bus service using single route • Headways would be reduced to 30 minutes during all times of operation • Combined service could be administered and operated by either the County or City, but would need to be jointly funded by both • Changes would be made as part of proposed improvement of rapid transit service provided by Waukesha County between downtown Waukesha and the City of Milwaukee central business district	• Headways on selected bus routes would be reduced from 60 to 30 minutes during weekday off-peak *periods and all day Saturdays* to improve transfer coordination at downtown bus terminal	• Express bus service would be provided over Route No. 9 between downtown Waukesha and General Electric Medical Systems Division plant and the Waukesha County Technical College to reduce travel times • Implementation would be coordinated with proposed improvement of rapid transit service provided by Waukesha County between downtown Waukesha and the Milwaukee central business district
Additional System Ridership	• 41,000 additional revenue passengers, 9 to 11 percent, over 1992 ridership levels under basic service alternatives	• 51,000 to 62,000 additional revenue passengers, 11 to 15 percent, over ridership levels under basic service alternatives	• 11,000 additional revenue passengers, 2 to 3 percent, over 1992 ridership levels under basic service alternatives
Effectiveness of Proposed Service Changes	• 13 to 16 percent increase in service levels under basic service alternatives in 1992 • 9 to 11 percent increase in ridership levels under basic service alternatives in 1992 • 8 to 9 percent increase in operating costs under basic service alternatives in 1992	• 16 to 20 percent increase in service levels under basic service alternatives in 1992 • 11 to 15 percent increase in ridership levels under basic service alternatives in 1992 • 8 to 10 percent increase in operating costs under basic service alternatives	• 3 to 4 percent increase in service levels under basic service alternatives in 1992 • 2 to 3 percent increase in ridership levels under basic service alternatives in 1992 • 2 to 3 percent increase in operating *costs under basic service alternatives*

Additional Costs Operating Deficit	• Assuming operation by city transit system:
	  • Increase in total deficit of $86,000, 8 to 9 percent, over deficit under basic service alternatives in 1992
	  • Increase in total local operating subsidy of $43,000, 10 to 11 percent, over deficit under basic service alternatives in 1992 (city share of $24,000; county share of $19,000)
	• Operating deficits and local subsidies could be lower if service contract for revised route awarded to existing or other private transit operator using competitive procurement process followed by Waukesha County in 1987
		• Increase in total deficit of $76,000 to $107,000, 7 to 10 percent, over deficit under basic service alternatives in 1992
		• Increase in city operating subsidy of $37,000 to $55,000, 9 to 13 percent, over city subsidy under basic service alternatives in 1992
			• Increase in total deficit of $30,000, 3 percent, over deficit under basic service alternatives in 1992
			• Increase in city operating subsidy of $17,000, 4 percent, over city subsidy under basic service alternatives in 1992

Capital Equipment	• One new bus and related operating equipment for city transit operation • Total cost: $150,000 • City cost: $32,000	• Two to three new buses and related operating equipment, and expansion of bus operating and maintenance facility under Alternatives 2 and 3 • Total cost: $296,000 to $1,171,000 • City funds: $59,000 to $234,000	• One new bus and related operating equipment • Total cost: $148,000 • City funds: $30,000

Source: SEWRPC.

sha County in 1987 to award competitively service contracts for county bus routes for the period 1988 through 1990. The process followed by Waukesha County required potential service contractors to submit bids which indicated the specific amount of local funds they would require from Waukesha County. The bids submitted by all potential service contractors subsequently indicated that no county funds would be required by any potential contract operator.

Reduction of Off-Peak Headways on Selected Transit System Routes: This service change proposed that headways on some transit system routes be reduced from 60 to 30 minutes during weekday mid-day periods and all day Saturday in order to improve transfer coordination between city bus routes at the downtown transfer terminal.

By 1992, annual ridership on the transit system would be expected to increase to between 450,000 and 531,000 revenue passengers, or by 11 to 15 percent over the projected 1992 ridership for the basic service alternatives. The annual city operating subsidy would be expected to increase to between $427,000 and $493,000, or by 9 to 13 percent over the local funds required under the basic service alternatives. The total cost of required capital projects, which would include the purchase of two buses under Alternative 1 and the purchase of three buses plus the expansion of the transit system operating and maintenance facility under Alternatives 2 and 3, were estimated to range from $296,000 to $1.17 million, with the City's share estimated at between $59,000 and $234,000.

Provision of Peak-Hour Express Bus Service on Route No. 9: This service change would add express routing to reduce travel times between the downtown terminal and two major traffic generators—the General Electric Company, Medical Systems Division plant and the Waukesha County Technical College—located in the far northwest portion of the study area.

By 1992, annual ridership on the transit system would be expected to increase to between 404,000 and 481,000 revenue passengers, or by 2 to 3 percent over the ridership levels under the basic service alternatives. The annual city operating subsidy would be expected to increase to between $407,000 and $455,000, or by 4 percent over the local funds required under the basic service alternatives. The total cost of estimated capital projects, which would include the purchase of one additional bus, was estimated at $148,000, with the City's share estimated at $30,000.

Evaluation of Alternative Service Changes
An evaluation of the alternatives was conducted based upon the additional areas served by each alternative, increases in transit service levels, projected annual ridership levels, projected local cost for each alternative, and a projected efficiency and effectiveness of the proposed transit services. With respect to the three basic service alternatives, the evaluation found that the city funds required to subsidize the annual operation of the transit system could be expected to increase substantially under all three alternatives. In this respect, the annual city operating subsidy would increase by 50 percent between 1988 and 1992, representing an annual increase of about 11 percent, if the City were simply to maintain the existing transit system as proposed under Alternative 1. Under Alternatives 2 and 3, increases in the annual city operating subsidy of 60 percent and 68 percent, respectively, would be required between 1988 and 1992. These alternatives would, however, provide for an expansion of the city transit system to serve areas of new or expanding residential development, unserved employment centers, and major apartment and elderly housing complexes, plus add additional transit service for students not currently served by yellow school bus service.

Each of these three additional service changes considered for the basic service alternatives would provide for improvements which would stimulate increased ridership on the transit system, but which would also require further increases in the annual city operating subsidy for the transit system.

