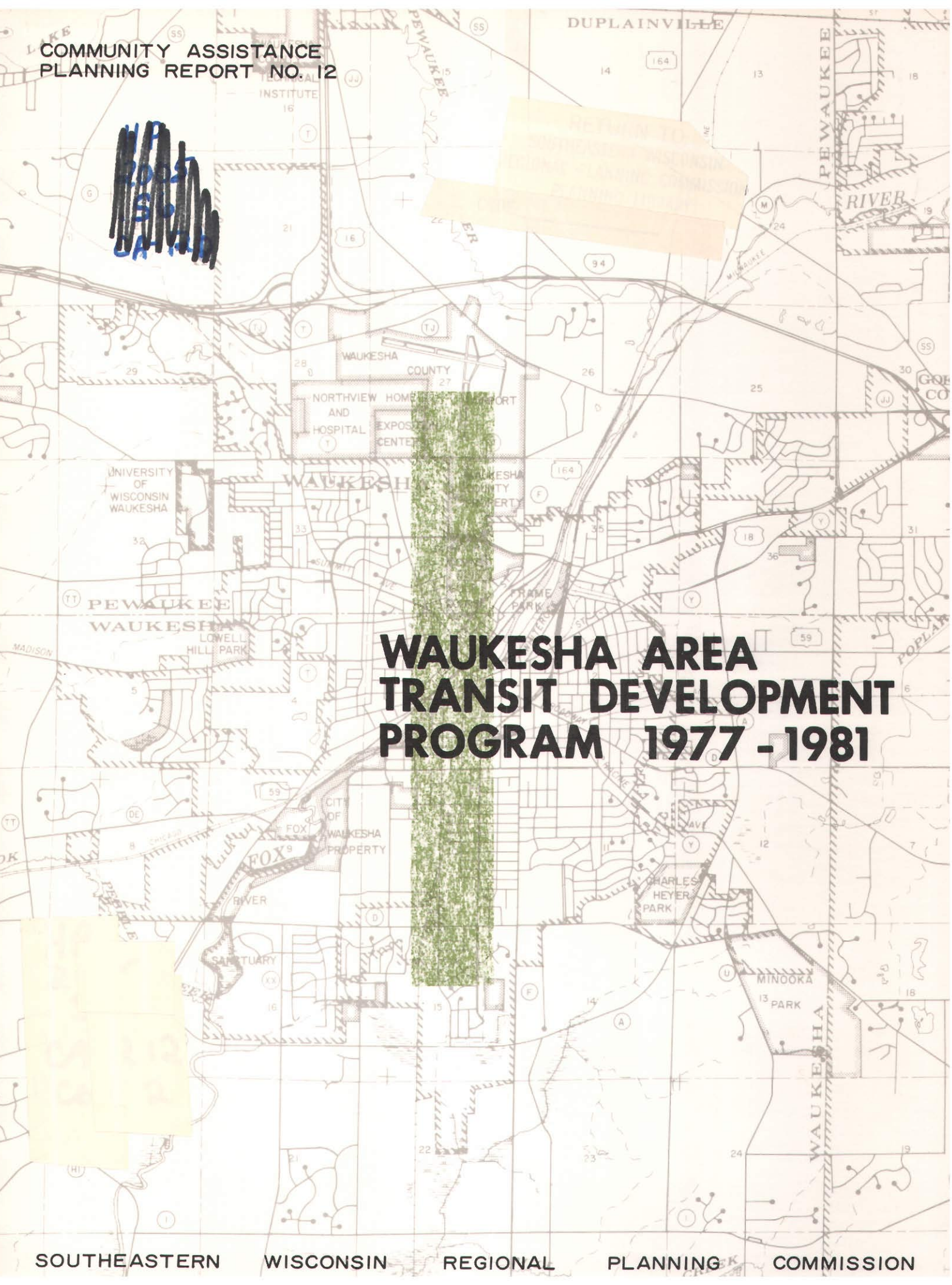
COMMUNITY ASSISTANCE
PLANNING REPORT NO. 12



WAUKESHA AREA TRANSIT DEVELOPMENT PROGRAM 1977 - 1981

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COMMUNITY ASSISTANCE PLANNING REPORT
NUMBER 12

WAUKESHA AREA TRANSIT DEVELOPMENT PROGRAM: 1977-1981

City of Waukesha

Southeastern Wisconsin Regional Planning Commission
916 N. East Avenue
P. O. Box 769
Waukesha, Wisconsin 53186

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January 1977

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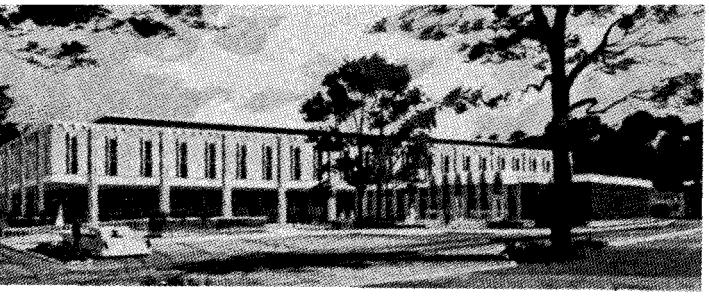

CITY OF WAUKESHA

PAUL G. VRAKAS, MAYOR

January 6, 1977

TO: THE HONORABLE MAYOR AND MEMBERS OF THE COMMON COUNCIL, CITY OF WAUKESHA, AND THE SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

Ladies and Gentlemen:

On June 14, 1974, Mayor Paul G. Vrakas created a Citizens' Committee to study the present and probable future need for public transit service in the City of Waukesha and environs. In accordance with the preliminary findings and recommendations of this Committee, the Mayor, on December 20, 1974, directed that a transit development program be prepared to provide a sound basis for the important policy decisions facing the City regarding the provision of public transit service. In addition, the Mayor formally requested that the Southeastern Wisconsin Regional Planning Commission assist the City with the technical aspects of preparing the transit development program. The Mayor also, at that time, expanded the membership on the Citizens' Committee to include representation of those federal, state, and local units and agencies of government affected by, or involved in, the provision of public transit service in the Waukesha area.

The expanded Committee produced the five-year Waukesha area transit development program documented in this report. That program is based upon an inventory and evaluation of the transit service as it existed in the Waukesha area in mid-1976 and an analysis of the present and probable future need for transit service in the Waukesha area. Several alternative means of providing transit service were investigated. A careful evaluation was made of the attendant costs of, and potential sources of funding for, each of the alternative transit improvement plans considered. In the final analysis, the selection of the recommended transit system plan for the Waukesha area was made on the basis of the objectives and standards for transit system development prepared and adopted by the Committee. The recommended five-year transit improvement program calls for public ownership of a flexible, demand-responsive transit system in 1977, system operation under a management contract, and the purchase of a fleet of small 15- to 26-passenger buses over the five-year plan period. Federal and state funds are available to provide significant support for the attendant capital and operating expenses.

The findings and recommendations contained in this report were carefully reviewed and unanimously approved by the Committee. Adoption and implementation of the recommended plan would, in the Committee's opinion, provide the Waukesha area with the maximum practical level of public transit service. Demand-responsive transit service was found to be the alternative best able to provide the level of convenient transit service necessary to adequately accommodate those persons dispersed throughout the community who must rely on public transportation, particularly the elderly, the handicapped, the young, and those not owning cars.

The report and plan are hereby respectfully submitted for your consideration and, hopefully, adoption.

Respectfully submitted,

David J. Boulay

David J. Boulay, Chairman
Mass Transit Citizens Advisory Committee

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INTRODUCTION

BACKGROUND

On June 14, 1974, Mayor Paul G. Vrakas of the City of Waukesha appointed a seven-member citizens Mass Transit Study Committee. He charged the Committee with the responsibility for appraising the present and probable future needs for mass transit in the City of Waukesha and environs and with recommending feasible actions to improve the then existing transit service. The membership of this Mass Transit Study Committee is set forth in Appendix A.

The Committee divided itself into several subcommittees to study and report upon various aspects of the mass transit question. These subcommittees studied federal and state legislation and regulations pertaining to mass transit, captive market ridership, the present operation of Wisconsin Coach Lines, Inc., and the operation of mass transit systems in cities sized comparably to Waukesha. By December 1974, the Mass Transit Study Committee had reached the following conclusions:

1. That a number of Waukesha residents could be identified as potential users of mass transit;

2. That the then existing level of transit service in the Waukesha area was inadequate to serve those who need or would prefer to use mass transit or to provide a realistic alternative to the automobile as a mode of travel;

3. That the increasing cost of motor fuel and increasing dependence of the United States on foreign sources of petroleum requires responsible public action toward maximizing the use of those forms of transportation which use motor fuel most efficiently;

4. That preparation of a transit development program was necessary to accurately define the City's mass transit needs and to qualify the City for federal and state grants-in-aid for needed mass transit improvements;

5. That technical assistance was available from the Southeastern Wisconsin Regional Planning Commission (SEWRPC) and should be utilized in the preparation of such a program.

In accordance with these findings and recommendations, the Mayor of the City of Waukesha on December 20, 1974, formally requested the SEWRPC to assist in the preparation of a transit development program for the Waukesha area. The Commission acted favorably on the Mayor's request on February 10, 1975; immediately the Commission staff began working with the City on the preparation of the transit development program, which is documented in this report.

TRANSIT DEVELOPMENT PROGRAM STUDY ORGANIZATION

To actively involve all of the concerned and affected interests in the preparation of the transit development program, the Mayor acted in March 1975 to expand the membership of the City's Mass Transit Study Committee, converting it to a combined Waukesha Mass Transit Citizens and Technical Coordinating and Advisory Committee. The expanded Committee membership includes not only a broad spectrum of citizen interest but also representation of several agencies affected by, or involved in, the provision of urban mass transit services in the Waukesha area. The Committee was charged with directing the design of the necessary planning program; assembly and evaluation of pertinent planning data; formulation of objectives and standards defining a desirable level of transit service; evaluation of alternative mass transit plans; and selection of the best plan for recommendation to the implementing agencies. The membership of the Waukesha Mass Transit Citizens and Technical Coordinating and Advisory Committee is set forth in Appendix B of this report.

To assist the Committee in its work, an interagency staff was organized by the City of Waukesha and SEWRPC and assigned to the Committee. The team consisted of engineers and planners assigned by the City of Waukesha Planning Department and the Regional Planning Commission, together with supporting research, clerical, and drafting personnel. Additional staff assistance was obtained as necessary from certain other agencies concerned with mass transit development in the Waukesha area, including the Wisconsin Coach Lines, Inc.; the Waukesha County Highway and Transportation Committee; the Wisconsin Department of Transportation, Division of Planning and Division of Highways; and the U. S. Department of Transportation, Urban Mass Transportation Administration.

DEFINITION OF A TRANSIT DEVELOPMENT PROGRAM

The term "transit development program" has special meaning within the context of the U. S. Department of Transportation, Urban Mass Transportation Administration (UMTA) grants-in-aid program. A transit development program is defined by UMTA as a short-range action plan of approximately five years that is intended to achieve, through a coordinated set of capital and operating improvements, the maximum level of public mass transit service practical within a given urban transit service area. Such a program should be based upon a thorough evaluation of the existing transit system in terms of service, physical facilities, and maintenance, marketing, and management practices; a good under-

standing of the transit service area in terms of personal travel habits, patterns, and needs, and of the location and characteristics of major traffic generators; and a careful evaluation of alternative courses of action with respect to the provision of improved transit service, including an evaluation of alternative capital and operational improvements. In order to meet federal grant-in-aid requirements, a transit development program must include a five-year staging plan for transit improvements and identify the financial commitment and other actions required by all agencies involved in implementation of the plan. A transit development program must provide for coordinated operation of all transit facilities in the urbanized area including, but not limited to, those to be provided under the transit development program, to assure development of the maximum practical level of mass transit service.

Finally, the transit development program must be prepared in sufficient detail for at least the first two years to provide an operational plan that is immediately implementable. It is intended that the transit development program be updated annually as an element of the areawide transportation systems management plan so that a detailed operational plan is continuously available for a two-year period. In this manner the program can be continually adjusted to reflect changes in community development and in transit riding habits and patterns, thus retaining the viability of the plan over time.

NEED FOR TRANSIT DEVELOPMENT PROGRAM

Preparation of a transit development program for the Waukesha area appears particularly timely in light of certain recent events affecting mass transit service in the area and the policy issues with which these events have confronted public decisionmakers. Following institution of a fare increase for both urban and suburban service in and to the Waukesha area, reduced service on the suburban route between Waukesha and Milwaukee, and abandonment of one local mass transit route within the City of Waukesha in early 1975, the private operator filed for abandonment of local service within Waukesha in late 1975. The developments that prompted the filing for abandonment of local service were themselves precipitated by the fact that ridership on the local transit system reached a new low early in 1975 and by the fact that a second high school opened within the City of Waukesha with a resultant reduction in the number of students who required public transportation to school. The City of Waukesha agreed to provide a $6,000 subsidy at the rate of $1,000 per month which was sufficient to continue local service through May 1976. When the City subsidy funds were depleted, the private operator eliminated provision of the then-existing two route, one bus local service within the City of Waukesha. School tripper service was continued. When operating, the local Waukesha system was the only one within the State of Wisconsin not receiving public assistance in the form of capital grants, operating assistance, or demonstration project monies[1] from the Wisconsin Department of Transportation or the U. S. Department of Transportation.

This transit development program should provide an important basis for addressing two significant transit-related questions: 1) Should local public transit be reestablished within the Waukesha area and 2) if transit should be reestablished, what form should it take? If public transportation is to be reestablished, the transit development program can provide a sound basis for decisionmaking regarding the ownership, management, service level, and operating policies of mass transit service in the Waukesha area and can be used to—in fact is a requisite for—support of applications for available transit capital and operating assistance funds from state and federal sources.

PURPOSE OF THE TRANSIT DEVELOPMENT PROGRAM

The primary purpose of the Waukesha transit development program is to postulate, evaluate, and recommend a series of specific actions that can be taken during the next five years to provide the Waukesha area with the maximum level of mass transit service practicable. The transit development program is also intended to:

1. Provide a sound basis for the continued maintenance and improvement of mass transit service within the Waukesha area;

2. Provide a sound basis for the making of management and operating policy decisions necessary to carry out mass transit service improvements;

3. Provide a basis for the establishment of a sound fiscal policy and for the systematic scheduling of mass transit system improvements to assure effective use of public resources in the provision of urban mass transit;

4. Provide a sound basis for continued monitoring of program results, levels, and quality of service, and for continued program updating to maintain program elements valid through at least a five-year period into the future;

5. Provide documentation that relates mass transit service improvements to adopted long-range, areawide transportation and land use plans for the seven-county Region of which the Waukesha area is an integral part in order to assure the development of a balanced and coordinated transporta-

[1] *Waukesha County, with the cooperation of the Wisconsin Department of Transportation, was demonstrating improved commuter service in the downtown Waukesha to downtown Milwaukee corridor from November of 1975 through calendar year 1976. Wisconsin Coach Lines, Inc., was providing the demonstration commuter service.*

tion system and to properly provide support for capital and operating assistance grant applications made to state and federal agencies.

THE PLANNING PROCESS

A seven-step planning process was employed in the development of the Waukesha transit development program. The seven steps constituting the process were: 1) study design, 2) preparation of objectives and standards; 3) inventory, 4) analysis, 5) alternative plan design, 6) alternative plan evaluation, and 7) plan selection and adoption. Plan implementation, the next step beyond the planning process, must be considered throughout the process if the plans are to be realized. A brief description of each of these seven steps as they relate to preparation of the transit development program for the Waukesha area follows.

Study Design

Every planning program must embrace a formal structure or study design so that the program can be carried out in a logical, consistent, and efficient manner. A statement of policy and procedure, setting forth the routine for the conduct of the study was prepared as the initial work element of the Waukesha transit development program. This statement provided a sequential overview of the major elements of the study; provided for the establishment of the Citizens and Technical Coordinating and Advisory Committee necessary to assist in the conduct of the study; and provided for the documentation of the study results in detailed staff memoranda, in the minutes of the Advisory Committee meetings, and ultimately in this report.

Preparation of Objectives and Standards

In its most basic sense, planning is a rational process for establishing and meeting objectives. Therefore, the formulation of objectives is an essential task to be undertaken before plans can be prepared. Basic transportation system development objectives and specific transit system development objectives and standards were formulated as a part of the adopted regional transportation plan.[2] These areawide transit development objectives were reviewed, refined, and adopted by the Waukesha Mass Transit Citizens and Technical Coordinating and Advisory Committee to meet the specific needs of the Waukesha area. The objectives relate to the provision of mass transit facilities that are located and coordinated so as to effectively serve existing land use patterns and promote desirable forms of new land use development; to the provision of a mass transit system that is flexible; to the provision of a more balanced transportation system; to the provision of mass transit service to provide good access to areas of employment and essential services to all segments of the population; to the provision of mass transit service that is located and designed to provide user convenience, comfort, and safety; to the provision of a mass transit system that will minimize any harmful effects on the environment; and to the provision of a mass transit system that is both economical and efficient. The objectives and standards are set forth in Chapter II of this report.

Inventory

Reliable basic data are essential to the formulation of workable development plans. The inventory effort for the transit development program was composed of four major segments: an inventory of past transit planning efforts; an inventory of the characteristics of the Waukesha area, an area larger than the City proper considered to comprise a rational urban mass transit service area; a mass transit system service inventory; and a transit legislation and regulation inventory. In the inventory of past planning efforts, adopted and proposed transit plans which affect the study area were reviewed and summarized for relevance to the current transit development program study effort. The characteristics of the service area important to mass transit planning were identified and established, including existing and probable future land use development, population densities and characteristics, and major traffic generators. The mass transit system service inventory identified the level of service offered by the present mass transit system, the management and maintenance policies of the transit operator, and the financial condition of the mass transit system. The transit legislation and regulation inventory examined the rapidly changing federal and state legislation pertaining to mass transit, Wisconsin Public Service Commission regulations, and local regulations and ordinances pertaining to mass transit operations in the study area. Since a comprehensive, areawide reinventory of regional transportation habits and patterns was conducted by the Regional Planning Commission in 1972, the necessary travel "origin-destination" data were available for the transit development program. The 1972 reinventory of travel included on-board urban mass transit studies as well as basic home interview surveys where pertinent information on travel behavior patterns and attitudes were obtained from persons living in a statistically valid sample of households. The findings of these inventories may be found in Chapters III, IV, and V of this report.

Analysis

Inventories provide factual information about the existing state of the system being planned, but analyses and forecasts are necessary to provide estimates of future needs. The analysis of the existing mass transit service and its relation to the land use activities and characteristics of the residents of the transit service area was undertaken in light of the objectives and standards developed for the transit development program to identify deficiencies in the existing transit system. Population and economic activity forecasts set the general scale for future growth within the study area, and these forecasts were used to predict the probable future demand for travel. Evaluation and analysis of future conditions anticipated to exist within the short-range planning period as derived from the long-range comprehensive planning studies completed the understanding of the

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[2] *See SEWRPC Planning Report No. 7, The Regional Land Use-Transportation Study, Volume Two, Forecasts and Alternative Plans—1990, Chapter II.*

potential for mass transit service improvements. The results of the analysis step of the transit development program also may be found in Chapters III, IV, and V of this report.

Alternative Plan Design

The outputs of each of the previously described planning operations become inputs to the alternative plan design process. Alternative policies and courses of action were developed regarding transit management, capital improvements, and service improvements over the five-year period. The alternatives ranged from a do-nothing approach to the transit problem in Waukesha to the implementation of a system providing a high level of coordinated service for the study area. The knowledge and experience of federal, state, and local staff familiar with transit development were applied in the alternative plan design process through interagency staff meetings and careful review by the Citizens and Technical Coordinating and Advisory Committee. The various alternative transit plans considered are set forth in Chapter VI of this report.

Alternative Plan Evaluation

To select the best plan from among the alternatives considered in the design stage of the planning process, an evaluation is required of the ability of each of the alternatives to meet the established objectives and standards in a cost-effective manner. The plan evaluation process thus is intended to determine whether or not the alternative plans are consistent with desirable advancement of the public interest and whether they are technically, legally, and financially feasible. In the evaluation of the alternative plans, the Committee considered capital, operating, and maintenance costs; system efficiency; environmental impacts; legal, legislative, and political aspects of implementation; and social benefit. In addition, probable community response to the alternative plans was considered in evaluating the plans. The evaluation of alternative plans is set forth in Chapter VI of this report.

Plan Selection and Adoption

Evaluation of alternative plans is intended to result in selection of a recommended transit development program that can be certified to the concerned federal, state, and local units of government for consideration and implementation. The plan is not complete until the steps required for its implemenation—that is, the steps necessary to convert the plan into action policies and programs—are specified. Plan implementation must begin with plan adoption by the concerned implementing agencies, which include for transit development the general purpose local unit of government within the study area—the Common Council of the City of Waukesha—and the Waukesha Joint School District No. 1; the Waukesha County Board of Supervisors; the Wisconsin Department of Transportation; and the U. S. Department of Transportation, Urban Mass Transportation Administration. All implementation recommendations must follow and flow from such plan adoption. The recommended transit plan is described in Chapter VII of this report.

Chapter II

TRANSIT PLANNING STATUS AND TRANSIT SYSTEM DEVELOPMENT OBJECTIVES AND STANDARDS

INTRODUCTION

Planning is, by its very nature, a continuing process. Consequently, a planning effort can rarely be properly conducted without a working knowledge of the planning efforts, adopted plans, and plan implementation efforts which preceded it. In order to assure such continuity in the Waukesha transit development program, it is necessary to review briefly the relevant past planning efforts as they pertain to transit development in the Waukesha area. Such past planning efforts include the adopted regional transportation plan completed by the Regional Planning Commission in 1966 and a major reevaluation of that plan still underway at the time of publication of this report. The following sections describe the recommendations of the adopted plan and the plan reevaluation effort as it affects the Waukesha area. The final sections of this chapter offer definitions of mass transit terminology, in order to facilitate understanding of the remainder of this report, and they also offer transit system development objectives and standards used for evaluating various alternative short-range transit plans.

REGIONAL LAND USE-TRANSPORTATION PLAN

The adopted regional transportation plan recommended that an improved and expanded mass transit system be developed to serve the rapidly urbanizing Region in an effort to reverse trends toward declining transit ridership in the Region. As proposed in the adopted regional transportation plan, this system would consist of "rubber-tired" rapid transit, modified rapid transit, and local mass transit facilities. The rapid transit facilities, as proposed in the regional plan, would consist of bus service over busways constructed on exclusive, fully grade-separated rights-of-way; the modified rapid transit facilities would consist of high-speed bus service over uncongested lanes of the existing and proposed freeway system; and the local mass transit system would consist of bus service over surface streets, all with the appropriate parking facilities as necessary to encourage "automobile" feeder service. Following adoption of the regional transportation plan and pursuant to one of the recommendations contained within the plan, Milwaukee County, in cooperation with the Regional Planning Commission and the state and federal governments, undertook a preliminary engineering study of the recommended transit service improvements within the Milwaukee metropolitan area. The results of the study were documented in the report entitled The Milwaukee Area Transit Plan. The study findings reaffirmed the recommendations of the adopted regional transportation plan and further detailed those recommendations for transit service within the metropolitan Milwaukee area. The refined plan was adopted by the Regional Planning Commission in March 1972. The refined plan included certain recommendations pertaining to the Waukesha area. These recommendations included provision for a modified rapid transit line between the Milwaukee central business district (CBD) and transit stations at Goerke's Corners (IH 94 and USH 18) and the Waukesha central business district, with part of the route operating as a bus rapid transit line over an exclusive grade-separated right-of-way for 8.3 miles in Milwaukee County.

Following adoption of the Milwaukee area transit plan by the Commission, the Commission certified the plan to local units and agencies of government as an amendment to the adopted regional transportation system plan. Milwaukee County has adopted the Milwaukee area transit plan but, to date, neither Waukesha County nor the affected cities and villages in eastern Waukesha County have adopted the Milwaukee area transit plan as a guide to the provision of improved transit services within this portion of the urbanized area. Progress toward implementation of this plan in Waukesha County consists of the construction of a transit station/park-ride lot at Goerke's Corners by the Wisconsin Department of Transportation and the initiation of a transit demonstration program by Waukesha County in cooperation with the State to provide modified rapid transit service between downtown Waukesha and downtown Milwaukee. The park-ride lot, providing spaces for approximately 200 vehicles, is a lighted parking area furnished with a heated shelter and bus ticket office for transit passengers. At present, about 140 autos are parked at the lot daily, and about 50 transit passengers board buses serving the lot each day.

REGIONAL LAND USE-TRANSPORTATION PLAN REEVALUATION

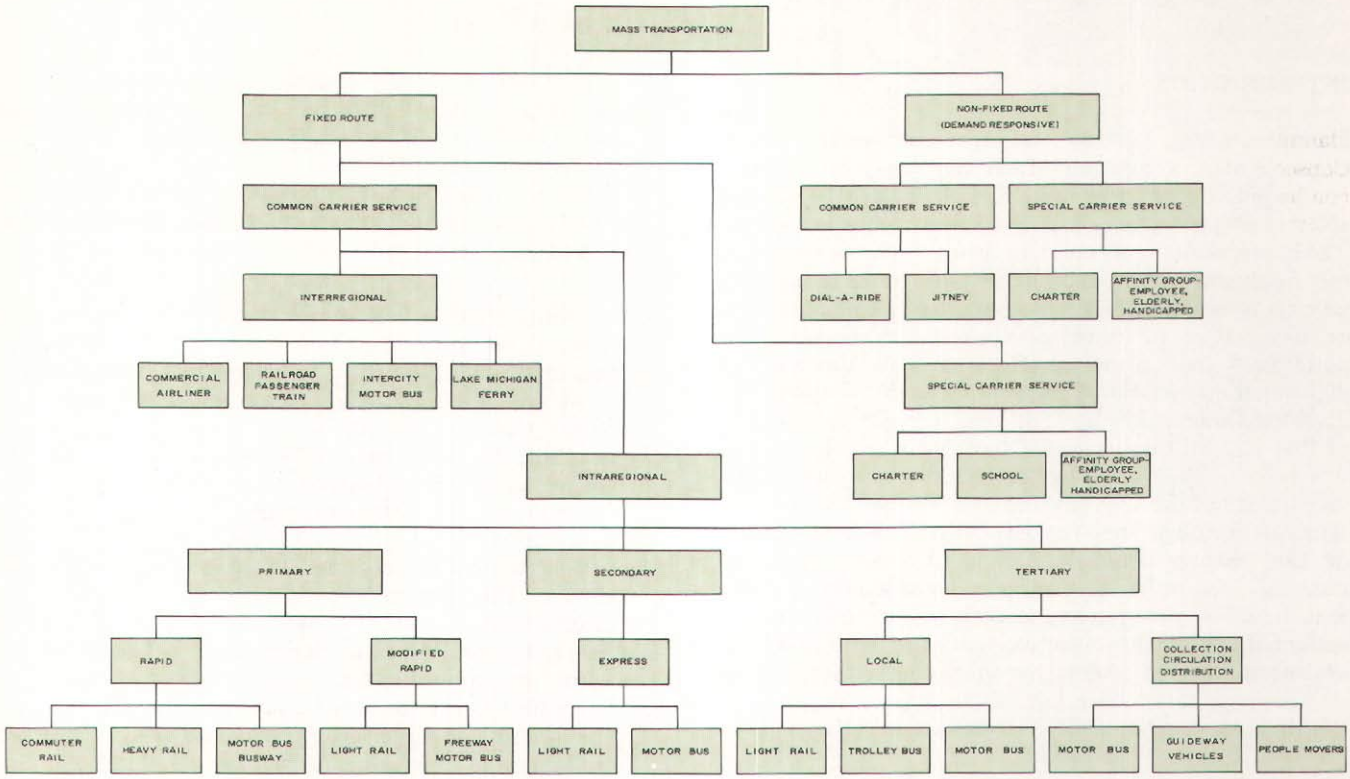
The Southeastern Wisconsin Regional Planning Commission, as part of its continuing regional land use-transportation study, is engaged in a major plan reevaluation. Although the study will not be completed until 1977, the inventory stage has been finished and was used in the evaluation of the Waukesha transit system. The elements of the SEWRPC reinventory conducted in 1972 that are relevant to this study include an interregional bus survey; a mass transit user survey; a mass transit nonuser survey; a major traffic generator survey; and a home interview survey. Each of these surveys will be explained in the appropriate inventory section of this report.

DEFINITIONS OF MASS TRANSIT

Mass transportation may be defined as the transportation of relatively large groups of people by relatively large, generally publicly or quasi-publicly owned vehicles routed between or along significant concentrations of related trip origins and destinations. As shown in Figure 1,

Figure 1

FUNCTIONAL CLASSIFICATION OF MASS TRANSIT SYSTEMS



Source: SEWRPC.

mass transit may be divided into two subcategories: fixed route and nonfixed route. Fixed route mass transit may be defined as the provision of transit service to the general public or special subgroups of the general public by relatively large vehicles operated on regular schedules over prescribed routes. Nonfixed route mass transit may be defined as the provision of service to the general public or to special subgroups on a demand-responsive basis. Fixed route mass transit service may be further subdivided into common carrier service and special carrier service. Within this category, common carrier service may be defined as fixed route, scheduled headway mass transit service to the general public. Special carrier service may be defined as fixed route mass transit service provided to special subgroups of the general public, where ridership eligibility is largely based upon membership in a qualified group. Examples of fixed route special carrier service include the traditional "yellow" school bus service and the U-bus service, as initially operated by the University of Wisconsin-Milwaukee for its students and staff.

Nonfixed route mass transit service similarly may be subdivided into common carrier service and special carrier service. Within this category, common carrier service may be defined as demand-responsive transit service provided to the general public. Such service could include so-called "jitney" service, where vehicles cruise a given subarea and provide transit service on visual demand, or a "dial-a-bus" service where small buses or vans are utilized to provide transit service on visual or telephone demand. There are no examples of such service in the Region today; however, service of this type has been initiated in Merrill, Wisconsin. Special carrier service may be defined as demand-responsive transit service provided to special subgroups of the general public where ridership eligibility is largely based upon membership in a qualified group. An example of such service to a special population subgroup in the study area is the "dial-a-bus" service currently operated by Waukesha County to provide demand-reponsive transit service to the elderly.

As shown in Figure 1, the common carrier fixed route mass transit service may be further subdivided into three additional categories. The primary level of service facilitates intercommunity travel by connecting major regional activity centers—such as regional commercial, industrial, and recreational centers—to the various residential communities comprising the Region. The major objective of the primary mass transit service is to provide a network of relatively high speed lines which serve and connect these kinds of centers and residential communities. Primary level mass transit service may be characterized as

having a very high level of speed and a limited degree of accessibility. The secondary level of common carrier fixed route service consists of express service operated on arterial streets in mixed traffic or over exclusive lanes on an arterial street. In general, secondary mass transit service may be distinguished from primary mass transit service in that it provides a greater degree of accessibility at somewhat slower travel speeds. The tertiary level of fixed route common carrier mass transit service consists of local service operated on arterial and collector streets. It is characterized by a high degree of accessibility and a relatively low travel speed. The tertiary level of transit service, in its ideal form, would constitute a dense grid of local transit lines that would provide a high degree of access from neighborhoods to the mass transit service that would "feed" the primary and secondary systems.

The primary, secondary, and tertiary systems may be further divided into various components, as shown on Figure 1. Definitions of these components, and other terms which will appear in later sections of this report, are presented below:

INTERREGIONAL MASS TRANSIT	Those forms of common carrier fixed route mass transit that provide service across regional boundaries to meet external travel demand, such as commercial air travel, railway passenger train service, ferry service across Lake Michigan, and intercity bus service. An example of this type of service is the Greyhound Lines-West service operating through the City of Waukesha between Milwaukee and Madison.
INTRAREGIONAL MASS TRANSIT	Those forms of common carrier mass transit that provide service within the Region to meet internal travel demand. An example of this type of service is the local tertiary mass transit service operated by Wisconsin Coach Lines, Inc., within the City of Waukesha.
RAPID TRANSIT SERVICE	Primary mass transit service operated within its own exclusive, fully grade-separated right-of-way at relatively high speeds for a major portion of its route.
MODIFIED RAPID TRANSIT SERVICE	Primary mass transit service operated with buses at high speed over freeways for a major portion of its route or operated with light-rail vehicles at high speed over right-of-way with grade crossings for a major portion of its route.
EXPRESS TRANSIT SERVICE	Secondary mass transit service operating primarily over arterial streets with limited or no stops for a major portion of its route.
LOCAL TRANSIT SERVICE	Tertiary mass transit service operating primarily over arterial and collector streets with frequent stops for passenger pick-up and discharge.
DEMAND-RESPONSIVE SERVICE	A range of local mass transit services characterized by the flexible routing and scheduling of relatively small vehicles to provide shared-occupancy, door-to-door personalized transportation on demand.
CIRCULATION-DISTRIBUTION SERVICE	Local mass transit service provided for the movement of passengers within major urban activity centers. An example of this type of service is the shuttle bus operated by the Milwaukee County Transit System in the Milwaukee central business district.
PEAK PERIOD	The time period of the day when transit usage is at a maximum, usually at the beginning and the end of normal business hours.
HEADWAY	The time interval between two buses traveling the same route in the same direction.
PASSENGER REVENUE	Fares paid by mass transit passengers traveling aboard mass transit vehicles operating in regular service; also known as "farebox revenue."
OPERATING REVENUE	Revenues derived from the provision of mass transit service including: 1) fares paid by transit riders; 2) charter and special service revenues; and 3) revenues such as the sale of advertising space aboard transit vehicles or income from concession rentals.
LOAD FACTOR	The ratio of passengers carried on the mass transit vehicle to the seating capacity of the vehicle.
CYCLE SCHEDULE	Urban mass transit service operating over routes established so as to require the vehicles serving the system to lay over at a com-

	mon location at the same time, thus maximizing the opportunity for transfers.
NONCYCLE SCHEDULE	The scheduling of each transit route in a community on an individual basis.
TRIPPER SERVICE	Local mass transit service operated for a limited time and, in some cases, on a special route to service special community needs: for example, the transit service offered by the Wisconsin Coach Lines, Inc., to serve the Waukesha school system could be classified as a tripper service.

OBJECTIVES AND STANDARDS

To guide development of the Waukesha transit development program and to provide measures for evaluating the adequacy of the transit service improvement efforts considered in that program, a set of development objectives and supporting standards has been prepared. Terms such as "objective" and "standard" are subject to a wide range of interpretation and application and are closely linked to other items often used in planning work which are subject to equally diverse interpretation and application. To provide a common frame of reference, the following definitions have been adapted for use in the Waukesha transit planning effort:

1. Objective: a goal or end toward the attainment of which plans and policies are directed.
2. Standard: a criterion used as a basis of comparison to determine the adequacy of plan proposals to attain objectives.

Table 1 sets forth the objectives and standards originally prepared by the Southeastern Wisconsin Regional Planning Commission under its regional mass transit planning efforts, as adapted and modified by the Advisory Committee for the short-range transit development program study.

While the standards set forth in Table 1 are used to guide design of mass transit system service and facility improvements and to assist in measuring the adequacy of proposed improvements, several overriding considerations must be recognized in applying the planning standards in preparation of the transit development program. First, it must be recognized that an overall evaluation of each alternative transit plan must be made on the basis of cost. Such an analysis may show that attainment of one or more of the standards is beyond the economic capability of the community; and, therefore, the standards cannot be met practically and must be either reduced or eliminated. Second, it must be recognized that any one plan proposal is unlikely to meet all the standards completely; and the extent to which each standard is met, exceeded, or violated must serve as a measure of the ability of each alternative plan proposal to achieve the specific objectives which a given standard complements. Finally, it must be recognized that certain objectives and standards may be in conflict, requiring resolution through compromise, and that meaningful alternative plan evaluation can only take place through a comprehensive assessment of each of the alternative plans against all of the development standards.

Table 1

MASS TRANSIT OBJECTIVES AND STANDARDS ESTABLISHED FOR USE IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM

OBJECTIVE NO. 1

Transit facilities should be located and of such capacity and design as to effectively serve the existing land use pattern and promote the implementation of adopted land use plans.

STANDARDS

1. Intraregional mass transit facilities should be provided as warranted[a] to connect noncontiguous urban development with the urban center of an urbanized area, and within urbanized areas to serve[b] all residential neighborhoods regardless of race, color, culture, or national origin of the residents and to connect such neighborhoods to the following land areas:

   a. Transportation terminal facilities, including interregional and intraregional primary and secondary transit service loading and unloading points and scheduled air transport airports;

   b. Major and community retail and service centers;

   c. Major and community industrial centers;

   d. Major parks and special use areas such as zoological and botanical gardens, civic centers, band shells, fairgrounds, arenas, and stadiums;

   e. Institutions such as universities, colleges, vocational schools, secondary schools, community libraries, hospitals, mental health centers and sanitariums, and seats of state, county, and local governments;

f. Senior citizen centers;

g. Cultural and religious centers;

2. Circulation-distribution local mass transit service should be provided as warranted within an urban center or other extensive land use complex to distribute passengers from automobiles or other mass transit facilities throughout the land use complex to be served.

3. Urban residential land shall be considered as served by intraregional mass transit when such land is within the distance of the various types of intraregional mass transit service as set forth in the following:

Service Type	Maximum Distance	
	Walking	Driving
Primary	1/2 mile	1 1/2 miles
Secondary	1/2 mile	1 1/2 miles
Tertiary	1/4 mile	1 1/2 miles

4. The total amount of land used for mass transit and mass transit terminal facilities should be minimized.

OBJECTIVE NO. 2

Transit facilities should promote total transportation flexibility allowing mass transit service to be readily adapted to changes in the requirements of, or the balance between, personalized and mass transportation, and to changes in mass transit technology.

STANDARDS

1. Intraregional mass transit facilities should be located, designed, and scheduled so as to readily permit the extension of service to developing residential and employment areas.

2. Interregional and intraregional mass transit facilities should be adaptable to serving a variety of transportation functions such as carrying small packages, in addition to moving people.

OBJECTIVE NO. 3

Transit facilities should provide a means of access to areas of employment and essential service for all segments of the population, but especially for low-to-middle income families, the elderly and handicapped[c] and others who do not or cannot operate an automobile.

STANDARDS

1. Intraregional mass transportation systems should provide levels of service commensurate with potential demand. Service should be such that during peak and midday periods all residents of each subarea of the urban area regardless of race or income level is within:

a. 30 minutes overall travel time of at least 40 percent of the area's employment opportunities.

b. 35 minutes overall travel time of three major retail and service centers.

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

d. 40 minutes overall travel time of a major park and outdoor recreation area.

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

f. 60 minutes overall travel time of a scheduled air transport airport.

2. Urban mass transit fixed routes should be provided at intervals of no more than one-half mile in high-density residential areas.[d]

3. Primary and secondary intraregional mass transit service should be extended as warranted to perform a collection and distribution function in order to maximize the convenience of the mass transit service.

4. Demand-responsive mass transit service may be provided[e] as warranted[a] to low-density urban and rural areas or other selected areas as a supplement or complement to fixed route mass transit service and as a specialized service to improve the mobility of elderly and handicapped.

5. Adequate capacity and sufficiently high level of geometric design and traffic management of transportation facilities should be provided to achieve the following overall travel speeds based on average weekday conditions for the mass transit component of the transportation system:

Intraregional Mass Transit	Area	
	Central Business District	Urban
Primary (Bus)	10-20 mph	40-50 mph
Secondary	10-20 mph	20-35 mph
Tertiary	5-15 mph	10-20 mph

OBJECTIVE NO. 4

Transit facilities should be located and designed to provide user convenience, comfort, and safety, thereby promoting transit utilization.

1. Intraregional mass transit facilities should be located and designed to provide adequate capacity to meet existing and projected travel demand between the various land uses. The average maximum load factor[f] should not exceed the following:

Service Type	Peak Period	Average Maximum Load Factor	
		10 Minute Point[g]	Off-Peak Period
Primary (Rapid Bus)	1.00	1.00	1.00
Secondary (Bus)	1.00	1.00	1.00
Tertiary	1.25	1.00	1.00

2. Operating headways for intraregional fixed route tertiary mass transit services within urban areas shall be designed to provide service at headways capable of accommodating passenger demand at the recommended load standards but shall not exceed 30 minutes during weekday peak periods nor 60 minutes during weekday off-peak periods and weekend periods.

3. The transit system should be designed and operated to achieve, at a minimum, the following percent "on time"[h] schedule adherence.

Transit Service Level	Minimum Acceptable Schedule Adherence Percent of Total Time	
	Off-Peak Period	Peak Period
Headways less than 10 minutes	85	75
Headways between 10 and 20 minutes	95	85
Headways greater than 20 minutes	95	95
Special Service[i]	95	95

4. Intraregional fixed-route mass transit stops within urban areas should be located as follows:

Service Type	Location of Stops
Primary	At terminal areas, and one mile or more on line haul sections.
Secondary	At terminal areas, intersections with other mass transit routes, and major traffic generators.
Tertiary	600 to 1,200 feet apart.

5. Urban mass transit routes should be located sufficiently near concentrations of demand in the central business districts so that 90 percent of the urban mass transit users need walk no more than one block (600 feet).

6. Mass transit routes should be direct in alignment with a minimum number of turns and arranged to minimize transfers and duplication of service which would discourage transit use.

7. Parking should be provided at park-and-ride mass transit terminals to accommodate the total parking demand generated by trips which change from other vehicles to mass transit modes at such terminals.

8. Overall transit travel time on circulation-distribution urban mass transit facilities should not exceed 10 minutes.

9. To provide protection from the weather, bus passenger shelters of an attractive design shall be constructed at all park-ride terminals and other primary transit service load points and shall be constructed[j] at major secondary and tertiary service loading areas.

10. Paved passenger loading areas shall be provided at all fixed route transit loading and unloading points and all such points shall be marked by attractive bus stop signs.

11. Each urban mass transit vehicle should be retired and replaced at the end of its maximum service life; and in this respect, maximum service life for buses with a seating capacity of over 25 passengers and powered by a diesel engine shall generally be considered to average:

a. 12 years for buses averaging more than 50,000 miles per year.

b. 15 years for buses averaging less than 50,000 miles per year.

Maximum service life for buses with a seating capacity of less than 25 passengers and powered by a gasoline engine, and averaging more than 20,000 miles per year, shall generally be considered to average six years.

12. Preventive maintenance program standards should be established to achieve, at a minimum, 6,000 miles without an in-service breakdown.

13. Specialized transportation service should be available within the transit service areas to meet the transportation needs of those portions of the elderly and the handicapped population unable to avail themselves of regular transit service and within the rural areas to provide a level of transit service at least one day per week.

OBJECTIVE NO. 5

Mass transit facilities should be located and designed in relation to the urban environment to minimize any harmful effects these facilities may have on the surrounding physical environment and to assist in the improvement of the design of the total urban environment.

STANDARDS

1. All mass transit vehicles should be washed and cleaned daily and be painted in an aesthetically pleasing manner.

2. All mass transit facilities should be located and designed so as to create a minimum of noise disturbance.

3. Air pollution produced by the mass transit system should be minimized, and emissions from buses must meet U. S. Environmental Protection Agency standards.

4. All mass transit facilities should be located sc as to avoid destruction of visually pleasing buildings, structures, and natural features and to avoid interferences with vistas to such features.

OBJECTIVE NO. 6

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

STANDARDS

1. The sum of the mass transit facilities operating and capital investments costs should be minimized. This standard prompts consideration of the following factors:

a. Cost of vehicles.

b. Cost of yards and shops.

c. Operating costs.

2. The amount of energy utilized in operating the transportation system, particularly the petroleum-based fuels, should be minimized.

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[a] *Maintenance of existing or provision of new mass transit service may be considered warranted under any of the following conditions:*

1. *The mass transit service produces operating revenues that exceed operating costs. Operating costs used in the analysis shall include drivers' wages and fringe benefits; and fuel, lubrication, and maintenance costs.*

2. *The mass transit service produces operating revenues that equal at least 50 percent of the operating cost. In this case, operating revenues used in the analysis shall be based upon an equivalent full base fare per passenger rather than attempting to account for any reduced fare programs for special groups. The operating deficit must be paid by the community or special group receiving the mass transit service. The community involved could be an individual local unit of government or an entire metropolitan area.*

3. *The mass transit service provides a significant contribution to the revenue of connecting mass transit service or to the total mass transit system, or provides improved total system continuity, system efficiency, and passenger convenience.*

[b] *Intraregional mass transit facilities shall be considered to serve urban land uses when a mass transit route or terminal is within the walking or driving distances identified in Objective Number 1, Standard 3.*

[c] *The elderly shall be defined as those persons age 65 or older. The handicapped shall be defined as any individual who, by reason of illness, injury, age, congenital malfunction, or other permanent or temporary incapacity or disability is unable without special facilities or special planning or design to utilize mass transit facilities. These categories of handicapped include individuals who are nonambulatory wheelchair-bound and those with semi-ambulatory capabilities.*

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

[e] *Provision of demand-responsive mass transit service may be applicable under the following general conditions:*

- *Urban area population density at least 2,000 to 6,000 persons per square mile.*
- *Service area population between 4,000 and 20,000.*
- *Passenger demand between 20 and 60 per square mile per hour. Lesser demands can be better served by taxi and greater demands can be better served by fixed route service when street systems and topography permit.*
- *High proportion of potential riders in the age groups between 5 and 18 and over 65.*
- *Transit travel times to the major trip generators, such as shopping centers, employment centers, schools, and transit stations from within the service area range between 10 and 20 minutes.*

[f] *The average maximum load factor is calculated by dividing the number of patrons passing the maximum load point of a route by the number of seats past that point during the operating period.*

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

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

[i] *Tripper, demand-responsive, and similar services.*

[j] *Construction of bus passenger shelters at major secondary and tertiary mass transit loading points may follow the following priority schedule:*

Peak Period Transit Service Level	Number of Boarding Passengers-Average Weekday	Priority
All Service Levels	300 or more	1
Headways greater than 15 minutes	150-299	2
	100-149	3
Headways between 5 and 15 minutes	200-299	2
	100-199	3
Headways less than 5 minutes	100-199	4

Source: SEWRPC.

Chapter III

SOCIOECONOMIC AND LAND USE CHARACTERISTICS

INTRODUCTION

To evaluate properly the existing transit system and the service provided by that system, the socioeconomic and land use characteristics of the area served, as well as the characteristics of the transit system itself, were inventoried and analyzed. In this chapter, those special land uses or concentrations of land uses that particularly require mass transit service will be identified, including: certain residential areas, shopping centers, schools, institutions and public buildings, hospitals and medical centers, industrial centers, and recreational areas. In addition, the location of segments of the population that are most dependent on urban mass transportation service will be identified, including the elderly, the poor, the handicapped, certain minorities, school age children, and those people without automobiles. The next chapter will describe all mass transit service operating in the Waukesha area, with particular emphasis on the operations of the local urban mass transit system. Analysis of the information presented in these two chapters provides an important basis for the recommended transit development program presented in Chapter VII.

THE STUDY AREA

The Regional Planning Commission has divided the Southeastern Wisconsin Region into local planning analysis areas, which are defined as communities consisting of groups of minor civil divisions—cities, villages, and towns—and in some cases subareas of minor civil divisions. The factors considered in determining the boundaries of these areas included, in addition to the corporate limits of the minor civil divisions, current census tract boundaries; existing and potential mass transit service areas; availability of certain other urban facilities and services; residential neighborhood boundaries; travel patterns centered on major commercial and industrial land use concentrations; school district boundaries; natural and man-made constraints on development, such as environmental corridors, watershed boundaries, and major transportation routes; existing and probable future land use development; soils; the operational areas of private real estate firms, land developers, and builders, as well as banking and mortgage loan institutions; and the existence of a community of interest that can be marshaled in the establishment of subregional urban planning programs. The area contained within planning analysis area 40 has been delineated as the study area for the Waukesha transit development program. The relationship of the study area to the Southeastern Wisconsin Region is shown on Map 1, and the study area is shown in greater detail on Map 2. The transit planning analyses will, however, as may be necessary, consider certain major traffic generators located just outside the study area boundaries, such as the Waukesha County Technical Institute.

Three general purpose local units of government operate within the study area, which has a combined total resident population of 47,121, as determined by the 1970 U. S. Census. The three local governmental units are the City of Waukesha and the Towns of Pewaukee and Waukesha. The 1975 resident population of the study area is estimated at nearly 56,000.

TOPOGRAPHY AND LAND USE

The single major topographic feature of significance to mass transit planning and operation in the Waukesha area is the Fox River, which winds through the study area and which is crossed by only a limited number of bridges. The River valley is bordered by a steep bluff along most of its western bank. The study area has a semihumid climate, relatively extreme seasonal temperature fluctuations, and moderate rainfall and sunshine; a climate which may at times create discomfort for the mass transit user.

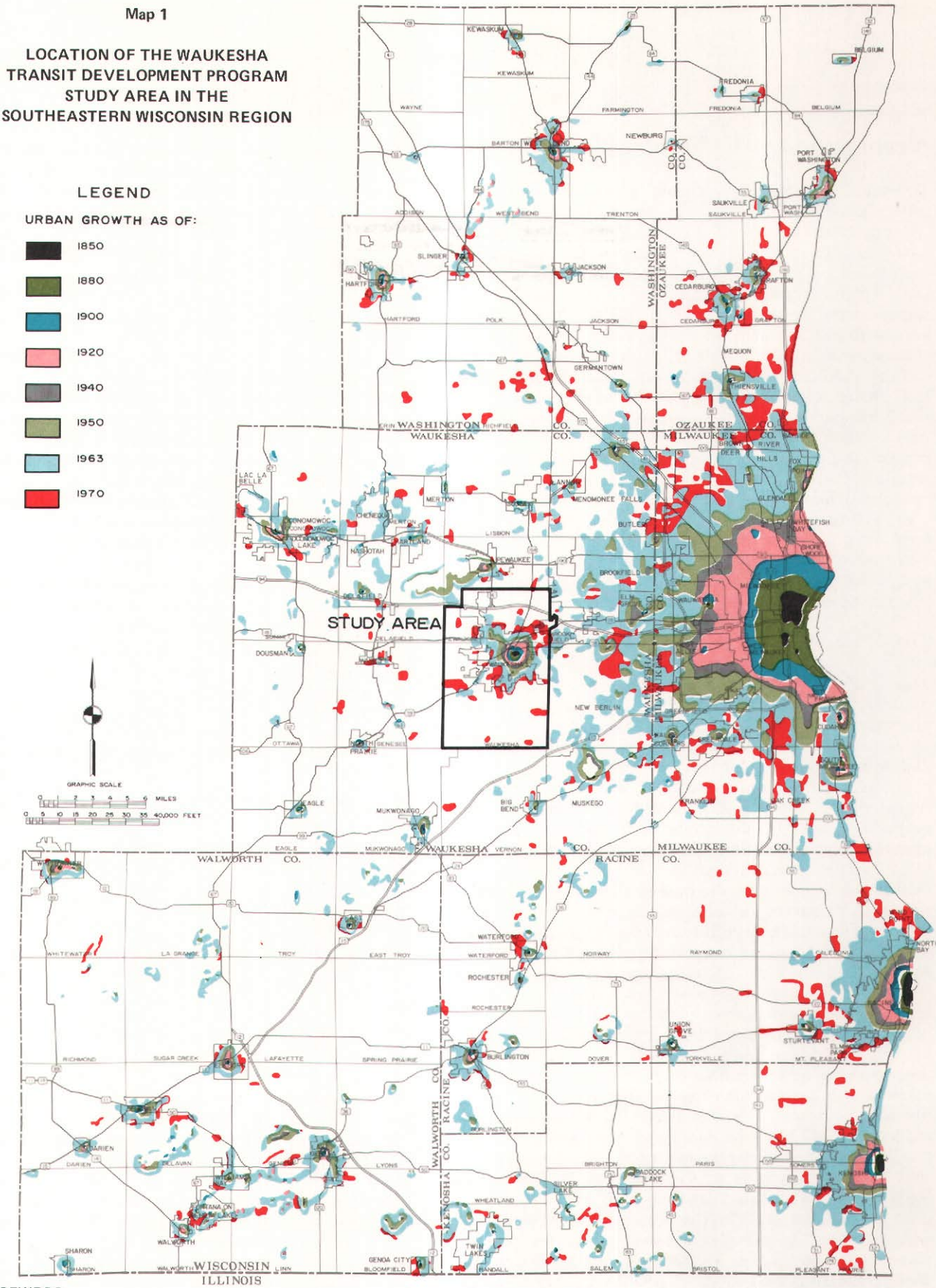
Three railroad rights-of-way traverse the planning area. With but very few exceptions, all railroad street crossings are at grade. This creates a safety hazard and results in street traffic "back-ups" at crossings when long freight trains pass through the community. Because of the River and the railroads, the street pattern of the area is largely irregular with only a small section of the south side of the area having a grid pattern of streets. This irregular street pattern creates problems in transit routing within the area.

The land use pattern of the study area is similar to that of other communities within the Region which developed along rivers. The historic focus of urban activity was along the banks of the Fox River near the mill dam that provided power for early industrial and commercial activities. This area is the present location of the Waukesha central business district and much of the heavy industry in the study area. With the rapid growth of mass automotive transportation after World War II, much new growth occurred which was not necessarily related to the economic base of the City itself. This trend has made the study area an integral part of the Milwaukee urbanized area.

Since 1960 the Waukesha area has experienced rapid population growth and urbanization. The area within the corporate limits of the City of Waukesha increased through annexation from 6.1 square miles in 1960 to 10.4 square miles in 1970, or by 70 percent. As indicated in Table 2, single family residential properties comprise the predominant type of land use within the urban portion of the study area. Certain major industries, such as the General Electric Company, recently have moved major portions of their manufacturing facilities from other locations in the Milwaukee area to the Wau-

Map 1

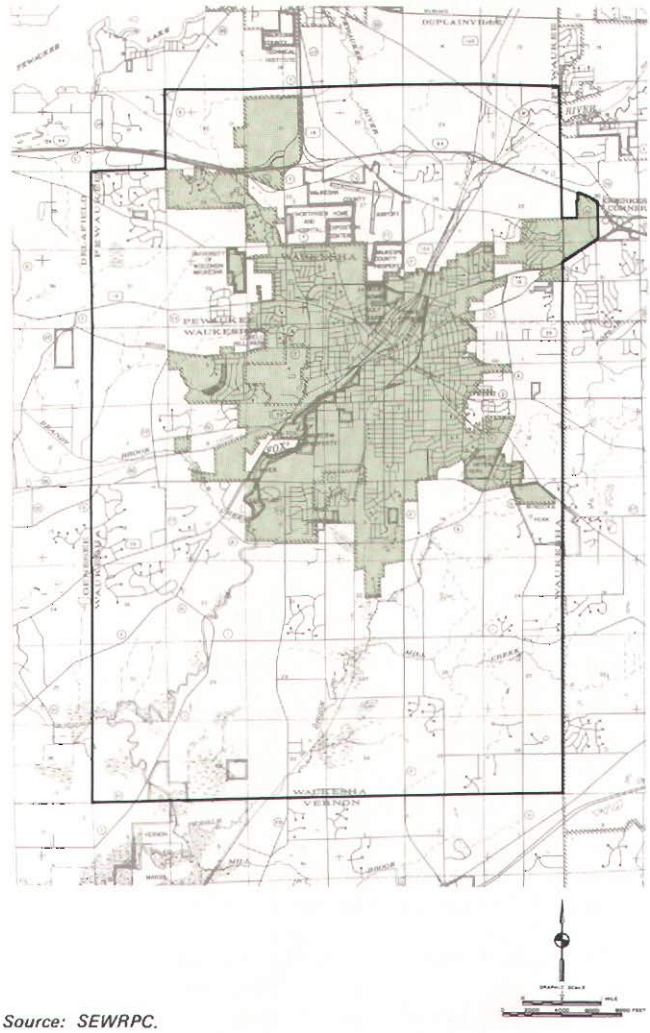
LOCATION OF THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA IN THE SOUTHEASTERN WISCONSIN REGION



Source: SEWRPC.

Map 2

WAUKESHA TRANSIT DEVELOPMENT
PROGRAM STUDY AREA



Source: SEWRPC.

kesha area. The central business district of Waukesha, which had traditionally been the leading retail sales area in Waukesha County, now has competition from newer outlying shopping areas within the Waukesha area itself, and particularly from Brookfield Square, a large regional shopping center located approximately half-way between the study area and the Milwaukee central business district along IH 94 at Moorland Road.

RESIDENT POPULATION CHARACTERISTICS

Rates of population growth in the Waukesha area have fluctuated from decade to decade, with significant periods of growth reflecting times of economic prosperity. The decade from 1960 to 1970 saw a large increase in resident population from 35,859 to 47,121, an increase of approximately 30 percent. Table 3 sets forth historical population data for the study area since 1850. Minorities comprise about 5 percent of the resident population of the study area and are mostly of Spanish speaking descent. While the average population density of the study area approximates 890 persons per square mile, the population densities vary from a low of less than 350 persons per square mile to a high of about 12,000 persons per square mile (see Map 3). The highest population densities in the study area occur just to the south of the Waukesha central business district. Regional Planning Commission forecasts indicate that the population of the study area, which was estimated at 56,000 persons in 1975, can be expected to approximate 76,000 persons by the year 2000.

IDENTIFICATION OF SPECIAL POPULATION GROUPS

Six special population groups were considered in the study because historically members of these groups have generally had less accessibility to the automobile as a mode of travel than the population in general; and, therefore, have had to rely more heavily on mass transportation for mobility. These groups include the elderly, minorities, low income, handicapped, school age children, and those who live in households with no automobiles. For the most part, information about these groups in the Waukesha area was obtained from U. S. Bureau of the Census data. Table 4 sets forth selected population characteristics for the 10 census tracts in the study area. The census tract boundaries are shown on Map 4. Since the census tract boundaries do not exactly match the boundaries of either the study area or municipal boundaries, some of the data contained herein are presented for an area slightly smaller than the study area.

The Elderly

In the study area, there were in 1970 approximately 3,600 individuals who were then 65 years of age or older. They comprised nearly 8 percent of the total population of the study area. As shown in Table 4 and Map 4, the census data indicate that the elderly are fairly well dispersed throughout the study area, with the highest proportionate concentration occurring in Tract 2027 where 248 persons, or about 19 percent of the tract population, were elderly, and the lowest proportionate concentration occurring in Tract 2029, where 118 persons were elderly, about 2 percent of the tract population. Tract 2027 comprises the core of the study area, while Tract 2029 is in the northwest corner of the area. In order to provide more detailed as well as more current information, the Waukesha Mass Transit Study Committee in 1974 contacted area churches to compile a list of citizens aged 65 and over. These addresses were mapped and also showed a wide dispersal of elderly citizens throughout the study area. In addition to the 1970 census data and information from the local churches, all group quarters and special housing for the elderly, both existing and proposed, were identified and located (see Table 5 and Map 5).

Minority Concentrations

The primary minority group in the Waukesha area is composed of persons defined by the U. S. Bureau of the Census as of the Spanish speaking language. This group comprises about 5 percent of the total population of the

Table 2

LAND USE IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA: 1970

Land Use Category[a]	Acres	Percent of Major Categories	Percent of Total Area
Urban			
Single Family Residential	3,627.33	36.0	10.6
Two Family Residential	112.63	1.1	0.3
Multifamily Residential	72.90	0.7	0.2
Residential Land Under Development	996.41	9.9	2.9
Commercial	224.36	2.2	0.6
Light Industrial[a]	552.85	5.5	1.6
Heavy Industrial	189.17	1.9	0.5
Railroad	283.45	2.8	0.9
Airports	231.49	2.3	0.8
Streets, Highways, and Parking Facilities	2,400.16	23.9	7.0
Communication and Utility Facilities	196.43	2.0	0.6
Public and Semipublic Institutional	533.62	5.3	1.6
Park and Recreation	644.29	6.4	1.9
Urban Land Use Subtotal	10,065.09	100.0	29.5
Rural			
Agriculture and Related Uses	17,860.63	74.3	52.4
Open Lands and Water	6,178.90	25.7	18.1
Rural Land Use Subtotal	24,039.53	100.0	70.5
Total Land Use	34,104.62	--	100.0

[a] *Includes quarries and wholesale land uses.*

Source: SEWRPC.

study area, and about 28 and 22 percent, respectively, of the total populations of Tracts 2027 and 2028. No other significant concentrations of minority groups were found within the study area. Table 4 and Map 4 indicate the location of minority groups within the study area by census tract.

Low Income Concentrations

The results of the 1970 U. S. Census indicated that about 2,600 persons, or about 6 percent of the total population of the study area, lived in households that reported incomes below the federal poverty level.[1] The highest concentrations of low income persons were found in Tracts 2023, 2026, 2027, and 2028. Table 4 and Map 4 indicates the location of low income persons in the study area by census tract.

Handicapped

Section 55.01(13) of the Wisconsin Statutes prohibits the release of names and addresses of handicapped clients of the Wisconsin Department of Health and Social Services, Division of Vocational Rehabilitation; therefore, the location of concentrations of these individuals within the study area could not be readily ascertained. The Waukesha County Technical Institute undertook a special study of the handicapped within its service area in 1973, and was able to identify the place of residence of about 90 percent of the handicapped people in Waukesha County. For the purpose of the study and in accordance with the Vocational Education Amendments of 1968, handicapped persons were defined as follows:

> Persons who are mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, crippled, or other health impaired persons who, by reason of their handicapping condition cannot

[1] *Poverty thresholds for nonfarm families in 1969, as defined by the U. S. Bureau of the Census, are shown in the following table:*

Family Size	*Poverty Threshold*
1	*$1,840*
2	*$2,383*
3	*$2,924*
4	*$3,743*
5	*$4,415*
6	*$4,958*
7 or more	*$6,101*

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

Table 3

POPULATION IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA BY CIVIL DIVISION SELECTED YEARS 1850-1975

Year	Town of Waukesha	City of Waukesha[a]	Town of Pewaukee[b]	Waukesha Transit Development Program Study Area
1850	2,313	--	442	2,755[c]
1860	3,529	--	620	4,149
1870	3,877	--	726	4,603
1880	4,613	--	875	5,488
1890	7,480	--	1,101	8,581
1900	1,015	7,419	682	9,116
1910	968	8,740	719	10,427
1920	958	12,558	710	14,226
1930	1,162	17,176	636	18,974
1940	1,540	19,242	1,317	22,099
1950	2,108	21,233	2,193	25,534
1960	3,540	30,004	2,315	35,859
1970	4,408[d]	39,695[d]	3,018	47,121[e]
1975	4,832[f]	47,744[f]	3,415	55,991

[a] *City of Waukesha population included in the Town of Waukesha until 1900.*

[b] *Includes only that portion of the Town of Pewaukee in Planning Analysis Area 40.*

[c] *Population estimates for Planning Analysis Area 40 for the years 1850 through 1960 were determined by summing the population levels in the Town of Waukesha, the City of Waukesha, and that percentage of the population in the Town of Pewaukee which was known to lie within the planning analysis area in 1970. During that year, 100.0 percent of the population in the City and Town of Waukesha was residing within Planning Analysis Area 40, together with 39.9 percent of the population in the Town of Pewaukee. This 39.9 percent was therefore applied to the Town of Pewaukee population in each of the years from 1850 through 1960 to estimate an historic planning analysis area total.*

[d] *These are revised 1970 census figures published by the Census Bureau in 1974 and do not therefore agree with previously published 1970 population counts.*

[e] *The population estimate for Planning Analysis Area 40 in 1970 was taken from a SEWRPC demographic handout dated February 25, 1975, listing population by planning analysis area in the Southeastern Wisconsin Region. The geographic breakdown was calculated by summing the 1970 population levels for the City and Town of Waukesha, both of which are entirely contained within the planning analysis area, and then assuming that the difference between this total and the total population within the planning analysis area accounted for those persons in the planning analysis area residing in the Town of Pewaukee.*

[f] *Wisconsin Department of Administration estimates.*

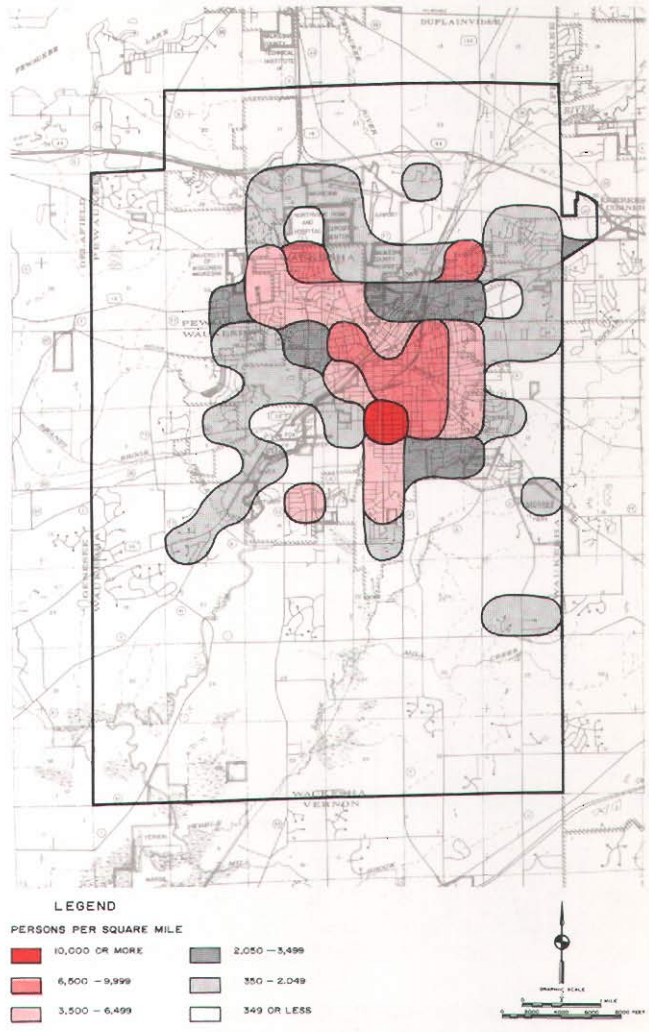
Source: U. S. Bureau of the Census, Wisconsin Department of Administration, and SEWRPC.

> succeed in a regular vocational or consumer and homemaking education program without special education assistance or who require a modified vocational or consumer and homemaking education program.[2]

That study showed that approximately 5,700 people, or about 12 percent of the total population of the study area, were handicapped. A mapping of a sample of this

Map 3

POPULATION DENSITY IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA: 1970



Source: SEWRPC.

total showed them to be widely scattered throughout the study area, with the heaviest concentration being in the core of the study area.

School Age Children

School age children in the 10 through 19 age group, comprise about 21 percent of the study area population (see Map 4 and Table 4). As may be expected, no significant concentrations of school age children exist

[2] *This definition differs somewhat from the plan design standard definition—which is the same as the Urban Mass Transportation Administration (UMTA) definition—set forth in Chapter II. The definition used here is broader in scope than the UMTA definition, and thus the number of handicapped people found in this survey is relatively large when compared to the total population.*

Table 4

SELECTED POPULATION CHARACTERISTICS IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA AS APPROXIMATED BY CENSUS TRACT: 1970

Census Tract Number	Tract Population	School Age Children[a]		Elderly[b]		Low Income[c]		Minority[d]		Minority[e]		Number of Occupied Dwelling Units	Occupied Dwelling Units with no Auto Ownership	
		Number	Percent of Population	Number	Percent of Population	Number	Percent of Population	Number	Percent of Population	Number	Percent of Population		Number	Percent of Occupied Dwelling Units
2022	2,716	494	18.2	201	7.4	154	5.7	26	1.0	198	7.3	865	86	9.9
2023	7,511	1,393	18.5	498	6.6	515	6.9	45	0.6	221	2.9	2,318	204	8.8
2024	4,490	1,323	29.5	290	6.5	228	5.1	38	0.8	0	--	1,064	17	1.6
2025	4,051	838	20.7	423	10.4	137	3.4	11	0.3	107	2.6	1,255	149	11.9
2026	3,690	807	21.9	412	11.2	327	8.9	45	1.2	60	1.6	1,225	241	19.7
2027	1,322	178	13.5	248	18.8	231	17.5	41	3.1	364	27.5	567	272	48.0
2028	3,915	729	18.6	449	11.5	347	8.9	57	1.5	871	22.2	1,110	175	15.8
2029	5,718	1,186	20.7	118	2.1	216	3.8	25	0.4	61	1.1	1,393	31	2.2
2030	3,161	578	18.3	506	16.0	99	3.1	46	1.5	111	3.5	688	75	10.9
2031	10,486	2,226	21.2	495	4.7	354	3.4	63	0.6	269	2.6	2,886	99	3.4
Total	47,060	9,752	20.7	3,640	7.7	2,608	5.5	397	0.8	2,262	4.8	13,371	1,349	10.1

[a] *Ages 10-19 inclusive.*

[b] *Ages 65 and over.*

[c] *Family income below federal poverty threshold—see footnote 1, p. 16.*

[d] *Nonwhite, does not include persons of Spanish language.*

[e] *Persons of Spanish language.*

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

Table 5

SELECTED CHARACTERISTICS OF EXISTING AND PROPOSED SPECIAL HOUSING FOR THE ELDERLY WITHIN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA: 1976

Unit	Number of Residents	Number of Staff	Location
Avalon Manor	93	65	222 Park Place
Egan Senior House	40	0	825 Pleasant Street
Saratoga Heights	130	6	120 Corrina Boulevard
Virginia Nursing Home	96	86	1471 Waukesha Avenue
Westmoreland Manor	240	200	1810 Kensington Drive
Proposed 175-Unit Site	--	--	W. St. Paul Avenue and Kensington Drive
Proposed 354-Unit Site	--	--	Moreland Boulevard east of Delafield Street
Proposed 129-Unit Site	--	--	N. East Avenue at South Street

Source: City of Waukesha Planning Department and SEWRPC.

in any census tract. With the exception of Tract 2027, the percentage of school age children to the total population was approximately 20 percent in each tract.

Automobile Availability

The 1970 U. S. Census of Population indicated that approximately 10 percent of the households within the study area did not have an automobile available. Tracts 2026, 2027, and 2028 contained the heaviest concentrations of zero automobile ownership households. Table 4 and Map 4 indicates the location of the zero automobile ownership households in the study area by census tract.

MAJOR TRAFFIC GENERATORS

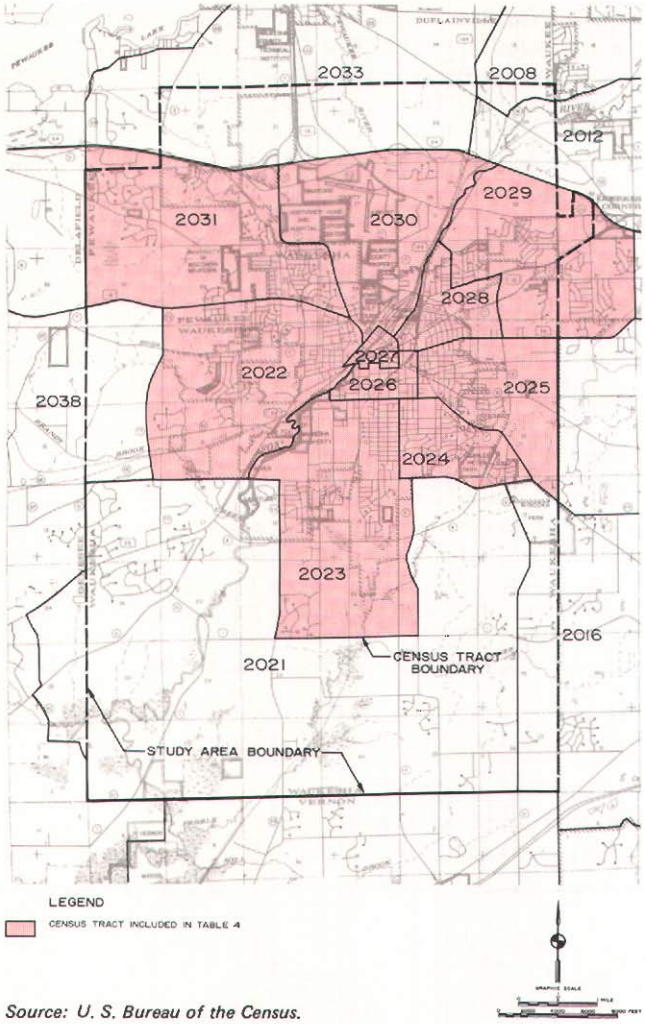
For mass transit planning purposes, major traffic generators were defined as specific land uses or concentrations of such land uses which attract or have the potential to attract a relatively large number of person trip destinations. The following categories of land uses were identified as major traffic generators for mass transit planning purposes within the study area: 1) shopping centers; 2) secondary schools, colleges, universities, and technical schools; 3) hospitals and medical centers; 4) institutions and governmental buildings; 5) employers with 100 or more employees; and 6) recreational areas.

Shopping Centers

For transit planning purposes, two classifications of shopping centers were identified. The first such classification, the community shopping center, is characterized by

Map 4

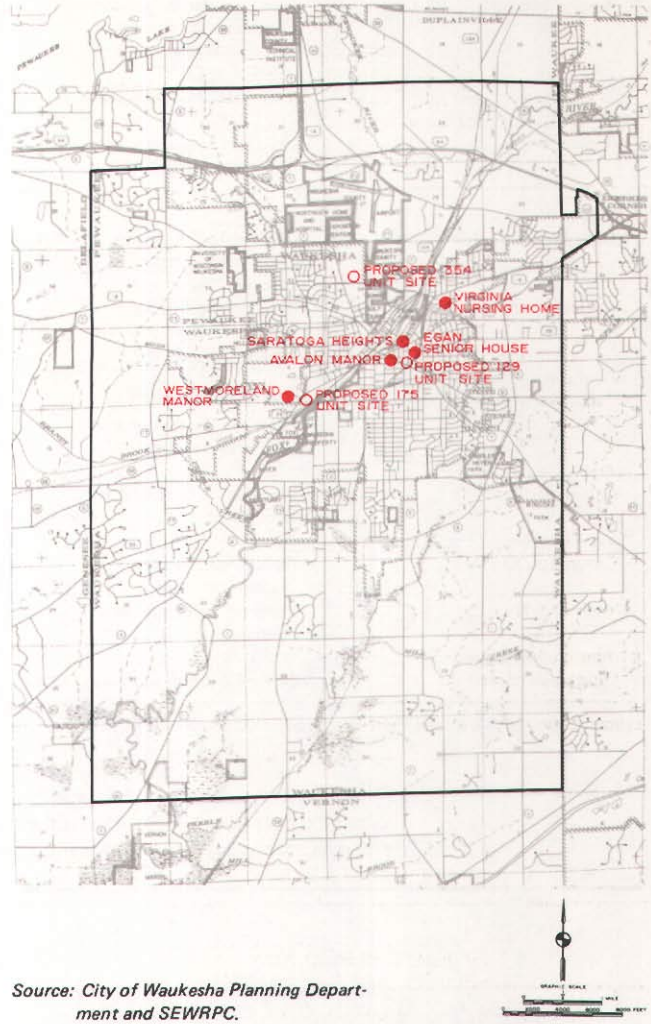
CENSUS TRACTS IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA: 1970



Source: U. S. Bureau of the Census.

Map 5

EXISTING AND PROPOSED GROUP QUARTERS AND SPECIAL HOUSING FOR THE ELDERLY IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA



Source: City of Waukesha Planning Department and SEWRPC.

a concentration of stores including a department store, providing a relatively wide selection of shopping goods and having a service area which includes most or all of the study area. These community shopping centers are listed in Table 6 and are shown on Map 6.

The second such classification, the neighborhood shopping center, is characterized by a concentration of stores, including a major grocery store or supermarket, providing convenience goods and having a service area of essentially a single neighborhood, or a small number of neighborhoods. Neighborhood shopping centers are listed in Table 6 and are shown on Map 6.

Schools

All middle schools, senior high schools, technical schools, and colleges and universities were identified in the study as existing or potential major generators of mass transit riders. Elementary schools were not considered as major traffic generators because most of the students live in the surrounding neighborhood and walk to school. However, the parochial elementary schools attract students from a much larger area than a neighborhood. Those parochial schools which currently are provided with mass transit school "tripper" service were included in the study. These are St. Joseph's, St. Mary's, and Trinity Lutheran elementary schools. The schools identified as major generators are listed in Table 7 and shown on Map 7. The Waukesha County Technical Institute, also a major traffic generator, is located just outside the study area in the Village of Pewaukee.

The home addresses of all public school students in the middle and high schools were obtained from the Waukesha Joint School District No. 1 and plotted by U. S. Public Land Survey quarter section. Since the

Table 6

COMMUNITY AND NEIGHBORHOOD SHOPPING CENTERS IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA

Type of Shopping Center	Location
Community	
Central Business District	Area bounded by Wisconsin Avenue, East Avenue, St. Paul Avenue, and West Avenue
K-Mart Department Store	East Avenue and Sunset Drive
Kohl's Department Store (West Brook)	Moreland Boulevard and Springdale Road
Neighborhood	
Broadway strip development	On Broadway between East Avenue and Hartwell Avenue
Delafield strip development	On Delafield Street between Madison Street and Summit Avenue
Grand Avenue strip development	On Grand Avenue between College Avenue and Williams Street
Grandview strip development	Intersection of Grandview Boulevard and Summit Avenue
Grey Terrace Shopping Center	Racine Avenue and Roberta Avenue
Moreland Plaza	Moreland Boulevard and Delafield Street
Proposed Fox River Shopping Center	St. Paul Avenue and Sunset Drive

Source: City of Waukesha Planning Department and SEWRPC.

Waukesha transit system operates primarily to serve students, this information is particularly useful in planning the most efficient transit routing to accommodate all students, except those within walking distance. A sample plot map for the Central Campus High School is shown on Map 8.

Hospitals and Medical Centers

The third land use identified as an actual or potential major generator of mass transit was comprised of hospitals and medical centers. The three locations identified as major generators of this type were the Moreland Medical Center at 1111 Delafield Street, the Waukesha Memorial Hospital at 725 American Avenue, and the Northview Home and Hospital at N1 W25042 Northview Road (see Map 9).

Government Buildings

Government buildings all were classified as major generators since these buildings provided governmental service to which every citizen should have ready access. These major generators are listed in Table 8 and their locations may be found on Map 10.

Industrial Employment Centers with 100 or More Employees

Existing and potential industrial major traffic generators were identified as those manufacturing concerns or concentrations of firms which employed 100 or more people. For purposes of clarity in presentation, Map 11 and Table 9 show only the major contiguous areas of industrial employment. Employers were contacted for the addresses of their employees in an effort to identify

Table 7

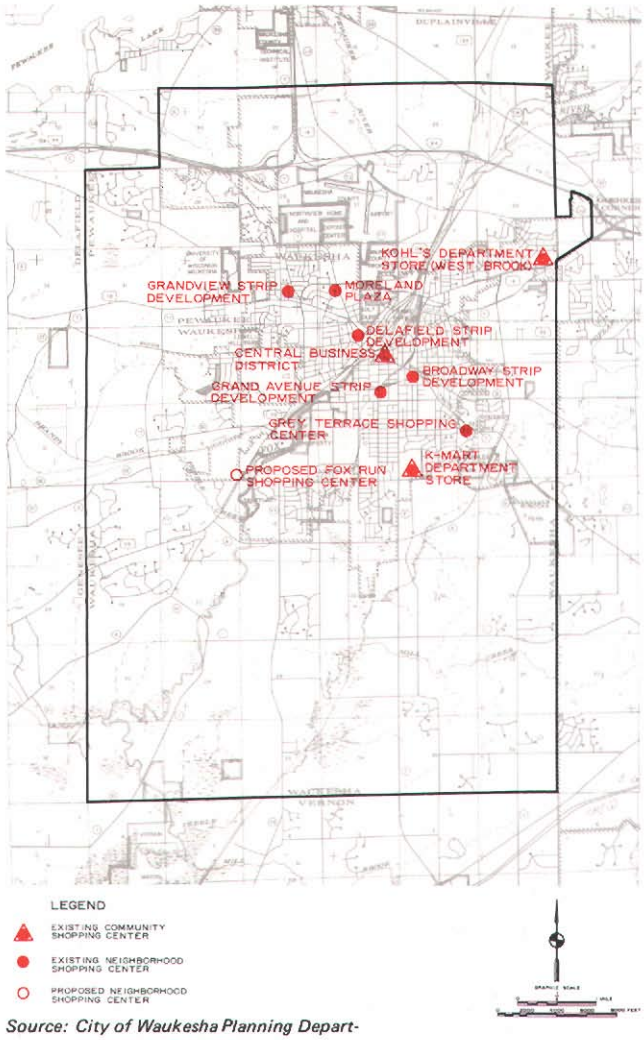
SELECTED CHARACTERISTICS OF SCHOOLS, COLLEGES, AND UNIVERSITIES WITHIN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA: 1976

Educational Institution	Number of Students	Number of Staff	Location
Middle and Senior High Schools			
Butler Middle School	1,123	91	310 N. Hine Avenue
Catholic Memorial High School	924	64	601 E. College Avenue
Central High School (Campus for South)	1,465	160	400 N. Grand Avenue
Horning Middle School	930	80	2000 Wolf Road
North High School	1,727	140	2222 Michigan Avenue
South High School	1,371	110	401 E. Roberta Avenue
Colleges and Universities			
Carroll College	1,269	200	100 N. East Avenue
University of Wisconsin Center Waukesha County	1,700	135	1500 University Drive
Waukesha County Technical Institute	1,300	625	800 Main Street, Pewaukee
Parochial Elementary Schools			
St. Joseph's	415	17	841 Martin Street
St. Mary's	671	36	520 E. Newhall Avenue
Trinity Lutheran	187	11	1060 White Rock Avenue

Source: Waukesha Joint School District No. 1 and SEWRPC.

Map 6

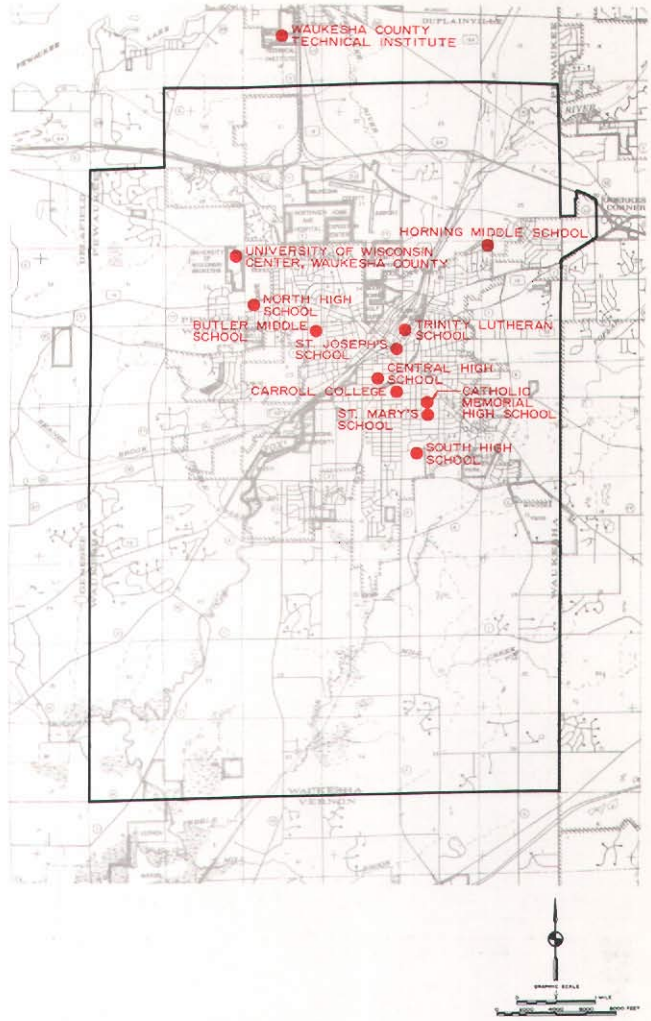
COMMUNITY AND NEIGHBORHOOD SHOPPING CENTERS IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA



Source: City of Waukesha Planning Department and SEWRPC.