School Transportation Options for City Students
After reviewing the service alternatives discussed above, the Advisory Committee indicated that additional information was needed on two issues related to student transportation within the Waukesha area before it would make a decision on the alternative service changes. Specifically, the Advisory Committee requested that analyses be conducted which examined the merits of replacing the existing yellow school bus service provided by the School District of Waukesha to students residing within the City with service provided by the city transit system, along with the impacts on the city transit system of an expansion of yellow school bus

Table 84

SUMMARY OF FINDINGS OF ANALYSIS OF SCHOOL TRANSPORTATION OPTIONS FOR CITY OF WAUKESHA STUDENTS

Characteristic	Proposed Changes in Student Transportation	
	Replacement of Yellow School Bus Service for City Students with City Bus Service	Expansion of Yellow School Bus Service to Serve Students Residing One to Two Miles from School
Proposed Change in Student Transportation Policy	• Transportation between home and school for approximately 1,200 eligible city high school and middle school students residing two miles or more from school would be provided by city transit system instead of yellow school bus • School District would subsidize the fares paid by these students to use the replacement city bus service	• Transportation between home and school for an estimated 2,000 eligible city high school, middle school, and elementary school students residing between one and two miles from schools would be provided by yellow school bus instead of city bus system • No fares would be charged to students for using yellow school bus service
Changes to Existing Yellow School Bus and City Transit Service	• Existing yellow school bus trips serving city students eliminated or combined with other bus trips serving noncity students whenever possible • Bus trips added to city transit system Route Nos. 1, 2, 3, 6, 7, 8, and 9 • Minor adjustments in existing 1989 alignments of Route Nos. 2, 7, and 9	• Yellow school bus trips added to serve city students residing one to two miles from school • Special school day bus trips eliminated from city transit system
Change in Ridership on Existing City Transit System	• Increase of 1,360 revenue passengers per school day, and 245,000 revenue passengers per year (64 percent increase over projected 1989 ridership level)	• Decrease of 600 revenue passengers per school day and 108,000 revenue passengers per year (28 percent decrease from projected 1992 ridership level)
Effectiveness of Service Changes for City Transit System	• 15 percent increase in existing service levels • 64 percent increase in ridership • 8 percent increase in operating costs	• 2 percent decrease in existing service levels • 28 percent decrease in ridership • 1 percent decrease in operating costs
Costs	• Increase of $244,000 in total costs for replacement city bus service would be substantially more than reduction of $50,000 to $70,000 in contract yellow school bus costs • With offsetting federal and state aids, "net" costs for student transportation would increase by between $15,000 and $35,000 annually	• Increase of between $200,000 and $350,000, 43 percent, in costs for student transportation within School District • Increases of $29,000, 3 percent, in total operating deficit; and $34,000, 8 percent, in city share of deficit for city transit system

Source: SEWRPC.

service by the School District to students residing between one and two miles from their schools. A summary of the findings of these analyses is presented in Table 84.

The first analysis assumed that the yellow school bus service currently provided by the School District to City of Waukesha public and private high school and middle school students would be replaced with city transit system service. About 1,200 of the 4,600 students within the School District who are eligible for yellow school bus service are city students attending middle schools and high schools within the District. Because most of the city middle and high school students now receiving yellow

school bus service reside within the existing city transit system service area and could be served by the existing city transit system routes and stops, it was assumed that only minor adjustments to the existing routes would need to be made to serve students residing outside the existing service area. However, additional bus trips and vehicles would be needed to accommodate the additional city students on the replacement city bus service. The analysis also assumed that, because the City would assume responsibility for providing transportation service to middle and high school students within the City under this proposal, less yellow school bus service would be needed and the total cost of the school bus contract could be reduced.

This analysis indicated that, on a total cost basis, continuing to serve city middle and high school students with yellow school bus service was more efficient than serving these students with the city fixed-route transit system. The total additional cost to the City for the replacement city bus service was estimated at $244,000, but the estimated reduction in contract yellow school bus costs would be only $50,000 to $70,000. Thus, total costs were estimated to increase by $144,000 to $194,000. A comparison of the costs of this proposed change was also made on a local basis, that is, total costs minus offsetting federal and state aids. The comparison indicated that, even with offsetting federal and state aids, there would be an increase in the local costs for student transportation through the replacement of yellow school bus services with the city transit service. This increase in local costs was estimated at between $15,000 and $35,000.

In addition, it was found that such a change was likely to be inconsistent with a current federal policy encouraging contracting with private transit operators for public transit services as it would probably adversely affect the existing private school bus operator. This service proposal did, however, have the potential to substantially improve the ridership and financial performance of the city fixed-route transit system.

The second student transportation analysis assumed that the Waukesha School Board would change its current student transportation policy to expand eligibility for yellow school bus service to elementary, middle, and high school students residing between one and two miles from school. By expanding eligibility for yellow school bus service to such students, it was estimated that an additional 2,000 students would become eligible for yellow school bus service within the School District.

This analysis found that such an expansion of yellow school bus service would increase expenditures for yellow school bus service within the School District by between $200,000 and $350,000. With such an expansion of yellow school bus service, it was assumed that all elementary, middle, and high school students currently using the city transit system to travel between home and school would use the expanded yellow school bus service. Consequently, a decrease in annual ridership for the existing city transit system of about 108,000 revenue passengers, or about 24 percent, could be expected. Since only a very small amount of the existing transit system service, about two percent, consists of special bus runs operated only on school days to serve student ridership, the elimination of these special bus runs would be expected to reduce the 1992 transit system annual operating expenses by only $13,000, or by about one percent; to increase the total operating subsidy for the city transit system by about $29,000, or by less than three percent; and to increase the city portion of the operating subsidy for the transit system by about $34,000, or by about eight percent. These very modest increases in the total operating deficit and the city share of the operating deficit would not create an urgent need for more substantial changes in the transit system, principally because the city transit system minimally meets desirable standards for a fixed-route transit system at present. Consequently, no corresponding substantial reduction in city transit service would be expected to result from the expansion of yellow school bus service within the School District.

Therefore, the analysis found that the impact of a Waukesha School District decision to extend yellow school bus service to students residing between one and two miles from school would be an increase in school district costs of between $200,000 and $350,000, and an increase in the total operating deficit for the city transit system of approximately $29,000.