Map 7

SCHOOLS, COLLEGES, AND UNIVERSITIES IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA: 1976



Source: Waukesha Joint School District No. 1 and SEWRPC.

any concentrations of employee residences which might be served by mass transit facilities for the home to work trip.

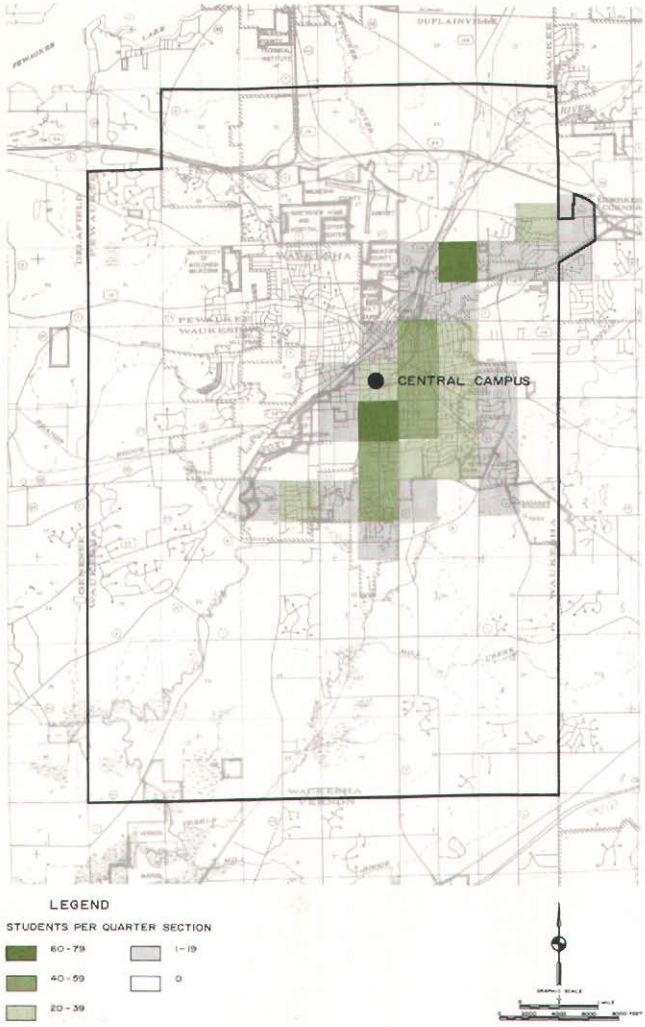
The addresses of the employees for each major employment concentration of firms were plotted on maps by U. S. Public Land Survey quarter section. This analysis indicated that there are no concentrations of employees in any one quarter section within the study area that would warrant direct special bus service between the industrial center and one or more residential areas. However, certain corridors containing numerous quarter sections having significant concentrations of employee residences were found for several of the major employment concentrations in the study area. An example of an employee location plot is shown on Map 12. Although concentrations of employee residences were found in areas external to the study area, such as in the Village of Mukwonago and the City of Oconomowoc, no such concentrations warranting the provision of direct mass transit service were found in the study area itself.

Recreational Areas

For mass transit planning purposes, three classifications of recreational areas were identified. The first such classification, major indoor recreation sites, was defined to include all buildings providing multiple recreational opportunities such as a YMCA or a community recreation center located in a school. The second such classification, major outdoor recreation sites, was defined to include all parks and open space lands providing multiple recreational opportunities, such as swimming, tennis, softball, and picnicking. The third such classification, special recreational facilities, was defined to include all recreation sites, both indoor and outdoor, that were used for special purposes only at certain times of the year.

Map 8

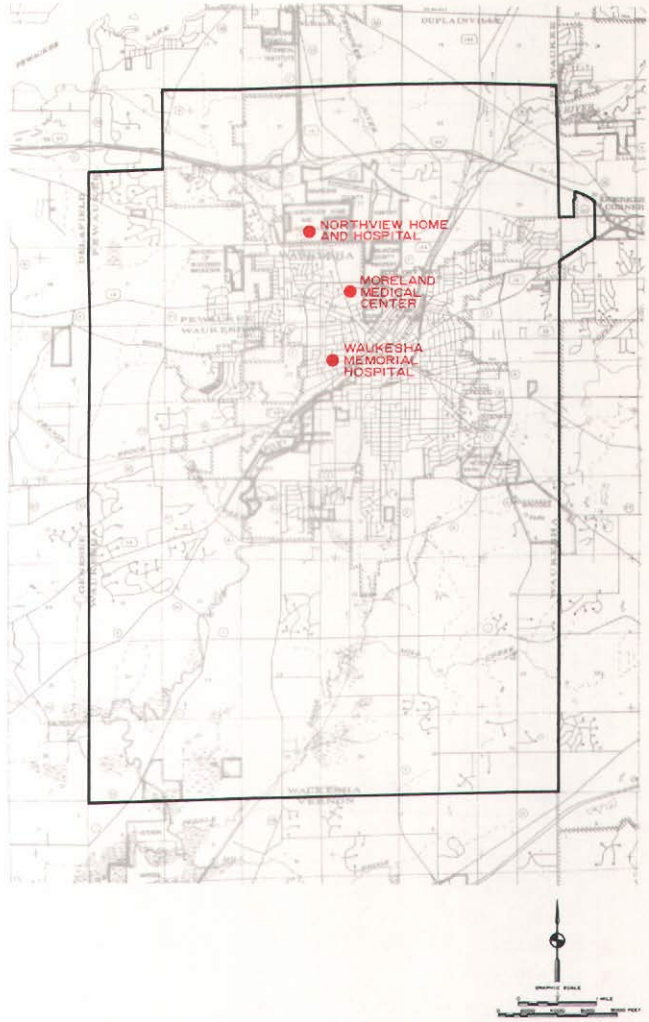
LOCATION OF CENTRAL CAMPUS HIGH SCHOOL STUDENTS BY QUARTER SECTION: SPRING 1975



Source: SEWRPC.

Map 9

HOSPITALS AND MEDICAL CENTERS IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA



Source: City of Waukesha Planning Department and SEWRPC.

Map 13 and Table 10 show all recreational areas meeting these criteria within the study area. It should also be recognized that the City of Waukesha Park and Recreation Department offers recreational opportunities on an irregular basis in many of the public schools especially during the winter months.

TRAVEL CHARACTERISTICS IN THE STUDY AREA

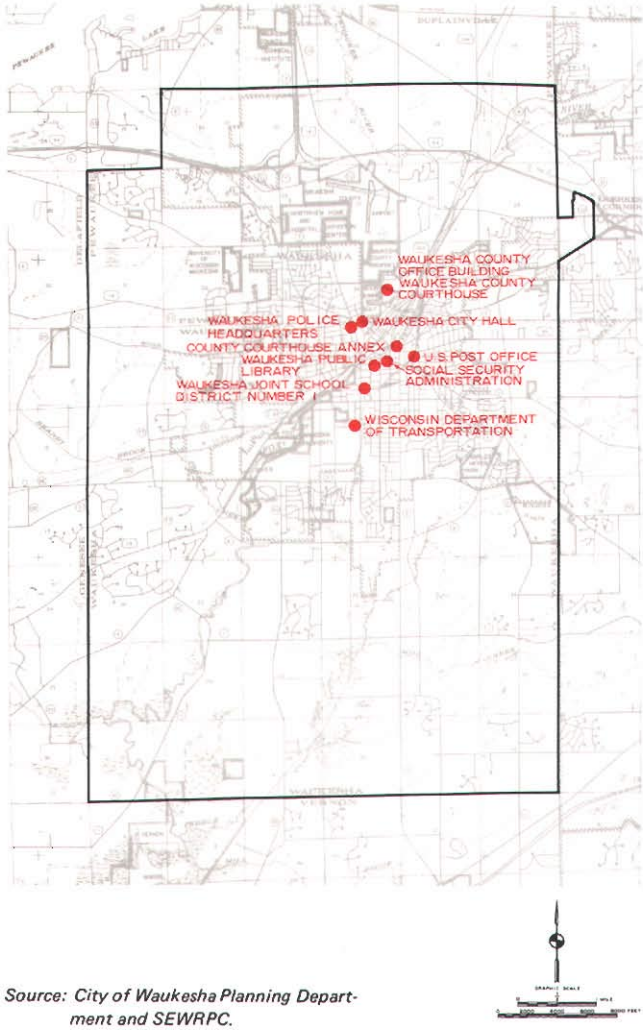
In 1963 the Regional Planning Commission undertook a comprehensive inventory of travel habits and patterns within the Region to provide a benchmark of basic data required for land use and transportation planning. In 1972 a new inventory of travel habits and patterns was initiated by the Commission in order to determine the changes which had taken place in such habits and patterns over approximately a decade. The inventory components included not only all of the basic origin-destination surveys conducted under the 1963 regionwide travel inventories, namely, the home interview, truck and taxi, and external cordon surveys; but included five origin-destination surveys conducted for the first time by the Commission. These were the mass transit user; mass transit nonuser; major traffic generator; interregional bus, rail, and car ferry; and weekend home interview and weekend truck and taxi surveys. A summary of the findings of these regional surveys pertinent to mass transit planning in the study area is presented below.

Total Person Trip Characteristics

In the 1972 home interview survey, information obtained from each sample household included detailed data about each trip made on an average weekday by household members five years of age and older. Since the study area is an integral part of the larger Milwaukee urbanized area, it was necessary to ascertain trip data from the survey

Map 10

GOVERNMENT BUILDINGS IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA



Source: City of Waukesha Planning Department and SEWRPC.

for trips both internal and external to the study area. Of the 200,700 trips produced within the study area on an average weekday in 1972, about 148,600 trips, or 74 percent, were made internal to the study area. The locations of major concentrations of the destinations of the 52,100 external trips are shown on Map 14. Planning Analysis Area 33, which attracted about 10,800 trips; Planning Analysis Area 36 which attracted about 4,900 trips; and Planning Analysis Area 34, which attracted about 4,600 trips, contained the three largest concentrations of external trip destinations. The central area of Milwaukee, which includes Planning Analysis Areas 16 and 20, attracted about 3,500 trips from the study area. Table 11 summarizes the most popular zones of trip attractions from the study area.

The trip data was collected by five categories of travel purpose: home-based work, home-based shop, home-based other, non-home-based, and school-based trips. Home-based work trips are defined as those trips having one end of the trip at home and the other end at work; home-based shop trips are defined as having one end of the trip at home and the other end at shopping; home-based other trips are defined as those trips having one end at home and the other end being any purpose except home, school, work, or shop. Non-home-based trips are those trips where neither end is at home or school; and school-based trips are those trips where at least one end of the trip was at school. Of the total number of trips produced in the study area, home-based work trips accounted for about 17 percent, home-based shopping trips accounted for 11 percent, home-based other trips accounted for 35 percent, non-home-based trips accounted for 31 percent, and school based trips accounted for 6 percent of the total trips.

There were about 34,200 home-based work trips produced within the study area on an average weekday in 1972; of these, about 19,800 trips, or about 58 percent, were made to destinations internal to the study area. Traffic analysis zones with the largest number of home-based work trip attractions included the Waukesha central

Table 8

SELECTED CHARACTERISTICS OF GOVERNMENT BUILDINGS WITHIN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA

Building	Number of Employees	Location
Waukesha City Hall	52	201 Delafield Street
Waukesha Police Headquarters	96	130 Delafield Street
Waukesha Public Library	28	321 Wisconsin Avenue
Waukesha County Courthouse	1,600	515 W. Moreland Boulevard
Waukesha County Office Building		500 Riverview Avenue
County Courthouse Annex	150	916 N. East Avenue
Waukesha Joint School District No. 1	46	222 Maple Avenue
Wisconsin Department of Transportation	248	310 S. West Avenue
Social Security Administration	31	716 N. Barstow Street
U. S. Post Office	127	300 E. Broadway

Source: SEWRPC.

Table 9

INDUSTRIAL EMPLOYMENT CENTERS OF 100 PERSONS OR MORE
IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA

Firm	Map 11 Key	1974 Employment	Location
Alloy Products Corporation	3	225	1045 Perkins Avenue
International Harvester	1	800	1401 Perkins Avenue
Amron Corporation	2	307	525 Progress Avenue
GTE Automatic Electric, Inc.	2	425	1101 S. Prairie Avenue
General Casting Corporation	1	435	706 E. Main Street
Hein-Werner Corporation	3	375	1200 National Avenue
General Electric Medical Systems Division	4	1,100	3000 N. Grandview Boulevard
Godfrey Company	5	260	1200 W. Sunset Drive
Golden Guernsey Dairy Cooperative	6	127	2101 Delafield Street
Grede Foundries, Inc.	7	347	901 W. St. Paul Avenue
Waukesha Engine—Division of Dresser Industries, Inc.	7	1,550	1001 W. St. Paul Avenue
Koehring Corporation-Husco Division	16	339	N218 W239 Pewaukee Road
RTE Corporation	8 9	1,296	1900 E. North Street and 1319 Lincoln Avenue
Portec, Inc.-Butler Division	9	339	945 Blackstone Avenue
Quality Aluminum Casting Corporation	9	246	1242 Lincoln Avenue
Rexnord, Inc.-Envirex, Inc.	10	436	1901 S. Prairie Avenue
RTE-ASEA Corporation	11	258	400 S. Prairie Avenue
Waukesha Cutting Tools, Inc.	11	117	1111 Sentry Drive
Waukesha Bearings Corporation-Division of Waukesha Industries Corporation	12	102	W227 S2084 Commerce Street
Waukesha Rubber Company, Inc.	13	143	324 W. College Avenue
Wisconsin Centrifugal, Inc.	14	800	905 E. St. Paul Avenue
Wisconsin Telephone Company	15 15	300	149 Wisconsin Avenue and 2140 Davidson Road

Source: Waukesha Chamber of Commerce and SEWRPC.

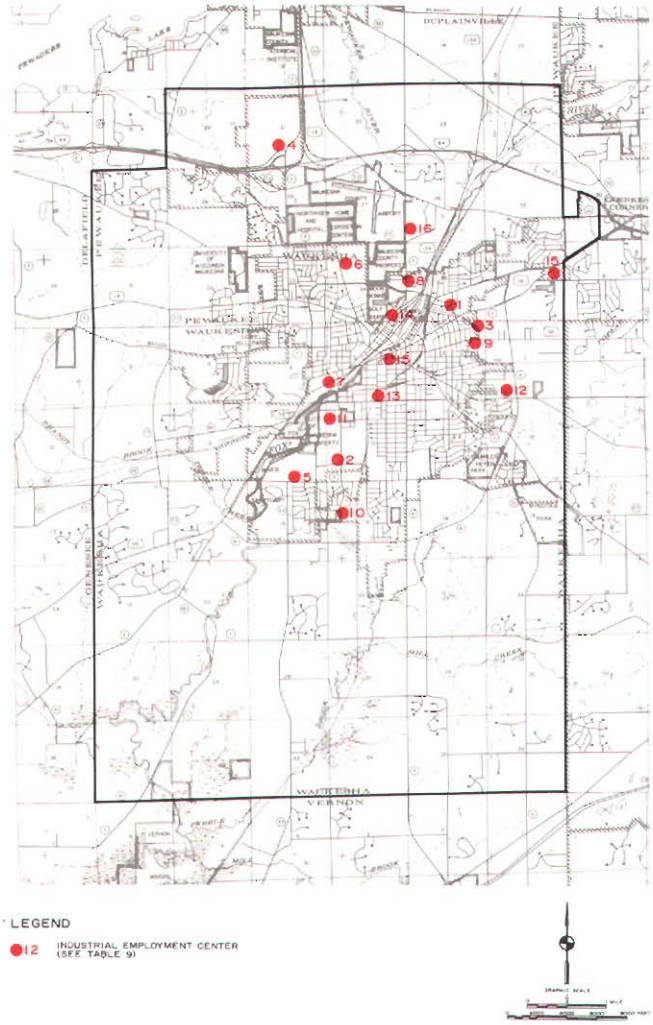
business district, with about 2,400 trips, and several industrial areas, the largest being the industrial area located in the eastern section of the planning area along Lincoln Avenue, which attracted about 1,600 trips. External to the study area, the planning analysis area with the largest number of home-based work trips was Planning Analysis Area 33 (see Map 14), which includes the Brookfield Square Shopping Center, and attracted about 2,300 trips. Milwaukee County attracted about 5,100 home-based work trips, of which only about 800 work trips were drawn to the Milwaukee central business district (Planning Analysis Areas 16 and 20). Planning Analysis Area 36, located adjacent to the study area to the north, attracted approximately 1,800 trips.

About 21,600 home-based shopping trips were produced in the study area on an average weekday in 1972; of these, about 16,800 trips, or about 78 percent, had a destination internal to the study area. Traffic analysis area zones with the highest concentrations of home-based shopping trip attractions within the study area included the Waukesha central business district, which attracted about 3,000 trips; the zone containing the K-Mart store at Sunset Drive and East Avenue, which attracted about 3,800 trips; and the zone containing the Kohl's Food Store on Broadway, which attracted about 1,600 home-based shopping trips. The only external planning analysis area to attract a significant number of home-based shopping trips from the study area was Planning Analysis Area 33, which contains the Brookfield Square Shopping Center and attracted about 2,100 trips. The planning analysis areas containing the Milwaukee central business district attracted only about 50 home-based shopping trips from the study area, and Milwaukee County attracted only about 500 such trips on an average weekday.

Home-based other trips are those made for social and recreational purposes, personal business, medical trips, and other purposes than work, shop, or school. There were about 71,000 home-based other trips produced in the study area on a weekday in 1972; of these, about 54,200, or 76 percent, were made to destinations within the study area. Of the internal trips made for this trip purpose, the most popular zones of attraction were the zone located immediately south of the Waukesha central business district, which contains the Waukesha Public Library and some office buildings, with about 5,700 trips; and the Waukesha central business district, which attracted about 5,000 home-based other trips. For trips

Map 11

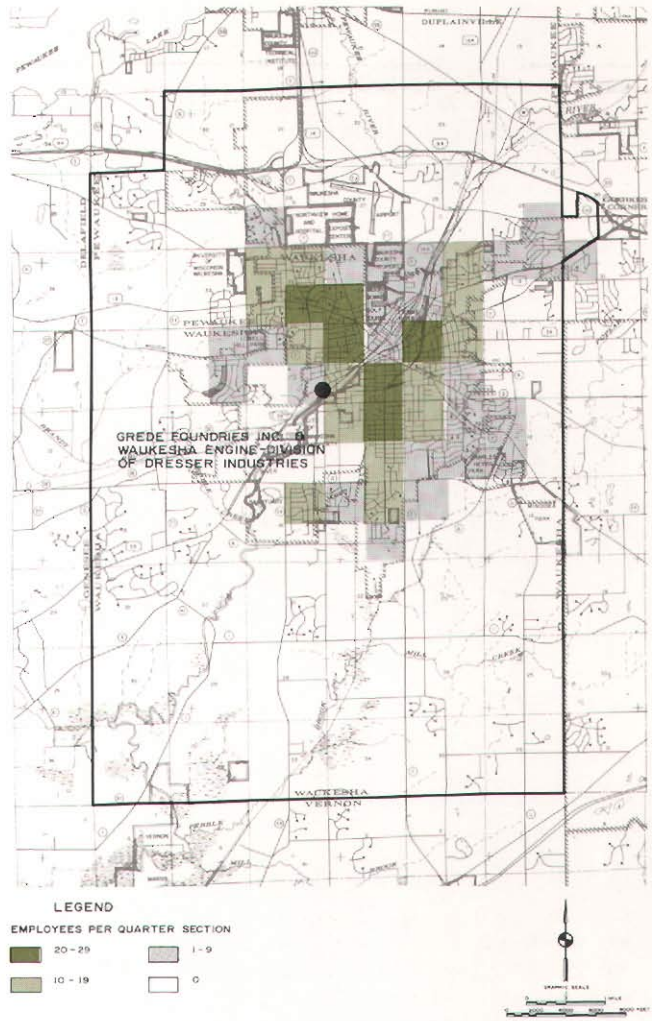
INDUSTRIAL EMPLOYMENT CENTERS IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA



Source: Waukesha Chamber of Commerce.

Map 12

LOCATION OF GREDE FOUNDRIES, INC. AND WAUKESHA ENGINE–DIVISION OF DRESSER INDUSTRIES EMPLOYEES IN THE STUDY AREA BY QUARTER SECTION: 1974



Source: SEWRPC.

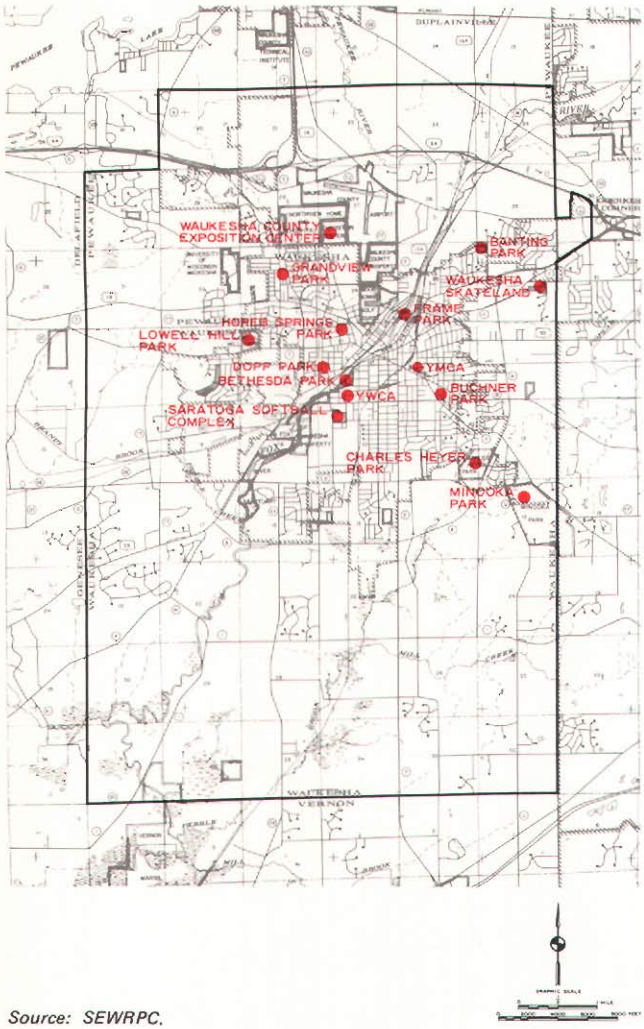
external to the study area, Planning Analysis Area 33 was the most popular destination of home-based other trips from the study area, with about 3,200 trips. Milwaukee County attracted from the study area about 6,000 home-based other trips, of which about 1,000 were destined to the planning analysis areas containing the Milwaukee central business district.

Non-home-based trips include all those trips that had both an origin and a destination other than at home or at school. Of the approximately 62,700 trips produced within the study area for this purpose, about 48,300 trips, or 77 percent, had destinations internal to the study area. The Waukesha central business district attracted about 9,800 of these trips, and the zone containing the YMCA, post office, and Kohl's Food Store attracted about 4,400 trips. Again, the most popular destination of external trips was Planning Analysis Area 33, which attracted about 2,700 trips from the study area. Milwaukee County attracted about 5,300 non-home-based trips from the study area; of these, about 1,600 trips were made to the planning analysis areas containing the Milwaukee central business district.

School-based trips represent all trips where either the origin or destination was at school. There were approximately 11,200 school-based trips produced within the study area on an average weekday in 1972, of which about 9,400 trips, or 84 percent, remained internal to the study area. The most common destinations were the schools of the Waukesha Joint District No. 1. There were no significant concentrations of school-based trips to external planning analysis areas, including the Waukesha County Technical Institute.

Map 13

RECREATIONAL AREAS IN WAUKESHA
TRANSIT DEVELOPMENT PROGRAM STUDY AREA



Source: SEWRPC.

Mass Transit Trip Characteristics

The local mass transit operator, Wisconsin Coach Lines, Inc., currently (April 1976) operates a "school tripper" service to the Waukesha area schools on school days only, and two local transit routes in the City of Waukesha, Monday through Friday only. The two local routes are called the Westowne route and the Southside route and make large loops through the western and southern areas of the City of Waukesha. A northside route operated to the northeast side of Waukesha until April 1975 when it was abandoned because of lack of patronage. The company also operates commuter routes between Waukesha and Milwaukee which offer some local service to the eastern and northeastern areas of the City of Waukesha.

In May 1972 the Regional Planning Commission conducted an on-board survey of passengers riding Wisconsin Coach Lines, Inc., buses on both the commuter and the local routes. The survey was conducted by distributing a mail-back questionnaire to all revenue passengers who boarded the local system and to Milwaukee-bound (eastbound) revenue passengers on the commuter route. School tripper service operated locally within the Waukesha area was not included in the survey. A summary of findings of the on-board mass transit user survey is presented within the discussion of mass transit trip characteristics that follows.

Bus Trip Origins and Destinations: The on-board bus survey showed that the local Waukesha transit system—exclusive of school trippers—carried 135 revenue passengers on the day of the survey. This included 83 riders on the Westowne route, 42 riders on the Southside route, and 10 riders on the Northside route. Origins of home-based trips along these routes were scattered throughout the service area of the transit system. The most frequent destination on the survey day was the Waukesha central business district with about 90 percent of the ridership indicating this destination.

On the commuter route between Waukesha and Milwaukee, the on-board bus survey showed that 664 revenue passengers used the service on the survey day. Origins of home-based trips for this route were scattered throughout the study area, with the heaviest concentrations located near the bus route, as shown on Map 15. Popular destinations along this route included the Brookfield Square Shopping Center, the Allis-Chalmers Manufacturing Company plant in West Allis, and the Milwaukee central business district. No passengers were carried locally within the study area on the day of the survey.

Transfer Summary: The on-board bus survey conducted by the Regional Planning Commission showed little transferring within the Waukesha local bus system. No transfers were recorded either to or from the Northside route, and only 10 transfers were recorded between the Westowne and Southside routes. Since the same bus is used for these latter two routes, passengers do not have to physically transfer from vehicle to vehicle in order to complete their trip. On the day of the survey, only two passengers transferred between the local transit system and the commuter route to Milwaukee.

Socioeconomic Summary: A socioeconomic profile of the Waukesha transit rider responding to the Regional Planning Commission on-board bus survey was determined by using unfactored survey data. Of the 135 questionnaires distributed to passengers on the Waukesha local system, 49 usable questionnaires, or about 36 percent, were returned. Of the 332 questionnaires distributed on the route between Waukesha and Milwaukee, 185 usable questionnaires, or about 56 percent, were returned. Each individual rider was counted only once for the socioeconomic summaries, regardless of the number of trips made by that rider on the survey day.

Table 10

RECREATIONAL AREAS IN WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA

Type of Recreational Area	Location
Indoor	
YMCA	320 E. Broadway
YWCA	306 N. West Avenue
Waukesha Skateland	1931 E. Main Street
Outdoor	
Banting Park	Empire and Butler Drives
Bethesda Park	Bethesda Court and Dunbar Avenue
Buchner Park	Oakland Avenue and Broadway
Charles Heyer Park	Lynne Drive and Heyer Drive
Dopp Park	Washington Avenue and Dopp Street
Frame Park	Baxter Street and Frame Park Drive
Grandview Park	Grandview Boulevard
Horeb Springs Park	Summit Avenue and Spring Street
Lowell Hill Park	Madison Street and Grandview Boulevard
Minooka Park	Sunset Drive and Racine Avenue
Saratoga Softball Complex	Prairie Avenue and Phillips Drive
Special	
Waukesha County Exposition Center	N1 W24848 Northview Road

Source: SEWRPC.

As shown in Table 12, females represented approximately 86 percent of the total daily ridership on the local Waukesha transit system. Of this group, over 60 percent indicated that they did not possess a driver's license. The male-female percentage ratio was more evenly distributed on the Waukesha to Milwaukee route, with 44 percent male riders and 56 percent female riders.

Of those riders using the local service, 88 percent were members of the Caucasian (white) race. As shown in Table 13, members of minority race groups made up only about 6 percent of the total ridership on the local system and less than 4 percent of the total ridership on the route between Waukesha and Milwaukee.

As shown in Table 14, about 10 percent of the ridership on the local system reported a family income of less than $4,000 per year, while on the route between Waukesha and Milwaukee, about 5 percent of the ridership reported a family income of less than $4,000 per year. It is significant to note that 26 percent of the local ridership and about 14 percent of the Waukesha-Milwaukee ridership did not respond to the income questions.

Of those riders responding to the survey, the largest age group on both the local system and Waukesha-Milwaukee route was the 16-24 age bracket, with about 29 percent and 23 percent of the total ridership, respectively. As shown in Table 15, senior citizens age 65 and over accounted for about 12 percent of the riders on the local system, but only about 4 percent of the ridership on the route between Waukesha and Milwaukee.

As shown in Table 16, about 58 percent of the riders on the local system indicated that they did not possess a driver's license. On the route between Waukesha and Milwaukee, about 23 percent of the ridership indicated that they did not possess a driver's license.

The socioeconomic data summarized above includes only those riders on the Waukesha local system and the Waukesha-Milwaukee route. If the school tripper routes were included in the analysis, the majority of the ridership would be students going to and from school. Currently, the school trippers carry more than 85 percent of the total ridership on the local transit system within the City of Waukesha.

Trip Purpose: The on-board bus survey, exclusive of school trippers, conducted by the Regional Planning Commission revealed that the primary destination of mass transit was going to home; about 47 percent of the riders indicated that destination on the Waukesha local system and 49 percent on the Waukesha-Milwaukee route. As shown in Table 17, the second largest destination trip purpose was going to work, with about 26 percent of the riders on the local system and 38 percent of the riders on the Waukesha-Milwaukee route indicating this purpose. Since work trips are not well served by a transit system that begins operations at 8:00 a.m. and ends at 5:15 p.m., it may be assumed that the relatively high proportion of work trips served by the local transit system are for part-time employment opportunities for less than eight hours per day, such as domestic work, child-care, and retail clerk jobs.

Personal Opinion Survey-Home Interview

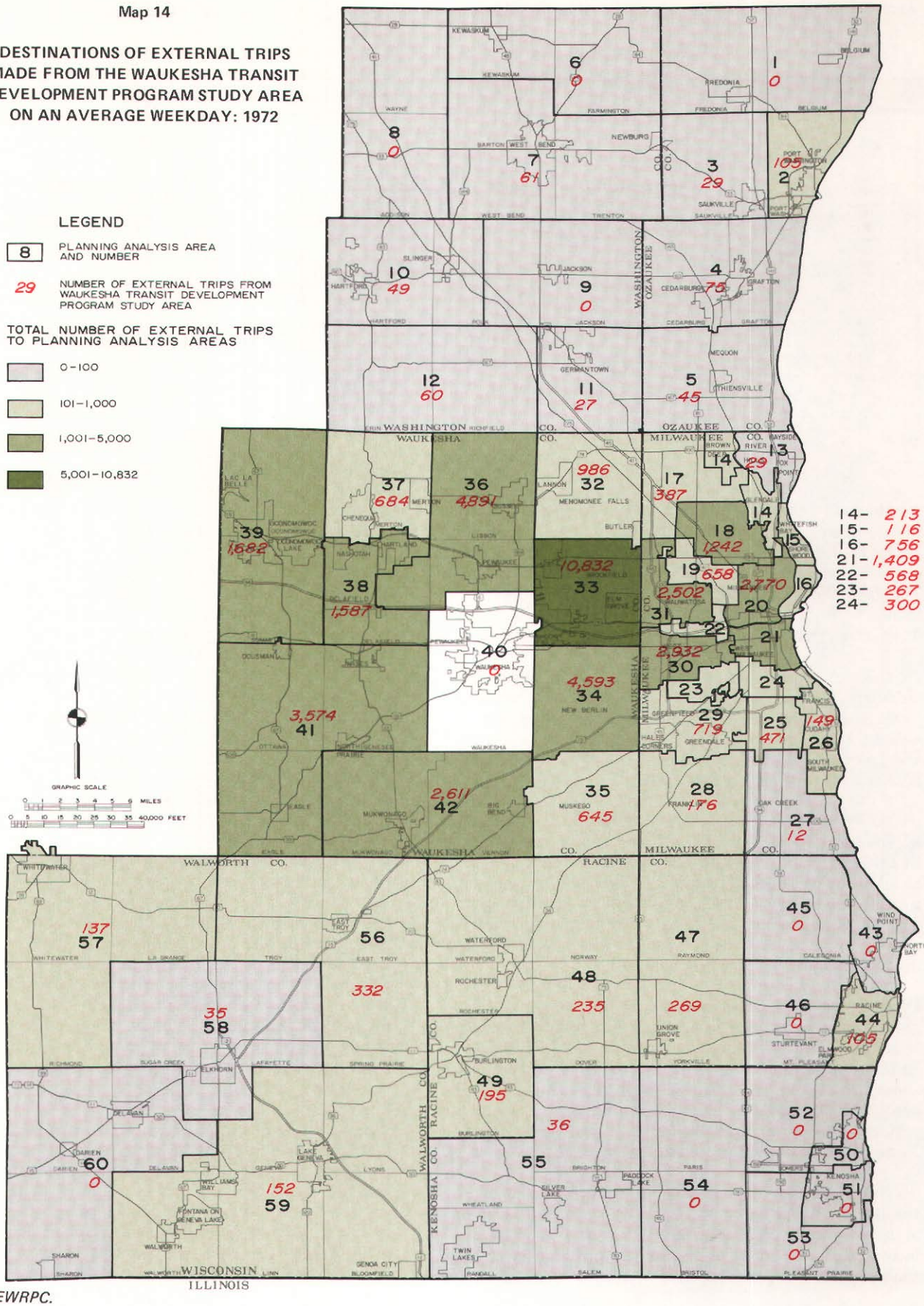
As an integral part of the home interview survey conducted in 1972 by the Regional Planning Commission, information was obtained from a subsample of households on their opinions, preferences, and attitudes concerning certain aspects of existing and possible future mass transportation facilities and services. The responses given were summarized for the Southeastern Wisconsin Region as a whole and by each county within the Region and are fully documented in Southeastern Wisconsin Regional Planning Commission Technical Report Number 13, A Survey of Public Opinion in Southeastern Wisconsin—1972.

One item asked respondents to indicate whether the lack of adequate mass transportation between their homes and certain areas of the Region prevented or severely limited family members from accepting employment, reaching shopping and recreation areas of their choice, conducting necessary personal business, and visiting friends and relatives. In each instance in which an affirmative response was given, the respondent was asked also to give the name and geographic location of the particular firm, agency, institution, shopping area, recreational area, or other area involved. Table 18 summarizes responses for Waukesha County and the Region as a whole.

The most significant finding of the survey relative to Waukesha County was the sizable percentage of respondents—18 percent—who felt that shopping trips to the area of their choice were curtailed by a lack of mass transportation. Indeed, for the Region as a whole, the Brookfield Square Shopping Center was cited as the area most inaccessible by mass transportation, and the Southridge Shopping Center in Milwaukee County was cited

Map 14

DESTINATIONS OF EXTERNAL TRIPS MADE FROM THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA ON AN AVERAGE WEEKDAY: 1972



Source: SEWRPC.

Table 11

PRINCIPAL DESTINATIONS OF AVERAGE WEEKDAY PERSON TRIPS ATTRACTED FROM WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA: 1972

Planning Analysis Area	Major Civil Division	Number of Person Trips Attracted from Study Area
33	City of Brookfield	10,800
36	Village of Pewaukee	4,900
34	City of New Berlin	4,600
41	Town of Genesee	3,600
30	City of West Allis	2,900
20	City of Milwaukee (CBD)	2,800
31	City of Wauwatosa	2,500

Source: SEWRPC.

Table 12

ROUTE RIDERSHIP IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA BY SEX: 1972

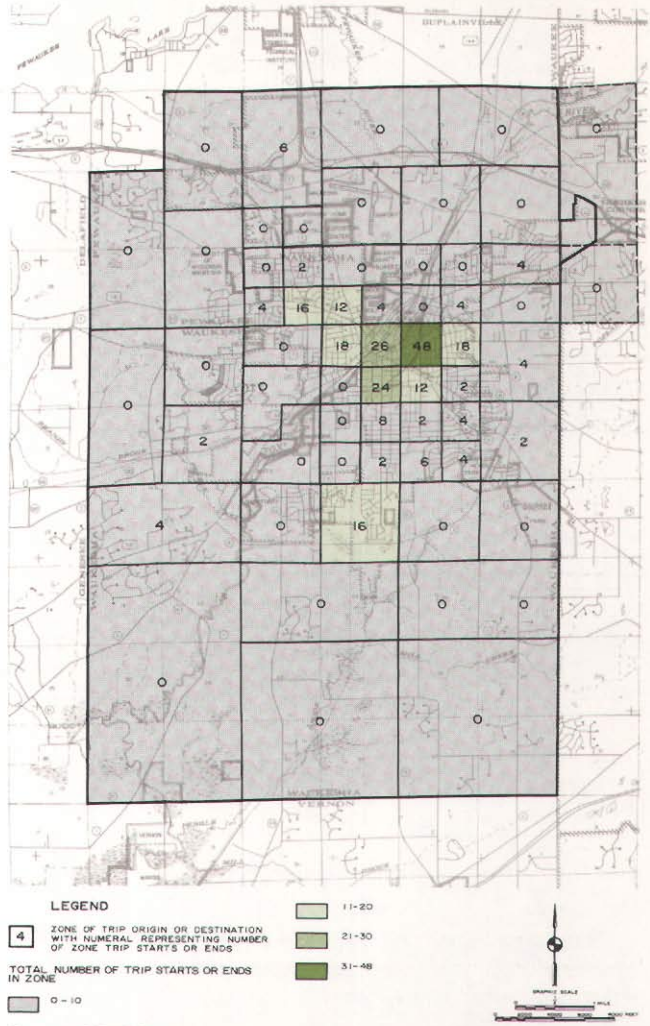
Transit Route[a]	Male (by percent)	Female (by percent)	No Response (by percent)
City of Waukesha			
Northside	--	--	100.0
Westowne	9.7	90.3	--
Southside	7.7	92.3	--
City Total	8.0	86.0	6.0
Commuter			
Milwaukee-Waukesha	43.0	56.0	1.0

[a]*Does not include school trippers.*

Source: SEWRPC.

Map 15

ZONES OF ORIGIN AND DESTINATION FOR WAUKESHA-MILWAUKEE COMMUTER ROUTE: MAY 1972



Source: SEWRPC.

as the third most inaccessible location. Other specific locations cited included the Waukesha central business district and the industrial area in the western part of the City of Wauwatosa. Of family members finding Brookfield Square inaccessible by mass transportation, approximately 90 percent wanted to shop and approximately 10 percent wanted to accept employment.

Personal Opinion-Mass Transit Nonuser Survey

As a part of the home interview surveys conducted by the Regional Planning Commission in 1972, two small neighborhoods within the study area were selected to represent both older and newer areas in which transit service is maintained but in which transit use is not meeting expectations. This survey gathered information about whether respondents were using mass transit service on a more or less regular basis at the time of the survey; whether they used such services in the past and, if so, why they may have discontinued using mass transit; and under what circumstances they might begin to use mass transit again. Home interviews were conducted in approximately one of three households in each of the two areas in the City of Waukesha. These areas are delineated on Map 16. Each area was served by a bus route operating weekdays only between 8:00 a.m. and 5:00 p.m. with one hour headways and also by school tripper service.

Preliminary summaries of the survey results indicate that only a very low percentage—4 percent or less—of heads of households used mass transit in 1972. Other members of the households used mass transit more frequently, with over 19 percent using transit on a more or less regular basis in the Waukesha North sample area. The vast majority of these trips—over 71 percent—were for going to and from school on school trippers and did not utilize the regular city transit routes.

Table 13

ROUTE RIDERSHIP IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA BY RACE: 1972

Transit Route[a]	Black (by percent)	White (by percent)	American Indian (by percent)	Spanish American (by percent)	Other (by percent)	No Response (by percent)
City of Waukesha						
Northside	--	100.0	--	--	--	--
Westowne	--	96.8	--	--	3.2	--
Southside	--	84.6	--	7.7	7.7	--
City Total	--	88.0	--	2.0	4.0	6.0
Commuter						
Milwaukee-Waukesha	--	91.4	0.5	1.6	1.1	5.4

[a]*Does not include school trippers.*

Source: SEWRPC.

Table 14

ROUTE RIDERSHIP IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA BY INCOME GROUP: 1972

Transit Route[a]	0-$3,999 (by percent)	$4,000-$7,999 (by percent)	$8,000-$11,999 (by percent)	$12,000-$14,999 (by percent)	$15,000-$19,999 (by percent)	$20,000-$24,999 (by percent)	$25,000 and Over (by percent)	No Response (by percent)
City of Waukesha								
Northside	--	--	33.3	--	--	--	--	66.7
Westowne	3.2	19.4	32.3	6.5	19.4	--	--	19.4
Southside	30.8	23.1	7.7	15.4	--	--	7.7	15.4
City Total	10.0	18.0	24.0	8.0	12.0	--	2.0	26.0
Commuter								
Milwaukee-Waukesha	5.4	13.6	20.7	19.0	20.1	4.4	2.7	14.1

[a]*Does not include school trippers.*

Source: SEWRPC.

Table 15

ROUTE RIDERSHIP IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA BY AGE GROUP: 1972

Transit Route[a]	1-15 (by percent)	16-24 (by percent)	25-34 (by percent)	35-44 (by percent)	45-54 (by percent)	55-64 (by percent)	65 and Over (by percent)	No Response (by percent)
City of Waukesha								
Northside	--	33.3	--	33.3	33.3	--	--	--
Westowne	6.5	29.0	3.2	16.1	16.1	16.1	12.9	--
Southside	--	46.2	--	--	7.7	23.1	15.4	7.7
City Total	4.0	32.0	2.0	12.0	14.0	16.0	12.0	8.0
Commuter								
Milwaukee-Waukesha	--	22.8	12.0	17.4	20.1	20.7	3.8	3.3

[a]*Does not include school trippers.*

Source: SEWRPC.

Table 16

TRANSIT SYSTEM RIDERSHIP IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA BY DRIVERS' LICENSE STATUS

Driver License Status[a]	Percent
City System	
Passengers with drivers' licenses	32.0
Passengers without drivers' licenses	58.0
No Response	10.0
Milwaukee-Waukesha route	
Passengers with drivers' licenses	77.0
Passengers without drivers' licenses	20.8
No Response	2.2

[a] *Does not include school trippers.*

Source: SEWRPC.