Advisory Committee Recommendations

The recommendations of the Advisory Committee on the basic service alternatives and the additional alternative service changes are presented in Table 85. With respect to the three

Table 85

ADVISORY COMMITTEE RECOMMENDATIONS FOR THE TRANSIT SERVICE ALTERNATIVES PROPOSED FOR THE CITY OF WAUKESHA TRANSIT SYSTEM: 1988-1992

Alternative	Recommendation	Additional Information[a]
Alternative 1—Maintain Existing Transit System Throughout Planning Period	Reject alternative • Would not provide for any transit service improvements to respond to growth of City or to unmet student travel needs • Would do nothing to improve the overall effectiveness of the transit system	• Total systemwide operating and capital cost per revenue passenger in 1992 . . . . . $3.49 • Total systemwide operating deficit per revenue passenger in 1992 . . . . . $2.55 • Percent of systemwide operating expenses recovered from operating revenues in 1992 . . . . 15.5 • Total annual operating deficit in 1992 Total . . . . . $1,001,500 City share . . . . . 389,900 • Capital project costs 1988-1992 Total . . . . . $ 93,100 City share 18,600
Alternative 2—Add One New Regular Route and Increase Special Schoolday-Only Transit Services	Recommended for implementation as soon as practicable • Would expand transit service in western portion of City where new residential development is underway or completed • Would increase special schoolday-only transit services for students not served by yellow school bus service from 10 bus trips and 4 vehicle hours per schoolday with existing system to 22 bus trips and 10 vehicle hours per schoolday • Would result in improvements in the overall effectiveness in the transit system	• Total systemwide operating and capital cost per revenue passenger in 1992 . . . . . $3.26 • Total systemwide operating deficit per revenue passenger in 1992 . . . . . $2.33 • Percent of systemwide operating expenses recovered from operating revenues in 1992 . . . . 16.5 • Total annual operating deficit in 1992 Total . . . . . $1,060,200 City share . . . . . 416,200 • Capital project costs 1988-1992 Total . . . . . $ 395,300 City share 82,000
Alternative 3—Add Two New Regular Routes and Increase Special Schoolday-Only Transit Services	Recommended for implementation as soon as practicable and as proposed additional residential development occurs • Includes service expansion proposed under Alternative 2, plus new transit service to proposed resdidential development in southeast portion of the City and to existing unserved employment centers along Prairie Avenue • Would reduce indirect and circuitous routing on Route Nos. 2 and 6 of transit system • Would result in improvements in the overall effectiveness of transit system similar to those under Alternative 2	• Total systemwide operating and capital cost per revenue passenger in 1992 . . . . . $3.28 • Total systemwide operating deficit per revenue passenger in 1992 . . . . . $2.34 • Percent of systemwide operating expenses recovered from operating revenues in 1992 . . . . 16.4 • Total annual operating deficit in 1992 Total . . . . . $1,100,000 City share . . . . . 438,000 • Capital project costs 1988-1992 Total . . . . . $ 545,400 City share 113,900
Restructure Bus Service Between Downtown Waukesha and Brookfield Square Shopping Center. (The proposed service could be provided by either the City or the County. Its successful implementation would require the initiation of discussions between the City and the County to resolve issues related to the administration, operation, and funding of the service.)	Recommended for implementation • Would facilitate a major restructuring of rapid transit bus service between downtown Waukesha and downtown Milwaukee, which would provide for faster travel between these points by shifting Waukesha-to-Milwaukee bus trips serving Brookfield Square and the Blue Mound Road corridor to operate over the freeway • Proposed service would replace existing service between Waukesha and Brookfield Square through combining existing city and county routes into one route	• Incremental operating and capital cost per revenue passenger in 1992 . . . . . $2.98 • Incremental operating deficit per revenue passenger in 1992 . . . . . $2.08 • Percent of incremental operating expenses recovered from operating revenues in 1992 . . . . 22.3 (The figures shown are based upon only the additional costs, revenues, and revenue passengers associated with the restructured bus service between downtown Waukesha and the Brookfield Square Shopping Center, and do not reflect the additional cost savings which is expected to occur with restructuring the existing Waukesha-to-Milwaukee bus service.)
Reduce Off-Peak Headways on Selected Bus Routes	Reject alternative • Additional transit service would be as or more effective than service under recommended basic service alternative. However, it would require a total capital investment two to three times larger than that for the recommended basic service alternatives; and would generate only 80 percent of the additional ridership generated under the recommended basic service alternative[b]	• Incremental operating and capital cost per revenue passenger in 1992 . . . . . $3.28 • Incremental operating deficit per revenue passenger in 1992 . . . . . $1.54 • Percent of incremental operating expenses recovered from operating revenues in 1992 . . . . 22.5
Provide Peak-Hour Express Bus Service on Route No. 9	Reject alternative • Additional transit service would not be as effective as service under recommended basic service alternative	• Incremental operating and capital cost per revenue passenger in 1992 . . . . . $4.26 • Incremental operating deficit per revenue passenger in 1992 . . . . . $2.71 • Percent of incremental operating expenses recovered from operating revenues in 1992 . . . . 14.1

[a]The total systemwide operating and capital costs were based upon the projected 1992 total annual operating expenses and average annual capital costs for each service alternative, plus an estimated average annual capital cost of $178,500 for the existing capital equipment and facilities of the transit system. The average annual capital costs for each service alternative were based upon the expected useful life of the operating equipment and facilities included in the capital projects required for each alternative. The average annual capital costs for the existing equipment and facilities of the transit system were based on the depreciation of capital assets reported by the transit system in 1988. Information for the existing transit system in 1988 similar to that shown for each service alternative in 1992 would be as follows:

- *Total systemwide operating and capital cost per revenue passenger in 1988 . . . . . $3.12*
- *Total systemwide operating deficit per revenue passenger in 1988 . . . . . $2.18*
- *Percent of systemwide operating expenses recovered from operating revenues in 1988 . . . . . 17.7*
- *Annual operating deficit in 1988:*
  - *Total $814,200*
  - *City share 260,000*

[b]The recommended basic service Alternative 2 would generate about 61,100 additional revenue passengers by 1992 and would have a total capital project cost of $395,300. This compares with about 50,700 additional revenue passengers and a total capital project cost of $1,170,500 for reducing off-peak headways under Alternative 2.

Source: SEWRPC.

basic service alternatives, which proposed changes affecting the basic geographic coverage of the transit system, the alternative which proposed maintaining the existing system throughout the planning period was not recommended, as it would not provide for any transit improvements to respond to the growth of the City or to unmet student or other travel needs. Rather, the Committee recommended that the City of Waukesha implement Alternatives 2 and 3 as soon as practicable based on ridership trends and the pace with which the new development occurs within the City. Both these alternatives would expand transit service to provide full coverage of the new and expanding residential areas within the City, as well as increase the regular school day-only transit service which the transit system provides for students not served by the existing yellow school bus service. Both alternatives would also result in some improvement in the overall effectiveness and efficiency of the transit system from that projected for the system assuming no changes in service over the planning period.