Table 17

TRANSIT SYSTEM DESTINATION TRIP PURPOSE IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA

Destination Trip Purpose[a]	Destination of Trips in Local System (by percent)	Destination of Trips on Waukesha-Milwaukee Route
Home	46.8	48.5
Work	25.7	37.5
School	11.4	3.6
Shopping	4.8	5.8
Social-Recreation	--	0.9
Personal Business	6.9	2.9
Other	4.4	0.8

[a] *Does not include school trippers.*

Source: SEWRPC.

In response to the question asking under what conditions would the respondent begin or resume travel by mass transit, 39 percent of the Waukesha's South and 46 percent of the Waukesha North heads of households stated they would not begin or resume using mass transit under any conditions, and another 30 percent of the Waukesha South residents and 23 percent of the Waukesha North residents would ride only if there was no automobile available or if there were no choice. It should be noted that these opinions were obtained from a survey conducted before the 1973-74 motor fuel shortage and the subsequent increases in the price of motor fuel.

Table 18

PERCENTAGE DISTRIBUTION OF RESPONSES REGARDING ACTIVITIES BELIEVED TO BE LIMITED BY A LACK OF PUBLIC TRANSPORTATION IN THE WAUKESHA TRANSIT DEVELOPMENT PROGRAM STUDY AREA: 1972

Responses or Activities Believed Limited by Lack of Public Transportation	Waukesha County	Region
Accepting Employment in Certain Areas		
True	12.3	11.3
False	79.2	78.1
No Response	8.5	10.6
Reaching Recreational Areas		
True	14.8	12.0
False	76.4	76.6
No Response	8.8	11.4
Reaching Shopping Area of Our Choice		
True	18.4	15.8
False	73.8	73.7
No Response	7.8	10.5
Conducting Necessary Personal Business in Certain Areas		
True	7.2	8.3
False	83.1	80.2
No Response	9.7	11.5
Making Social Visits to Friends or Relatives in Certain Areas		
True	9.8	10.6
False	81.1	78.1
No Response	9.1	11.3

Source: SEWRPC.

SUMMARY

This chapter described the geographic, land use, socio-economic, and travel habits and patterns of the Waukesha area that are pertinent to mass transit planning. The study area was defined as SEWRPC Planning Analysis Area 40, which contains the entire City of Waukesha, all of the Town of Waukesha, and part of the Town of Pewaukee. The total resident population in 1975 was estimated almost 56,000. The study area is marked by two geographic features that have a significant impact on the provision of mass transit services. The area is traversed by the Fox River, which has a limited number of bridge crossings. The area also is traversed by three railroads, with nearly all street crossings at grade, which creates traffic safety hazards and congestion problems.

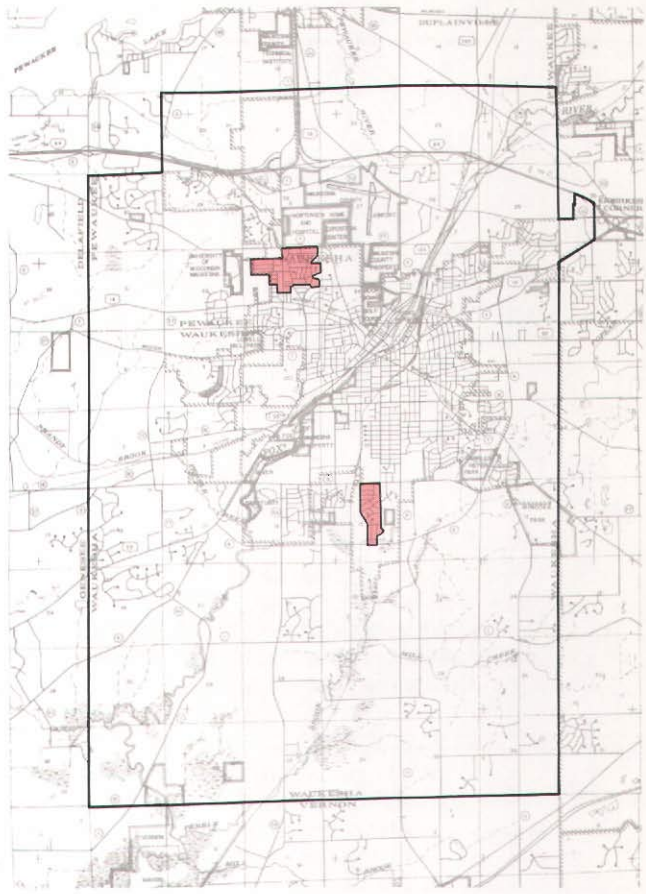
Six population groups were identified as requiring special attention in the transit planning effort; the elderly, certain minorities, low income households, the handicapped, school age children, and the number of persons living in households with no automobiles. Analysis of existing data indicated that the residences of members of five of these six groups generally were widely dispersed throughout the study area. The sixth group, minorities—composed primarily of persons speaking the Spanish language—were found to be concentrated in that area of the City of Waukesha located immediately east of the Waukesha central business district.

Major traffic generators located within the study area were also identified. These included shopping centers; secondary schools, colleges, universities, and technical schools; hospitals and medical centers; institutions and governmental buildings; industrial employers with 100 or more employees; and recreational areas. The home addresses of students attending schools and employees working in industrial plants were analyzed by United States Public Land Survey quarter section to ascertain the location of any concentrations of students or employees that would warrant direct special bus service between place of residence and place of work or school. Significant concentrations of student residences were found for every school, but no concentrations of employees warranting direct mass transit service between place of residence and place of work at industrial plants were found.

In 1972 the Regional Planning Commission undertook a comprehensive reinventory of travel habits and patterns within the Region to provide a benchmark of basic data required for land use and transportation planning and in order to determine changes in such habits and patterns since the Commission's first inventory of travel in 1963. The inventory revealed that, of the approximately 200,700 trips produced within the study area on an average weekday in 1972, about 148,600 trips, or 74 percent, were made internal to the study area. Planning Analysis Area 33, which includes the City of Brookfield, attracted about 10,800 trips from the study area, and was the singularly largest area of trip attraction outside the study area.

Map 16

LOCATION OF WAUKESHA HIGH SAMPLE AREAS FOR TRANSIT NONUSER SURVEY: 1972



Source: SEWRPC.

The 200,700 trips produced within the study area on an average weekday in 1972, were further divided into five trip purposes: home-based work, home-based shop, home-based other, non-home-based, and school-based trips. Internal to the study area, the most popular zones of attraction for home-based work trips were the Waukesha central business district and the industrial area along Lincoln Avenue in the eastern part of the City of Waukesha. The most popular zones of attraction for home-based shopping trips were the K-Mart store on Sunset Drive and the Waukesha central business district. Home-based other trips, which include social, recreational, medical, and personal business trips, had as the most popular zones of attraction, the Waukesha central business district and the zone immediately adjacent to the south. The Waukesha central business district was also the most popular attraction for non-home-based trips. The most common destinations of school trips were the schools of Waukesha Joint School District No. 1.

The most popular area of external trip attraction for all trip purpose categories was Planning Analysis Area 33, which contains the City of Brookfield. The most significant external trip purpose category was the work trip, with approximately 42 percent of the total number of work trips produced within the study area being made to other areas of the Region.

On the local mass transit system, exclusive of school tripper service, about 135 riders were carried on an average weekday in 1972, and about 90 percent of those riders were destined for the Waukesha central business

district. On the commuter route to Milwaukee, popular destinations were the Brookfield Square Shopping Center, the Allis-Chalmers Manufacturing Company plant in West Allis, and the Milwaukee central business district.

A socioeconomic analysis of local mass transit ridership, exclusive of school tripper service, indicated that about 80 percent of the ridership is female, about 88 percent is of the Caucasian (white) race, about 10 percent indicated family incomes below $4,000 per year, about 29 percent was in the 16-24 age bracket, and about 58 percent of the riders indicated that they did not possess a driver's license. About 47 percent of the riders indicated they were going home, and about 26 percent indicated they were going to work.

A personal opinion survey conducted by the Regional Planning Commission at the same time as the travel inventories indicated that about 18 percent of the Waukesha County residents felt that shopping trips to the area of their choice were curtailed by lack of mass transportation. The Brookfield Square Shopping Center was cited as the major shopping center most inaccessible by mass transportation.

Home interviews were conducted in 1972 in two small sample areas within the study area to determine if respondents were using mass transit on a regular basis and, if not, why they may have discontinued using mass transit, and under what circumstances they might begin to use mass transit again. Only 4 percent of heads of households were using mass transit in 1972, but about 19 percent of other family members used transit on a more or less regular basis, primarily to go to or from school. In response to the question asking under what conditions the respondent would begin or resume travel by mass transit, between 39 and 46 percent of the heads of households stated they would not begin or resume using mass transit under any conditions, and another 23 to 30 percent of the heads of households stated they would ride mass transit only if there was no other choice.

This chapter has set forth the geographic, land use, socioeconomic, and travel habits and patterns that are characteristic of the Waukesha area which may serve to influence or affect mass transit travel potential. The chapter has demonstrated that the provision of transit service has become more difficult in the study area because of the following: 1) The population of the study area, while rapidly increasing, is spreading outward, creating lower population densities; 2) Special population groups which were identified as requiring special attention in the transit planning effort are also generally widely dispersed, except for the Spanish-language population; 3) No concentrations of employees exist to warrant direct special transit service between places of residence and places of work; 4) The Waukesha central business district has declined in significance as a major generator of trips, especially for shopping; 5) A sizable percentage of home-based work trips—42 percent—are made to locations outside the study area where the provision of transit service is difficult; 6) The transit system is no longer viable enough to attract "choice" riders to the system, that is, those who had the choice of making the trip by automobile; and 7) Between 39 and 46 percent of heads of households have stated in a survey that they would "never" use mass transit, at least in part because of the less than desirable service that they perceive to exist today. The next chapter sets forth the characteristics of the mass transportation systems operating within the study area, and analyzes the systems against the objectives and standards set forth in Chapter II.

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Chapter IV

EXISTING MASS TRANSIT SERVICES

INTRODUCTION

An understanding of the existing mass transportation service within the study area is essential to preparation of a transit development program. This chapter summarizes the findings of an inventory of all mass transit service within the study area, with particular emphasis upon the operations of the local mass transit system. The inventory includes a brief history of mass transit service in the study area, as well as an examination of the present routes, schedules, fare structure, capital equipment, management, and financial condition of the local transit operation. Other mass transit services operating within the study area were also inventoried and examined for potential coordination with the local urban mass transit system. The chapter also presents an evaluation of the existing mass transit services in the study area in light of the transit service inventory findings presented in this chapter, the travel habit and pattern inventories presented in Chapter III, and the transit development objectives presented in Chapter II.

HISTORY

Mass transit service was initiated in the Waukesha area in 1895 with the construction of an electric car 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 interurban operator, The Milwaukee Electric Railway and 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 summer the interurban operation was extended to Waukesha Beach. Track laying 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 eventually extended to Oconomowoc by 1907 and Watertown by 1908. Within Waukesha, the interurban trains operated on Lincoln Avenue, Broadway, Delafield Street, and Summit Avenue, providing some local service.

By 1941 the decline in ridership forced a cutback in interurban service to the western city limits of Waukesha. Local bus service was inaugurated in the City of Waukesha by the Waukesha Transit Lines in August 1941. In 1945 the interurban 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 through assumption of a route previously operated by Greyhound Lines. After two changes of ownership, the interurban electric railway service between Milwaukee and Waukesha was discontinued due to financial losses on June 30, 1951, leaving only the interurban bus service between Waukesha and Milwaukee. When in 1963 Waukesha Transit Lines obtained operating rights to several other interurban bus routes formerly operated by Greyhound Lines, the Company changed its corporate name from Waukesha Transit Lines to Wisconsin Coach Lines, Inc. The company also developed an extensive charter business and currently provides charter bus service to locations throughout the continental United States and Canada.

As indicated in Table 19, ridership on the local Waukesha routes of Wisconsin Coach Lines, Inc., remained relatively stable until 1970. The elimination by the school board in late 1970 of financial aid in support of the busing of pupils residing in the City, but more than two miles from their school, had a major negative effect on the number of passengers utilizing the local bus service. Total ridership in 1971 was 315,974 revenue passengers, an almost 50 percent decline from the 614,025 revenue passengers carried in 1970. The initial decision to stop busing in-city students was made by the school board on November 3, 1970, when the $77,000 budgeted for in-city pupil transportation was eliminated from the 1971 calendar year school budget as part of a total $180,000 reduction requested by the Waukesha Common Council Budget Committee. In response to this loss of guaranteed revenue, Wisconsin Coach Lines sought and received Wisconsin Public Service Commission approval to raise bus fares from 25 cents to 40 cents for adults, from 15 cents to 20 cents for children aged 6 to 11, and from 18 cents to 25 cents cash equivalent fare for students aged 12 through 18. The new fare structure became effective January 18, 1971 (see Table 20).

A group of Waukesha citizens dissatisfied with the decision on in-city student busing had the following question placed on the April 1971 ballot:

> Should the school board make provision in the 1972 budget to provide transportation to school for all pupils who reside two miles or more from the school they attend, irrespective of whether they live within the city limits or outside of the City? The cost of providing such transportation in 1971 would have been 38 cents per thousand dollars of assessed valuation.

The vote in the advisory referendum was 2,314 in favor and 1,616 opposed.

Responding to the April referendum, the school board included $75,000 for in-city busing in its 1972 proposed budget. On December 1, 1971, however, the school board reversed itself and again eliminated the

Table 19

LOCAL MASS TRANSIT REVENUE PASSENGERS, VEHICLE MILES, AND VEHICLE HOURS IN WAUKESHA

Year	Annual Local Service Revenue Passengers[a]	Annual School Tripper Service Revenue Passengers[a]	Total Revenue Passengers	Average Fare (Combined School and Local Services)[a]	Annual Local Service Vehicle Miles[a]	Annual School Tripper Service Vehicle Miles[a]	Total Vehicle Miles	Annual Local Service Vehicle Hours[a]	Annual School Tripper Service Vehicle Hours[a]	Total Vehicle Hours
1955	--	--	577,965	--	--	--	160,051	--	--	15,413
1956	--	--	641,830	--	--	--	164,063	--	--	15,854
1957	--	--	544,664	--	--	--	179,731	--	--	15,529
1958	--	--	453,955	--	--	--	181,105	--	--	15,501
1959	--	--	540,646	--	--	--	181,095	--	--	15,515
1960	--	--	538,506	--	--	--	181,700	--	--	15,576
1961	--	--	501,010	--	--	--	194,394	--	--	16,173
1962	--	--	529,576	--	--	--	204,813	--	--	17,726
1963	--	--	450,972	--	--	--	175,266	--	--	N/A
1964	--	--	502,561	--	--	--	173,318	--	--	16,472
1965	--	--	525,376	--	--	--	172,561	--	--	16,368
1966	--	--	566,496	--	--	--	175,802	--	--	16,851
1967	--	--	565,095	--	--	--	188,495	--	--	17,399
1968	306,675	253,391	560,066	0.190	156,542	36,582	193,124	12,930	3,638	16,568
1969	262,403	318,277	580,680	0.187	143,971	49,496	193,467	11,711	4,008	15,719
1970	212,684	401,341	614,025	0.185	137,127	61,296	198,423	11,006	4,896	15,902
1971	65,793	250,181	315,974	0.270	77,121	46,485	123,606	5,938	3,711	9,649
1972	39,067	238,096	277,163	0.264	44,111	41,079	85,190	3,489	3,301	6,790
1973	36,183	250,211	286,394	0.263	41,832	43,933	85,765	3,278	3,580	6,858
1974	36,430	249,072	285,502	0.262	39,352	43,552	82,904	3,023	3,762	6,785
1975	20,999	175,766	196,765	0.319	37,202	36,143	73,345	2,857	3,050	5,907
1976	7,814[b]	142,044	149,858	0.347	15,158[b]	33,806	48,964	1,155[b]	2,904	4,059

N/A Not Available.

[a] Before 1968 school tripper service was not provided separately from regular local service; therefore, breakdowns between school tripper ridership and regular local route ridership are not included.

[b] Regular route service discontinued May 31, 1976.

Source: Wisconsin Public Service Commission, Wisconsin Coach Lines, Inc., and SEWRPC.

Table 20

HISTORY OF LOCAL TRANSIT FARES IN WAUKESHA

Effective Date	Adult		Children (Cash) (in Dollars)	Student (Cash Equivalent) (In Dollars)
	Cash (in Dollars)	Token (in Dollars)		
March 1945	0.05	--	0.05	0.025
January 1948 . . .	0.10	0.07	0.05	0.05
May 1954	0.15	0.12	0.05	0.075
January 1957 . . .	0.15	--	0.10	0.125
July 1962	0.20	--	0.10	0.15
November 1967. .	0.25	--	0.15	0.18
January 1971 . . .	0.40	--	0.20	0.25
April 1975	0.50	--	0.25	0.333

Source: Wisconsin Department of Transportation, Division of Planning, and SEWRPC.

funding for the busing of almost 2,000 city pupils from the 1972 school budget. Again the budget reduction action was taken at the request of the Waukesha Common Council Budget Committee. The full Common Council supported this decision on December 7, 1971, voting 8 to 7 not to delete other proposed expenditures in order to provide $75,000 for the busing of school children.

The fare increases of January 1971 did not produce sufficient revenue to offset the decline in student ridership, and as a result the company in 1971 sought and received Wisconsin Public Service Commission approval to effect several cost reduction measures. Such measures included reduction of the number of local city transit routes from five to three; an increase in the length of headways from 30 minutes to 60 minutes; the elimination of Saturday service; and the elimination of weekday service before 8:00 a.m. The net result of the changes was a major reduction in both bus miles and bus hours operated on the local routes, a reduction of approximately 60 percent.

The opening of the new North High School in January 1975 resulted in further declines in student ridership. Comparison of revenue ridership on school "trippers" during the first six months of 1974 with the first six months of 1975 shows a decline of 33,571 riders, from 146,737 revenue passengers in 1974 to 113,166 revenue passengers in 1975, a decrease of 23 percent. In addition, ridership on the regular local route service declined from

19,153 revenue passengers in the first half of 1974 to 12,803 revenue passengers in the first half of 1975, a decline of about 33 percent. This decline in ridership precipitated another fare increase in April 1975 (see Table 20) and the discontinuance of one of the three local routes operating at that time. By May 1975 average daily ridership on the local routes had fallen to the dismal low set forth in Table 21.

The company continued to experience operating losses on its local service during 1975 and estimated an annual deficit of more than $15,000 at the end of that year. Based on the estimate and the inability of other operating divisions of the company to remain in stable financial condition and continue to absorb the losses incurred in providing the local service, the company filed an abandonment letter with the Wisconsin Public Service Commission (PSC) on August 8, 1975. The Company took this step only after the Waukesha Common Council voted against providing a subsidy for the local transit system. All city route service was proposed to be discontinued; but not school tripper service. On October 30, 1975, the PSC issued an order allowing the company to abandon its local routes on the condition that the company make schedules of its school tripper service available to the general public. Subsequently, on December 2, 1975, the Common Council budgeted $6,000 to subsidize continuation of the local route service through May 31, 1976, and Wisconsin Coach Lines, Inc., agreed to continue such service on that basis. The City of Waukesha also began exploring means by which available state and federal operating assistance could be obtained to extend the service beyond May 31, 1976. Service recommendations made in this transit development program are intended, in part, as a guide to the City in the obtainment and use of such funds.

Table 21

RIDERSHIP SURVEY ON LOCAL MASS TRANSIT IN WAUKESHA: MAY 12-23, 1975

Route	Time Leaving Central Business District	Number of Transit Riders		
		High	Low	Average
Westowne	8:00 AM	10	3	6.2
	9:00 AM	8	2	4.3
	10:15 AM	10	3	6.6
	11:15 AM	6	2	4.3
	12:15 PM	7	1	4.6
	1:15 PM	9	2	6.0
	2:15 PM	7	3	5.2
	3:15 PM	9	1	5.6
	4:15 PM	8	3	5.4
	5:15 PM	6	3	4.6
	All Day			52.8
Southside	8:30 AM	8	2	5.1
	9:30 AM	6	2	4.0
	10:45 AM	6	1	3.6
	11:45 AM	13	2	5.1
	12:45 PM	5	1	2.8
	1:45 PM	6	1	3.7
	2:45 PM	7	1	3.3
	3:45 PM	7	2	4.6
	4:45 PM	7	0	3.0
	All Day			35.2
Average Total Daily Ridership				88

Source: Wisconsin Coach Lines, Inc.

WISCONSIN COACH LINES, INC.— THE LOCAL TRANSIT OPERATOR

Wisconsin Coach Lines, Inc., and its subsidiary corporations operate several types of mass transit service within the Southeastern Wisconsin Region. In addition to local mass transit service within the City of Waukesha, other intraregional mass transit service is operated by the company between the City of Milwaukee and the Cities of Kenosha, Port Washington, Watertown, and Waukesha. Interregional mass transit service is operated by the company between the City of Milwaukee and Fond du Lac, Rockford, and the Great Lakes Naval Training Center near North Chicago, Illinois. In addition, the company charters buses to any point in the continental United States or Canada. All of these services are administered and maintained out of offices located at 901 Niagara Street in the City of Waukesha. The following sections of the report summarize the local urban operations of the company and describe its administrative structure and procedures.

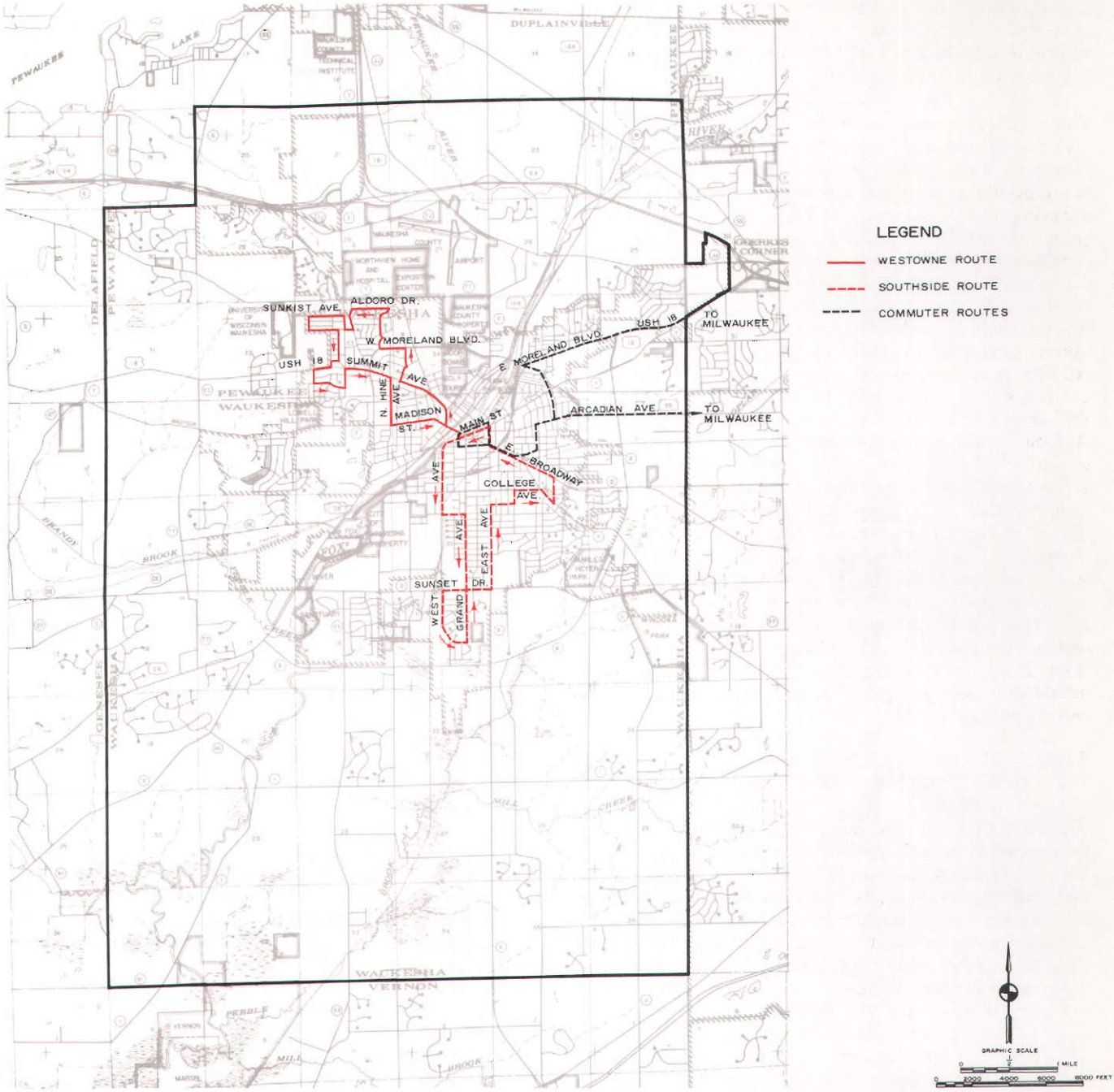
Routes and Schedules

As of December 1975, local urban service provided by Wisconsin Coach Lines, Inc., consists of one bus operating over two loop routes totaling 14.5 route miles serving the west and south sides of the City of Waukesha (see Map 17). In addition, on school days seven buses are used to provide school "tripper" service to schools located within the study area. Maps 18 and 19 indicate the coverage of this service for the a.m. and p.m. peak periods in the spring of 1975. The schools served and the number of buses required to serve each school are set forth in Table 22. During the spring of 1975, a minimum of six buses was required to provide the school tripper service during the a.m. peak period, and seven buses were required during the p.m. peak period. School tripper service provided about 150 bus miles of revenue service per day, and required about 16 driver hours per day. Wisconsin Coach Lines, Inc., under a special contract with Waukesha County, used these same buses in an additional 60 miles of special service per school day to carry certain handicapped and special education students. This service required about 6.5 additional driver hours per day.

The local urban transit service is scheduled on one-hour headways between the hours of 8:00 a.m. and 5:45 p.m. Monday through Friday as shown in Table 23. No local service is provided on Saturday, Sundays, or holidays. The focal point of the local bus routes is the Waukesha central business district (CBD). Buses lay over in the CBD near the Union Bus Depot, where passengers may transfer between the local transit system and the Waukesha-Milwaukee route or other interregional carriers.

Map 17

LOCAL TRANSIT SERVICE IN WAUKESHA: DECEMBER 1975



Source: SEWRPC.

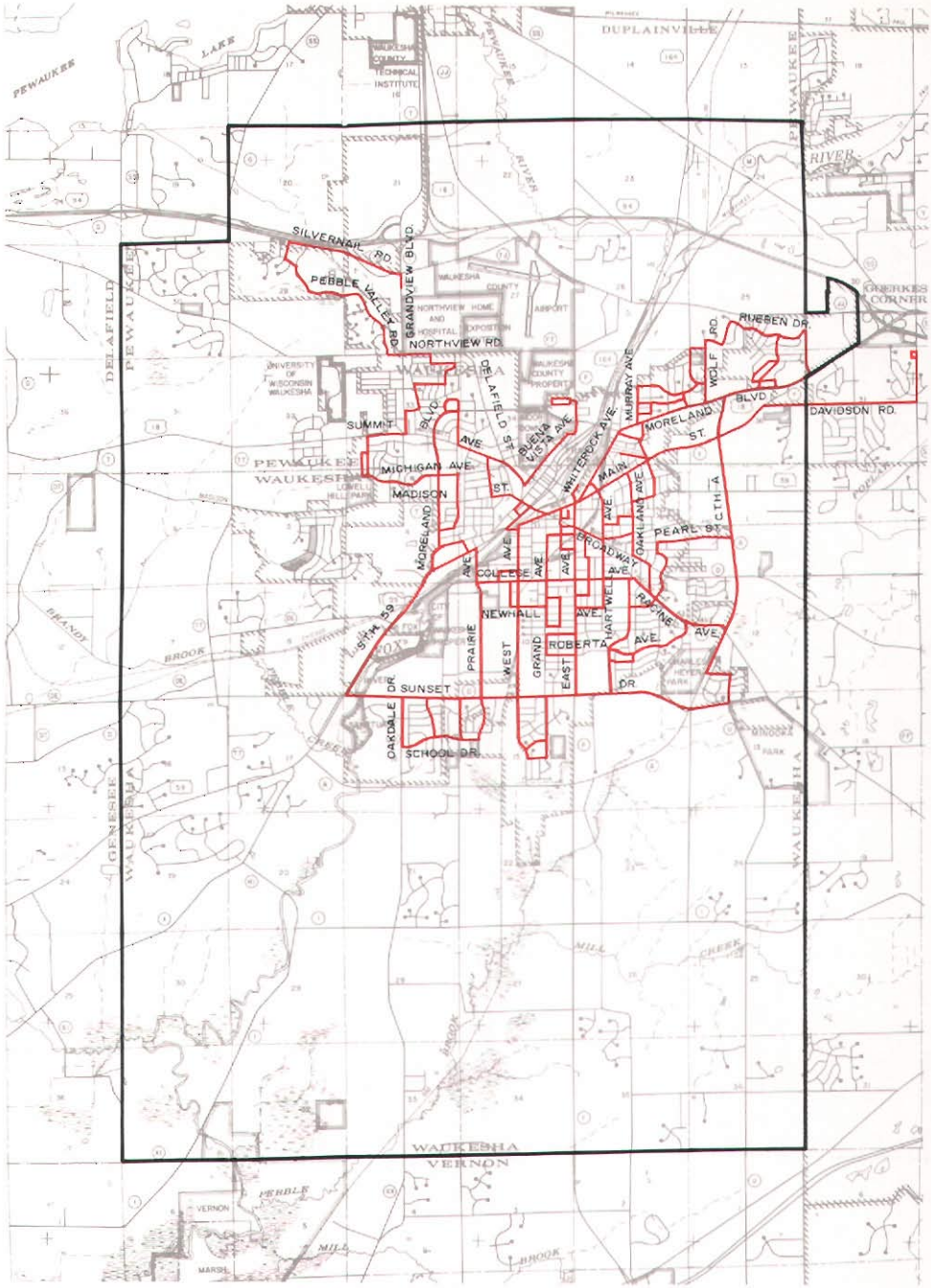
There are no marked bus stops anywhere on the transit system, including the CBD layover point. The local bus will stop to load and unload passengers at any corner when signaled. On school tripper runs, designated stops are printed on the schedules distributed at the schools. No waiting shelters are provided at any point along any transit route.

Fares

As of December 1975, the adult cash fare for a local transit ride in Waukesha was 50 cents. Children aged 6 through 11 rode for 25 cents. High school student tickets were available at a rate of 12 for $4.00, a value of 33.3 cents per ride. Although free transfer privileges exist at the CBD layover point between the two local

Map 18

WAUKESHA SCHOOL ROUTES IN THE A.M.: SPRING 1975



Source: SEWRPC.

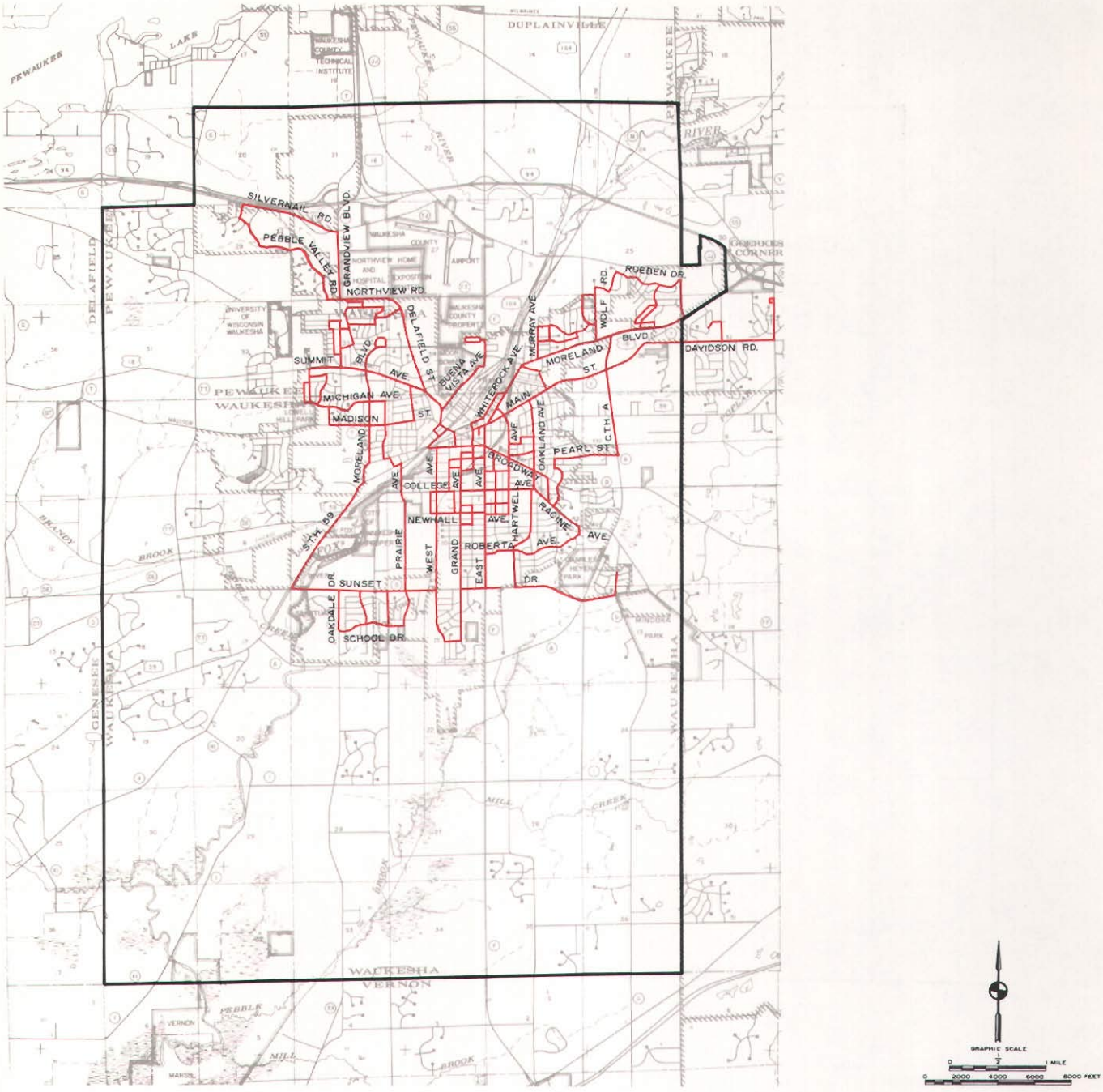
routes and the local trip portion of the commuter route, no transfer privileges exist between the local bus routes and the commuter route to and from Milwaukee. The recent history of transit fares in Waukesha is summarized in Table 20. For comparison purposes Table 24 presents the average fares paid by users of the 21 other bus systems in the State in 1975. Also provided is the total subsidy required to operate each of these transit systems and the portion of that subsidy paid by the responsible local unit of government.

Equipment

As of December 1975, equipment used to provide mass transit service to Waukesha consisted of nine diesel pow-

Map 19

WAUKESHA SCHOOL ROUTES IN THE P. M.: SPRING 1975



Source: SEWRPC.

ered buses, of which eight were operational. All nine buses were at the ends of their useful lives and were in need of replacement. All of the buses in local service were manufactured prior to 1955, with most manufactured in 1951. The average age of the local bus fleet as of December 1975 was 23.2 years. Buses over 20 years old cannot be expected to furnish efficient, trouble-free, dependable transit service. Because of the increasing unavailability of spare parts, the old fleet may be expected to become increasingly more difficult and costly to operate and maintain. Table 25 sets forth complete fleet data for Wisconsin Coach Lines, Inc.

Maintenance

Company operating policy includes a regularly scheduled preventative maintenance program for its entire fleet. At a specified mileage interval, usually about 4,000 miles, each bus receives a thorough inspection of all safety related parts and equipment as well as necessary oil changes and lubrication. Drivers also are required to complete, on a daily basis, a "defect card" on any parts or equipment they find not in proper order on their buses. The company maintains detailed maintenance records for each bus in its fleet. Increasing vandalism on buses used in school trippers has created a cost problem for the company in the replacement of broken glass, cut-up seats, and marked-up panels on the interiors of the buses. In addition, since buses must be taken out of service for this type of repair work, an operational problem has also been created.

Table 22

WAUKESHA TRANSIT SERVICE TO SCHOOLS: SPRING 1975

School	Location	Number of Buses Required[a]	
		A.M.	P.M.
Butler Middle	310 N. Hine Avenue	4	3
Catholic Memorial . .	601 E. College Avenue	4	3
Central High	400 N. Grand Avenue	3	3
Horning Middle	2000 Wolf Road	5	5
North High.	2222 Michigan Avenue	2	1
South High.	401 E. Roberta Avenue	3	3
St. Joseph's	841 Martin Street	1	1
St. Mary's	520 E. Newhall Avenue	1	1
Trinity Lutheran . . .	1060 White Rock Avenue	1	2

[a] *Includes only the number of "school tripper" buses serving each school.*

Source: Wisconsin Coach Lines, Inc.

Management

The company maintains an office, shop, and indoor and outdoor storage facilities on approximately two acres of land located at 901 Niagara Street in the City of Waukesha. The building contains offices, a dispatch station, a vehicle washing and cleaning facility, a fuel dispensing facility, a maintenance and service facility, a parts supply room, and a vehicle storage area.

The management structure of Wisconsin Coach Lines, Inc., consists of four divisions, all reporting directly to the president of the corporation as shown in Figure 2. The transportation section is responsible for the day-to-day operations of the bus fleet, including scheduling, supervision, dispatching, and driver training, as well as for the daily movement of buses over the scheduled routes. The charter section, which by its nature is closely related to the transportation section, handles charter sales and service, and the administrative section maintains the financial records of the corporation and does the clerical work. The maintenance section is responsible for servicing buses, minor repair work, and maintaining a parts inventory for servicing the buses. Major repair work that

Table 23

WAUKESHA CITY BUS SCHEDULE: DECEMBER 1975

Route	AM	AM	AM	AM	PM	PM	PM	PM	PM	PM
Westowne										
Broadway and Clinton . . .	8:00	9:00	10:15	11:15	12:15	1:15	2:15	3:15	4:15	5:15
Summit and Washington . .	8:04	9:04	10:19	11:19	12:19	1:19	2:19	3:19	4:19	5:19
Irving and Birch.	8:08	9:08	10:23	11:23	12:23	1:23	2:23	3:23	4:23	5:23
Grandview and Sunkist . . .	8:12	9:12	10:27	11:27	12:27	1:27	2:27	3:27	4:27	5:27
Westowne and Paradise . . .	8:16	9:16	10:31	11:31	12:31	1:31	2:31	3:31	4:31	5:31
Sherryl and Grandview . . .	8:20	9:20	10:35	11:35	12:35	1:35	2:35	3:35	4:35	5:35
Hine and Michigan	8:24	9:24	10:39	11:39	12:39	1:39	2:39	3:39	4:39	5:39
Clinton and Broadway . . .	8:28	9:28	10:43	11:43	12:43	1:43	2:43	3:43	4:43	5:43
Southside										
Clinton and Broadway . . .	8:30	9:30	10:45	11:45	12:45	1:45	2:45	3:45	4:45	
West and Newhall.	8:34	9:34	10:49	11:49	12:49	1:49	2:49	3:49	4:49	
Grand and Sunset.	8:38	9:38	10:53	11:53	12:53	1:53	2:53	3:53	4:53	
West and Debbie	8:42	9:42	10:57	11:57	12:57	1:57	2:57	3:57	4:57	
East and Sunset	8:46	9:46	10:01	12:01	1:01	2:01	3:01	4:01	5:01	
Hartwell and Laflin	8:50	9:50	11:05	12:05	1:05	2:05	3:05	4:05	5:05	
Broadway and Columbia . .	8:54	9:54	11:09	12:09	1:09	2:09	3:09	4:09	5:09	
Broadway and Clinton . . .	9:00	10:00	11:15	12:15	1:15	2:15	3:15	4:15	5:15	

Source: Wisconsin Coach Lines, Inc.

Table 24

SELECTED CHARACTERISTICS OF URBAN MASS TRANSIT SYSTEMS IN WISCONSIN: 1975

Urban Mass Transit System	1970 Urban Area Population	1975 Fare (in Cents)		1975 Ridership	Public Subsidy[a]					
					Total			Local		
		Adult	Average		Dollars	Dollars Per Ride	Dollars Per Capita	Dollars	Dollars Per Ride	Dollars Per Capita
Appleton	125,758	35	27	665,876	160,253	0.24	1.27	54,180	0.08	0.43
Ashland	9,615	20	17	28,468	17,930	0.63	1.86	5,970	0.21	0.62
Beloit	35,729	25	25	107,954	32,000	0.30	0.90	10,670	0.10	0.30
Eau Claire	47,461	25	20	705,828	241,300	0.34	5.08	82,100	0.12	1.73
Fond du Lac	38,801	35	28	250,981	173,700	0.69	4.48	69,500	0.28	1.79
Green Bay	124,913	30	24	917,848	280,450	0.30	2.25	43,860	0.05	0.35
Janesville	46,426	25	18	681,469	267,580	0.39	5.76	106,660	0.16	2.30
Kenosha	78,805	25	24	766,767	290,170	0.38	3.68	48,350	0.06	0.61
LaCrosse	51,153	30	26	994,605	261,870	0.26	5.12	47,610	0.05	0.93
Madison	198,427	25	21	8,572,996	1,691,940	0.20	8.53	322,050	0.04	1.62
Manitowoc	33,430	35	27	78,928	64,700	0.82	1.94	27,970	0.35	0.84
Milwaukee	1,054,249	50	41	44,263,396	--[b]	--	--	--[b]	--	--
Merrill	9,502	25	27	42,766	--[c]	--	--	--[c]	--	--
Oshkosh	53,082	35	24	665,939	88,248	0.13	1.66	21,520	0.03	0.40
Racine	95,162	40	33	633,105	185,000	0.29	1.94	35,010	0.06	0.37
Rice Lake	7,278	25	18	24,510	16,400	0.67	2.25	5,600	0.22	0.77
Sheboygan	54,993	30	24	688,183	211,750	0.31	3.85	72,235	0.10	1.31
Stevens Point	26,078	25	19	110,977	76,040	0.68	2.92	26,420	0.24	1.01
Superior	32,237	35	26	563,058	103,815	0.18	3.22	31,560	0.06	0.98
Watertown	15,683	25	20	88,049	20,700	0.24	1.32	6,900	0.08	0.44
Waukesha	39,695	50	32	199,255	None	--	--	None	--	--
Wausau	38,524	30	22	725,736	120,800	0.17	3.14	40,260	0.06	1.05

[a] *Total subsidy eligible for state operating assistance.*

[b] *Subsidy provided for only a portion of year; data not comparable.*

[c] *State demonstration project; data not comparable.*

Source: Wisconsin Department of Transportation, Division of Planning, and SEWRPC.

cannot be done in the corporation's shop is usually done by the Milwaukee County Transit System on a contract basis. The corporation employs 71 people in 11 job classifications as shown in Figure 2.

Wisconsin Coach Lines, Inc., currently enjoys apparently good relations with the employee labor union, Division 1150 of the Amalgamated Transit Union, whose offices are located in Minneapolis, Minnesota. The current labor contract is valid through February 28, 1977, and contains agreements and procedures governing grievances and arbitration, discipline, seniority, vacations, sick leave, and pay rates. Effective February 29, 1976, driver pay rates ranged between $4.68 and $4.93 per hour, and maintenance department employee pay rates ranged between $4.48 and $5.37 per hour, depending on the job classification. In addition to base pay, employees covered by the contract receive quarterly cost of living adjustments, nine paid holidays, and drivers receive a guaranteed eight hours pay if they report to work to drive a regularly scheduled run.

Financial Status

The comparative income statement set forth in Table 26 indicates that 1975 financially was one of the best years in the recent history of Wisconsin Coach Lines, Inc. As shown in Table 27 which sets forth financial statistics relating to urban operations, the Waukesha urban operation was projected to show a loss of about $10,000 in 1975. Although school tripper service has been projected to show a profit of about $16,000, regular local route service has been projected to show a deficit of about $26,000. Table 28 sets forth selected 1975 operating revenue statistics by month for the local route service and school tripper service in the Waukesha area. Revenue from indirect sources such as charter sales and advertising is almost nonexistent for the local route service and school trippers.

Marketing

Wisconsin Coach Lines, Inc., does not at present have a marketing program for its local mass transit operation in Waukesha. Transit currently suffers from a "negative"

Table 25

WISCONSIN COACH LINES FLEET DATA: 1975

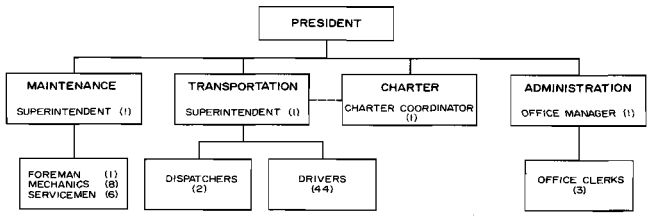
Fleet Number	Model	Year of Manufacture	Number of Seats	Air Conditioned	Restroom	Principal Type of Service
400	GMC TDH4511	1951	45	No	No	Waukesha–City
401	GMC TDH4511	1951	45	No	No	Waukesha–City
402	GMC TDH4511	1951	45	No	No	Waukesha–City
403	GMC TDH4511	1951	45	No	No	Waukesha–City
405	GMC TDH4511	1950	45	No	No	Waukesha–City
406	GMC TDH4511	1950	45	No	No	Waukesha–City
409	GMC TDH4511	1951	45	No	No	Waukesha–City
70	GMC TDH5108	1955	53	No	No	Waukesha–City
71	GMC TDH5108	1955	53	No	No	Waukesha–City
73	GMC TDH5108	1957	53	No	No	Intraregional
80	GMC SDH5301	1960	49	No	No	Intraregional
89	GMC SDM5302	1966	49	Yes	No	Intraregional
90	GMC PD4104	1959	41	Yes	No	Intraregional
91	GMC PD4104	1960	41	Yes	No	Intraregional
108	GMC SDM5302	1965	49	Yes	No	Intraregional
109	GMC SDM5302	1965	49	Yes	No	Intraregional
110	GMC SDM5302	1965	49	Yes	No	Intraregional
111	GMC SDM5302	1967	49	Yes	No	Intraregional
112	GMC SDM5302	1967	49	Yes	No	Intraregional
113	GMC SDM5303A	1968	49	Yes	No	Intraregional
114	GMC S8M5303A	1971	49	Yes	No	Intraregional
115	GMC S8M5303A	1971	49	Yes	No	Intraregional
130	GMC PD4106	1965	41	Yes	No	Intraregional
131	GMC PD4106	1965	41	Yes	No	Intraregional
134	GMC PD4107	1966	41	Yes	No	Interregional
135	GMC PD4107	1966	41	Yes	No	Interregional
140	GMC PD4903	1969	47	Yes	Yes	Interregional
141	GMC PD4905	1970	47	Yes	Yes	Interregional
142	GMC P8M4905A	1972	47	Yes	Yes	Charter
143	GMC P8M4905A	1972	47	Yes	Yes	Charter
144	GMC P8M4905A	1973	47	Yes	Yes	Charter
145	GMC P8M4905A	1973	47	Yes	Yes	Charter
146	GMC P8M4905A	1973	47	Yes	Yes	Charter
147	GMC P8M4905A	1973	47	Yes	Yes	Charter
148	GMC P8M4905A	1974	47	Yes	Yes	Charter
149	GMC P8M4905A	1974	47	Yes	Yes	Charter
150	GMC P8M4905A	1974	47	Yes	Yes	Charter
151	GMC P8M4905A	1974	47	Yes	Yes	Charter

Source: Wisconsin Coach Lines, Inc.

image in Waukesha, primarily because of the threatened abandonment of service and the company's reluctance to promote the service following elimination of student busing guaranteed revenue in 1971. Prior to that time, the company did make a commendable effort to promote its local service through the advertising media. The company management notified both the Waukesha Common Council and the School Board of the potentially adverse effects upon local transit service that could result from elimination of the guaranteed student revenue, but apparently neither public body shared this concern. Based on what it apparently perceived as a lack of public interest, the management of Wisconsin Coach Lines, Inc., decided to concentrate its efforts on the maintenance of other company operations and has made no special effort to promote the local city service or even to retain it as a viable operation since that time. The company publishes a schedule and route map which are available from the company offices, the downtown bus depot, and on the local bus. Schedules for school trippers are distributed through the schools. The company has an information number listed in the yellow pages of the telephone directory; however, there is no indication in the directory that Wisconsin Coach Lines, Inc., is the local transit

Figure 2

MANAGEMENT STRUCTURE OF WISCONSIN COACH LINES, INC.



Source: Wisconsin Coach Lines, Inc.

operator. Since there are no posted bus stops, there are no visible signs other than the buses themselves that a mass transit system even exists in Waukesha.

OTHER COMMUNITY TRANSIT SERVICE

Other mass transit services provided in the study area include commuter bus service to Milwaukee operated by Wisconsin Coach Lines, Inc.; interregional bus service to Madison and Rockford operated by Badger Coaches, Inc.; Greyhound Lines-West; the Peoria-Rockford Bus Company; and a special bus service for the elderly operated by the Waukesha County Program on the Aging.

Commuter service between Waukesha and Milwaukee is currently provided by Wisconsin Coach Lines, Inc., on two different routes, one of which is funded in part by a one-year demonstration grant from the Wisconsin Department of Transportation and Waukesha County. Prior to September 1975, service was provided between the two cities primarily along Arcadian and Greenfield Avenues, including service to the Brookfield Square Shopping Center. Ridership on the Arcadian-Greenfield line had declined from 265,646 revenue passengers in 1970 to 188,646 revenue passengers in 1974, or by about 30 percent. In April 1975, fares were increased and a service reduction instituted to reduce the growing deficit on this route. In September 1975 the demonstration project was initiated to provide a substantially increased level of service from downtown Waukesha via the Goerke's Corners Public Transit Station, Bluemound Road, and the IH 94 Freeway east of Moorland Road to downtown Milwaukee. Service on this line now operates at 15 to 30 minute intervals during peak periods and one hour intervals during the midday. Most trips start and end in the respective downtowns of the two communities. The objectives of the project are to demonstrate that improved bus service between the Waukesha-Milwaukee areas can:

1. Meet the transportation needs of the commuter by offering an economic alternative to continued private use of his car.

2. Reduce private automobile travel in the east-west corridor between Milwaukee and Waukesha where existing highways are operating near, at, and over capacity during peak travel periods.

3. Reduce the demand for automobile parking facilities in the central business district of Milwaukee.

The demonstration project route provides local service within the City of Waukesha in the corridor formerly served by the local northside route which was abandoned in April 1975. The Arcadian-Greenfield Avenue commuter route provides local service in the corridor formerly served by the eastside route which was abandoned in 1971. Although these two commuter routes provide some local mass transit service within the study area (see Map 17), the company reports that very few local rides are made, even though city fares are charged rather than the higher minimum interurban fares.

Interregional mass transit service provided by Badger Coaches, Inc., within the study area is limited to weekend stops at the Goerke's Corners Public Transit Station on the line to and from Madison via IH 94. Greyhound Lines-West service consists of two trips daily between Waukesha and Madison via USH 18. Service between Rockford, Janesville, Whitewater, and Waukesha is provided by the Peoria-Rockford Bus Company with two trips in each direction on a daily basis and additional service on weekends via STH 59. An intraregional commuter line is operated between Milwaukee, Oconomowoc, and Watertown by Wisconsin Coach Lines, Inc., with a stop at Goerke's Corners Public Transit Station and service along CTH JJ within the study area. Only two trips in each direction are provided on weekdays on this route.

The Waukesha County Program on the Aging, under a program inaugurated in March 1975, and using two 18-passenger buses, provides service to elderly Waukesha County residents on a demand-responsive basis at no charge to the rider. The entire cost of the program, with the exception of bus maintenance, is funded by a $39,814 federal grant from the U. S. Department of Health, Education, and Welfare to the Southeastern Wisconsin Area Agency on Aging, Inc. Four categories of travel demand have been established to guide ridership priority. Regarded as highest priority is travel for medical and health related needs. Second, third, and fourth priorities, respectively, are trips for shopping purposes, community activities, and special events. Generally, a trip must be scheduled three days in advance, but the service will accommodate trips on shorter notice, if possible. The eastern half of Waukesha County, including the study area, is served on Mondays, Thursdays, and Fridays. Patrons may travel to any location in the County, and trips occasionally are made into Milwaukee County for medical purposes. The service carries about 625 rides a month serving about 175 different individuals.

TAXI SERVICE

The taxicab is a form of personalized mass transportation. Two taxi companies currently are licensed to operate in the study area: Checker Cab Company and Yellow-White

Table 26

WISCONSIN COACH LINES COMPARATIVE INCOME STATEMENT: 1969-1975

Income and Expenses	Year						
	1969 (in Dollars)	1970 (in Dollars)	1971 (in Dollars)	1972 (in Dollars)	1973 (in Dollars)	1974 (in Dollars)	1975 (in Dollars)
Operating Revenues							
Urban Common Carrier Fares							
Paid by Passengers	37,926	34,514	69,367	61,056	64,066	64,051	55,595
Paid by School District	70,099	79,099	10,909	12,032	11,279	10,754	7,107
Contract School Bus	147,794	22,850	24,980	20,223	20.273	19,135	18,068
Inter-City and Suburban	544,303	513,139	592,476	632,932	585,092	704,041	587,486
Charter	369,309	384,024	363,569	379,433	475,132	620,890	638,118
Advertising	5,128	3,786	3,759	3,150	2,300	1,396	1,210
Miscellaneous	86,955	106,658	66,010	74,502	77,226	73,318	134,090[a]
Total	1,261,514	1,144,010	1,131,070	1,183,328	1,235,368	1,493,585	1,441,674
Operating Expenses							
Transportation							
Supervision	53,685	46,748	52,119	58,545	62,317	68,895	71,404
Drivers' Wages	394,655	383,136	352,625	364,124	388,193	466,915	468,685
Fuel and Lubricants	51,497	47,482	43,893	43,112	49,380	106,664	95,995
Other	8,135	6,914	6,751	8,178	7,835	7,765	3,251
Subtotal	507,972	484,280	455,388	473,959	507,725	650,239	639,335
Maintenance							
Supervision	29,002	27,699	31,129	33,057	36,017	40,803	42,584
Repairs, Service, Tires and Tubes	206,995	169,344	178,011	170,816	158,076	186,227	164,575
Heat, Light, Power, and Water	9,198	9,753	10,563	12,300	10,324	11,208	12,295
Other	9,197	10,971	6,667	8,500	5,138	8,164	(7,145)
Subtotal	254,392	217,767	226,370	224,723	209,555	246,402	212,309
Administrative							
Management and Office Salaries	71,313	61,908	62,249	65,189	66,348	70,956	65,551
Traffic and Advertising	7,565	8,949	7,221	8,628	9,703	9,783	10,864
Legal and Auditing	3,584	4,670	5,959	4,390	8,704	3,815	7,431
Employees' Welfare	14,190	16,214	16,380	13,924	14,681	15,520	20,219
Other	12,694	11,406	14,922	19,727	13,540	19,025	17,173
Subtotal	109,346	103,147	106,731	111,858	112,976	119,099	121,238
Other							
Depreciation	99,382	93,268	99,612	115,156	124,954	125,232	131,950
Insurance	105,342	91,922	63,424	69,522	79,324	81,159	91,922
Taxes Other Than Income	59,435	53,323	56,963	62,330	69,296	83,906	79,159
Station	90,419	91,551	98,078	101,812	104,944	128,653	113,443
Rents (Credit)	(1,298)	(2,934)	(3,980)	(3,711)	(3,130)	(3,540)	(4,750)
Depreciation Adjustments	(21,795)	0	(2,659)	(9,428)	(25,895)	(6,490)	(28,500)
Subtotal	331,485	327,130	311,438	335,681	349,493	408,920	383,224
Total	1,203,195	1,132,324	1,099,927	1,146,221	1,179,749	1,424,660	1,356,106
Net Operating Income (Loss)	58,319	11,686	31,143	37,107	55,619	68,925	85,568
Non-Operating Income (Loss)	12,233	38,850	18,836	22,284	23,412	25,876	32,844
Income Deduction	26,696	26,437	25,674	26,802	26,617	27,545	38,362
Income Taxes	875	4,539	1,655	1,848	3,164	2,607	3,728
Net Income (Loss)	42,981	19,560	22,650	30,741	49,250	64,649	76,322

[a] *Includes $58,202 Demonstration Subsidy.*

Source: Wisconsin Department of Transportation, Division of Planning, and Wisconsin Coach Lines, Inc.

Cab Company. Unlike taxicab service elsewhere in the Milwaukee urbanized area, Waukesha's taxi service operates on a shared-ride basis, where more than one fare may occupy the cab at the same time. Fares are charged on a zone system and generally range from 95 cents for travel within one zone to $2.95 for a passenger travelling through 12 zones. Additional passengers travelling from the same point of origin to the same destination ride for 30 cents. The taxi service is, in effect, a shared ride, demand-responsive transit system, and is estimated to carry about 400 passengers during a 24-hour weekday, a total that is more than four times what the local city bus system carries, exclusive of school trippers. The main disadvantage of the system is that the relatively high fares discourage daily travel by this mode, and are out of the reach of most low income residents of the study area.

Table 27

CITY OF WAUKESHA URBAN SERVICE OPERATING STATEMENT: 1973-1975

Income and Expenses	Year		
	1973 (in Dollars)	1974 (in Dollars)	1975 (in Dollars)
Passenger Revenue	75,345	74,805	62,702
Advertising Revenue	2,300	1,396	1,210
Total Revenue	77,645	76,201	63,912
Allocated Operating Expenses	72,790[a]	79,069[a]	73,666[a]
Operating Income (Deficit)	4,855	(2,868)	(9,754)

[a] *These figures represent 6.17 percent, 5.55 percent, and 5.33 percent of the operating expenses of the urban system for the years 1973, 1974, and 1975, respectively.*

Source: Wisconsin Coach Lines, Inc.

EVALUATION OF MASS TRANSPORTATION SERVICE

From a historical perspective, the Waukesha area has always had its problems with mass transit. As far back as 1898, the citizens of Waukesha hurled stones and cold water at workers laying track for the interurban. In more modern times, and until threatened with abandonment of all local transit services, the public bodies representing the citizens of the area have failed to recognize the problems facing the local transit operator. The major turning point in provision of mass transit service in the area occurred in 1971, when the guaranteed revenue for the transportation of students to school was eliminated in spite of a citizen referendum vote to the contrary. The management of the local transit system, apparently discouraged by this action, ceased to take any action to maintain, much less improve, the local service. As a result, the community at the end of 1975 was faced with threatened abandonment of all local transit service.

The lack of attention to provision of local service has led to many major deficiencies in the present system which for the purposes of this analysis is considered to consist of the two local Waukesha routes, Westowne and Southside, the portions of the two commuter routes within the study area, and the school trippers.

Table 28

WISCONSIN COACH LINES, INC., MONTHLY OPERATING STATISTICS FOR WAUKESHA URBAN OPERATIONS: 1975

Month	Revenue Passengers	Revenue (in Dollars)	Vehicle/ Miles	Vehicle/ Hours	Passengers/ Mile	Passengers/ Hour	Revenue/ Mile (in Dollars)	Revenue/ Hour (in Dollars)
January	26,090	6,903	7,680	644.5	3.4	40.5	0.90	10.71
February . . .	25,033	6,623	7,047	557.0	3.5	44.9	0.94	11.89
March	20,504	5,484	6,492	521.3	3.2	39.3	0.85	10.52
April.	23,672	7,611	7,513	602.7	3.2	39.3	1.01	12.63
May	20,773	7,252	7,185	568.7	2.9	36.5	1.01	12.75
June	8,188	2,983	4,599	357.9	1.8	22.9	0.65	8.33
July	1,470	686	3,146	239.8	0.5	6.1	0.22	2.08
August	1,532	716	3,003	228.9	0.5	6.7	0.24	3.13
September . .	19,098	6,682	7,044	577.5	2.7	33.1	0.95	11.57
October. . . .	19,291	6,766	7,452	606.7	2.6	31.8	0.91	11.15
November . .	15,844	5,580	6,227	505.9	2.5	31.3	0.90	11.03
December . .	15,270	5,416	5,957	496.4	2.6	30.8	0.91	10.91
Total	196,765	62,702	73,345	5,907.3	2.5[a]	30.3[a]	0.79[a]	9.73[a]

[a] *Average.*

Source: Wisconsin Coach Lines, Inc.

Major defects in the system include the service area itself and the level of service provided to that area. The defects result from such factors as inordinately long headways, long travel times because of circuitous routing, long waiting times between dismissal from school and bus arrival at certain schools, lack of coordination between the local system and commuter service between Waukesha and Milwaukee, the use of old and worn out buses, and the lack of an aggressive marketing program.

One of the standards set forth in Chapter II of this report suggests that the minimum walking distances to a transit route should approximate one-quarter mile. As shown on Map 20, the present (1975) service provided by the four mass transit routes in the study area meets this standard for much but not all of the more densely populated portions of the study area. About 39,000 residents, or about 79 percent of the resident population of the study area, live within the shaded transit service area shown on Map 20. Major service coverage deficiencies are found in the residential areas near Heyer Park in the southeast section of the City of Waukesha; the residential area south of the Waukesha industrial park, sometimes referred to as the South Park Estates subdivision; and the new Merrill Crest, Pebble Valley, and Singing Hills subdivisions.

Another standard set forth in Chapter II suggests that certain land uses and major traffic generators be served by mass transit. Major transportation terminals in the study area located in the Waukesha central business district and at Goerke's Corners are served by the existing local and commuter service. While all shopping areas except the Grey Terrace Shopping Center are located within the service area of the transit system, several centers are not directly served. The two largest shopping attractions outside of the central business district, the K-Mart and Kohl's department stores, are accessible only by walking from the street across large parking areas to the store entrance. The secondary schools are well served by the school tripper service; however, there is no direct service to Carroll College or the University of Wisconsin Center-Waukesha County, and no service at all to the Waukesha County Technical Institute in the Village of Pewaukee. While both the Waukesha Memorial Hospital and the Moreland Medical Center are within the transit service area, neither location is directly served. The hospital is exactly one-quarter mile from the nearest bus route. All of these major trip generators had direct service in the past.

While most institutional and government buildings are located in the Waukesha central business district and are served by mass transit, a notable exception is the Waukesha County Courthouse, which contains all county government offices and is not accessible at all by bus. Major industrial employment centers are, in general, not served by the mass transit system. Of the 16 major employment centers located on Map 10, only five are located within the transit service area. None of the largest industrial employers in the study area, including the Waukesha Engine Division of Dresser Industries, Inc., General Electric Company, and the RTE Corporation are served by mass transit. Recreational areas located in the more densely populated portions of the study area are generally served, especially those adjacent to schools. The only regional recreational site within the study area, Minooka Park, is not served by mass transit. None of the special housing facilities for the elderly listed in Table 4 and shown on Map 5 are directly served by the mass transit system, although most are within the service area.

The circuitous design of the route system in the Waukesha area combined with the one-hour headways on the routes results in extremely long travel times for even the shortest trips. For example, a passenger boarding a bus at West Avenue and Dunbar Avenue and traveling to Madison and Fairview Avenue—the nearest intersection to the hospital—would have to ride on the bus for about 50 minutes, a trip an able-bodied person could make by walking in 15 minutes or less. If the average wait time—one-half the headway—were to be added to the bus trip time, the 80 minute total trip time becomes too slow to be attractive to even the most patient "captive" transit patron. While the example cited may be admittedly extreme, it does dramatize the disadvantages of large circuitous routes in terms of transit travel time.

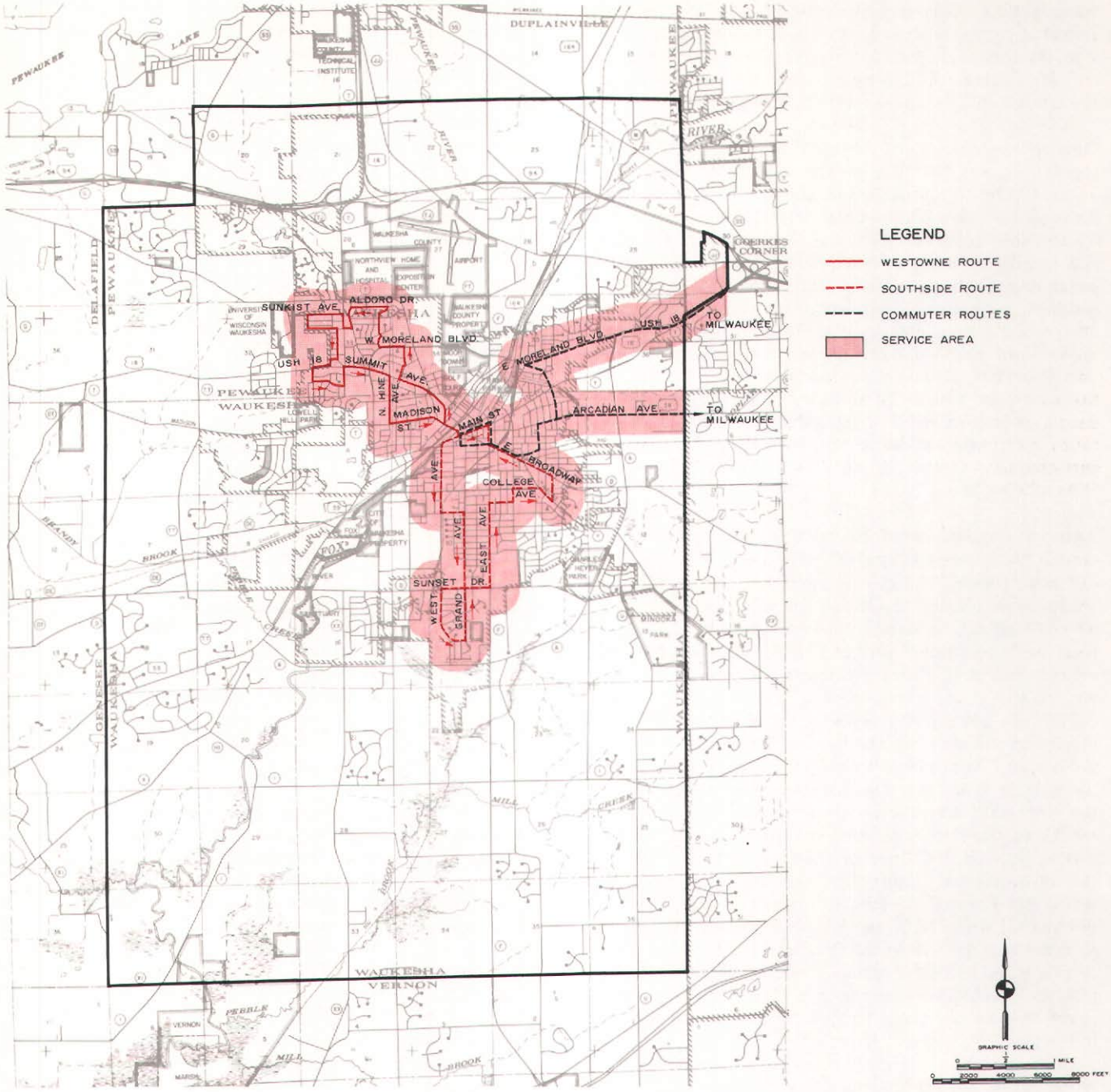
In addition, no attempt has been made to coordinate transfers between the commuter routes to and from Milwaukee with the local Westowne and Southside routes. The first two Westowne runs in the morning do conveniently connect to the commuter runs for Milwaukee; however, these are the only connections which involve no waiting time. During the midday, buses on the Westowne route "miss" connecting with Milwaukee bound buses by three minutes. For local trips within the study area, the lack of convenient connections probably contributes to the fact that very few local rides are taken on the commuter routes serving the east and northeast sections of the study area.

As can be seen on Maps 18 and 19, the school tripper service provides extensive coverage for students going to and from school. There is, however, a problem of early arrivals in the morning and long wait times after school dismissal in the afternoon. Because of the limited number of buses available and the costs involved under the present school tripper route structure, some students, especially at the high schools, must wait up to 30 minutes after dismissal before a bus arrives to take them home.

Typical adult transit fares in the United States have risen by 25 to 50 percent in the past 10 years so that most adult cash base fares now range generally between 25 and 50 cents. In Waukesha, the current 50 cent adult fare is at the top of that range. At the present time, reduced fares are provided to children 6 through 11 years of age, and high school students can purchase reduced fare tickets. No reduced fares are provided for senior citizens or handicapped persons on the present transit system. The recent introduction of dial-a-ride bus service for elderly citizens by the Waukesha County Program on Aging is an attempt to fulfill a social need in this respect. The service is limited, however, to three days per week, certain times of the day, and is limited to certain trip purposes. The

Map 20

WAUKESHA TRANSIT SERVICE AREA: DECEMBER 1975



Source: SEWRPC.

lack of coordination between the two bus systems and the difference in fare structures—the senior citizen dial-a-ride service being free—has already led to a fragmentation of mass transit service within the study area. Since the inventory of travel habits and patterns reported on in Chapter III indicated that the residences of elderly persons are generally widely scattered throughout the study area, the Waukesha County dial-a-ride system is providing a valuable service that a fixed-route system could not readily duplicate.

The transit industry has been essentially a "cash and carry" business which had to give high priority to very simple methods of fare collection. With the exception

of high school students who use tickets, all passengers on the local city transit system pay cash fares. During the late 1960's, there was widespread adoption of the requirement that customers entering a bus have the correct change to pay the exact fare. The rationale behind the exact fare concept is to reduce the risk of robberies of drivers on the theory that, if the driver has no change and all fares are deposited in a locked box secured to the bus, there is less temptation to attempt a robbery. Fortunately, this has not been a major problem in Waukesha up to this time and drivers will make change for customers. It has been demonstrated in other cities that exact fare requirements tend to discourage ridership. Many mass transit systems across the country use ticket books or tokens sold in quantity at a discount as an incentive for increased transit ridership. Some transit systems, including the Milwaukee County Transit System, offer weekly or monthly passes at considerable savings per ride over paying cash fares. Some transit systems also allow the use of the transfer at any intersection along a route and for reverse travel on the same route, within the transfer time period. None of these incentives and conveniences is available on the present Waukesha transit system, although discount ticket books are available on the commuter runs to Milwaukee.

According to the standards set forth in Chapter II, the bus fleet used to provide transit service in the study area has exceeded its useful life by about eight years. The standard states that the useful life of a 45 passenger diesel bus should be regarded, on the average, as about 15 years. Waukesha's city bus fleet looks particularly worn and is in need of replacement if efficient as well as reliable service is to be provided.

Probably one of the biggest deterrents to utilization of local mass transit system in the study area is lack of an adequate marketing program. Schedules are published for the local routes with a route map included; however, these schedules are available only at the downtown bus depot, at the bus company office, or on the bus. Information is readily available by telephone only if the potential patron is aware of the fact that Wisconsin Coach Lines, Inc., is the local transit operator. Since there are no posted bus stops along the local routes, the visibility of the transit system is almost nonexistent, and potential patrons do not know where to go to catch a bus. Along the commuter routes to Milwaukee, small post card size signs with a drawing of the front of a bus are used to indicate bus stops. These signs are much too small, and are not readily visible from a distance of greater than 25 feet. In addition, bus stops along these routes are located at distances farther apart than the 600 to 1,200 feet standard set forth in Chapter II, making the routes inaccessible, in terms of walking distance, to some potential patrons.

A comparison of travel habits and patterns summarized in Chapter III with the present transit route configurations reveals some deficiencies in the provision of direct service. Within the study area, the lack of direct service at the proper times to industrial areas has resulted in almost no transit ridership to and from such areas. The inability of the transit system to carry the work trip in Waukesha, the only stable adult ridership a transit system can normally depend upon, has forced residents of the study areas to rely on the automobile as the sole mode of transportation to and from work. The inventory also revealed considerable external trip movement to and from the City of Brookfield, especially the area around and including the Brookfield Square shopping center. While transit service to this major trip generator has improved since the surveys were conducted, it is still difficult to get to Brookfield Square if a transfer from the local Waukesha system to the commuter routes is required, because of the lack of coordination between the two systems in terms of both schedules and fares. Milwaukee County attracted most of the rest of the external trips in all trip purpose categories, but destinations were scattered throughout that County. The commuter routes only serve a narrow corridor into Milwaukee County, and the need for a common transfer between these routes and the Milwaukee County Transit System would be required to provide improved transit service for these intercounty trips.

The socioeconomic summaries show that elderly persons make up only about 12 percent of the ridership total on the local transit routes. While this percentage may have increased somewhat due to decline in overall ridership since the survey date, it does indicate that the transit system could expect to experience more elderly riding if it provided better, more direct, service to the senior citizen centers. Many potential elderly riders are not able or willing to walk several blocks to a bus stop.

The mass transit nonuser survey indicates that a relatively high percentage of the respondents—39 to 46 percent—said they would not ride mass transit under any circumstances, and another 23 to 30 percent said they would ride transit only if there was no other choice. While these responses are discouraging to those who would like to promote transit in the study area, it should be pointed out that these responses were probably based on public perceptions of the "mass transit" system as it presently exists in Waukesha; a system offering long travel times, high fares, lack of coordination, and old equipment.

SUMMARY

Mass transit service in the Waukesha area dates back to 1895, when a streetcar line was opened between Waukesha and Waukesha Beach on Pewaukee Lake. By 1898, electric interurban railway service was inaugurated between Waukesha and Milwaukee operating over city streets in Waukesha until 1951. Local bus service was inaugurated within the City of Waukesha by Waukesha Transit Lines—now Wisconsin Coach Lines, Inc.—in 1941. Ridership on the local system remained relatively stable until 1971 when the loss of school ridership resulted in almost a 50 percent decline in revenue ridership. Since that time service has been sharply curtailed and the adult cash fare has been raised from 25 to 50 cents.

Other company operations have subsidized the local transit service. The local transit operation is projected to show a loss of $15,000 during 1975. The local city routes,

without the benefit of the school tripper service, are projected to show a loss of $29,000 in 1975. Current ridership on the City of Waukesha routes is about 70 to 80 revenue passengers per day, and on school trippers about 900 revenue passengers per day. The company only carries about 0.5 passenger per bus mile operated on its local city routes. A complete abandonment of service, except for school tripper service was scheduled for late in 1975. Local transit service was at least temporarily maintained, however, by a $6,000 subsidy provided by the Waukesha Common Council.

Local urban service provided by Wisconsin Coach Lines, Inc., consists of one bus operating over two loop routes totaling 14.5 route miles and portions of two commuter routes between Waukesha and Milwaukee, one of which is a State and county funded demonstration project. In addition, seven buses are used to provide school "tripper" service on school days only. The local bus operates on one hour headways, Monday through Friday, between 8:00 a.m. and 5:45 p.m. The focal point of the local bus routes is the Waukesha central business district. There are no marked bus stops anywhere on the local system and no waiting shelters are provided. The equipment used for local transit service is old, with the average age of the bus fleet being 23.2 years. Because of the unavailability of spare parts and units, the old fleet may be expected to become increasingly more difficult and costly to operate and maintain, in spite of the preventative maintenance program practiced by the company on its bus fleet.

Other community transit services include interregional bus service to Madison, Rockford, Janesville, and Whitewater; and a dial-a-ride bus service for senior citizens in Waukesha County. This latter program is funded by a federal grant administered by the Southeastern Wisconsin Area Agency on Aging, and fares are not charged for the service.

Taxi service is provided on a shared ride zone fare basis within the study area and carries about 400 persons per day which is roughly four times that carried by local system and commuter service between Waukesha and Milwaukee. The only public information program maintained by the company is the publication of a schedule and route map for the local system. Schedules for school trippers are distributed only through the schools. The transit system was shown to be servicing present origin-destination travel patterns not very effectively, both internally and externally to the study area, nor does the system serve the majority of the major traffic generators within the study area.

This chapter has set forth pertinent operating data of the local operation of Wisconsin Coach Lines, Inc. It has shown that the local transit service is no longer a viable operation from the standpoint of a private company operating it to make a profit. It has also shown that the present transit service no longer meets the service standards set forth in Chapter II, with only one bus traversing the streets of Waukesha all day, and seven extra buses for school trippers. It has been shown that the present state of the transit system is the result of years of neglect by both public officials and the transit operator to keep the system viable. Before alternative methods of solving the transit "crisis" within the study area can be formulated, a review of existing legal, institutional, and financial constraints affecting the provision of mass transit service within the study area is necessary to complete the inventory and analysis phase of the planning process. The review of existing legislation pertaining to the provision transit service in the study area is set forth in the next chapter.

Chapter V

EXISTING TRANSIT LEGISLATION AND REGULATIONS

INTRODUCTION

Existing legal, institutional, and financial constraints affecting the provision of mass transit service are important considerations in the preparation of a transit development program. This chapter summarizes legislation and regulations existing at the federal, state, and local levels affecting the provision of mass transit service in the Waukesha area. Federal legislation and administrative rules regulate the availability and distribution of federal aid for research and demonstration projects, capital improvement projects, and operating subsidies. State legislation specifies the institutional structure for public mass transit systems, tax relief measures, and provides for operating and demonstration project assistance. Local ordinances provide certain regulations affecting transit service and define the local role in the provision of mass transit service.

FEDERAL LEGISLATION[1]

Federal assistance for urban mass 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 transit aid is available under two basic laws and their subsequent amendments: the 1964 Urban Mass Transportation Act, and the Federal Aid Highway Acts beginning with the 1970 Act.

The landmark Urban Mass Transportation Act of 1964 represented the first significant federal attempt at transit assistance through establishment of a comprehensive program of matching grants for preserving, improving, and expanding urban mass 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 area-wide 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, most significantly by the Urban Mass Transportation Assistance Act of 1970 and the National Mass Transportation Assistance Act of 1974. In addition to increasing the size of federal appropriations for mass transportation assistance, the two major amendments expanded the number of assistance programs available. Although authority to administer the Act was originally vested with the U. S. Department of Housing and Urban Development, Reorganization Plan No. 2 of 1968 transferred responsibility to the U. S. Department of Transportation through the establishment of the Urban Mass Transportation Administration (UMTA).

Two major categories of federal assistance presently are available from UMTA pursuant to the Urban Mass Transportation Act. The larger category is the capital matching grants authorized by Section 3 of the Act. Section 3 grants, which provide up to 80 percent of eligible project costs, are to be used for financing "(1) the acquisition, construction, reconstruction and improvement of facilities and equipment for use, by operation or lease or otherwise, in mass transportation service in urban areas and in coordinating such service with highway and other transportation within such areas, and (2) the establishment and organization of public or quasi-public transit corridor development corporations or entities." Section 3 grants are approved on a project-by-project basis at the discretion of the Secretary of the U. S. Department of Transportation. They are intended primarily for state or local public agencies that operate or assist in the operation of transit systems in urbanized areas of more than 50,000 population, but about 6.5 percent of Section 3 funds has been set aside for small urban areas of less than 50,000 population. In addition to matching grants, Section 3 funds also may be used as loans for the acquisition of real property and interests in real property for use as rights-of-way, station sites, and related purposes.

The other major category of assistance is the formula grant program authorized by Section 5 of the 1964 Act as amended by the National Mass Transportation Act in November of 1974. Urbanized areas, as defined by the U. S. Bureau of the Census, have the option of using Section 5 funds either to defray operating expenses on a 50 percent federal–50 percent local matching basis or for capital improvements on the same basis as Section 3 funds (80 percent federal). Unlike Section 3 funds, the distribution of Section 5 funds for urbanized areas of over 200,000 population is based upon a formula considering 1970 population and 1970 population density. Under this formula the four-county Milwaukee urbanized area, of which the City of Waukesha is a part, is eligible

[1] *Source: Urban Mass Transportation Act of 1964, Urban Mass Transportation Assistance Act of 1970, Federal Aid Highway Act of 1973, and the National Mass Transportation Assistance Act of 1974.*

to receive about $34.5 million over the six-year period beginning with fiscal year 1975 through fiscal year 1980. The allocation of monies within the Milwaukee urbanized area has not been determined and is to be worked out cooperatively among the local units of government.[2]

Where the funds allocated to urbanized areas under Section 5 are used for operating assistance, they are intended to supplement state and local aid and other non-fare box revenue in support of the transit operation. To ensure that the other outside sources of operating assistance continue, Section 5 contains a maintenance of effort clause that requires that the amount of state and local transit assistance and non-fare box revenue obtained during the year in which federal operating assistance is being sought must not be less than the average amount of such assistance and revenue that was received in the two immediately preceding years.

Besides Sections 3 and 5, there are other smaller, more specialized categories of aid available to Waukesha through UMTA. Section 6 of the Urban Mass Transportation Act provides funds for demonstration projects and the research and development associated with such projects. Intended to assist in the reduction of urban transportation needs, improvement of the mass transportation service, and the reduction of urban travel costs, these demonstration projects may be funded at up to 100 percent of the project cost. A notable amendment to this section was approved in 1974 authorizing $20 million over the next six fiscal years for fare-free mass transit demonstration projects. Intended for metropolitan areas with decaying central cities and marginal transit service, fare-free demonstration projects may receive Section 6 funds for up to 80 percent of capital and operating costs.

Grants for technical studies are provided by Section 9. Activities assisted include studies related to the management, operations, capital requirements and economic feasibility, preparation of engineering and architectural surveys, plans, and specifications. Typically these technical study grants finance planning studies which recommend transit improvements. These improvements, in turn, may later be implemented with the assistance of capital and operating assistance grants. Although technical study grants may cover up to 100 percent of the study costs, current urban mass transportation administration policy is to make all technical study grants on a 80 percent federal, 20 percent local matching basis. This Waukesha Transit Development Program is being conducted as a part of the Regional Planning Commission's continuing land use-transportation study which is funded in part by UMTA.

Capital grants are available under Section 16 to equip a transit system to meet the specialized transportation needs of the elderly and handicapped. These grants are available to either public bodies providing or assisting such specialized transit services or to private, nonprofit corporations. This aid is provided to fill service gaps occurring when existing transit vehicles and route structures cannot safely or conveniently handle the elderly and handicapped.

Another major area of federal legislation that assists mass transportation is the Federal Aid Highway Act. Originally intended as a segregated fund for highway use only, the Highway Trust Fund has been a potential source of transit assistance since enactment of the Federal Aid Highway Act of 1970. This Act allowed for the funding of mass transit support facilities on any of the federal aid systems. Its funding objectives include the construction of exclusive or preferential bus lanes, highway traffic control devices, bus passenger loading areas and facilities including shelters, and fringe and transportation corridor parking facilities to serve bus and other public mass transportation passengers. The Federal Aid Highway Act of 1973 further expanded the availability and scope of transit assistance by allowing the use of federal aid urban system funds for the purchase of buses or capital improvements for fixed rail facilities. Unlike UMTA capital grants, this "urban system" assistance has a matching fund requirement of 70 percent federal share and 30 percent local share.

The 1973 Federal Highway Act also allows for the funding of transit demonstration projects in rural and small urban areas. This rural highway public transportation demonstration program has been established to encourage the development, improvement, and use of public mass transportation systems operating vehicles on highways for transportation of passengers within rural areas and small urban areas, and between such areas and urbanized areas, in order to enhance access of rural populations to employment, health care, retail centers, education, and public services. Projects eligible for federal funds under this section include highway traffic control devices, the construction of passenger loading areas and facilities, including shelters, fringe and transportation corridor parking facilities to serve bus and other public mass transportation passengers, the purchase of passenger equipment other than rolling stock for fixed rail, and the payment from the general fund for operating expenses incurred as a result of providing such service.

Another provision of the 1973 Federal Highway Act assures that the federal support of a planned interstate highway segment within the area may be shifted to a substitute transit project on concurrence by the Governor and the local units of government involved. The change in federal support is contingent upon evidence that the transit project is still consistent with the planning process under which the interstate highway was originally conceived. Thus, congressional action since 1964 has not only increased the size of federal appropriations for mass transportation assistance but also expanded the number of assistance programs available.