With respect to the alternative additional service changes which could be made under any of the basic service alternatives, the Committee recommended that only the service change which proposed the restructuring of bus service between downtown Waukesha and the Brookfield Square Shopping Center be implemented. Because it was recognized that implementation of this change would require agreement between the City and the County on issues relating to the administration, operation, and funding of the restructured bus service, the Committee also recommended that the City and the County reach agreement on restructuring the existing bus service. The additional service changes proposing the reduction of off-peak headways on selected bus routes and the provision of express bus service on Route No. 9 were not recommended for implementation at this time.

The recommendations of the Advisory Committee on the two student transportation options are presented in Table 86. The Committee recommended that both the student transportation options examined be rejected because neither option has sufficient benefits to warrant recommending a change in the existing student transportation policy of the School District. In this respect, while replacing the existing yellow school bus service provided to city middle and high school students residing two or more miles from school with city transit service would substantially improve the operating performance of the city transit system, an examination of both the total costs and the local, or net, costs associated with this proposed change indicates that serving city middle and high school students with existing yellow school bus service would be less costly and more efficient than serving the students with city fixed-route transit service. With respect to the proposed expansion of yellow school bus service to serve city elementary, middle, and high school students residing one to two miles from school, it was found that this would require a significant increase in School District expenditures for yellow school bus service, but that no corresponding substantial reduction in city transit service and, consequently, city expenditures for such service, could be expected.

THE RECOMMENDED PLAN

Fixed-Route Transit Service

The recommended plan for the city fixed-route transit service calls for a number of changes in the existing service levels and route structure of the city transit system. These changes are intended to expand the basic geographic coverage of the system to include areas of proposed new residential development, as well as to increase the service provided for specific ridership markets. Foremost among these basic service changes would be the restructuring of Route No. 7 and the addition of one new regular bus route to improve transit service in the western portion of the City; the addition of special school day-only transit services to improve the transit service provided to city elementary and secondary school students who reside less than two miles from their school; the adjustment of the downtown routing of Route Nos. 2, 6, and 9; and the reduction of off-peak headways on Route No. 8 during weekday midday periods and Route No. 4 all day Saturdays. These proposed basic service changes could be considered for immediate implementation by the City.

The recommended plan also calls for the ultimate implementation of additional service changes affecting the basic geographic coverage of the system, including the creation of a second new bus route to provide for more direct travel between the southwest portion of the City and

Table 86

ADVISORY COMMITTEE RECOMMENDATIONS FOR THE SCHOOL TRANSPORTATION OPTIONS FOR CITY OF WAUKESHA STUDENTS

Alternative	Recommendation	Additional Information	
Replace Existing Yellow School Bus Service for City Middle and High School Students Residing Two or More Miles from School with City Bus Service	Reject alternative • The total costs for replacement city bus service would be substantially more than the estimated reduction in the School District's costs for yellow school bus service • The local, or "net", costs—total costs minus federal and state aids—would increase by between $15,200 and $35,200	• Total costs • Increase in annual operating and capital costs for city transit system • Reduction in annual contract yellow school bus costs for School District • "Net" costs (total costs minus federal and state aids) • Annual savings in city costs for city transit system • Annual increase in School District costs for student transportation	 $244,300 $50,000-$70,000 $13,200 $28,000-$48,000[a]
Expand Existing Yellow School Bus Service to Serve City Elementary, Middle, and High School Students Residing One to Two Miles from School	Reject alternative • Would require a significant increase in School District budget for yellow school bus service • While annual ridership and revenues on city transit system would decrease by 28 percent and 23 percent, respectively, the total system operating deficit would only increase by 3 percent and the City's share of the operating deficit would only increase by about 8 percent • The very modest increases in the total transit system operating deficit and the City's share of operating deficit do not create an urgent need to make further, more drastic, changes in transit system, particularly given that the service area coverage provided by the existing routes and the existing service frequencies would need to be retained to conveniently serve the work, shopping, and other trips made by the remaining system riders	• Impacts on School District • Increase in number of students eligible for yellow school bus service • Increase in annual contract yellow school bus costs for School District • Impacts on existing city transit system • Reduction in annual student revenue passengers • Reduction in annual student passenger revenue • Reduction in annual vehicle hours of service • Reduction in annual operating expenses • Increase in annual operating deficit Total City share	 2,000 $200,000-$350,000 108,000 $42,000 760 $13,200 $28,800 $33,800

[a]*Assumes that the School District would pay the city transit system $98,000 to subsidize the fares of the approximately 245,000 student rides which may be expected to be made on the replacement city transit system service per year. Otherwise, the School District would be providing bus service at no cost to students residing outside the City, and charging students residing within the City for bus service. An alternative would be to assume that the School District would not subsidize the student fares. Under such an assumption, city students would be responsible for paying annually $98,000 in transit fares. In addition, the School District would have the state transportation aid it receives annually to offset school district expenditures for student transportation reduced by about $36,000 because it would no longer be providing transportation for city middle and high school students. Under this alternative assumption, the net cost to the School District would be an annual savings of between $14,000 and $34,000 in the costs for student transportation; and the total net cost to the City and the School District for the proposed change in student transportation would be an annual savings of between $27,200 and $47,200.*

Source: SEWRPC.

downtown Waukesha by splitting existing Route No. 6 into two separate routes and the restructuring of Route Nos. 2 and 3 to provide transit service to three proposed areas of new residential development in the southeast portion of the City. While the modification of Route No. 6 could also be considered for immediate implementation based on existing conditions along the route, the modification of Route Nos. 2 and 3 would be implemented if, and when, proposed additional residential development actually occurs within the southeast portion of the City which, at the present time, would appear to be in 1992.

In addition, the recommended plan includes the restructuring of the existing city and county bus services in the corridor between downtown Waukesha and the Brookfield Square Shopping Center. The proposed service restructuring essentially represents the combining of the existing services operated in the corridor by the City of Waukesha and Waukesha County into a single bus route which could be operated by either the City or the County. This action would result in improved service for passengers traveling in the corridor. It was recommended that the City of Waukesha and Waukesha County initiate

discussions directed at resolving issues relating to the administration, operation, and funding of the proposed bus service. Agreement between the City and the County on these matters will be essential to the successful implementation of the recommended service restructuring.