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[2] *Within the Milwaukee urbanized area the County Boards have been designated as the recipient agencies of applicable Section 5 monies. Thus any grant application for federal operating assistance to offset transit operating deficits incurred by a city's local transit system would have to be submitted through the County Board.*

The availability of federal funds under the previously described Acts are restricted by several administrative regulations. The more important of these are:

1. No grants will be made unless the facilities and equipment proposed are part of a program for the development of a unified or officially coordinated urban transportation system within the comprehensively planned development of the urban area.

2. All applications for Section 5 funds must include a regularly updated transit development program setting forth a staged, multiyear program of federally and nonfederally funded mass transportation improvements as an adopted element of a transportation systems management plan for the urbanized area. This must be supplemented by an annual program of projects incorporating Section 5 funds.

3. When federal funds provide part of the cost of a project, the remaining local share must come from sources other than federal funds, including federal revenue sharing funds, except when specifically permitted to the contrary by law.

4. All applicants for Section 5 funds must guarantee that current levels of nonfederal mass transportation funding will be maintained. The level must be equal to the average amount of state and local governments funds and non-fare box mass transportation revenues expended on the operation of mass transportation service during the two years preceding the application.

5. All applicants for Section 5 funds must submit short-ranged, staged plans to conserve the use of energy and improve transit efficiency. No project for fiscal year 1977 will be approved unless there is evidence of reasonable progress in the implementation of the staged plan.

6. Mass transportation facilities receiving federal assistance must be planned and designed so that they meet the special needs of the elderly and handicapped or alternate systems provided that offer comparable service area coverage at similar fares. For Section 5 projects, elderly and handicapped persons riding during non-peak hours must be charged no more than one-half the regular peak-hour adult cash fare.

7. All applications for Section 3 capital grant funds for assistance in annual or periodic bus replacement programs must describe, as an element of project justification, the efforts made to use Section 5 funds and federal aid urban system funds to meet replacement needs.

8. All project applications must include a detailed statement on the environmental impact of the proposed project. Buses acquired with federal assistance must meet the emission standards under Section 202 of the Clean Air Act and Section 6 of the Noise Control Act and, whenever possible, must meet special criteria for low-emission vehicles and low-noise emission products. In addition, Section 5 projects must include an analysis to consider the best overall public interest in relation to such factors as:

   a) Air, noise, and water pollution.

   b) Destruction, or disruption of man-made and natural resources, aesthetic values, community cohesion, and the availability of public facilities and services.

   c) Adverse employment effects, and tax and property value losses.

   d) Injurious displacement of people, businesses, and farms.

   e) Disruption of desirable community and regional growth.

9. All projects must provide fair and equitable arrangements for the protection of employees affected by federal assistance. This includes the continuation of collective bargaining rights and the preservation of existing rights, privileges, and benefits.

10. No federal assistance may be provided for any construction project unless an adequate housing relocation program is being carried on for any families displaced by the project. Financial assistance obtained may be used to help defer relocation costs, not to exceed specified amounts.

11. All applications for federal assistance must certify that they have afforded an adequate opportunity for public hearings on each proposed project. For Section 5 projects, notice for the hearing must be given at least 30 days in advance and must inform the public of all significant economic, social, or environmental issues and invite them to examine all project documents.

12. No federal assistance may be provided for the purchase of buses unless the applicant first agrees not to engage in charter bus operations in competition with private bus operators outside of the area where the applicant provides regularly scheduled service.[3]

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[3] *UMTA is currently promulgating new standards which would permit charter bus and school bus operations by federally aided systems outside the regularly scheduled service area. Basically to engage in such operations the aided carrier would be required to charge a rate such that revenues equalled or exceeded costs as documented by a certification of costs and a cost allocation plan. A complete listing of the proposed regulations and requirements can be seen in the Federal Register, Volume 40, Number 115 (June 13, 1975).*

13. No federal assistance may be provided for the purchase 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.[4] This rule does not apply to the transportation of school children along with other passengers by regularly scheduled bus service at either full or reduced fares.

14. No federal financial assistance may be provided until fair and equitable arrangements are 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.

15. Beginning July 1, 1978, all accounting systems for all transit systems eligible for federal aid must conform to a uniform system of account and record keeping. This new system, entitled "Uniform Financial Accounting and Reporting Element" (FARE), is intended to facilitate a clear definition of the economics and operating conditions of transit systems in the interest of more efficient planning, administration, and operation.

STATE LEGISLATION[5]

Legislation enacted by the State of Wisconsin which affects urban mass transit operations falls into two general categories: provision of financial assistance to the state's urban mass transit systems and administrative regulations and controls governing the establishment and operation of transit authorities. Financial assistance includes indirect aid, principally in the form of tax relief, and direct aid in the form of operating subsidies and demonstration grants. The Wisconsin Statutes define the organizational alternatives for the public ownership or subsidy of the urban mass transit systems and the authority over routes, schedules and fares, which authority is vested with the Wisconsin Public Service Commission.

Indirect aid to urban mass transit systems in Wisconsin was introduced in 1955 on the basis of 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 for privately owned urban mass transit organizations to calculate their state income tax. To encourage urban bus systems to invest their 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:

a) An amount equivalent to 8 percent of the depreciated cost of carrier operating property is exempt from the tax; and

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

Other 1955 Wisconsin Statutes giving urban mass 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 78.01(2)(d) which excludes vehicles engaged in urban mass transportation from the $0.07 per gallon gasoline tax imposed upon gasoline used in vehicle operation.

3. Section 78.40(2)(c) which excludes vehicles engaged in urban mass transportation from the $0.07 per gallon special fuel tax imposed upon the special fuel used in vehicle operation.

4. Section 85.01(4)(dm) which established an annual registration fee of only $1 for each vehicle engaged in urban mass transportation.

Direct financial aid for mass transit became available with passage on August 5, 1973, of the 1973 State Budget Act which established two transit aid programs to be administered by the Wisconsin Department of Transportation. The first program, set forth in Section 85.05 of the Wisconsin Statutes, provided $5 million in general purpose revenue funds during the 1973-1975 biennium for operating assistance; the second, set forth in Section 85.06 of the Wisconsin Statutes, provided $2 million in general purpose revenue funds for planning and demonstration projects. Passage of the 1975 State Budget Act on July 31, 1975, continued funding for both programs by allocating $6.478 million for operating assistance and $521,200 for planning and demonstration projects during the 1975-1977 biennium.

Under the operating assistance program, local governments in urban areas having mass transit services on August 5, 1973, are eligible to be reimbursed by the State of Wisconsin for up to two-thirds of the nonfederal share of the operating deficit—not to include return on investment—incurred on their local transit system. Only those local units of government that will provide financial operating assistance to, or which will actually operate, an urban mass transit system are eligible applicants for state operating assistance. Other restrictions of the state operating assistance program include the following:

1. Projections of operating revenues and expenses must be based on an approved one-year "man-

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[4] *Ibid.*

[5] *Wisconsin Department of Transportation, Division of Planning; Wisconsin State Statutes; and Wisconsin Administrative Code, Rules of Public Service Commission, Chapters PSC 40 and PSC 41.*

agement 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 are required to determine the actual operating deficit of the system during the contract period.

4. If the recipient government is eligible for federal operating assistance, state payments are limited to two-thirds of the nonfederal share of operating deficits.

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

Under the state mass transit planning and demonstration program, the Department of Transportation may fund projects designed to demonstrate the effect of improved mass transit service by: 1) reducing urban vehicular travel; 2) meeting total transportation needs at a minimum cost; and 3) reducing urban highway and parking facility requirements. Although state statutes permit the Department to fund 100 percent of eligible project costs, the present policy is to require at least a 10 percent local share. The demonstration phases of all projects are limited to one year or less, and the project sponsor is responsible for continuing successful projects beyond the demonstration period. Project continuation typically will be accomplished through integration of the demonstrated improvement into the area's basic transit system. The cost of continuing the demonstration improvement then will be incorporated into the total system operating revenue and expense calculations and, hence, be eligible for continued state reimbursement under the operating assistance program.

Waukesha County has negotiated an agreement with the Wisconsin Department of Transportation to demonstrate the effects upon ridership of improved transit service between downtown Waukesha, Goerke's Corners, and downtown Milwaukee under provisions of this statute.

In addition to providing financial assistance to urban mass transit systems within the State, the Wisconsin Statutes provide many organizational alternatives to cities and counties for the operation of an urban mass transit system. State legislation defining city governmental powers for operation of a transit system includes the following:

1. City Contract with Private Transit System Operator. Section 66.064 of the Wisconsin Statutes permits a city served by a privately-owned urban mass transit system to contract with the private owners for the leasing, public operation, joint operation, subsidizing, or extension of service of the system. In the Waukesha study area, the City of Waukesha could contract with Wisconsin Coach Lines, Inc., for any of the above-mentioned purposes to continue or to expand urban transit services.

2. City 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 with a referendum vote to own, operate, or engage in an urban mass transit system in either of two circumstances; 1) if the city does not have an existing urban mass transit system; or 2) if the city does have an existing urban mass transit system and the city had: a) obtained the consent of the existing system operator, b) been empowered to do so by the Legislature, or c) secured a certificate of public convenience and necessity from the Wisconsin Public Service Commission. The second provision would apply at this time to the City of Waukesha if the City were to acquire the local urban transit system or to establish a competing system.

   This section of the Wisconsin Statutes permits a city to establish a separate department to undertake transit operation under municipal ownership or to expand an existing city department or departments to accommodate the added responsibility of municipal transit operation. Thus, the City of Waukesha could establish a new transit department or expand an existing department if the City were to acquire the local transit system.

3. City Transit Commission. 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. 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." Initial acquisition 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. The Transit Commission, in lieu of directly providing transportation services, 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 City Parking Commissions. A combined transit-parking commission may be organized as a single body under this enabling legislation and not only have all of the powers of a City Transit Commission, as defined as Section 66.943 of the Wisconsin

Statutes discussed above, but also be empowered to regulate and operate on-street and off-street parking facilities as well.

5. 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 the City of Waukesha to contract with any other county, city, or village to receive or furnish urban transit services or even to establish a joint municipal transit commission.

State legislation defining county government powers for operation or urban transit systems include the following:

1. County Contract with Private Transit System Operators. Sections 59.968(1) to (3) of the Wisconsin Statutes permit a county to financially assist private urban mass transit companies operating principally within the county by: 1) direct subsidies, 2) purchase of buses and lease back to the private company, and 3) acting as the agent for the private operator in filing applications for federal aid.

2. County Ownership and Operation of Transit Systems. Sections 59.968(4) to (8), 59.969, 63.03(1)(x), and 67.04(1)(aa) of the Wisconsin Statutes permit a county to acquire a transportation system by purchase, condemnation, or otherwise and to provide funds for the operation and maintenance of such system. "Transportation system" is defined as all land, shops, structures, equipment, property, franchises, and rights of whatever nature for transportation of passengers. The acquisition of a transit system must be approved by a two-thirds vote of a county board. The county would have the right to operate into contiguous or cornering counties. However, where such operation into other counties would be competitive with the urban or suburban operations of another existing common carrier of passengers, the county must coordinate the proposed operations with such other carriers to eliminate adverse financial impact for such carrier. Such coordination may include, but is not limited to, route overlapping, transfers, transfer points, schedule coordinations, joint use of facilities, lease of route service, and acquisition of route and corollary equipment. The law permits a county to use any street for transit operation without obtaining a license or permit from the local municipality concerned. The law also requires the county to assume all the employer's obligations under any contract between the employees and management of the system and to negotiate an agreement protecting the interest of employees affected by the acquisition, construction, control, or operation of the transit system. This labor protection provision is similar to Section 13(c) of the Federal Urban Mass Transportation Act of 1964 as amended. Milwaukee County has assumed public ownership of the Milwaukee and Suburban Transport Company under provision of these statutes.

3. County Transit Commission. Section 59.967 of the Wisconsin Statutes provides for the creation of County Transit Commissions which are authorized to operate an urban transit system. A County Transit Commission is to be composed of not less than seven members appointed by the county board. The County Transit Commission is permitted to extend its transit system into adjacent territory within 30 miles of the county boundary.

State legislation also provides for the formation of certain special mass transit districts and authorities. Section 66.94 of the Wisconsin Statutes permits establishment of a metropolitan transit authority having the legal power to acquire, operate, and maintain a public transportation system. A public transportation system is defined to include subways, railways, and buses. The largest city within the boundaries of the metropolitan transit authority must have a population of 125,000 or more. Therefore, this act could apply to the Milwaukee urbanized area, of which the City of Waukesha is a part. Importantly, authorities created under enabling legislation do not have taxing powers.

The regulation of public and private utilities, railroads, and common motor carriers is the responsibility of the Wisconsin Public Service Commission. The Transportation Division of the Commission administers rules and conducts investigations relating to the economic regulation of motor carriers. The Wisconsin Administrative Code (PSC 8.05) provides that a common motor carrier certificate for the provision of urban mass transit services may be sought by filing with the Public Service Commission either an application for original authority or an application for assignment of an existing authority. An application for original authority would be scheduled for a public hearing where the applicant must present evidence to show that the service proposed is required by public convenience and necessary and that the applicant is fit, willing, and able to perform the service. An application to assign an existing certificate also would be scheduled for public hearing for presentation of facts to show that the assignee is fit, willing, and able to provide the service and that the assignment is in the public interest.

All urban mass transit systems are required to file annual and monthly reports with the Public Service Commission that include such information as: revenues, expenses, vehicle miles of travel, and vehicle hours of operation. The Public Service Commission has the authority to inspect the books and records of all common motor carriers.

Any changes in the fare structure charged by an urban mass transit system must be approved by the Public Service Commission with or without a public hearing. The handling of each case is determined by circumstances and the evidence presented at the time of the request. Any action by the Public Service Commission on an informal basis is subject to reconsiderations or hearing upon proper complaint or protest. Any change in the base schedule of urban mass transit operations requires the transit operator to file with the Public Service Commission and with the clerk of the affected municipalities at least five days in advance a schedule showing such change, except that if a waiver of objection is made by local authorities and filed with the schedule change, the schedule change may be filed any time prior to its effective date. No schedule change can become effective if the Public Service Commission disapproves or orders a hearing on the proposed changes. The Public Service Commission does have the power of special approval, as the public interest may require, to authorize changes on less notice than required by the guidelines set above. No bus route can be established, extended, or abandoned without the approval or order of the Public Service Commission.

LOCAL LEGISLATION

Existing transit legislation at the local level is confined to two sections of Chapter VII of the Waukesha Municipal Code. Section 7.3(5) exempts buses from weight restrictions on local streets, and Section 7.4(2) provides for the designation of bus loading zones in which all other vehicles are prohibited from parking or standing.

LEGISLATIVE ANALYSIS

The Wisconsin Statutes provide several institutional alternatives for provision of urban mass transit services ranging from subsidy to a private carrier to public ownership and operation. The major transit planning efforts to date have recommended development of a regional transit authority to serve the metropolitan Milwaukee area. While Section 66.94 of the Wisconsin Statutes permits creation of a Metropolitan Transit Authority to serve the urbanized area and while such authority would have the legal power to acquire, operate, and maintain a public mass transit system, the legislation has several weaknesses. Creation of the authority would depend upon a successful referendum within and passage of an ordinance by the City of Milwaukee. In addition, the legislation grants local municipality veto power over route location and limits the authority's ability to levy taxes for any purpose. Thus, to date, responsibility for public action in the mass transit field is being placed in an appropriate existing governmental agency. Legislation has been developed and used by Milwaukee County to acquire the Milwaukee and Suburban Transport Company and to provide urban mass transportation services within Milwaukee County and the authority to extend such services to adjacent and cornering counties. Sections 59.968(4) to (8), 59.969, 63.03(1)(x), and 67.04(1)(aa) of the Wisconsin Statutes have provided the most comprehensive enabling legislation available on acquisition and operation of a county-owned transit system. This legislation provides for public operation of an urban transit service and coordination with any other transit systems operating within the urbanized area. The legislation enables a transit system to operate over any street without obtaining a license or permit from local municipalities concerned, thus providing for unified and direct routing service within and beyond the county boundaries. Through appropriate contracts with Milwaukee County, counties and municipalities beyond Milwaukee County can obtain urban transit services to which they may apply available federal transit monies for provision of such services. Thus, the City of Waukesha could contract with the Counties of Waukesha and Milwaukee to maintain and expand transit services for transit travel within the City of Waukesha and to Milwaukee County.

While such legislation enabling counties to provide transit service would also permit Waukesha County to provide urban transit services, it would appear more appropriate that the units of government beyond Milwaukee County enter into contracts with Milwaukee County to provide expanded transit service throughout the urbanized area.

The City of Waukesha does have the authority to subsidize operations of the Wisconsin Coach Lines for provision of urban transit services or to lease equipment from the company to provide such services under Section 66.064 of the Wisconsin Statutes. Should public ownership of the transit system be desired, Section 66.065(5) of the Wisconsin Statutes permits the City of Waukesha to own, operate, or engage in an urban mass transit system. The statute allows for the orderly transfer of a common carrier certificate from the previous operator of the mass transit system to the City. This Section of the statute also permits the City to absorb the bus operation into an existing City department or create a new department to manage the urban transit system. The City of Waukesha could also form a City Transit Commission under Section 66.943 or a City Transit-Parking Commission under Sections 66.068, 66.079, and 66.93 of the Wisconsin Statutes to own and operate the municipal transit system. These statutes permit extension of transit services into adjacent territory beyond the City of Waukesha for up to 30 miles, thus allowing a city-owned transit system to serve major generators outside Waukesha such as the Waukesha County Technical Institute. A City Transit-Parking Commission would not only have the transit operating responsibilities and authority but would also provide the opportunity to coordinate transit and parking services, thus providing a powerful administrative tool for the administration of public transportation policy.

Thus, while state legislation offers many institutional alternatives, prior planning recommendations and implementation activities are already structuring the approach to providing transit service within the Milwaukee urbanized area. Milwaukee County has the authority to provide transit services throughout the Milwaukee transit service area. Through coordination of service actions, transit

service provided within Waukesha County and the City of Waukesha by Wisconsin Coach Lines, Inc., can be undertaken in the interim while expanded transit operations are developed or as a part of expanded operations within the areas beyond Milwaukee County. To provide such expanded services, the governmental agencies outside of Milwaukee County may contract for such transit services, thus providing a unified and coordinated transit service operated by a single public agency alone or as coordinated with the existing private operator. Specific recommendations and implementation steps will be identified within this transit development program to guide continued and expanded transit services within and beyond the City of Waukesha.

SUMMARY

Pertinent legislation and regulations existing at federal, state, and local levels have been summarized in this chapter as they apply to mass transit organization and operation. The federal government, primarily through the Urban Mass Transportation Administration (UMTA), provides assistance to a transit system in the form of grants providing up to 80 percent of the costs for capital improvements, 80 percent of the costs for technical studies, 100 percent of the costs for demonstration projects and up to 50 percent of transit system operating deficits. In addition, the State of Wisconsin provides tax relief and direct operating aid to transit systems as well as supporting transit improvement demonstration programs. The numerous regulations for obtaining both federal and state funds that must be met before a transit grant application can be approved are also outlined within this chapter. Preparation of this transit development program provides a significant element toward meeting the planning requirements.

The Wisconsin Statutes also provide many organizational alternatives to cities and counties for operation of an urban mass transit system. Although the City of Waukesha may operate a transit system by expanding an existing city department to include transit operation, or by creating a City Transit Commission or a City Transit-Parking Commission, provision of transit service may also be obtained through appropriate agreements with the Milwaukee County Transit System, the major transit operating agency within the Region. This agency has the authority to provide transit services throughout the Milwaukee urbanized area and is operating in accordance with interim recommendations contained in the Milwaukee Area Transit Plan. This plan has been adopted as a regional transportation element by the Regional Planning Commission. The Wisconsin Public Service Commission (PSC) regulates all mass transit systems in the State and no bus route can be established, extended, or abandoned without its approval or order. Local regulations and ordinances were found to pertain only to the establishment of bus loading zones and the exemption of buses from weight restrictions on city streets.

This inventory of legislation and regulation will be used as a base for preparing and structuring transit system improvements and financing recommendations for the City of Waukesha.

Chapter VI

ALTERNATIVE TRANSIT DEVELOPMENT PROGRAMS

INTRODUCTION

In the process of formulating a transit development program for the City of Waukesha, four basic transit service alternatives were evaluated: 1) do nothing; 2) publicly subsidize the existing fixed route City bus system; 3) publicly subsidize an improved and expanded fixed route City bus system; and 4) publicly subsidize a demand responsive transit system—taxi- and bus-based. Each alternative was evaluated on the basis of its ability to accommodate the existing and potential need for public transportation at a reasonable cost to both the user and the City.

ALTERNATIVE 1—DO NOTHING

The first alternative considered was to do nothing that required an expenditure of public funds to subsidize any type of public transportation system or its users. Under this alternative neither the existing privately owned bus company nor the two privately owned taxicab companies would receive any public financial support to offset operating deficits that these companies might incur either as part of any attempt to improve service or reduce fares. Instead, public transportation would continue to be provided by private firms, letting the demand for service at increasing costs to the user be the determinant of its value to society and its ultimate future.

Effect of This Alternative on Local Bus Service

The public bus system serving the City of Waukesha consists of one through routed bus operating over two fixed reverse routes, serving the west and south sides of the City[1] (see Map 21). The service is scheduled on one-hour headways and operates between the hours of 8:00 a.m. and 5:45 p.m. Mondays through Fridays excluding holidays. The focal point of the local bus service is the Waukesha central business district (CBD). These two reverse routes are the final remnant of a more extensive system after a long period of spiraling costs, increasing fares, and curtailments in service. A ridership survey conducted by Wisconsin Coach Lines, Inc., on May 12-23, 1975, found the combined average weekday ridership on the two reverse routes to be 88 persons over the 10 hour operating day. At present, ridership has declined to about 75 riders per day. The user fare for a one-way trip is adults $0.50; children aged 6 to 11 years, $0.25; and students $0.33 1/3 (cash equivalent ticket). At the approximate average fare of $0.45 and 7.5 passengers per hour, $3.38 in revenue is generated per hour. Vehicle operating costs for 1976 are $14.82 per vehicle hour. The actual cost per one-way ride on the two local routes is thus $1.98. The private operator would have to increase his one-way fare to $1.98 with no further decrease in riding to cover his costs if no public funds are made available to subsidize the bus system. At this increased fare, the fixed route bus system could not successfully compete with the two privately owned taxicab companies since their average fare for a one-way trip is currently about $1.40. In the absence of public subsidization of a growing deficit incurred by the local city bus routes, local City bus service was abandoned after May 28, 1976.

In addition to the existing regularly scheduled local bus service, the private bus company provides "school tripper" service to all the high schools and the middle schools and to some of the parochial elementary schools in the City. This service is provided on school days only and serves the A.M. and P.M. peak school arrivals and departures respectively. A minimum of six buses is required to serve the A.M. peak period and seven buses are needed to serve the P.M. peak period. The current average daily ridership is approximately 850 rides per day, or 53 rides per hour. This will result in 153,000 student rides this year. At the average fare of $0.333 (cash equivalent ticket), $17.68 in revenue will be generated per hour, while vehicle operating costs for 1976 are $14.82 per hour. Thus, this part of the local bus system may be expected to produce a profit of about $2.86 per bus hour over the approximate 16 bus hours of operation for 180 school days, or about $8,267 this year. In fact, it has been the profitability of this part of the operation that has in effect subsidized the regular City bus route and, thereby, enabled it to remain in existence for the past several years.

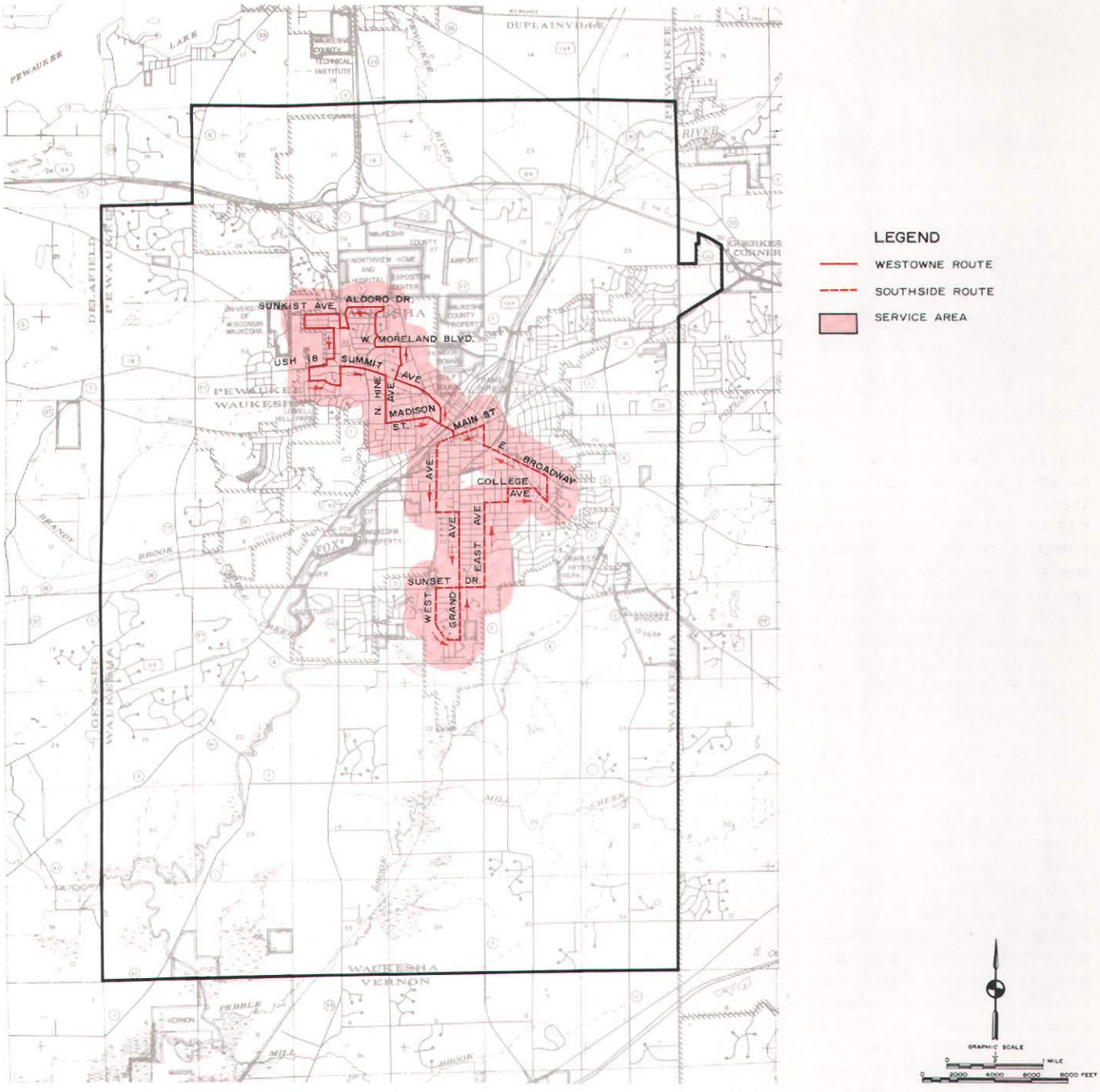
Unfortunately, even this part of the local bus operation may not survive without public assistance. As of December 1975, equipment used to provide public transit service to the City of Waukesha including the school "tripper" service consisted of nine diesel powered buses, of which eight are operational. All nine buses are at the end of their useful lives and are in need of replacement. All of the buses in local service were manufactured prior to 1955. The average age of the local bus fleet is about 24 years. Buses over 20 years old cannot be expected to furnish efficient, trouble-free, dependable transit service. Because of the increasing unavailability of spare parts, the old fleet may be expected to become increasingly more difficult and costly to operate and maintain.

The private operator cannot afford to invest in new equipment because his capital recovery costs would increase his operating costs so that even the school tripper portion of the City bus service would become

[1] *This service was terminated following May 28, 1976.*

Map 21

EXISTING CITY OF WAUKESHA BUS SYSTEM: 1976



Source: SEWRPC.

unprofitable. Without public assistance in the replacement of the present obsolete bus fleet, the school tripper service, regardless of its current profitability, faces an uncertain future.

Effect of This Alternative on Local Taxicab Service

The two privately owned taxicab companies presently serving the City are the Yellow Taxicab Company and the Checker Taxicab Company. Together these two firms serve between 450 and 500 trips per day. It can be seen from the level of riding—500 trips by taxi vs. 75 trips by bus—that the taxicab system has become, in fact, the practical alternative to local city bus service for those persons who find it necessary or desirable to depend on public transportation and who are able to afford the cost of the ride or live beyond the limited

service area of the existing two route-one bus transit system. The average taxicab fare currently approximates $1.40 per trip. The taxicab, like the bus, is highly labor intensive. The taxicab, however, has an even lower maximum vehicle productivity rate—passengers served per vehicle hour—than the bus. Given a continuation of the trends in labor costs, it may be expected that without public subsidy, larger and/or more frequent rate increases will be necessary to maintain the profitability of the taxicab service. This will continue until those persons dependent upon public transportation, especially the young, the old, the handicapped, the poor, and the autoless are no longer able to afford the cost of the ride and finally one, then both taxicab companies, will cease to be able to operate profitably because of declining patronage.

NEED FOR PUBLIC TRANSPORTATION

The people of the City of Waukesha depend heavily upon the availability of transportation for obtaining the basic goods, services, employment, and social interactions necessary to sustain even a moderate standard of living. This transportation dependence characterizes any large urban population concentration since modern civilization is based upon a specialization of labor which makes people dependent upon each other for essential goods and services and, thereby, magnifies the importance of transportation in the pursuit and fulfillment of basic personal needs. Those in society who are restricted in their mobility because they have no means of travel must necessarily endure a relatively lower quality of life. Thus, those segments of the population lacking the ability to satisfy their travel needs through use of the private automobile—namely, the elderly, the poor, the young, and the infirm—are deprived of the opportunity to fully share in the benefits of modern life.

Commission inventories indicate that of the approximately 14,000 households in the Waukesha study area, over 1,100, or 8 percent, do not have an automobile available to the residents of the household; and that an additional approximately 6,200 households, or 44 percent of the total households, have only one automobile available. Clearly, those persons living in zero car households are dependent either upon others or upon public transportation for exercise of necessary or desired tripmaking. In those households where the single available automobile is preempted for use by some member or members of the household, remaining household members become dependent upon others or public transportation for tripmaking during periods when the single auto is unavailable. For those who can both drive and afford to drive, second and third automobiles provide the solution to what otherwise might be an acute mobility problem.

The increasing cost of travel by transit and taxi and the overall decline in the quality and availability of transit service may force those members of society for whom owning and driving an automobile is not a feasible alternative to limit their travel to only the most essential trips. Moreover, those essential trips may have to be made at a relatively high cost and often those affected are the least able to afford that high cost. When people are prevented from satisfying their full travel demand potential in the pursuit of goods, services, employment, and social interaction, the entire community suffers socially and economically. Thus, public transportation can fulfill an important function in narrowing the gap existing between the quality of life of those who have access to an automobile and of those who do not.

Persons who have a choice other than public transportation for meeting their travel demand are highly sensitive to the level of service provided by public transportation relative to that provided by the automobile. Public transportation has not been able to compete effectively with the automobile in this respect; consequently, choice riders have steadily forsaken public transportation, as fares have increased and service declined, to travel instead by auto. That portion of the population dependent upon other persons or upon public transportation—the captive users of public transportation—has been left to bear the burden of increased fares and reduced transit service and has been forced to limit its own tripmaking to what is available in the service area at a particular time and at costs considered tolerable when measured against the importance of the trip and the users' ability to pay. Thus, over time, the declining use of public transportation by even captive riders, combined with the declining use by choice riders, has made the financing of transit service out of the fare box increasingly difficult. The response of private, profit oriented companies providing transit service has been to increase fares and reduce service—a repetitive cycle which has led inevitably to the collapse of all private transit service. Thus, given existing social values, travel costs, and trip characteristics, public transportation, which is highly labor intensive, must be ultimately publicly subsidized if it is to provide a reasonable level of service or if, indeed, it is to survive in any form at all. The regular riding of the captive user alone—often those who can least afford increasing travel costs—cannot sustain the cost of supplying the community with a public transportation system.

Public transportation, nevertheless, is considered by many to be an important community value. The cost of providing a public transportation system that supplies a reasonable level of transportation service for residents of the urban area, to use as they need or desire, must be weighed against the value derived from the public-supported service just as such costs must be weighed against the value derived from public fire and police protection, public recreation facilities, and public libraries. The community must decide whether the value of a public transportation system outweighs the costs entailed.

In light of the preceding discussion, there are two major reasons for rejecting the do nothing alternative, and providing a public subsidy to maintain at least a minimum level of public transportation service. Without public support for at least the school tripper service, 850 City student riders per day would be left without public transportation to and from school. Substitute, and probably more costly, transportation would have to be provided, either publicly or privately. This dilemma is

compounded by the fact that the public school district already provides free school bus service to students living outside the City but does not provide such service to students living within the City even though the City comprises 72 percent of the equalized assessed valuation of the school district.

The second major reason for favoring the continued provision of some form of public transportation acknowledges a public responsibility to the captive users of public transportation who, even though they may represent a relatively small segment of the total population should, in the interest of social justice, be provided with some means of satisfying their basic travel needs. The need for some form of public transportation, therefore, exists; and in a growing and maturing City such as Waukesha with an expanding population now approaching 50,000 persons, this need can be expected to grow. Thus, a need exists to find the most cost-effective manner of providing the necessary public transportation service and, in so doing, to balance the needs and desires of both choice and captive users within the community.

FIXED ROUTE—FIXED SCHEDULE TRANSIT SERVICE

Alternative 2—Publicly Subsidize the 1976 Level of Fixed Route City Bus Service

Under Alternative 2, the City would publicly subsidize a privately owned bus system at the level of service that existed prior to May 28, 1976. Federal and local monies would be used to upgrade the fleet providing this service and federal, state, and local monies would be used to subsidize continued operation of the service. There would be no change in the two existing City routes. Bus service would continue to be provided on one-hour headways Mondays through Fridays from 8:00 a.m. to 6:00 p.m., excluding holidays. In addition to the two local City routes, peak period school tripper service would also be continued. While this peak period service would still only be provided to serve the a.m. and p.m. peak arrivals and departures from the public high schools and middle schools and parochial schools, some changes would be made. First, City routed school bus service would also serve St. William's Elementary School. Second, the service would be available as a "many-to-few" subscription service with minor adjustments to routes made each year on the basis of changes in the location of student concentrations in the City and riding demand.

The one-way user fare over the five year planning period would remain $0.50 for adults, $0.25 for children age 6-11, and $0.333 (cash equivalent ticket) for students. Holding the fares constant would, if general price inflation continues, represent a relative decrease in the cost of the bus ride over the planning period. As a prerequisite to obtaining federal and state funds to assist the local community in subsidizing any operating deficit and capital equipment purchases, a half-fare program of $0.25 per ride for the elderly and the handicapped would have to be instituted in conformance with the most recent federal regulations. In addition, a reduced fare incentive for monthly and/or school year bus passes could be developed to promote additional ridership.

To continue the level of transit service that existed in early 1976, it would be necessary to acquire nine new buses to replace all those that provided local transit service within the City of Waukesha. Under this alternative, the City of Waukesha, with federal assistance, would purchase two 15- to 26-passenger air conditioned buses equipped to carry the handicapped and lease these buses to the private operator to provide local transit service and would purchase seven 45-passenger air conditioned buses for lease to the private operator to provide the special peak period service. The capital investment requirements for Alternative 2 are set forth in Table 29. A modest marketing program would be implemented in 1977 consisting of the erection of bus stop signs at all designated bus stops on the routes; development and distribution of new, easy to read, and attractively designed bus schedules; and an advertising campaign directed at those within the service area of the two local bus routes. The school tripper service would be more widely marketed and promoted throughout its service area as providing a peak hour service in an effort to encourage more than just school ridership.

Ridership in 1976 on the two local City bus routes has averaged about 75 rides per day. If Alternative 2 is selected, ridership of the elderly and handicapped may be expected to increase by 15 to 20 percent in 1977, with institution of the half-fare program for such riders. This should offset any further ridership declines which ordinarily might be expected to occur and should result in a net ridership gain of about 7 percent in 1977. By 1978 a new bus would be placed in service. With acquisition of this new equipment and the benefit of bus stop signs marking the route, new schedules and other modest marketing techniques, ridership could be expected to continue to increase somewhat through 1981 when daily ridership could be expected to average 85 rides, a 13 percent increase over the five year planning period, but still below the 88 rides per day experienced in May 1972.

Ridership on the school tripper service this year is expected to average about 850 rides per day. The Waukesha Public School system has estimated that school enrollments may be expected to increase at the rate of about 2 percent per year over the next five years. On the basis of this projection, and with the implementation of a flexible subscription service routing, school tripper bus riding could be expected to increase by about 6 percent over the five year planning period.

Based upon preceding ridership projections, total daily and annual bus hours of operation can remain constant over the five year planning period at 10 hours per day and 2,550 hours per year in local City route service and 16 hours per day and 2,880 hours per year in peak period school tripper service to accommodate ridership demands. Vehicle productivity would range between 7.5 to 8.5 passengers per hour on the local City routes and between 53 and 56 passengers per hour on the school trippers. Operating costs per bus hour are estimated to increase 7 percent per year, ranging between $14.82 per bus hour in 1976 and $20.79 per bus hour in 1981.

Table 29

CAPITAL EQUIPMENT REQUIRED TO PROVIDE TRANSIT SERVICE
UNDER ALTERNATIVE 2–1976 EXISTING FIXED ROUTE SERVICE

Year	Quantity	Description	Estimated Cost	
			Unit (in Dollars)	Total (in Dollars)
1977	2	15- to 26-passenger air conditioned buses equipped to serve the handicapped for use in local service	30,000	60,000
1977	7	45 passenger air conditioned buses for use in peak period school tripper service. These buses cannot be used exclusively for school tripper service and are to be available for general public riding.	65,000	455,000
1977	100	Bus stop and information signs	25 (Installed)	2,500
		Total Capital Investment		517,500
		Contingency Fund		51,700
		Grand Total		569,200
		Federal Share (80 percent)		455,400
		Local Share (20 percent)		113,800

Source: SEWRPC.

While ridership is expected to increase slightly over the five year planning period on the local City routes, the increase in riding is not expected to keep pace with the increase in operating costs. Hence, the cost of serving each trip on the two local City routes would increase from $1.98 in 1976 to $2.45 in 1981. Since only an average of $0.40 per ride would be generated in fare box revenue over the same five year period, the total annual operating deficit for the two City routes could be expected to increase from about $30,000 in 1976 to about $44,000 in 1981. Thus, the required subsidy per ride for the same period would range between $1.58 and $2.05.

The school tripper service as it exists today continues to be a profitable operation. Were it not for the deteriorated condition of the existing bus fleet, which the private operator cannot afford to replace, this portion of the local bus system could continue without a subsidy until 1980 at which time the cost per ride—$0.35—could be expected to exceed the revenue per ride—$0.333. As a result, the required subsidy for school tripper service in 1980 is estimated to be $2,370 and increase to $6,290 in 1981, based on a required subsidy of $0.02 per ride and $0.04 per ride respectively.

Table 30 illustrates in more detail the anticipated result of selecting this alternative. Key assumptions used in development of this table are also listed.

There are many serious deficiencies inherent in the bus system that existed in early 1976 which would not be remedied under this alternative. The most grave of these relate to the quality of service being provided. As already indicated, the bus system existing in early 1976 consisted of two fixed reverse routes served by one bus operating on one-hour headways (see Map 21). Use of reverse routes is a technique that involves shunting an outbound run to an adjacent line for the inbound run. The apparent advantage of using this method of routing is that one bus can cover an area which normally would require two buses operating over separate fixed routes. Thus, one bus seems to do the work of two. The disadvantage of this technique is borne by the passenger along the outbound portion of the route who, wishing to go to the central business district, is forced to board the outbound bus, ride it to the end of the outbound line, ride the loop and then ride into the center of town. This pattern has the effect of greatly increasing passenger travel time. This method of routing should be used sparingly and judiciously. When consideration is being given to the use of this technique, the reverse loop travel time should be a small part of the total trip travel time or the loop should be a small percentage of the total route length. It is apparent from Map 21 that the existing reverse routes contain loops which encompass nearly the entire routes. As a result, they are not designed to encourage riding. The average travel time on these routes is about 20 minutes or about twice as long as a normal line haul bus ride of 10 minutes to cover the same distance.

Table 30

TRANSIT SYSTEM CHARACTERISTICS OF ALTERNATIVE 2 TO CONTINUE EXISTING FIXED ROUTE CITY BUS SYSTEM: 1976-1981

Characteristic	1976	1977	1978	1979	1880	1981
Ridership Estimates						
Local City Routes						
Daily	75.00	80.00	83.00	84.00	85.00	85.00
Annual	19,125.00	20,400.00	21,165.00	21,420.00	21,675.00	21,675.00
School Trippers						
Daily	850.00	872.00	881.00	888.00	894.00	900.00
Annual	153,000.00	156,960.00	158,580.00	159,840.00	160,920.00	162,000.00
Total						
Daily	925.00	952.00	964.00	972.00	979.00	985.00
Annual	172,125.00	177,360.00	179,745.00	181,260.00	182,595.00	183,675.00
Vehicle Hours of Service						
Local City Routes						
Daily	10.00	10.00	10.00	10.00	10.00	10.00
Annual	2,550.00	2,550.00	2,550.00	2,550.00	2,550.00	2,550.00
School Trippers						
Daily	16.00	16.00	16.00	16.00	16.00	16.00
Annual	2,880.00	2,880.00	2,880.00	2,880.00	2,880.00	2,880.00
Total						
Daily	26.00	26.00	26.00	26.00	26.00	26.00
Annual	5,430.00	5,430.00	5,430.00	5,430.00	5,430.00	5,430.00
Passengers Per Vehicle Hour						
Local City Routes	7.50	8.00	8.30	8.40	8.50	8.50
School Trippers	53.10	54.50	55.10	55.50	55.90	56.30
System Average	31.60	32.60	33.10	33.40	33.60	33.80
Annual Revenue Estimates						
Local City Routes ($0.40 per ride)	$ 7,650.00	$ 8,160.00	$ 8,466.00	$ 8,568.00	$ 8,670.00	$ 8,900.00
School Trippers ($0.333 per ride)	50,900.00	52,300.00	52,800.00	53,200.00	53,600.00	53,946.00
System Total ($0.34 per ride)	$ 58,550.00	$ 60,460.00	$ 61,266.00	$ 61,768.00	$ 62,270.00	$ 62,870.00
Operating Cost Per Bus Hour	$ 14.82	$ 15.86	$ 16.97	$ 18.16	$ 19.43	$ 20.79
Operating Cost Per Ride						
Local City Routes	$ 1.98	$ 1.98	$ 2.04	$ 2.16	$ 2.29	$ 2.45
School Trippers	0.28	0.29	0.31	0.33	0.35	0.37
System Average	0.47	0.48	0.51	0.54	0.58	0.61
Operating Cost Per Year						
Local City Routes	$ 37,791.00	$ 40,443.00	$ 43,274.00	$ 46,308.00	$ 49,546.00	$ 53,014.00
School Tripper	42,700.00	45,700.00	48,900.00	52,300.00	56,000.00	59,900.00
System Total	80,491.00	86,143.00	92,174.00	98,608.00	105,546.00	112,914.00
System Income (or Deficit)						
Local City Routes						
Per Ride	($ 1.58)	($ 1.58)	($ 1.64)	($ 1.76)	($ 1.89)	($ 2.05)
Annual	(30,100.00)	(32,300.00)	(34,800.00)	(37,800.00)	(40,900.00)	(44,300.00)
School Trippers						
Per Ride	0.05	0.04	0.02	--	(0.02)	(0.04)
Annual	8,200.00	6,600.00	3,900.00	36,900	(2,400.00)	(6,000.00)
System Total						
Per Ride	(0.13)	(0.14)	(0.17)	(0.20)	(0.24)	(0.28)
Annual	(21,900.00)	(25,700.00)	(30,900.00)	(36,900.00)	(43,300.00)	(50,300.00)
Deficit as Percent of Operating Cost						
Local City Routes	79.60	79.90	80.40	81.60	82.50	83.60
School Trippers	--	--	--	--	4.30	10.00
System Total	27.20	29.80	34.60	37.40	41.00	44.50
Estimated Public Subsidy Requirements						
Total	$ 21,900.00	$ 25,700.00	$ 30,900.00	$ 36,900.00	$ 43,300.00	$ 50,300.00
Federal (50 percent)	11,000.00	12,800.00	15,450.00	18,400.00	21,700.00	25,100.00
State (33.3 percent)	7,300.00	8,600.00	10,300.00	12,300.00	14,400.00	16,800.00
Local (16.7 percent)	3,600.00	4,300.00	5,150.00	6,200.00	7,200.00	8,400.00

Table 30 (continued)

NOTE: Local City Route Key Assumptions:

1. *Existing and anticipated ridership composition;*

   55-60 percent adult (full fare)
   40 percent elderly, handicapped and children
   0-5 percent students

2. *Fare:*

Adults	*$0.50*
Elderly and Handicapped	*0.25*
Children Aged 6-11 Years	*0.25*
Students	*0.333 (cash equivalent ticket)*
Average Fare	*$0.40*

3. *1977 first full year elderly and handicapped half-fare program, begin modest marketing program bus stop sign, new schedules.*

4. *1978 first full year of operation with new buses.*

5. *Operating characteristics Mondays to Fridays (excluding holidays):*

   60-minute headways
   8:00 a.m. - 6:00 p.m.
   255 operating days/year

6. *Annual operating costs will increase at the rate of 7 percent per year.*

7. *1976 operating costs $14.82.*

8. *Ridership will approach but not exceed 88 rides per day level of May 1972 over five year planning period.*

School Tripper Key Assumptions:

1. *Average daily ridership will increase 6 percent by 1981 from 850 rides per day to 900 rides per day.*

2. *School enrollment will increase 10 percent by 1981 (Source: Waukesha Public Schools).*

3. *Many-to-few subscripton type city school bus service will be implemented in fall of 1977.*

4. *180 operating days per year a.m. and p.m. peaks (only).*

Source: SEWRPC.

Although these two reverse routes serve two areas of the City having some of the highest population densities in the community, 3,500 to 12,000 persons per square mile, present and probable future ridership under these conditions would be so low as to make justification of this continued service difficult. The two fixed routes do not provide sufficient coverage of the study area, thus leaving many potential origins and destinations of transit travel not served. As a result only a fraction of the population would benefit by the continuation of this service while the entire community would participate in providing local funds for capital equipment purchases and subsidy of the operating deficit. Continued use of reverse routes, combined with one-hour headways between buses tends to discourage, rather than encourage, ridership and thereby continues to generate a low level of use while operating costs and, therefore, transit system deficits persistently increase.

School tripper service fulfills a significant community-wide need. This service has demonstrated continued strong ridership support as reflected in its current profitability. Were it not for the deteriorating condition of the existing bus fleet, this part of the local City bus system would be able to sustain itself with little or no additional public financial assistance through the five year planning period. For an initial local share investment of approximately $90,000 to purchase a fleet of new buses, this part of the local bus service could continue to provide a strong transit riding base.

This alternative represents, in part, the one that the City of Waukesha initiated in January 1971 with the provision of a local subsidy which was discontinued June 1, 1976. The evaluation of this alternative has set forth an estimate of the required annual operating subsidy for each of the five years, 1976 through 1981; indicated the potential amounts of operating assistance from federal, state, and local sources; and outlined the capital investment required to continue the level of service provided in 1976. Further, the analysis has demonstrated the successful school tripper service, the need for continuation of such service, and the opportunity for using it as a base to reestablish a more viable transit system within the Waukesha study area.

Alternative 3—Publicly Subsidize An Improved and Expanded Fixed Route City Bus System

Under Alternative 3, the City of Waukesha would take action to eliminate many of the deficiencies in the existing bus service by developing an improved and expanded fixed route City bus system. While there are several alternative management structures under which the City may provide publicly supported mass transportation within the area, three provide potential for consideration: 1) continue private ownership of the transit system but provide public subsidy to offset operating deficits; 2) acquire the operating rights of the private transit operator and provide transit services as a new public operating agency; and 3) acquire the operating rights of the private transit operator but contract with a transit management firm to provide the transit services. In southeastern Wisconsin, the City of Kenosha owns and operates the transit system serving the Kenosha urbanized area while both the City of Racine and Milwaukee County own the transit system serving their areas but their systems are operated by a private operator under management contract to the public agency. Under Alternative 3, the City of Waukesha would acquire the existing public transit service consisting of local and school tripper routes and contract for operation of the transit system with a transit management firm. Because the local Waukesha transit system is only a part of Wisconsin Coach Lines, Inc., acquisition of that portion of the corporation would have to be negotiated between the City and the corporation. Such negotiations would involve the rights of the current employees, the acquisition of buses currently providing the local and school tripper services, buses which are in need of replacement, and possibly acquisition of a portion of maintenance and storage facilities. The contract with the management firm for the provision of mass transportation services could include day-to-day operating management, bus driver, and maintenance and storage facilities and services.

The first subalternative considered under Alternative 3 consisted of four fixed routes covering most of those areas of the City having the highest population densities per square mile (see Map 22). Two of these routes would continue to serve the same area covered in early 1976 on the northwest side of the City. On the south side of the City a little more than one-half the present service area would be covered by the third route and the fourth route would extend service to the southeastern part of Waukesha. The round trip route mileage of each route approximates six miles and, assuming a 15 mph average travel speed, round trip travel time would be 30 minutes including layover. Through use of four buses, headways on each route could be reduced from one hour to 30 minutes, which should be considered a maximum base headway. All buses would be routed through the central business district, and service on the four routes would be scheduled so that all buses meet at a common stop in the central business district to facilitate transfers. Service would be available Mondays through Fridays, excluding holidays, between 6:00 a.m. and 6:00 p.m., an increase of two hours daily over the 10 hour operating schedule existing in early 1976. This level of service would approximate that existing in 1970 prior to initiation of drastic service cuts by the local operator to maintain profitability of the system. The existing school tripper service would continue to be provided as was described under Alternative 2.

Under this alternative the one-way user fare would be reduced to $0.40 for adults, $0.20 for children aged 6-11 years, and $0.333 (cash equivalent ticket) for students. A half-fare program of $0.20 per ride would be instituted for the elderly and the handicapped. A modest marketing program would also be implemented in 1977, consisting of the erection of bus stop signs at all designated bus stops along the route, development and distribution of new easy to read attractively designed bus schedules and an advertising campaign directed to persons living within the service area of the four bus routes.

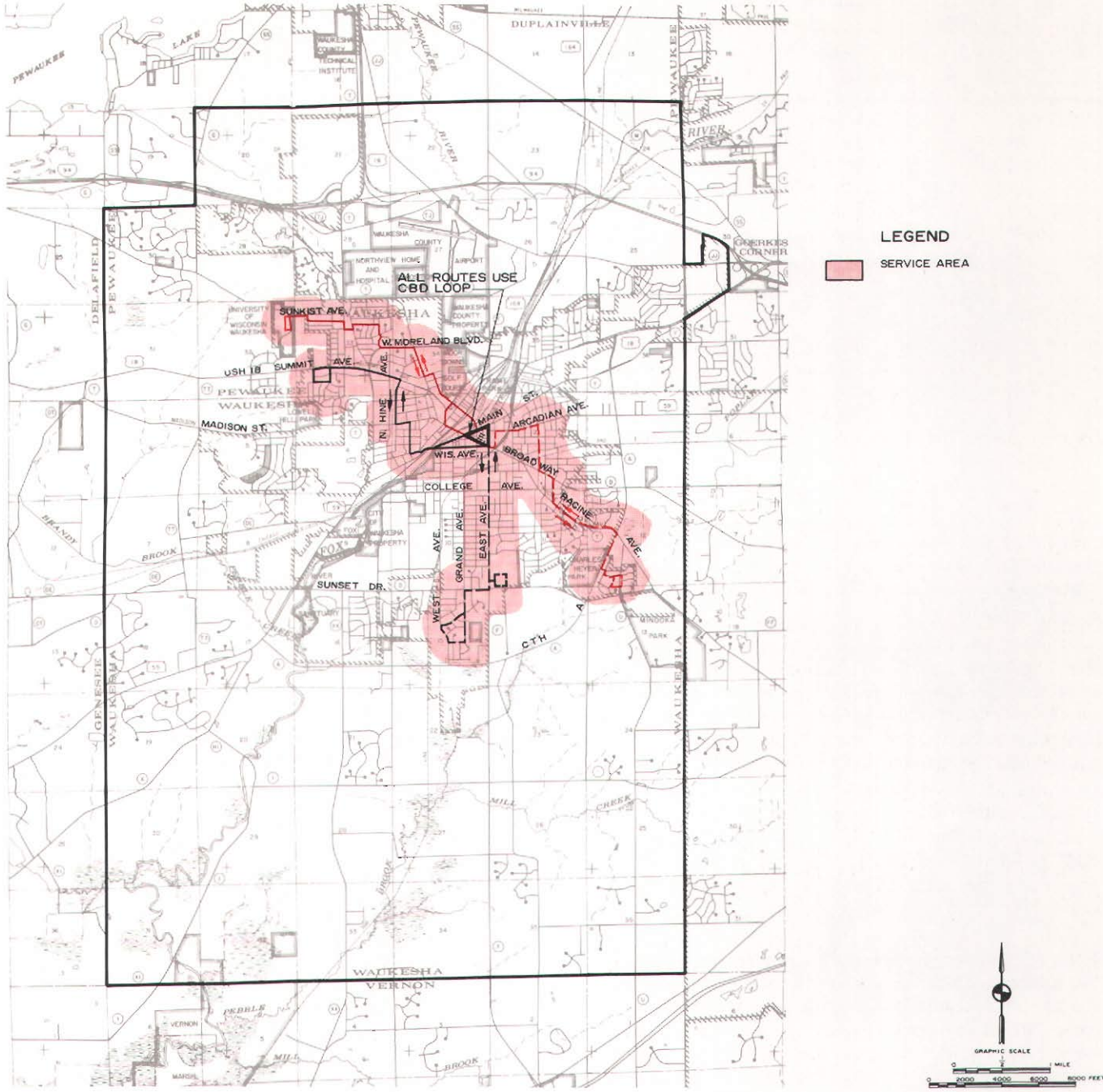
To reinstitute local transit service under this alternative will require the purchase of five 15- to 26-passenger buses for provision of local service and seven larger buses to replace that part of the existing fleet providing the peak period school oriented transit service. The estimated costs of capital equipment required to implement transit service under this alternative are set forth in Table 31 and total approximately $675,000 of which the local share is about $135,000. Acquisition costs of the private operator must also be considered.

Upon implementation of the improved and expanded local bus system in 1978, following delivery of the five specially equipped buses for local service, ridership could be expected to average about 430 rides per day, almost a fivefold increase over ridership existing in early 1976 and could be expected to continue to increase through the 1981 planning period, another 25 percent over the ridership forecast for 1978. It is, therefore, expected that by 1) improving and expanding the existing City bus routes from two to four, 2) eliminating the reverse route features, 3) expanding the hours of operation from 10 hours to 12 hours, 4) reducing the headway from 60 minutes to 30 minutes, 5) reducing the general fares 20 percent to $0.40 for adults, 6) instituting a half-fare program for the elderly and the handicapped, 7) purchasing new buses and, 8) making no further increase in fare over the planning period, that ridership on the local system will approximate 110,000 per year in 1978, increasing to about 139,000 in 1981; these ridership estimates are still well below the approximately 213,000 rides on the local Waukesha transit system in 1970. It is not expected that the level of riding that existed in 1970 can be fully realized when the public school system was subsidizing bus rides of in-City students living more than two miles from the school they attended. This subsidy of school trips resulted in a significant number of students riding on the local bus system as well as the school tripper service, rides reflected in the total ridership in 1970.

Vehicle hours of operation would increase sharply with initiation of this new service in 1978 from the 2,550 vehicle hours per year in 1976 to 12,240 vehicle hours per year when the four route system is implemented. The number of bus hours of operation required from

Map 22

ALTERNATIVE 3–IMPROVED AND EXPANDED FOUR FIXED ROUTE CITY BUS SYSTEM



Source: SEWRPC.

1978 through 1981 would remain constant because, although the vehicle productivity—average passengers per vehicle hour—would be expected to increase from 9.0 passengers per vehicle hour in 1978 to 11.3 in 1981, the passenger loading should remain well within the capabilities of the new 15-26 passenger buses, even during the peak service hours of operation. Operating costs per bus hour are estimated to increase 7 percent per year and range between $16.97 per bus hour in 1978 and $20.79 in 1981. With implementation of the new service in 1978 and the significant increase in riding, the subsidy required per ride can be expected to decline in 1978 and 1979 over that experienced in the earlier alternative. Beyond 1979, however, ridership increases would be

Table 31

CAPITAL EQUIPMENT REQUIRED TO PROVIDE TRANSIT SERVICE UNDER ALTERNATIVE 3 FOR FOUR FIXED ROUTE SERVICE

Year	Quantity	Description	Estimated Cost	
			Unit (in Dollars)	Total (in Dollars)
1977		Acquisition of existing transit system from private operator	To Be Negotiated[a]	
1977	5	15- to 26-passenger air conditioned buses equipped to serve the handicapped for use in local service	30,000	150,000
1977	7	45-passenger air conditioned buses for use in peak period school tripper service	65,000	455,000
1977	300	Bus stop and information signs	25 (Installed)	7,500
		Total Capital Investment		612,500
		Contingency Fund		61,200
		Grand Total		673,700
		Federal Share (80 percent)		539,000
		Local Share (20 percent)		134,700

[a] *As a condition of eligibility for federal funds to subsidize a publicly operated mass transportation system the property, rolling stock, equipment and supply inventories of the private transit operator must be compensated for. In addition, any employees of Wisconsin Coach Lines, Inc., who will be adversely affected must receive just compensation under Section 13c of the 1964 UMTA Act as amended. Rolling stock and related supply and equipment inventories are estimated to cost $10,000.*

Source: SEWRPC.

expected to be more gradual and as a result not keep pace with inflationary pressures exerted on vehicle operating costs. Hence, the subsidy required per ride could again be expected to increase in 1980 and by 1981 be about $1.51 per ride. To provide this four route bus system requires an estimated total annual local share subsidy by the City of $36,000 by 1981. Detailed ridership estimates, operating cost and resulting subsidy information are set forth in Table 32, which also lists key assumptions used in its development.

Although the four fixed route bus system analyzed under this alternative represents a substantial improvement over the two fixed route system existing within Waukesha in early 1976 and serves most of those areas of the City having the highest contiguous residential development, the system does not serve several significant residential concentrations within the City, including the Pebble Valley, Singing Hills, Merrill Crest, and South Park Estates areas as well as other similar areas of the City where development along the travel corridors leading to the central business district is not significantly dense to warrant fixed route service. To consider extending fixed route bus service to these areas would be premature and costly. Many of these areas have been developed without transit service and are beyond the contiguous high-density portions of the City of Waukesha. The opportunity for extending fixed route bus service to these areas, as demand may warrant and as development fills in between these outlying residential areas and the contiguously developed portions of the City, could be monitored if this alternative transit system plan were followed.

It is estimated that about 10 fixed routes would be necessary to provide a reasonably high level of transit service throughout the City (see Map 23). Operating costs and subsequent operating deficits under such alternative fixed route (fixed schedule system) can be expected to exceed two and one-half times that of the four route system previously evaluated. It cannot be assumed that ridership increases achieved by expanding into additional areas of the City will be equal to those ridership increases currently found within the more transit productive portions of the study area. Therefore, expanding this sytem to the more complete area coverage of 10 fixed routes is estimated to require a total subsidy of about $550,000 per year in 1981, of which $92,000 would represent local funds. Table 33 sets forth important transit system characteristics under a 10 fixed route City bus system alternative for the 1978 and 1981 time periods.

DEMAND-RESPONSIVE TRANSIT SERVICE

Alternative 4—Publicly Subsidize a Demand-Responsive Transit System

This alternative was prepared to provide consideration and evaluation of demand-responsive transit service to

residents of the entire Waukesha study area. Currently, the shared-ride taxi system within the City of Waukesha is providing demand-responsive transportation as a private enterprise but, as indicated earlier in this evaluation chapter, the taxicab companies are subject to the same increasing pressures of cost that have already affected travel. Consequently, as fares increase, ridership demand is discouraged with the eventual probable elimination of the private taxi operation.

Public subsidy of a demand-responsive system may take several forms, one of which is subsidizing a portion of the current taxi fare incurred by elderly and handicapped riders. The reduced fare subsidy could be extended to low-income families within the study area or to all taxi users. As another alternative approach, the City could, through purchase of services, retain a transportation management firm to provide demand-responsive services to the study area using taxis, buses, or an appropriate mix of the two vehicle types. Under the initial subalternative, taxi fares for selected groups of the population within the study area would be subsidized so that transportation could be provided to them at a lower cost whereas under the second subalternative, a publicly owned demand-responsive transportation service using appropriate vehicle types would provide reduced fare transit source for all users within the study area.

Under a demand-responsive transit system, instead of buses operating over fixed routes on fixed schedules, taxis or small buses would provide door-to-door service on demand over flexible routes. Under this alternative, a subsidized service would be available throughout the entire City. Under the three subalternatives that subsidize taxi fares, the cost of such subsidy was assumed to represent the cost of providing taxi service 24 hours a day, 365 days a year. For purposes of comparing the subalternative that envisions a publicly owned bus-based demand-responsive transportation service with those fixed route alternatives previously discussed, service was initially assumed to be available Monday through Friday, excluding holidays, from 6:00 a.m. to 6:00 p.m. However, since the existing taxi system now provides service 24 hours a day, seven days a week, it may be desirable to have the service postulated under subalternative 4D on a similar basis. Therefore, the estimated cost of providing 24-hour service is also presented herein.

Alternative 4A—Subsidize Taxi Fares of Elderly and Handicapped

The initial demand-responsive proposal considered by the Committee, Alternative 4A, would only subsidize the fare paid by the elderly and handicapped to obtain taxicab service from the existing private taxi operators. As documented in Chapter III, 7.5 percent of the study area population is elderly and 12 percent is handicapped, as defined under the survey conducted by the Waukesha County Technical Institute. Recognizing that some of the elderly also are handicapped and that the definition of handicapped is broader than one used to define transportation handicapped, it was assumed under this alternative that 10 percent of the study area population is in the elderly and the handicapped category. Based on information from studies in other cities,[2] it was further assumed that 30 percent of the elderly and handicapped persons would use the transportation service an average of 1 1/2 trips per week. It was further assumed that the taxi fare charged the elderly and the handicapped taxi user would be limited to $0.50 per trip and that the contract between the City and the taxi companies would identify an average cost per taxi ride upon which the subsidy amount per rider would be based. This cost per ride amount would be negotiated periodically to best reflect current cost experience. All other taxi users would pay prevailing taxi fares. Further, under this alternative, school tripper service was assumed to remain as has been developed under all prior alternatives. Thus the public expense under this alternative would be subsidizing the reduced taxi fare for the elderly and the handicapped and the capital cost associated with maintaining peak period school tripper service. Operation of the taxi fleet and any capital expenses relating to providing that service would be borne by the private operator as is done at present.

Under these fare assumptions, riding by the elderly and the handicapped was projected to increase from approximately 270 riders per average day in 1977 to 420 riders per day in 1981. The fare for these riders would be set at $0.50 per trip whereas the average cost per ride may be expected to range from $1.85 to $2.50 through the planning period. The City would subsidize the difference between the average cost per ride and the $0.50 per ride paid by the elderly and the handicapped. The total cost to the public to subsidize the fares of the elderly and the handicapped ranges from $132,000 per year in 1977 to $308,000 per year in 1981. To provide this taxi service at a reduced fare to the elderly and handicapped residents of the study area will require an estimated total annual local share subsidy by the City of about $52,000 per year in 1981. Detailed ridership estimates, operating costs, and resulting subsidy information are set forth in Table 34.

Alternative 4B—Subsidize Taxi Fares of Elderly, Handicapped, and Low-Income Families

If reduced taxi fares also were extended to lower-income families, estimated to represent an additional 5 percent of the study area population, and, if they were assumed to desire to travel at the rate that do the elderly and handicapped, then a public subsidy requirement of $225,000 per year in 1977 and $463,000 per year in 1981 may be expected to provide the 50 cent out-of-pocket cost demand-responsive shared taxicab rides for these three subcategories of the study area population. Detailed ridership estimates, operating costs, and resulting subsidy information under this subalternative, 4B, are set forth in Table 35.

Alternative 4C—Subsidize Taxi Operations Under Reduced Fare Structure

Under the third alternative means of subsidizing the existing shared-ride taxi operation to provide improved mass transportation to users within the study area, it was

[2] *Transportation Research Board Record 516, Transportation for the Poor, the Elderly, and the Disadvantaged.*

Table 32

TRANSIT SYSTEM CHARACTERISTICS OF ALTERNATIVE 3A FOR A FOUR FIXED ROUTE AND IMPROVED SERVICE CITY BUS SYSTEM: 1978 and 1981

Characteristic	1976	1977[a]	1978	1979	1980	1981
Ridership Estimates						
Local City Routes						
Daily	75.00	80.00	432.00	494.00	518.00	542.00
Annual	19,100.00	20,400.00	110,200.00	126,100.00	132,200.00	138,900.00
School Tripper						
Daily	850.00	872.00	881.00	888.00	894.00	900.00
Annual	153,000.00	157,000.00	158,600.00	159,800.00	160,900.00	162,000.00
Total						
Daily	925.00	877.00	1,313.00	1,382.00	1,412.00	1,442.00
Annual	172,100.00	177,400.00	268,800.00	285,900.00	293,100.00	300,900.00
Vehicle Hours of Service						
Local City Routes						
Daily	10.00	10.00	48.00	48.00	48.00	48.00
Annual	2,550.00	2,550.00	12,240.00	12,240.00	12,240.00	12,240.00
School Tripper						
Daily	16.00	16.00	16.00	16.00	16.00	16.00
Annual	2,880.00	2,880.00	2,880.00	2,880.00	2,880.00	2,880.00
Total						
Daily	26.00	26.00	64.00	64.00	64.00	64.00
Annual	5,430.00	5,430.00	15,120.00	15,120.00	15,120.00	15,120.00
Passengers Per Vehicle Hour						
Local City Routes	7.50	8.00	9.00	10.30	10.80	11.30
School Trippers	53.10	54.50	55.10	55.50	55.90	56.30
System Average	31.70	54.50	17.80	18.90	19.40	19.90
Average Revenue Estimates						
Local City Routes ($0.40 per ride)	$ 7,700.00	$ 8,200.00	$ 35,300.00	$ 40,300.00	$ 42,300.00	$ 44,500.00
School Trippers ($0.333 per ride)	50,900.00	52,300.00	52,800.00	53,200.00	53,600.00	53,900.00
System Total ($0.34 per ride)	58,600.00	60,500.00	88,100.00	93,500.00	95,900.00	98,400.00
Operating Cost Per Bus Hour	$ 14.82	$ 15.86	$ 16.97	$ 18.16	$ 19.43	$ 20.79
Operating Cost Per Ride						
Local City Routes	$ 1.98	$ 1.98	$ 1.88	$ 1.76	$ 1.80	$ 1.83
School Trippers	0.28	0.29	0.31	0.33	0.35	0.37
System Average	0.47	0.48	0.95	0.96	1.00	1.04
Operating Cost Per Year						
Local City Routes	$ 37,800.00	$ 40,400.00	$207,700.00	$222,300.00	$237,800.00	$254,500.00
School Tripper	42,700.00	45,700.00	48,900.00	52,300.00	56,000.00	59,900.00
System Total	80,500.00	86,100.00	256,600.00	274,600.00	293,800.00	314,400.00
System Income (or Deficit)						
Local City Routes						
Per Ride	($ 1.58)	($ 1.58)	($ 1.56)	($ 1.44)	($ 1.48)	($ 1.51)
Annual	($ 30,100.00)	($ 32,300.00)	($172,400.00)	($181,900.00)	($195,000.00)	($210,000.00)
School Trippers						
Per Ride	($ 0.05)	($ 0.04)	($ 0.02)	--	($ 0.02)	($ 0.04)
Annual	$ 8,200.00	$ 6,600.00	$ 3,900.00	$ 900.00	($ 2,400.00)	($ 6,000.00)
System Total						
Per Ride	($ 0.13)	($ 0.14)	($ 0.63)	($ 0.63)	($ 0.68)	($ 0.72)
Annual	($ 21,900.00)	($ 25,700.00)	($168,500.00)	($181,000.00)	($197,400.00)	($216,000.00)
Deficit as Percent of Operating Costs						
Local City Routes	79.60	80.00	83.00	81.80	82.00	82.50
School Trippers	--	--	--	--	4.30	10.00
System Total	27.20	29.80	66.00	65.90	67.20	68.70
Estimated Public Subsidy Requirements						
Total	$ 21,900.00	$ 25,700.00	$168,500.00	$181,000.00	$197,400.00	$216,000.00
Federal (50 percent)	1,000.00	12,800.00	84,250.00	90,500.00	98,700.00	108,000.00
State (33.3 percent)	7,300.00	8,600.00	56,200.00	60,300.00	65,800.00	72,000.00
Local (16.7 percent)	3,600.00	4,300.00	28,050.00	30,200.00	32,900.00	36,000.00

Table 32 (continued)

NOTE: Local City Route Key Assumptions: 1. *Existing and anticipated ridership composition 55-60 percent adult (full fare); 40 percent elderly, handicapped, and children; 0-5 percent students.*

2. *Fare Adults* $0.40
   Elderly and handicapped 0.20
   Children aged 6-11 years 0.20
   Students 0.333 (cash equivalent fare)
   Average Fare $0.32

3. *1977 first full year elderly and handicapped.*

4. *Existing service will be maintained until new buses arrive in late 1977.*

5. *Operating Characteristics: 1978-1981.*

   Mondays-Fridays (excluding holidays)
   30-minute headways
   6:00 a.m. - 6:00 p.m.
   255 operating days per year

6. *Annual rate of inflation 7 percent per year.*

7. *1976 operating costs $14.82.*

8. *Ridership will increase significantly but not exceed 212,684 rides per year in 1970[b] over a five year planning period.*

[a] *Table 32 developed under the assumption that the existing city bus routes would continue to operate with a public subsidy through 1977 when a new bus fleet would provide improved and expanded service. However, the existing service was discontinued May 28, 1976, and under the alternative would now not be expected to begin again until new equipment is acquired in 1978.*

[b] *The 1970 level of bus service in the City of Waukesha included:*

1. *Westowne Route*	*30 minutes*
2. *West Route*	*60 minutes*
3. *South Route*	*30 minutes*
4. *North Route*	*60 minutes*
5. *East Route*	*60 minutes*

Fares included: *$0.25 adults*
$0.15 children aged 6-11 years
$0.175 students (cash equivalent ticket)

Service was provided Mondays-Fridays excluding holidays from 6:00 a.m. to 6:00 p.m. and Saturdays from 8:00 a.m. to 6:00 p.m.

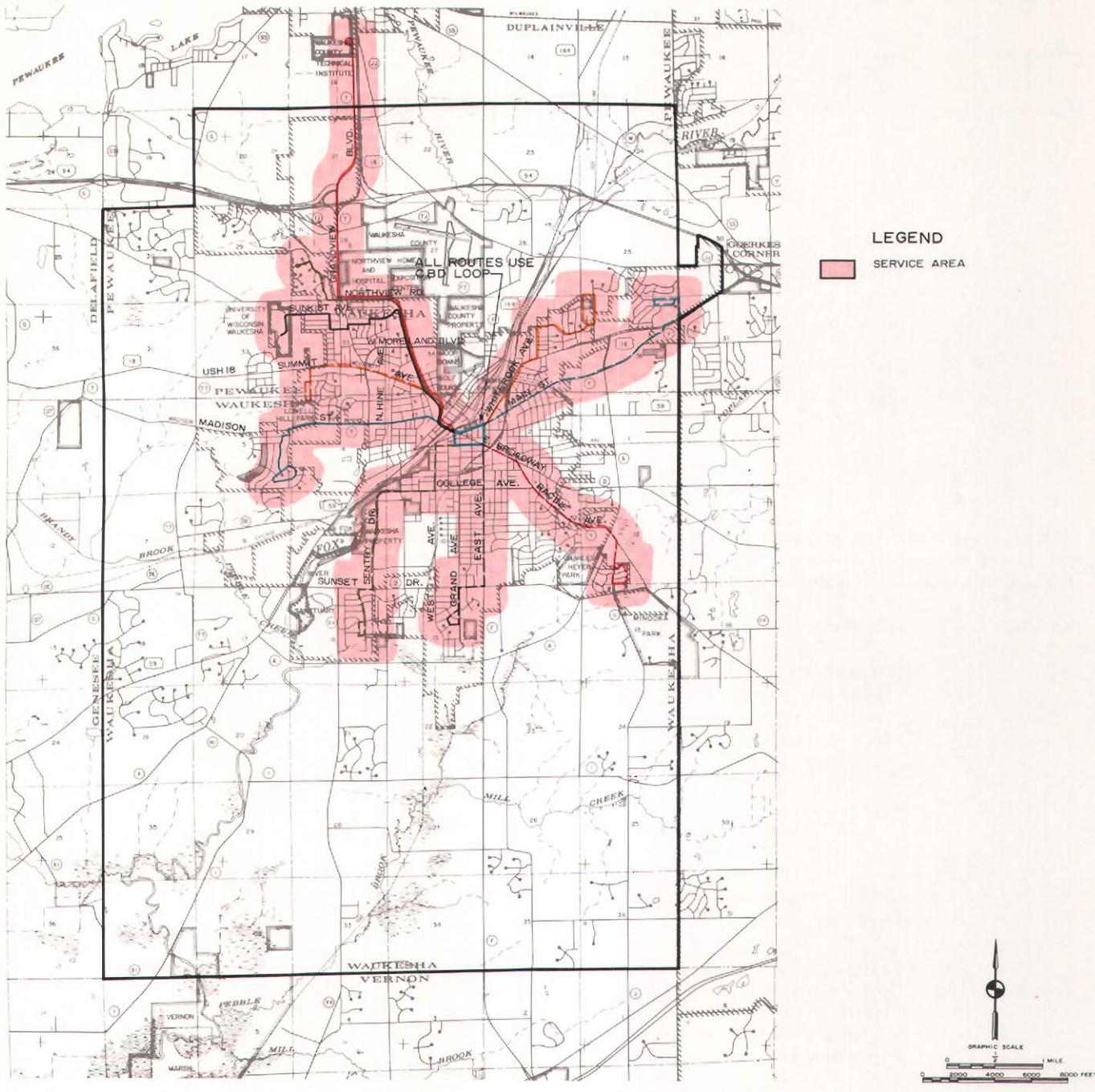
Prior to 1971, the Waukesha public school board subsidized bus rides for in-city students living more than two miles from the school they attended. This resulted in a significant amount of student riding on the local bus system and is reflected in the 212,684 rides recorded for the local city bus system in 1970. In 1971 subsidized bus rides for students living in the City was discontinued. This resulted in a large drop in riding, all of which cannot be expected to be recovered under Alternative 2.

Source: SEWRPC.

assumed that the City would subsidize the fare of all users of the taxi system. Under subalternative 4C, the fare of adult taxi users was set at $1.00; and half-fare, or $0.50 per trip, taxi fares were set for the elderly, and handicapped, and children between the ages of 6 and 11. Further, under this alternative, the taxicab companies would continue to provide an adequate level of service wherein the City of Waukesha would pay that portion of the cost of providing such service not covered by the revenue obtained from the users. Under this alternative, it was anticipated that, with public subsidy of the operation, driver wages would be higher than those currently paid under private operation in order, in part, to compensate for the potential loss of gratuities the current drivers receive and to recognize the increased expense to operate and maintain the higher-quality vehicle fleet that the public agency would require. Under these reduced fares, average daily ridership—based on a 24-hour

Map 23

ALTERNATIVE 3—IMPROVED AND EXPANDED 10 FIXED ROUTE CITY BUS SYSTEM



Source: SEWRPC.

day, 365-day year rather than the 12-hour day, five-day-per-week schedule considered under the fixed route alternative—is estimated to increase from 450 to nearly 590 per day. This ridership, at an average of nearly five persons per vehicle hour, requires increased number of vehicles and hours of service from 90 per day in 1970 to 120 per day in 1981. The annual public subsidy required under this alternative is estimated to range between $324,000 per year in 1977 to nearly $600,000 per year in 1981, requiring a local subsidy share range of $54,000 in 1977 to $100,000 per year in 1981. The details of taxi system characteristics developed under this alternative

Table 33

TRANSIT SYSTEM CHARACTERISTICS OF ALTERNATIVE 3B FOR A 10 FIXED ROUTE AND IMPROVED SERVICE CITY BUS SYSTEM: 1978 and 1981

Characteristic	1978	1981
Ridership Estimates		
Local City Routes		
Daily	840.00	1,056.00
Annual	214,200.00	269,300.00
School Tripper		
Daily	881.00	900.00
Annual	158,600.00	162,000.00
Total		
Daily	1,721.00	1,956.00
Annual	372,800.00	431,300.00
Vehicle Hours of Service		
Local City Routes		
Daily	120.00	120.00
Annual	30,600.00	30,600.00
School Tripper		
Daily	16.00	16.00
Annual	2,880.00	2,880.00
Total		
Daily	136.00	136.00
Annual	33,480.00	33,480.00
Passengers Per Vehicle Hour		
Local City Routes	7.00	8.80
School Trippers	55.10	56.30
System Average	11.10	12.90
Annual Revenue Estimates		
Local City Routes ($0.40 per ride)	$ 68,500.00	$ 86,200.00
School Trippers ($0.333 per ride)	52,800.00	53,900.00
System Total ($0.34 per ride)	121,300.00	140,100.00
Operating Cost Per Bus Hour	$ 16.97	$ 20.79
Operating Cost Per Ride		
Local City Routes	$ 2.42	$ 2.36
School Trippers	0.31	0.37
System Average	1.52	1.61
Operating Cost Per Year		
Local City Routes	$519,300.00	$636,200.00
School Tripper	48,900.00	59,900.00
System Total	568,200.00	696,100.00

Table 33 (continued)

Characteristic	1978	1981
System Income (or Deficit)		
Local Routes		
Per Ride	($ 2.10)	($ 2.04)
Annual	(450,800.00)	(550,000.00)
School Trippers		
Per Ride	0.02	(0.04)
Annual	3,900.00	(6,000.00)
System Total		
Per Ride	(1.20)	(1.29)
Annual	(446,900.00)	(556,000.00)
Deficit as Percent of Operating Costs		
Local City Routes	86.80	86.40
School Trippers	--	10.00
System Total	78.90	80.10
Estimated Public Subsidy Requirements		
Total	$446,900.00	$556,000.00
Federal (50 percent)	223,400.00	278,000.00
State (33.3 percent)	149,000.00	185,300.00
Local (16.7 percent)	74,500.00	92,700.00

NOTE: Local City Route Key Assumptions:

1. *Existing and anticipated ridership composition 55-60 percent adult (full fare); 40 percent elderly, handicapped, and children; 0-5 percent students.*
2. *Fare Adults $0.40*
   Elderly and Handicapped 0.20
   Children Aged 6-11 Years 0.20
   Students 0.333 (cash equivalent fare)
   Average Fare $0.32
3. *1978 first full year elderly and handicapped.*
4. *Operating Characteristics:*
   Mondays-Fridays (excluding holidays)
   30 minute headways
   6:00 a.m. - 6:00 p.m.
   255 operating days per year
5. *Annual rate of inflation 7 percent per year.*
6. *1976 operating costs $14.82.*

Source: SEWRPC.

Table 34

TAXI SYSTEM CHARACTERISTICS OF ALTERNATIVE 4A FOR SUBSIDIZED FARES FOR THE ELDERLY AND HANDICAPPED

Characteristic	1977	1978	1979	1980	1981
Ridership Estimates					
Daily	268.00	307.00	345.00	384.00	422.00
Annual	98,000.00	112,000.00	126,000.00	140,000.00	154,200.00
Revenue Estimates ($0.50/ride user fare)					
Daily	$ 134.00	$ 154.00	$ 172.00	$ 192.00	$ 211.00
Annual	49,000	56,000	63,000	70,000	77,100
Negotiated Average Cost/Ride	$ 1.85	$ 2.00	$ 2.15	$ 2.35	$ 2.50
Operating Cost Estimates					
Daily	$ 496.00	$ 614.00	$ 742.00	$ 902.00	$ 1,055.00
Annual	181,300.00	224,000.00	270,900.00	329,000.00	385,500.00
System Income (Deficit)					
Daily	($ 362.00)	($ 460.00)	($ 570.00)	($ 710.00)	($ 844.00)
Annual	(132,300.00)	(168,000.00)	(207,900.00)	(259,000.00)	(308,400.00)
Deficit as Percent of Operating Cost	72.90	75.00	76.70	78.70	80.00
Estimated Public Subsidy Requirements					
Total	$132,300.00	$168,000.00	$207,900.00	$259,000.00	$308,000.00
Federal (50 percent)	66,150.00	84,000.00	103,950.00	129,500.00	154,000.00
State (33.3 percent)	44,100.00	56,000.00	69,300.00	86,300.00	102,700.00
Local (16.7 percent)	22,050.00	28,000.00	34,650.00	43,200.00	51,300.00

Source: SEWRPC.

are set forth in Table 36. It is also assumed under this alternative that the school tripper service that has been used under all prior alternatives will continue to function and require public subsidy in the latter years of the planning period. Although it will not be necessary for the public to assume any capital expense for subsidizing taxi fares considered under these three alternatives, it will be necessary to obtain seven larger buses to upgrade the fleet used in the peak periods to serve primarily school-oriented passengers. As has been pointed out under prior alternatives, it is estimated that the cost to provide seven 45-passenger air-conditioned buses for use in peak periods and school tripper service would be approximately $500,000 of which the local share would be $100,000.

Alternative 4D—Establish Publicly Owned Bus Based Demand-Responsive Transit Service

Generally, the publicly owned, bus based demand-responsive service alternative would be operated as follows: prospective users would request service by telephoning a central dispatcher. The caller would indicate his origin, destination, and number of persons desiring a ride. A vehicle would be scheduled to pick up the user within a maximum of 20 minutes. In the central business district, buses or cabs could be hailed on sight while at other trip destinations, instructions could be left with the driver for a predetermined return trip at a specified time. Initially this demand-responsive transit service would begin as a many-origin to many-destination type service. However, as demand was generated and the need arose, this initial service would be extended to include combinations of many-to-one, many-to-few, and subscription services serving major trip generators, places of employment, schools, and line haul commuter bus routes such as the Goerke's Corners to Milwaukee route. In addition, the use of this system for complementary type services such as package delivery would be desirable. The extension of services to include these other features would increase vehicle productivity—passengers per vehicle hour—and tend to moderate cost increases for the total demand-responsive transit system. If a taxi-based system were implemented initially, additional equipment—a number of larger bus-type vehicles—could be acquired when it became desirable to institute such services as the many-to-one and many-to-few services discussed above and as taxi vehicle fleet replacement. In the long run, this demand-responsive transit service would

Table 35

TAXI SYSTEM CHARACTERISTICS OF ALTERNATIVE 4B FOR SUBSIDIZED FARES FOR THE ELDERLY, HANDICAPPED, AND POOR

Characteristic	1977	1978	1979	1980	1981
Ridership Estimates					
Daily	385.00	428.00	473.00	512.00	563.00
Annual	140,500.00	156,400.00	172,500.00	187,000.00	205,600.00
Revenue Estimates (0.50/ride user fare)					
Daily	$ 192.00	$ 214.00	$ 236.00	$ 256.00	$ 282.00
Annual	70,250.00	78,200.00	86,250.00	93,500.00	102,800.00
Negotiated Average Cost/Ride	$ 2.10	$ 2.25	$ 2.40	$ 2.59	$ 2.75
Operating Cost Estimates					
Daily	$ 808.00	$ 963.00	$ 1,135.00	$ 1,326.00	$ 1,548.00
Annual	295,050.00	351,900.00	414,000.00	484,350.00	565,400.00
System Income (Deficit)					
Daily	$ 616.00	$ 749.00	$ 899.00	$ 1,070.00	$ 1,266.00
Annual	224,800.00	273,700.00	327,750.00	390,850.00	462,600.00
Deficit as Percent of Operating Cost	76.20	77.80	79.20	80.70	81.20
Estimated Public Subsidy					
Total	$224,800.00	$273,700.00	$327,750.00	$390,850.00	$462,600.00
Federal (50 percent)	112,400.00	136,850.00	163,875.00	195,400.00	231,300.00
State (33.3 percent)	74,900.00	91,250.00	109,250.00	130,300.00	154,200.00
Local (16.7 percent)	37,500.00	45,600.00	54,625.00	65,150.00	77,100.00

Source: SEWRPC.

serve as the catalyst for regenerating and restoring a more cost-effective fixed route bus system providing service in travel corridors where actual operating experience determined that the travel demand warranted reinstitution of a fixed route transportation system.