Finally, the recommended plan also calls for improved coordination between the local bus services provided by the City of Waukesha and the commuter bus services provided by Waukesha County. The proposed restructuring of the existing bus services between downtown Waukesha and the Brookfield Square Shopping Center is a key element of the major restructuring of the existing rapid transit services provided between downtown Waukesha and downtown Milwaukee recommended under the transit system development plan recently completed for the Waukesha County transit system. The recommended restructuring of the Waukesha-to-Milwaukee rapid transit services is not likely to be implemented until an agreement is reached between the City and the County on the issues associated with the implementation of the restructured Waukesha-to-Brookfield Square bus service. Until such an agreement is reached, it was recommended that actions be taken by both the County and the City to encourage the use of the existing county bus services connecting the City of Waukesha with both downtown Milwaukee and the Brookfield Square Shopping Center. The plan also recommends that attempts be made to maximize the coordination of arrival and departure times of the county and city bus trips serving the downtown Waukesha bus terminal when the recommended restructuring of the existing Waukesha-to-Milwaukee rapid transit services is finally implemented. Such coordination may be expected to result in increased ridership on both transit systems.

Specialized Transportation Service for Disabled Persons

The recommended plan also calls for the City to continue to provide the specialized transit services which can effectively be used by handicapped persons. Such services are currently provided through the Waukesha Metrolift Program administered by the City of Waukesha Transit System Utility. The only change envisioned for the Metrolift Program as a result of the recommended changes in the city fixed-route transit system would be an expansion of the Metrolift service area to coincide with the expansion of the service area for the fixed-route transit system.

Alternative and Recommended Operating Agencies and Institutions

In preparing the plan recommendations, it was assumed that the City would continue its existing operating and administrative practice of providing the recommended bus routes and service levels. In this respect, the City of Waukesha owns the equipment and facilities used to provide its fixed-route transit service, but has elected to contract with a private management firm to oversee the day-to-day operation of the transit system. Alternatives to this operating and administrative strategy were examined. These included having the City contract with the private transit operator for the operation of its fixed-route transit system and converting the system to full municipal operation. A special subcommittee was created in October 1989 by the City of Waukesha Transit System Utility Board to study such alternative operational and administrative arrangements. The recommendations from this subcommittee are intended to guide the Board in considering whether or not the City should continue its current operating and administrative practice or pursue some other arrangement when the current contract with the existing private management firm expires at the end of July 1990.

An analysis was also undertaken of the alternative operating agencies and institutions which could be used to oversee the operation of both the local transit services provided by the City of Waukesha and the contract transit services provided by Waukesha County. These alternatives included: operation of all transit services in the County by the City of Waukesha; operation of all transit services in the County by the Waukesha County; operation of all transit services in the County by a transit authority; and separate but coordinated operation of city and county transit services.

The alternative administrative strategy proposing the operation of all transit services in the County by the City of Waukesha was not considered practical, since it would require the City of Waukesha staff to assume responsibility for county transit services currently provided outside the City. While the City has the legal authority to provide services outside the corpo-

rate limits of the City, it would be difficult to justify to city taxpayers the costs entailed in supervising the operation of such services or in obtaining public funds to subsidize continued operation. The City would also be required to assume the county's responsibility for meeting all federal guidelines pertaining to the use of federal transit assistance funds, which could include an expansion of the specialized transit services the County currently provides to meet federal requirements. Failure to meet this or any other federal guideline would jeopardize federal funding for city as well as county transit services. Finally, the County has indicated in past discussions with the City on this matter an intention to discontinue county funding for the existing and proposed county transit services if the City agreed to assume responsibility for their operation. The City would then be required to provide directly, or obtain from other local governments, any local funds needed to support the erstwhile county transit services, or to assume responsibility for the elimination of the county transit services. For these reasons city operation of all transit services within the County was not recommended.

While the alternative calling for the operation of all transit services by Waukesha County was considered to be a more logical and equitable alternative, it was also rejected because it would require a substantially higher level of financial commitment to transit service than the County has been willing to make in the past, as well as recognition by the County that transit service is warranted only for specific areas of the County and should be provided to serve these areas only. The past level of commitment exhibited by the County toward its own transit program also made it doubtful whether the City would agree to transfer control of its public transit system to the County.

The third operating administrative alternative would require the creation of an independent transit authority to oversee the operation and administration of both Waukesha County and the City of Waukesha transit services. However, the state statute which authorizes the creation of such an authority does not provide the authority with powers of taxation. Consequently, if local funds were required to support the operation of the transit services, the authority would need to request that such funds be included in the annual budgets of Waukesha County, the City of Waukesha, or other municipalities within the district. This alternative was, therefore, also rejected.

Based upon problems associated with the first three alternative strategies, it was recommended that both Waukesha County and the City of Waukesha continue to provide public transit service, but make efforts to improve the coordination of the specific programs, including the shared use of the staff resources and of the private firms contracted with to operate and manage the transit services. Under this strategy it was noted that there was a need for the County to increase its staff capability to perform certain functions for the county transit program for which the existing county staff does not have the necessary expertise. A step toward the desired coordination of the city and county programs would be for the County to contract with the City of Waukesha for the use of existing city staff to meet this need. The county could also reassign existing county staff involved in supervising the specialized transportation programs administered by the Waukesha County Department of Aging. As an alternative to these two actions, the County could request that the Regional Planning Commission provide the staff to perform the transit program activities.

In addition to coordinating staff resources, it was recommended that the City and County make an effort to coordinate the separate bid processes that are followed to award contracts for the operation of the county bus service and the operation and management of the city transit system. This would enable both the County and the City to explore the possibility of operation and management of the city and county transit systems by a common firm, which could result in increased efficiencies and lower costs for both operators.

Financial Commitment

Table 87 summarizes the public funds which will be required to subsidize the annual operation of the recommended transit service. With the implementation of only the recommended basic service improvements, ridership on the transit system may be expected to increase between 1988 and 1992 by about 25 percent, from about 374,000 to 468,000 revenue passengers, and operating revenues by about 22 percent, from about $175,000 to about $215,000 between 1988 and 1992. Operating expenses for the transit

Table 87

SUMMARY OF PROJECTED RIDERSHIP AND PUBLIC FUNDS REQUIRED UNDER THE RECOMMENDED TRANSIT SYSTEM DEVELOPMENT PLAN: 1988-1992

Characteristic	1988 Actual	Projected 1989-1992[a]							
		Under Recommended Transit System with Only Basic Service Changes				Under Recommended Transit System Including Restructured Bus Service in the Blue Mound Road Corridor[b]			
						Incremental Change		Total System	
		1989	1990	1991	1992	1991	1992	1991	1992
Annual Revenue Passengers	374,000	381,500	441,800	448,600	467,900	29,800	41,300	478,400	509,200
Total Annual Operating Expenses[c]	$989,200	$1,014,900	$1,165,700	$1,198,500	$1,315,800	$104,400	$110,700	$1,302,900	$1,426,500
Total Annual Operating Revenue	$175,000	$ 178,300	$ 203,500	$ 206,500	$ 215,000	$ 17,700	$24,700	$224,200	$239,700
Total Annual Operating Deficit									
Federal Operating Assistance	$183,300	$ 181,400	$ 172,300	$ 163,700	$ 155,500	$ 0	$ 0	$ 163,700	$ 155,500
State Operating Assistance	371,000	385,700	448,800	461,400	506,500	40,200	42,700	501,600	549,200
Local Operating Assistance	259,900	269,500	341,100	366,900	438,800	46,500[d]	43,300[d]	413,400	482,100
Total	$814,200	$ 836,600	$ 962,200	$ 992,000	$1,100,800	$ 86,700	$ 86,000	$1,078,700	$1,186,800
Capital Project Costs									
Federal Share		$431,500				$118,200		$549,700	
Local Share		113,900				31,800[d]		145,700	
Total		$545,400				$150,000		$695,400	

[a] *Based upon assumptions affecting ridership and financial projections shown in Table 43 in Chapter VII.*

[b] *Assumes operation of the restructured bus service by the City of Waukesha. The costs for the service could be different if the service contract for the route were awarded to a different operator through a competitive procurement process. Table 54 in Chapter VIII identifies the ridership and financial performance of the restructured bus service as a separate route removed from the City of Waukesha transit system.*

[c] *Includes operating costs associated with providing both fixed-route transit service for the general public and specialized transportation service for disabled persons.*

[d] *It is recommended that the restructured bus service between downtown Waukesha and the Brookfield Square Shopping Center be jointly funded by both the City of Waukesha and Waukesha County. The City's share of the incremental operating deficit for this service is projected to be $24,500 in 1991 and $24,200 in 1992. The County's share of the incremental operating deficit for this service is projected to be $21,100 in 1991 and $19,100 in 1992. In addition, the local cost for the capital projects associated with city operation of the proposed service would need to be shared by the City and the County.*

Source: SEWRPC.

system, however, may be expected to increase by about 33 percent over this same period, from about $989,000 in 1988 to about $1,316,000 in 1992. As a result, the total operating deficit may be expected to be about 35 percent higher by 1992 than in 1988, increasing from about $814,000 to about $1,101,000. More importantly, the projected increase in the operating deficit, coupled with projected decreases in federal transit operating assistance funds, may be expected to result in an increase of about 70 percent in the city operating subsidy of the transit system between 1988 and 1992, from about $260,000 to about $439,000.

In addition, the City will also be responsible for providing a portion of the local funds required to operate the single bus route which is recommended to replace the existing city and county bus routes in the corridor between downtown Waukesha and the Brookfield Square Shopping Center. Assuming the initiation of the proposed bus service in 1991 by the City of Waukesha, the total additional local public funding requirement for the service would be expected to be about $43,000 by 1992. Of this amount, the City of Waukesha would be responsible for about $24,000, or 56 percent, and Waukesha county would be responsible for about $19,000, or 44 percent. However, should this service be competitively bid, it may be possible, based upon the results of the County's experience in competitively adding transit services in 1987, to reduce both the city and county funds required to subsidize the service.

The estimate of the amount of city funding required assumes that federal and state funds

will continue to be drawn upon to reduce the required city financial commitment for the annual operation of the transit system. It is recommended that federal transit operating assistance funds, through the UMTA Section 9 formula block grant program, continue to be sought to defray a portion of the annual operating deficit of the city transit system.

At the specific request of both the City of Waukesha and of Waukesha County, a number of alternative quantitative methods of dividing the total amount of federal transit operating assistance allocated each year to the transit operators within Waukesha County were reviewed, including continuing to negotiate the division of the federal transit operating assistance funds available; applying a modified version of the national formula to distribute funds; distributing funds based upon specific characteristics of each transit operation, including measures of ridership, service provided, system efficiency, and local funding commitment; and distributing funds using a weighted allocation method based on service utilization and service provided. Based upon this analysis, the Commission staff concluded that the most reasonable method for distributing federal transit operating assistance funds between the City and the County would be the last method examined, which would base the division of such funds on the most important measures of the actual need for transit service. Use of such a weighted allocation method to distribute funds within the County would result in about the same proportionate share of available federal transit operating assistance funds as has been negotiated under the current method for the past three years. Accordingly, the Commission staff recommended that, should Waukesha County and the City of Waukesha fail to reach agreement concerning the division of Section 9 operating assistance funds available within Waukesha County in future years, these parties consider using this weighted allocation method as the method for dividing the federal transit operating assistance funds available, or as the basis for negotiations between these parties concerning the division of available funds.

It is also recommended that federal transit assistance be obtained to offset a portion of the cost of the capital improvements recommended during the planning period, as shown in Table 87. The capital improvement projects required to implement the recommended basic service changes would include the purchase of three new buses and related bus equipment; the purchase and installation of 80 bus stop signs; and the purchase of other service, office, and maintenance equipment required to maintain the existing transit system through 1992. If the City were to be the operator of the restructured bus service in the corridor between downtown Waukesha and the Brookfield Square Shopping Center, one more new bus and 30 bus stop signs would also need to be acquired. The total cost of all these capital improvements was estimated at $695,000. Of this amount, about $550,000, or 80 percent, could be funded through the UMTA Section 9 formula assistance program, leaving a local share of about $145,000, or 20 percent.

An analysis was conducted of the capacity of the available funding sources to fund the recommended transit system over the five-year planning period. This analysis concluded that the projections made for the recommended transit system, including ridership, expenses, operating revenues, and operating deficits, are reasonable based upon past trends. In addition, the amount of public funds that would be required over the planning period from the identified federal, state, and city funding sources appears to be within the funding capability of each public agency.

With respect to the City of Waukesha in particular, even assuming that total city property tax revenues would increase between 1988 and 1992 at lower rates than observed during the preceding five-year period, the proportion of total city tax dollars that would be required to be committed to the transit system over the planning period would remain a very small proportion of total city tax dollars, increasing from an average of about 1 percent to about 2 percent per year. While this would represent a small increase in the proportion of total tax dollars levied for operation of the transit system, the absolute increase in city tax dollars levied to support the operating subsidies for the transit system would still be substantial, totaling about $203,000 between 1988 and 1992. This increase would, however, be comparable to the total increase in city operating subsidies of about $221,000 incurred during the period 1984 through 1988. This would indicate that the City could fund the recommended transit system during the five-year period concerned with a reasonable increase in its local funding commitment.

Plan Implementation

The City of Waukesha would bear most of the responsibility for implementation of the recommended transit plan. These would include: refining the recommended routing and service changes affecting transit service within the City of Waukesha; negotiating with Waukesha County over the operation and funding of the recommended bus service in the corridor between downtown Waukesha and the Brookfield Square Shopping Center; and, if requested by the County, considering providing staff services to the County in support of the county transit system, as well as considering coordinating with the County in the procurement of a private firm to operate/manage the transit system. Accordingly, it was recommended that the City adopt the city transit system development plan and use it as a guide in formulating the actions needed for the plan implementation.

Waukesha County would also have plan implementation responsibilities related to recommended changes in the existing county transit services. It is also recommended that the County consider further actions to coordinate its transit program with the city transit program, including coordinating the schedules of the county bus routes with the schedules of the city bus routes; exploring the possibility of contracting for city staff assistance to perform certain activities for the county transit program; and coordinating with the City in the procurement of a private firm to operate the transit system.

In addition, the following governmental agencies would be responsible for the following plan implementation actions:

1. The U. S. Department of Transportation, Urban Mass Transportation Administration, and the Wisconsin Department of Transportation should endorse the recommendations of this transit system development plan as a guide for the programming, administration, and granting of federal and state transit assistance funds for the City's public transportation program.

2. The Southeastern Wisconsin Regional Planning Commission should adopt the recommendations of this transit system development plan and, at the request of the City of Waukesha, include recommended operating and capital projects for the City's public transportation program annually in the transportation improvement program for the Southeastern Wisconsin Region.

CONCLUSION

By implementing the recommendations contained in the adopted transit system development plan prepared in 1980, and in certain special technical studies conducted during 1982 and 1983, the City of Waukesha has succeeded in accomplishing a significant feat, namely, the reestablishment of a local public transit system within the City. Good community support exists for the reestablished system where, only a short time before, public transit service was abandoned due to a lack of community support. The previous transit system development plan and related technical studies provided valuable information and guidance to the City in several areas, including route locations and alignments and service levels; vehicle requirements and facility needs; and management and operating strategies, information which was essential to the success of the initial, start-up phase of the new transit system.

If adopted, the new transit system development plan documented within this report can similarly provide a valuable guide to the City for the next phase of transit system development. During this phase, the transit system will have to be responsive to the changing development patterns and service needs of the City while, at the same time, improving the effectiveness and efficiency of the public transit services provided. The plan is based upon extensive inventories and analyses of the socioeconomic and land use characteristics of the Waukesha area; of the travel habits and patterns of the resident population; and of the operating and performance characteristics of the existing public transit system. The plan identifies existing problems on the public transit system as evidenced by low performance routes and unproductive route segments. The plan recommends specific transit service improvement actions designed to be responsive to changing service needs within the City, while emphasizing the most cost-effective means of system operation. The plan also identifies alternatives to the current operating and administrative strategy for

the city transit system which have the potential to reduce expenditures for transit service and recommends changes in the current administrative practices in both the city and county transit programs to more effectively coordinate specific elements of both programs. Implementation of the recommended transit system would concentrate available resources and capabilities on actions that will have the most significant positive impact on transit system performance, thus assuring the most effective use of limited public financial resources.

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APPENDICES

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Appendix A

GLOSSARY OF TECHNICAL TERMS

The following list provides definitions of certain technical terms used in this planning report. It should be recognized that while some of these terms may have different meanings when used in a study not related to transportation, or even slightly different meanings when used in other transportation studies, the definitions set forth herein are those used in the preparation of the transit system development plan for the City of Waukesha.

AMORTIZATION PERIOD: The period of time over which capital facilities are paid for by contribution either to a debt amortization sinking fund or to a capital recovery fund. The amortization period should approximate the useful life, measured in years, of the facility or piece of equipment concerned.

AVERAGE SPEED: The speed which a transit vehicle achieves between stops, including acceleration, deceleration, and dwell time.

CAPITAL EXPENSE: The outlay of funds for the acquisition of operating equipment and the construction of support facilities necessary to implement a particular plan or project.

CIRCULATION DISTRIBUTION SERVICE: Local public transit service provided for the movement of passengers within major urban activity centers.

CYCLE SCHEDULING: A scheduling technique for providing fixed-route urban public transit service under which the vehicles providing service meet at a common location at the same time, thus maximizing the opportunity for transfer of passengers between routes.

DEADHEAD: The movement of a revenue vehicle without passengers on board, such as from a storage area to the beginning of a regular route.

DEMAND-RESPONSIVE SERVICE: A range of local public transit services characterized by the flexible routing and scheduling of relatively small vehicles to provide shared-occupancy, door-to-door personalized transportation on demand.

DEPRECIATION EXPENSE: A portion of the original cost of capital facilities or equipment allocated to the annual cost of operation. Depreciation expenses are derived by spreading in some equitable manner the original cost of the facility or piece of equipment, less any salvage value, over the useful life of the facility or piece of equipment.

DESIRE LINE: A straight line connecting the origin and destination of a person trip.

DWELL TIME: The amount of time a transit vehicle stands at a station or stop while picking up or discharging passengers.

ELDERLY PERSON: A person 65 years of age or older.

EXPRESS SERVICE: That component of the urban public transportation system which serves moderate-length trips, generally over arterial streets and highways, with limited stops located only at intersecting transit routes, intersecting arterial streets, and major traffic generators.

FAREBOX RECOVERY RATE: The ratio of revenues generated by passenger fares to operating expenses expressed as a percent.

FAREBOX REVENUE: See "Passenger Revenue."

FAR-SIDE STOP: A transit stop located on the far side of a street intersection which requires that the transit vehicle cross the intersection before stopping to pick up or discharge passengers.

FIXED EXPENSE: A cost of providing transit service that remains relatively constant, irrespective of the level of operational activity.

GRID ROUTING: A routing technique for providing fixed-route urban transit service under which bus routes are laid out in a distinct grid or rectangular pattern, and do not focus on a single geographic location. Because passengers must transfer at route intersections, systems using grid routing usually must operate with a high level of service—that is, with short headways—to minimize waiting time.

HANDICAPPED PERSON: A person who, by reason of illness, injury, congenital malfunction, other permanent or temporary incapacity or disability, is physically unable to use regular bus service for the general public.

HEADWAY: The time interval between any two successive transit vehicles providing service on the same route in the same direction.

INCREMENTAL EXPENSE: The net difference in cost between two alternative plans or programs.

LEVEL OF SERVICE: A set of characteristics that indicate the quality and quantity of public transportation services being provided, including characteristics that are readily quantifiable such as headway, travel time, travel cost, and number of transfers, and those that are difficult to quantify such as comfort and modal image.

LOAD FACTOR: The ratio of passengers carried on a public transit vehicle to the seated capacity of the vehicle.

LOCAL SERVICE: That component of the urban public transportation system which makes frequent stops, usually every two to four city blocks, and operates at lowest average speeds, and thus provides either a local or a collection-circulation distribution service for trips of relatively short length.

MAJOR TRAFFIC GENERATOR: A land use area or specific facility which attracts a high volume of person trips.

NEAR-SIDE STOP: A transit stop located on the near side of a street intersection which permits the transit vehicle to pick up or discharge passengers before crossing the intersection.

NONCYCLE SCHEDULING: A scheduling technique for providing fixed-route urban public transit service under which each transit route in a community has transit service scheduled on an individual basis independent of the schedules of other routes.

OPERATING DEFICIT: The operating expense less the operating revenue.

OPERATING EXPENSE: The sum of all transit system costs incurred in providing transportation and incidental services, and in maintaining transit system equipment and property.

OPERATING REVENUE: Revenue derived from the provision of public transit service including: 1) fares paid by transit riders; 2) charter and special contract service revenues; and 3) revenues, for example, from the sale of advertising space aboard transit vehicles, income from concession rentals, or income from contract maintenance services.

OVERALL TRAVEL SPEED: The over-the-road travel distance divided by the overall travel time.

OVERALL TRAVEL TIME: The total door-to-door time for travel between the origin and destination of a trip, including all the major components of travel time which, for transit travel time, include walk or automobile access at origin, wait time for the first transit vehicle boarded, transfer time, total line-haul or in-vehicle time, and egress time at the destination.

PASSENGER REVENUE: Revenue derived from fares paid by passengers traveling aboard public transit vehicles operating in regular service.

PEAK PERIOD: The hours, usually during weekday mornings or afternoons, when the demand for transportation service is the heaviest.

PULSE SCHEDULING: See "Cycle Scheduling."

RADIAL ROUTING: A routing technique for providing fixed-route urban transit service under which bus routes originate in outlying areas and converge on a central location, usually the central business district. The routes generally follow a radial street system and coincide with the locations of major travel corridors. Because routes focus on a central location, systems using radial routing frequently use cycle scheduling to provide for convenient transfers between routes.

RAPID TRANSIT SERVICE: That component of the urban public transportation system which provides the highest average speeds by generally operating over freeways, thus serving the longest trips along the most heavily traveled corridors, with stops generally limited to the ends of the route, including park-ride lots.

SEATED CAPACITY: The number of seated passengers capable of being carried in a transit vehicle.

STOP: An area usually designated by distinctive signs or by curb or pavement markings at which passengers wait for, and board or alight from, public transit vehicles.

TERMINAL: The end of a transit route or an elaborate transit station which is designed to handle not only the movement of transit vehicles in the boarding and alighting of passengers, but also the transfer of movements between routes and/or different modes.

TOTAL EXPENSE: The sum of operating and capital costs.

TRANSFER TIME: The time required to effect a transfer between routes or a change of mode.

TRANSIT-DEPENDENT PERSON: A person for whom the transit system is the principal means of mobility because of a lack of transportation options.

TRIPPER SERVICE: Local public transit service operated over a limited time period of each weekday and, in some cases, over a special route to accommodate peak ridership demand, or to serve special community needs.

TRIP PURPOSE: The primary reason for making a trip such as work, shopping, or personal business.

VEHICLE CAPACITY: The maximum number of passengers that a vehicle is designed to accommodate comfortably, including both seated and standing passengers.

WAIT TIME: Time spent at a bus stop waiting for a transit vehicle.

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Appendix B

WAUKESHA METRO TRANSIT USER SURVEY FORM

WAUKESHA METRO TRANSIT RIDER SURVEY

In order to better serve you, we would like you to fill out the following survey. It is anonymous and your honesty would be greatly appreciated in helping Waukesha METRO Transit (WMT) become a better transit system for you. Even if you completed a survey earlier today, we ask that you do it again so that we get your return trip data.

1. I got on the bus at:_____ and _____(street intersection)
2. I am riding route #_____.
3. The time of day is ___:___ a.m. or p.m. (circle one)
4. I will get off this bus at:_____ and _____(street intersection)
5. I will be transferring to another bus:___Yes ___No
   If yes, I will transfer to route #_____ and I will get off that bus at:_____ and _____(street intersection)

- -

A. Home
B. Work
C. School
D. Shopping
E. Social Activity
F. Recreational Activity
G. Personal Business
H. Other

Of the above locations/activities.....

6. I got on the bus from:_____(enter letter)
7. I am going to:_____(enter letter)
8. How would you rate WMT drivers in terms of being friendly, helpful, and courteous?(circle number)
   1 poor 2 3 4 5 excellent
9. How would you rate WMT drivers in terms of their driving skills? (circle number)
   1 poor 2 3 4 5 excellent
10. How convenient are WMT routes to where you want to go? (circle number)
    1 not convenient 2 3 4 5 very convenient
    How can we improve in this area?_____
    _____
    _____
    _____

over...

---

11. How convenient are WMT departure and arrival times for you? (circle number)
    1 not convenient 2 3 4 5 very convenient
    How can we improve in this area?_____
    _____
    _____
    _____
12. How would you rate WMT fares? (circle one)
    Too High About Right Too Low
13. Circle any of the following that you are aware of:
    a. Monthly Pass
    b. WMT Tickets
    c. Metro Guide
    d. Saturday Supertransfer
    e. Interline Transfer
    f. Information Line
14. Which ones have you used? (please circle)
    a. Monthly Pass
    b. WMT Tickets
    c. Metro Guide
    d. Saturday Supertransfer
    e. Interline Transfer
    f. Information Line
15. I am a licensed driver _____Yes _____No
16. I am _____Male _____Female
17. My age is: (circle letter)
    a. 4 and under
    b. 6 - 11
    c. 12 - 15
    d. 16 - 18
    e. 19 - 24
    f. 25 - 34
    g. 35 - 44
    h. 45 - 54
    g. 55 - 64
    h. 65 and older
18. Our household income is: (circle letter)
    a. under $10,000
    b. $10,000 to $19,999
    c. $20,000 to $24,999
    d. $25,000 to $29,999
    e. $30,000 to $34,999
    f. $35,000 and over
19. Number of persons living in my household:_____
20. My household has _____ vehicles available for personal use.
21. My Home address is:(optional)
    (Hundred block)_____
    (Street)_____
22. What other suggestions do you have that could make WMT more convenient for your needs?
    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____

Thank you for your participation. Please place the completed survey in the box provided on the bus.

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SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION STAFF

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