In addition to the demand-responsive services considered under this alternative, the school tripper service during a.m. and p.m. peak periods would continue to be provided as existing to date and as considered under all prior alternatives.

Under this subalternative, it is not expected that the existing privately operated taxicab companies will continue to provide service within the study area in competition with the demand-responsive transit system. If demand-responsive transit system service were available between 6:00 a.m. and 6:00 p.m. Monday through Friday, a privately run taxicab service would be relegated to providing service between 6:00 p.m. and 6:00 a.m. on weekdays and all day on weekends and holidays. It is not likely that a taxicab company could exist under those conditions. It must, therefore, be anticipated that a demand-responsive transit system would force the existing taxicab companies out of business. As a result, any time that demand-responsive transit service is not available, there would be no alternative form of public transportation available. Should the taxicab companies go out of business, serious consideration should be given to making the demand-responsive transit system available over the full 24-hour day, 365 days a year.

Either the existing taxicab management, the local transit management, or some combination thereof could manage, under contract with the City of Waukesha, the demand-responsive transit system considered under this alternative. In addition to contracting for operation of this transit service, the City, to provide this service, would acquire 16 vehicles, 14 of which would be required during the peak hours of operation, with an average of 12 vehicles being used over the 12-hour operating day. Two of the 16 vehicles would be maintained in reserve, and three would be equipped with wheelchair lifts to serve the nonambulatory handicapped. A taxi-based demand-responsive transit system could be quickly implemented through acquisition of the existing taxi fleet should the private operators choose not to compete

Table 36

TAXI SYSTEM CHARACTERISTICS FOR ALTERNATIVE 4C FOR SUBSIDIZED FARES FOR ALL USERS

Characteristic	1977	1978	1979	1980	1981
Ridership Estimates					
Daily[a]	451.00	489.00	522.00	553.00	587.00
Annual	164,500.00	178,500.00	190,500.00	202,000.00	214,200.00
Vehicle Hours of Service					
Daily	92.00	100.00	106.00	113.00	120.00
Annual	33,571.00	36,428.00	38,878.00	41,224.00	43,714.00
Passengers Per Vehicle Hour	4.90	4.90	4.90	4.90	4.90
Annual Revenue Estimates ($0.70/ride average user fare)					
Daily	$ 316.00	$ 342.00	$ 365.00	$ 387.00	$ 411.00
Annual	115,150.00	124,950.00	133,350.00	141,400.00	149,940.00
Operating Cost/Taxi Hour	$ 13.08	$ 14.00	$ 14.98	$ 16.02	$ 17.15
Operating Cost/Ride	$ 2.67	$ 2.86	$ 3.06	$ 3.27	$ 3.50
Operating Cost Estimate					
Daily	$ 1,204.00	$ 1,398.00	$ 1,597.00	$ 1,808.00	$ 2,054.00
Annual	439,215.00	510,510.00	582,930.00	660,540.00	749,700.00
System Income (Deficit)					
Daily	$ 888.00	$ 1,056.00	$ 1,232.00	$ 1,421.00	$ 1,643.00
Annual	324,000.00	385,500.00	449,600.00	519,100.00	599,800.00
Deficit as Percent of Operating Cost	73.80	75.50	77.10	78.60	80.00
Estimated Public Subsidy					
Total	$324,000.00	$385,500.00	$449,600.00	$519,100.00	$599,800.00
Federal (50 percent)	162,000.00	192,750.00	224,800.00	259,550.00	299,900.00
State (33.3 percent)	108,000.00	128,500.00	149,900.00	173,050.00	199,900.00
Local (16.7 percent)	54,000.00	64,250.00	74,900.00	86,500.00	100,000.00

[a] *Daily ridership based on average over 365 operating days at 24 hours/day.*

Source: SEWRPC.

with public operation. The buses in the demand-responsive transit system would be small 15- to 26-passenger buses and would be purchased to replace the taxi fleet beginning in 1978 to allow for the purchase and delivery of the necessary bus fleet. Three of these vehicles would be equipped with lifts and wheelchair securing devices for service to the nonambulatory handicapped. Both the taxi and the bus vehicles would be radio-equipped and air conditioning would be desirable. A radio base unit for dispatching would also be required. A modest marketing program citywide would be undertaken with the introduction of the demand-responsive transit service.

In addition to the capital expenditures required in support of the demand-responsive transit service, it will be necessary to obtain seven larger buses to upgrade the fleet used in the peak periods to serve primarily school-oriented passengers. The capital investment requirements of this subalternative transit system are set forth in Table 37. In preparation of this table, the assumption has been made that public transportation would be provided in the City of Waukesha consisting initially of a taxi-based demand-responsive system meeting local transit needs, the continuation of the bus-based peak period school tripper service and the addition, as taxi fleet replacement, operating experience, and passenger demand dictate, of higher capacity vehicles to provide bus-based transit services in high demand corridors and for specified many-to-one, many-to-few, and subscription services. City acquisition of the existing taxicab fleet is assumed to initiate the taxi-based demand-responsive service, and replacement of that fleet with small buses is scheduled through the planning period.

Table 37

MAJOR CAPITAL EQUIPMENT PURCHASES REQUIRED TO PROVIDE TRANSIT SERVICE UNDER ALTERNATIVE 4D DEMAND-RESPONSIVE SYSTEM

Year	Quantity	Description	Estimated Cost	
			Unit (in Dollars)	Total (in Dollars)
1977	--	Acquisition of existing city bus fleet and related supply and equipment inventories from private operator	To be Negotiated[a]	
	16	Used taxicabs including radios.	To be Negotiated[b]	
	1	Radio Base Station	5,500	5,500
1978	3	15- to 26-passenger radio equipped, air conditioned buses equipped to serve the handicapped	42,500	127,500
	4	15- to 26-passenger radio equipped, air conditioned buses	35,000	140,000
	7	45-passenger air conditioned buses for use in peak period and school tripper service	65,000	455,000
1979	5	15- to 26-passenger radio equipped, air conditioned buses	37,500	187,500
1980	4	15- to 26-passenger radio equipped, air conditioned buses equipped to serve the handicapped	40,000	160,000
1981		No capital expenditures anticipated		
		Total Capital Investment (excluding acquisition of existing system etc.)		1,075,500
		Contingency		107,500
		Grand Total		1,183,000
		Federal Share		946,400
		Local Share		236,600

[a] *As a condition of eligibility for federal funds to subsidize a publicly operated mass transportation system the property, rolling stock, equipment and supply inventories of the private transit operator must be compensated for. In addition, any employees of Wisconsin Coach Lines, Inc., who will be adversely affected must receive just compensation under Section 13c of the 1964 UMTA Act as amended. Rolling stock and related supply and equipment inventories are estimated to cost $10,000.*

[b] *To initially implement a taxi-based demand-responsive transit system it was assumed that 16 vehicles from the existing fleet of used taxis would be acquired from the present taxicab company owners. It should be noted, however, that purchase of taxicabs is not eligible for federal UMTA capital assistance funds. The full cost would have to be borne locally. The vehicle fleet is estimated to cost $30,000.*

Source: SEWRPC.

Under this alternative, the one-way user fare for adults would be $1.00; children aged 6 to 11, $0.50; and students using the school tripper service $0.333 cents (cash fare equivalent). A half-fare program—$0.50 per ride—would be instituted for the elderly and the handicapped. Since the demand-responsive transit service considered under this subalternative provides a service available to all residents within the Waukesha study area at a fare less than charged taxicab riders today and with a further reduced fare for the elderly and the handicapped, a fare above that considered under the fixed route bus system described in earlier alternatives was considered warranted. With implementation of city-wide demand-responsive transit service in 1977 using a taxi-based system, ridership could be expected to increase appreciably over existing transit ridership. Ridership could be expected to be about 75 percent higher than the 430 rides per day forecast for 1978 under the four-route system described under Alternative 3, an alternative that would be expected to improve and expand the existing fixed route system. This ridership forecast is predicated on the assumption that nearly all of the existing 450 to 500 rides per day now using the existing taxi system would find that this demand-responsive transit system offers a higher quality of service at about 75 percent of the average fare. Further, since the local bus system is no longer operating, it was assumed that in addition to the taxi ridership that would shift to this system, 75 former transit riders per day would also use this new service. Also, it was assumed that the half-fare—$0.50 per ride—program for the elderly and the handicapped would make this door-to-door service particularly attractive to their expanded usage. These factors combined should provide an initial first-year ridership of 700 rides per day. Further growth to 900 per day is reasonable, particularly in a City where population growth is expected to increase significantly over the five year planning period. In contrast to the bus ridership forecast under Alternative 3, where ridership would seem to increase at a decreasing rate over the planning period—ridership under this alter-

native could be expected to increase at a steady rate over the five year planning period. In addition to expected normal growth in ridership, gains in ridership and in vehicle productivity could be expected to result from the implementation of combinations of many-to-few, many-to-one, and subscription type services over the planning period.

Vehicle hours of operation have been assumed to remain constant over the five year (1977 to 1981) planning period. While ridership is expected to increase over this same period, it is assumed that these increases in ridership can be absorbed by increases in vehicle productivity. Hence, vehicle productivity over the five year period is expected to increase from 4.9 passengers per vehicle hour in 1977 to 6.2 passengers per vehicle hour in 1981. This productivity increase should result from implementation of many-to-few, many-to-one, and subscription services over the five year period. These productivity rates are within the expected normal range of 4.0 to 10.0 passengers served per vehicle hour in demand-responsive services. As ridership increases and peak periods and selected corridors and services can be identified, the larger capacity bus vehicles will be used to satisfy these peak conditions. When higher capacity bus vehicles are in operation, fares could even be reduced below the $1.00/trip adult fare to promote the use of these many-to-one, many-to-few, and subscription type services offered during the peak ridership periods.

The expected average fare is estimated to be $0.70 per ride, based upon a ridership mix composed of 40 percent adult fares at $1.00 per ride and 60 percent elderly, handicapped, and child fares at $0.50 per ride. Revenues for the five year planning period, assuming no increase in fares over that time, would be $125,000 in 1977 and $160,600 in 1981. Consequently, total annual operating deficits may be expected to increase from $479,400 in 1977 in which a full taxi-based demand-responsive service was provided to $646,300 in 1981 for service using a bus-based system. A subsidy as a percent of total cost per ride will be about 72 percent for the taxi-based system in 1977 and 75 percent for the bus-based system in 1980 and 1981. The local share of the subsidy requirement may be expected to increase from about $80,000 in 1977 to about $108,000 in 1981.

It should be recognized that initially the taxi-based system could be expected to operate at a lesser cost than a bus-based system primarily because of differing wage rates. However, as transit service is reestablished and particularly as bus vehicles are used to provide that service, parity among driver wage rates should be expected and operating costs adjusted upward to reflect a wage rate similar to that included under the operating costs for transit service developed under other alternatives. The expected bus driver wage rate was applied to all vehicles operating under this alternative beginning in 1977.

To provide this demand-responsive transit service on a 24-hour basis, seven days per week, 365 days per year, would require an estimated 45 percent increase in vehicle hours of operation and a resultant increase in operating deficits. Vehicle hours would increase from 36,720 per year to about 53,000 hours per year. Total deficit costs under this full-service option would increase over the five year planning period from about $480,000 to $695,000 in 1977 and from about $646,000 to $930,000 in 1981. The local share subsidy required over this five year period would be about $116,000 in 1977 increasing to $155,000 in 1981. The detailed information relating to cost of operating this demand-responsive system within the Waukesha study area between now and 1981 is set forth in Table 38.

EVALUATION OF ALTERNATIVE PLANS

The four alternatives presented herein represent three substantially different courses of action available to the City of Waukesha in addressing the issue of whether or not and how to provide local public transit service. These three courses of action are: 1) do nothing, represented by Alternative 1; 2) restore some level of fixed route, fixed schedule bus service, represented by Alternatives 2 and 3; and 3) provide a demand-responsive transit service, represented by Alternative 4. Within the latter two courses of action are many variations and even combination that can produce varying levels of service and attendant costs. Prior to any refinement which may consider the many available variations and combinations of alternatives, a decision should be made concerning the basic type of system, if any, that should be initially provided in seeking to restore transit service to this City of 50,000 persons.

In evaluating the alternatives available, the Waukesha Mass Transit Citizens and Technical Advisory Committee rejected the "do nothing" alternative—Alternative 1—by finding that a need for public transit service does exist in Waukesha. The need for public transit is relatively easier to appraise in a larger city than in a smaller city. Although a smaller city has its share of elderly, handicapped, young, and poor persons and its share of single car households, each of these segments of the population proportionately may represent a small minority which tends to be less visible, less vocal, and less organized collectively or otherwise than their peers in larger cities. As a result, their mobility needs tend to be overlooked. The existence and relative numbers of these more or less "transit dependent" persons and households has been documented in Chapter III of this report and their need for public transit service was presented earlier in this chapter.

Following rejection of the "do nothing" course of action, the Advisory Committee addressed the relative merits of publicly subsidizing a fixed route fixed schedule bus system or a demand-responsive system. When considering the desirability of restoring fixed route fixed schedule bus service in the City, the Committee observed that historically the fixed route bus service had not been well used. At the time City bus service was discontinued—following May 28, 1976—ridership was averaging about 7.5 riders per hour on its one bus-two route system reflecting a continuation of the declining trend in vehicle productivity. To function properly, a fixed route bus

system ordinarily requires a network of routes within travel corridors having highly concentrated trip origins and trip destinations over which transit vehicles can operate at relatively short headways. This condition does not exist in the City of Waukesha. Although certain areas of the City do have relatively high residential densities and although the central business district of the City is a significant trip generator, select corridors serving a trip-making pattern from these residential areas into and out of the central business district cannot support an expanded fixed route system which attempts to connect areas of lower residential density with less significant trip generators to provide a truly citywide transit service.

In a comparative analysis between a fixed route transit system and a demand-responsive transit system, it was estimated that a citywide demand-responsive transit service operating 12 hours per day, Mondays through Fridays, from 6 a.m. to 6 p.m., or 36,720 bus hours of service annually, could be expected to generate 191,200 rides annually (1978) at an adult fare of $1.00 per ride with the elderly, the handicapped, and children under 12 riding for half-fare. Vehicle operating costs for the demand-responsive transit system were estimated to approximate $20.00 per vehicle hour.

To achieve a similar ridership (214,000 annually) on a fixed route bus system, 10 fixed routes would be required to provide transit service on 30-minute headways over the same 12-hour operating day Mondays through Fridays, or 30,600 bus hours of service annually. The adult fare on such a fixed route system was assumed to be $0.40 per ride, with the elderly and the handicapped and children under 12 riding for half-fare. Vehicle operating costs in 1978 were estimated to be $17.00 per vehicle hour. Driver wage rates for either type of transit service, fixed route or demand-responsive, were assumed to be the same as those now paid by the local transit operator. The decision to use the transit driver wage rates followed Committee review of the alternatives under which lower taxi driver rates were initially considered in the demand-responsive alternative. To assure eligibility for federal operating assistance, the Committee believed it better to conduct its evaluation of alternatives on the basis of the transit driver wage scale. Under these conditions and assuming an average system fare of $0.70 per ride on the demand-responsive service and $0.32 per ride on the fixed route service, the 1978 annual operating deficit was estimated to be $612,700 for demand-responsive transit service and $450,800 for fixed route transit service. Thus, a demand-responsive transit service, producing similar ridership results as a fixed route service, can be expected to cost about 1.4 times more. The local share of the operating deficits of the two types of systems in 1978 would be $102,000 for the demand-responsive service and $75,000 for the fixed route service.

In addition to this particular comparative analysis, the Committee took into account other factors. The inherent inflexibility of a fixed route bus system became apparent in noting that the fixed route system would have to be designed to radiate outward from the central business district leaving circumferential tripmaking around and outside of the central business district largely unserved by transit. As this fixed route transit system would be expanded to serve areas and travel patterns not accommodated under the 10 route system, either by increasing the number or length of the bus routes and thus increasing the number or length of the bus routes and thus increasing the total annual miles and vehicle operating hours, ridership could be expected to continue increasing but at a decreasing rate. As a result, total system operating costs could be expected to increase more rapidly than new revenue could be generated as vehicle productivities fell to a level more closely approximating those in the demand-responsive transit system.

Further, it can be noted that the greater ridership found on the fixed route system reflects increased number of rides per rider within the service area of the fixed routes as a result of a lower fare structure. That is, while annually it may be expected that more persons in the community would be served by a demand-responsive transit system, the fixed route system may be expected to accommodate more total rides as a result of fewer people making more trips per person on the fixed route system than a greater number of people would make on a higher priced demand-responsive system. Nevertheless, the provision of citywide demand-responsive service does represent the more expensive public transit service.

To further assist in evaluating and finally selecting a recommended transit system plan for the City of Waukesha, the Advisory Committee developed a generalized and simple evaluation matrix to compare each of the three basic alternatives against five transit system service attributes considered important in the development of a citywide transit system. The five attributes ranked in order of priority as considered by the Advisory Committee were: 1) equity; 2) cost; 3) quality; 4) flexibility; and 5) fare. Each of these attributes was given a weight, and the alternative transit systems (the fixed route systems with four and 10 routes and a demand-responsive system) were then ranked by each transit system attribute. In preparing the evaluation matrix, the Committee considered a many-to-many demand-responsive transit system to be more equitable than any fixed route system because the service flexibility of such a transit system would enable it to serve anyone in the City traveling from any point of origin direct to any point of destination without the need to transfer. In contrast, a fixed route system is inherently limited in its ability to serve all origins and destinations in the City. Ordinarily, those origins and destinations within a quarter-mile walking distance of a fixed route are considered accessible and served. Frequently accessibility to a particular destination requires a transfer from one fixed route to another in completing a trip.

Cost and quality of service was used by the Committee to compare the relative value received for the money spent. The Committee expressed concern over the high cost of a demand-responsive system relative to a 10 fixed

Table 38

TRANSIT SYSTEM CHARACTERISTICS OF ALTERNATIVE 4D FOR BUS-BASED DEMAND-RESPONSIVE TRANSIT SYSTEM: 1976-1981

Characteristic	1976[a]	1977	1978	1979	1980	1981
Ridership Estimates						
Local City Routes						
Daily	75.00	700.00	750.00	800.00	850.00	900.00
Annual	19,100.00	178,500.00	191,200.00	204,000.00	216,800.00	229,500.00
School Tripper						
Daily	850.00	872.00	881.00	888.00	894.00	900.00
Annual	153,000.00	157,000.00	158,600.00	159,800.00	160,900.00	162,000.00
Total						
Daily	925.00	1,572.00	1,631.00	1,688.00	1,744.00	1,800.00
Annual	172,100.00	335,500.00	349,800.00	363,800.00	377,700.00	391,500.00
Vehicle Hours of Service						
Local City Routes						
Daily	10.00	144.00	144.00	144.00	144.00	144.00
Annual	2,550.00	36,720.00	36,720.00	36,720.00	36,720.00	36,720.00
School Tripper						
Daily	16.00	16.00	16.00	16.00	16.00	16.00
Annual	2,880.00	2,880.00	2,880.00	2,880.00	2,880.00	2,880.00
Total						
Daily	26.00	160.00	160.00	160.00	160.00	160.00
Annual	5,430.00	39,600.00	39,600.00	39,600.00	39,600.00	39,600.00
Passengers Per Vehicle Hour						
Local City Routes	7.50	4.90	5.20	5.60	5.90	6.20
School Trippers	53.10	54.50	55.10	55.50	55.90	56.30
System Average	31.70	8.50	8.80	9.20	9.50	9.90
Average Revenue Estimates						
Local City Routes ($0.70 per ride)	$ --	$125,000.00	$133,800.00	$142,800.00	$151,800.00	$160,600.00
School Trippers ($0.333 per ride)	50,900.00	52,300.00	52,800.00	53,200.00	53,600.00	53,900.00
System Total ($0.34 per ride)	--	177,300.00	186,600.00	195,600.00	205,400.00	214,500.00
Operating Cost Per Vehicle Hour						
Local City Routes	$ --	$ 16.64	$ 17.80	$ 19.05	$ 20.38	$ 21.81
School Trippers	$ 14.82	15.86	16.97	18.16	19.43	20.79
Operating Cost Per Ride						
Local City Routes	$ --	$ 3.40	$ 3.42	$ 3.40	$ 3.45	$ 3.52
School Trippers	0.28	0.29	0.31	0.33	0.35	0.37
System Average	--	1.98	2.01	2.07	2.13	2.20
Operating Cost Per Year						
Local City Routes	$ --	$611,000.00	$653,600.00	$699,500.00	$748,400.00	$800,900.00
School Trippers	42,700.00	45,700.00	48,900.00	52,300.00	56,000.00	59,900.00
System Total	--	$656,700.00	$702,500.00	$751,800.00	$804,400.00	$860,800.00
System Income (or Deficit)						
Local City Routes						
Per Ride	$ --	($ 2.72)	($ 2.72)	($ 2.73)	($ 2.75)	($ 2.79)
Annual	--	(486,000.00)	(519,800.00)	(556,700.00)	(596,600.00)	(640,300.00)
School Trippers						
Per Ride	--	$ 0.03	$ 0.02	--	($ 0.01)	($ 0.04)
Annual	8,200.00	6,600.00	3,900.00	900.00	(2,400.00)	(6,000.00)
System Total						
Per Ride	--	(1.43)	(1.48)	(1.53)	(1.59)	(1.65)
Annual	--	479,400.00	515,900.00	556,200.00	599,000.00	646,300.00
Deficit as Percent of Operating Costs						
Local City Routes	--	80.00	79.50	80.30	79.70	79.30
School Trippers	--	--	--	--	4.30	10.00
System Total	--	72.20	73.60	73.90	74.60	75.00
Estimated Public Subsidy Requirements						
Total	$ --	$479,400.00	$515,900.00	$556,200.00	$599,000.00	$646,300.00
Federal (50 percent)	--	239,700.00	257,900.00	278,100.00	299,500.00	323,150.00
State (33.3 percent)	--	159,800.00	172,000.00	185,400.00	199,700.00	215,400.00
Local (16.7 percent)	--	79,900.00	86,000.00	92,700.00	99,800.00	107,700.00

Table 38 (continued)

NOTE: To provide this service on a 24-hour basis seven days per week 365 days a year would require an estimated 45 percent increase in vehicle hours of operation and a resultant increase in the operating deficit. Vehicle hours would increase from 36,720 hours per year to 53,000 hours per year. Total annual deficit costs under the full service option would increase over the five year planning period (1977-1981) from $479,400 to $694,900 in 1977 and from $646,300 to $930,200 in 1981 for the demand-responsive transit system. The required local share subsidy would be $115,800 in 1977 increasing to $155,000 by 1981.

Key Assumptions:

Ridership 1977-1981	*700-900*
Costs/Vehicle Hour 1977	*$19.00*
Maximum Vehicles Required	*16*
Fare Adults (12 years and older)	*$1.00/trip*
Elderly and Handicapped	*$0.50/trip*
Children Aged 6-11 Years	*$0.50/trip*
Average Fare	*$0.70/trip*

[a] *The incomplete figures in the 1976 column reflect cessation by local service by the private bus operator after May 28, 1976, except for school tripper service.*

Source: SEWRPC.

route transit system that can provide a similar level of ridership but at a much lower average fare and a lower cost. In reviewing the cost of the alternative systems, particularly the capital cost associated with the demand-responsive system, some Committee members expressed the opinion that the cost of vehicles could be reduced through use of vans rather than small buses. Such considerations can and should receive additional attention in development of the specific requirements of the transit system finally selected. The vehicle decision will be further discussed in the next chapter as an element of the recommended plan. The Committee did recognize the relative cost differences among the alternative plans with both the capital and operating costs of the demand-responsive system exceeding that of a fixed route transit system. However, it was also apparent that the quality of service offered by the demand-responsive transit system was far superior to that offered by a fixed route transit system. This was considered a particularly important attribute for the elderly and handicapped and the young persons who represent a significant segment of the active transit ridership market. For these persons, a long walk to a bus stop, a wait, and the potential need to transfer when combined with a physical handicap or adverse weather can become an insurmountable barrier to travel.

Recently enacted federal regulations require that public transit systems provide for the mobility needs of the elderly and the handicapped, particularly wheelchair users and semiambulatory persons. In addition to the federally mandated half-fare program for the elderly and handicapped, the local transit system, either a fixed route system or at local discretion an alternative system, must be available to provide transit service fully accessible to wheelchair users and semiambulatory persons at fares, quality, and level of service comparable to those experienced by able-bodied persons who use the local public transit system. Although buses operating over fixed routes can be equipped with wheelchair lifts and other full accessibility features such as lower entry steps and modified hand rails, barriers may still exist which would prevent many elderly and those who are confined to wheelchairs or the semiambulatory from negotiating the distance from their home to the corner bus stop. In addressing the problem of accommodating the mobility needs of the elderly and handicapped, the Committee concluded that a fixed route transit system generally would not adequately accommodate the mobility needs of those persons confined to wheelchairs and the semiambulatory and, therefore, considered that instead of developing a separate specialized door-to-door demand-responsive transit service for this potential transit user market, a more cost-effective system would be a total demand-responsive transit system for all users of the transit system within the City of Waukesha including several vehicles specially equipped to serve either the able-bodied or the handicapped.

Flexibility also was considered a strong attribute of a local public transit system. The ability of a system to adjust to increases and decreases in riding demand as well as new and changing ridership markets was considered by the Committee to be important, particularly in the City of Waukesha where the transit market was not clearly defined. Here again, a demand-responsive transit system was judged superior by the Advisory Committee. Demand-responsive transit systems have been used elsewhere to promote new transit ridership and renew a transit riding habit. The inherent flexibility of a demand-responsive transit system can also be used to assist in route rationalization, the process by which the efficiency or productivity of the public transit system is increased by identifying high travel demand corridors and peak ridership conditions which can more cost effectively be served by fixed route, subscription, many-to-few or many-to-one type transit services. Thus, as opposed to a relatively inflexible fixed route-fixed headway service, a demand-responsive transit service would permit route rationalization on the basis of actual operating experience rather than on the basis of forecast ridership alone. Service on a demand-responsive transit

system can be more readily expanded and contracted on the basis of actual ridership demand than can a fixed route transit system. Thus, if the anticipated ridership expected to occur on the demand-responsive transit system fails to materialize, system costs can be more readily reduced by reducing the number of vehicles in service. To do the same on a fixed route-fixed schedule system, if projected ridership did not materialize, would require the elimination of entire routes; cutbacks in the hours of operation, or increases in the operating headways. The cutback in fixed route operation is a reduction in service whereas the adjustments in the demand-responsive system matches demand with supply but at the same level of service. Further, because of the better level and quality of service provided by the demand-responsive transit system, ridership also tends to be less sensitive to fare increases over a higher and broader range of fare levels than is the case for a fixed route transit system. Thus, fares can more readily be adjusted upward to recover a portion of the operating cost without experiencing significant declines in ridership. These higher fare levels also provide the future flexibility to offer reduced fares on certain fixed route, subscription, many-to-few, and many-to-one type services to promote ridership which, when implemented, can improve vehicle productivity but at the cost of less personalized and lower quality of service.

Although the fare policies of a demand-responsive system offer increased flexibility in the provision of different levels of service and provide an increased opportunity for recovering some of the cost associated with such service, the level of fares also was considered an important attribute of a public transit system. The high user fare of $1.00 per one-way ride for adults on the demand-responsive transit system when compared to the proposed $0.40 fare on a fixed route system was considered a major disadvantage of the more personalized demand-responsive transit system. Several Advisory Committee members suggested the possibility of reducing the fare charged under the demand-responsive system. Such reduced fares could be expected to result in increased ridership, but also in increased subsidy requirements even if there were no change in operating costs. However, with increased ridership the provision of more vehicles to maintain a reasonable level of service would undoubtedly be required. Experience elsewhere has shown that ridership on demand-responsive transit systems can be dampened more by an inability to provide a level of service sufficient to carry the demand, resulting in too great a response time, than by a relatively high fare structure. It was the consensus of the Advisory Committee that while the proposed fare structure for the demand-responsive service might be considered high for the general adult riding public, it was less than the average existing taxi fare and it did offer reasonable user fares for those in need of the transit service, the elderly, the handicapped and young persons who would travel at half fare. Also, by beginning service at comparably high user fares, it would probably be easier to lower fares to achieve desired ridership goals in concert with service capabilities than it would be to raise fares to reduce operating deficits.

In considering the fare structure and operating deficits associated with the alternatives of providing either a reasonably good level of citywide fixed schedule transit service or a demand-responsive transit service, the Advisory Committee also considered the alternative of subsidizing the services of the existing private taxicab companies operating in the City, thereby reducing the annual costs and resultant system deficits. In considering the alternative of subsidizing the private taxicab companies, the Advisory Committee learned, after some preliminary analysis and discussions with representatives of the federal Urban Mass Transportation Administration and Wisconsin Department of Transportation that such a subsidy would probably not be eligible for offsetting federal and state grants-in-aid. In order to be eligible for federal operating assistance, the public operator must guarantee protection of the area's transit employees and private operator of the local transit system from loss of jobs or livelihood as a result of public acquisition of the transit system. For the City to subsidize existing taxicab services under the prevailing driver wage rate would probably leave the City ineligible for federal assistance. Thus, the entire public subsidy cost would have to be borne by the local community. To accommodate the labor protection agreements would increase the cost of providing the taxi service to such an extent that the cost of subsidizing rides on a private taxi service would be little different from the cost of subsidizing rides on a public transit system. However, with proper labor protection agreements, federal operating assistance would be available to offset 50 percent of the deficits under either private or public operation. Merely subsidizing taxi rides, however, would not provide an effective institutional arrangement to rebuild a viable transit system within the City. Since the subsidy costs involved would be similar, and since the Advisory Committee believed it important to provide an institutional structure to rebuild and expand public transportation in the City, it recommended that the alternative of subsidizing the present privately operated taxicab system not be considered further.

Each of the three basic alternatives was ranked in terms of the relative ability to meet each of the five desired transit system attributes. The weight assigned to each attribute was then multiplied by the rank given each alternative system plan. While the sum of the weighted rankings for the three alternative plans offered a measure of the rank ordering of the three alternatives, (see Table 39) and while the demand-responsive system was found to have the highest score and, therefore, was considered to represent the "best" plan of providing transit service to the City of Waukesha, the Committee emphasis was placed upon review of the information considered to develop the matrix rather than the numbering system and mathematics involved in using the evaluation tool.

The Committee concluded that to serve a widely disbursed transit market, a transit system must be provided that the entire community can use and would financially support, that would provide a quality service at a reasonable cost, and that is readily acceptable throughout the

Table 39

TRANSIT SYSTEM EVALUATION MATRIX

System Attribute	Attribute Weight	Rank and Weighted Score of Alternative Transit System					
		Fixed Route				Bus-Based Demand-Responsive	
		4 Route		10 Route			
		Rank	Weighted Score	Rank	Weighted Score	Rank	Weighted Score
Equity	5	1	5	2	10	3	15
Cost	4	3	12	2	8	1	4
Quality	3	1	3	2	6	3	9
Flexibility	2	2	4	1	2	3	6
Fare	1	3	3	3	3	1	1
Total Score			27		29		35
Alternative Rank			1		2		3

Source: SEWRPC.

City. At the same time, however, the Committee believed that the user of such systems should pay a reasonable proportion of the costs of the ride to minimize the system subsidy that would be required.

RECOMMENDATION

Based upon the description and evaluation of four basic transit system alternatives, including the alternative of doing nothing, subalternatives relating to the number of routes under the basic alternative of a fixed route, fixed schedule transit system and subalternative types of demand-responsive transit systems and services, as set forth in this chapter, the Waukesha Mass Transit Citizens and Technical Advisory Committee recommended that the City of Waukesha reestablish and maintain public transportation services within the City as a public service essential to the economic and social well-being of the community. Further, the Committee recommended that such services be reestablished through the initial provision of a demand-responsive service capable of meeting the transportation needs of the elderly and the handicapped as well as of other potential users of public transportation. To implement these recommendations, the City must acquire the motor carrier certificate from the present private transit operator so that the City can provide public transportation services. In addition, it may be necessary for the City to acquire the existing taxicab companies because the proposed demand-responsive service would provide direct competition to them. Finally, the Advisory Committee recommended that a transit management firm be retained to provide day-to-day operation of the demand-responsive service under policy guidance of the Waukesha Common Council, the management services to be directed and coordinated through a City staff position. A detailed description of the demand-responsive transit service facilities and a listing of the implementation steps required to carry out the Advisory Committee recommendations are set forth in the next chapter.

SUMMARY

The issue of providing mass transportation services in the Waukesha area was focused when the City of Waukesha in January of 1976 first initiated a subsidy for the continued provision of local services by the private transit operator and later following May 28, 1976, when provision of local service was terminated. Transit services within the City of Waukesha area were postulated as a series of alternatives and evaluated within this chapter. The range of actions that could be taken by elected officials in the City of Waukesha considered within this chapter were:

1. Do nothing—the course of action initially rejected in 1975 when, in response to the private carrier's indication that it would be necessary to cease operations without public assistance, the City initiated public support.

2. Publicly subsidize the existing fixed route bus system—a course of action followed by the City of Waukesha, using local subsidy monies only, for the first five months of 1976;

3. Publicly subsidize an improved and expanded fixed route bus system; and

4. Publicly subsidize a demand-responsive transit system through either subsidizing rides provided by the existing privately owned taxi services to selected groups of the population, such as the elderly, the handicapped, and the poor; sub-

sidize taxi operating deficits experienced through reduced taxi fares to all users; or carry out a full public takeover and provision of demand-responsive services to the transit ridership within the study area.

Unless public action is taken to support the bus and taxi systems within the City of Waukesha area, further increases in cost and reductions in available public transportation should be expected, with the eventual elimination of one or both taxi services as well as the public transit operation. Because transportation for all citizens within the area is important to maintain even a modest standard of living, public transportation becomes an important factor to those persons too young or too old to drive, those incapacitated and unable to drive, and those without access to an automobile. To continue public transportation will require public subsidy support. Provision of such support within Waukesha is recommended to provide school tripper services that currently serve 850 City student riders per day and to provide a public transportation service for the captive user who has no other alternative and who cannot be ignored merely because he represents a small segment of the total population. Rather than doing nothing, the basic issue becomes the need to find the most cost-effective manner of providing public transportation scaled to the needs and desires of both choice and especially captive users within the community.

As a minimum public transit service—continuation of the level of service existing in early 1976 having been rejected by the Citizens Advisory Committee—a four-route transit system supplemented by continuation of the existing school tripper service was postulated. Under this alternative, the City of Waukesha would acquire the common carrier motor certificate for provision of transit services within the study area and contract with a management firm to provide such services utilizing city-owned vehicles. While such four fixed routes could provide improved transit service to the central portions of the study area, significant portions of the area would not be provided with public transportation. The annual transit subsidy costs in 1978, the first full year of the four-route transit service, would approximate $170,000 per year, rising to $216,000 per year in 1981. This alternative would require acquisition of five buses to provide the local transit service, one of which would be equipped for accommodating wheelchairs, and acquisition of seven larger buses for fleet replacement to continue the school tripper service.

Expansion of the minimum of the four-fixed-route transit system to provide greater coverage and service throughout the study area requires provision of additional fixed routes with associated increased operating costs. A 10-fixed-route system providing areawide coverage was postulated. The annual transit subsidy cost in 1978 under this alternative would approximate $447,000 per year, rising to $556,000 per year in 1981.

Recognizing the desirability of extending service but also the attendant increase in costs, the Advisory Committee evaluated a demand-responsive system that would provide door-to-door service throughout the study area. Three of the four alternative demand-responsive systems considered under this proposal consisted of some form of subsidizing the fare charged users of the local taxicab systems which today provide a shared-ride demand-responsive transportation service. Under one alternative, the fares charged the elderly and the handicapped riders would be $0.50 per ride. Under the second alternative, the fare to the elderly, the handicapped, and the low-income travelers within the study area would be subsidized to cost such users no more than $0.50 per trip. Under the third alternative, the fares of all users of the taxicabs would be subsidized. Whereas today the average fare is $1.40 per ride, fares under this alternative would be $1.00 per ride for adults and $0.50 per ride for children under 11 years of age. A half-fare program would exist for the elderly and handicapped. Under this alternative, the new fare structure would be created and the City would subsidize that portion of the taxi system operating costs not met by the revenues, created by such fare structure. The subsidy required to subsidize taxi fares for the elderly and the handicapped would approximate $168,000 in 1978, increasing to over $308,000 in 1981. To subsidize the taxi fares of the elderly, handicapped, and low-income riders would require a subsidy approximating $274,000 per year in 1978, rising to $463,000 in 1981; and to subsidize the operating deficit of a taxi system under a reduced fare structure for all users would approximate $385,000 in 1978 and $600,000 in 1981. Under these three alternatives, the public would merely subsidize the operating losses of the taxicab companies generated by the fare structure used under each alternative but would not participate in the cost of any capital investment required to maintain the taxi-based operation. It would be necessary for the City and the School District to agree upon the need, level of service, and method of providing school passenger service. For purposes of comparing alternatives, the purchase of seven large buses by the City was assumed under each of these taxi subsidy alternatives.

The fourth demand-responsive system consisted of a publicly owned, privately managed, bus-based, demand-responsive system. This alternative would use small buses, some of which would be equipped to accommodate the handicapped. Fares for the improved demand-responsive service were assumed to be larger than would be recommended for fixed route transit service but were set less than the present shared-ride taxi fare. While initially such demand-responsive service would be provided through use of taxicabs, fleet replacement would be undertaken through acquisition of small bus vehicles. The anticipated deficit under this fourth alternative demand-responsive system has been estimated to approximate $520,000 in 1978, the year of initial operation of the bus-based system, and rise to $640,000 in 1981. Under this alternative, it was further assumed that the City of Waukesha would acquire the assets of the present local transit operator and the taxi vehicles of the present taxi operators, replacing such vehicles over the five year planning period with 16 small bus vehicles, three of which would be equipped for accommodating wheelchairs. In addition, it would be necessary to acquire seven larger buses for fleet replacement to continue the school tripper service.

In evaluating these alternatives, the Committee looked at more than the local subsidy cost requirements to operate the system and to provide the capital investment for a new transit system. The Committee noted that the four-fixed-route fixed schedule transit system did not provide public transit service to many portions of the study area whereas the demand-responsive systems provided areawide coverage considered particularly attractive to the elderly and the handicapped. In addition, the Committee noted that, even when considering the 10-fixed-route system which would provide areawide coverage, the specialized service needs of the elderly and the handicapped would not be totally met, further, such a fixed route transit system consisting of a fixed number of vehicles operating on a fixed schedule lacked flexibility in contrast to providing an appropriate number of vehicles to meet ridership demands under a demand-responsive system. The Committee also believed that the subsidy of the existing taxi services would not serve the specialized needs of the handicapped as well as could a bus-based demand-responsive system nor did it have the potential passenger carrying capacity of the bus-based system should such demand concentration be developed under many-to-one or subscription type services.

Based upon review of the types and levels of services and the capital and operating and local share costs, the Advisory Committee recommended further consideration of the demand-responsive transit system within the Waukesha study area. The details of implementing this recommendation, including the impact upon the existing mass transit and taxi operators and public takeover and management of a combined transit system, are described in Chapter VII. In making this recommendation, the Committee suggested that initial provision of a demand-responsive system consider use of taxi vehicles in an effort to keep public costs low and consider use of vans rather than bus vehicles to reduce the capital expense associated with the bus-based demand-responsive system. The Committee also suggested that careful consideration be given to reducing the need for school tripper service that would require acquisition of 45-passenger buses to replace the existing aged fleet.

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Chapter VII

TRANSIT PROGRAM IMPLEMENTATION

INTRODUCTION

The preceding chapter described the process used by the Waukesha Mass Transit Citizens and Technical Advisory Committee to evaluate the various transit system development alternatives available to the City. These were basically: 1) do nothing; 2) restore varying levels of fixed route, fixed schedule bus service; and 3) provide a demand-responsive transit service.

The Committee rejected the do nothing alternative by finding that sufficient evidence exists of a need for public transit service in the City of Waukesha, as documented in this report, and that this need can be expected to increase. In its consideration of the remaining two alternatives the Committee concluded that a demand-responsive transit system would offer a higher level of service than a fixed route system but would do so at a higher cost than a fixed route system that provides service on a citywide basis. Given this cost difference—estimated to range between a $10,000 and $15,000 per year local share subsidy requirement—and given the increased benefits provided to users in both the quality and level of service offered by a demand-responsive transit system, the Committee unanimously recommended that plans for a demand-responsive transit system be further developed and implemented in the City of Waukesha. Consistent with the Committee recommendation, this chapter will:

1. Elaborate on the general concept of a demand-responsive transit system;

2. Describe the demand-responsive transit system recommended to be implemented initially in the City of Waukesha; and

3. Set forth the basic sequence of events required to bring the recommended system into operation.

While a pure "many-to-many" demand-responsive transit system (serving to connect many diffused trip origins to many diffused trip destinations) in the City of Waukesha would represent the first such system of its kind in this State, the concept is not new nationally. There are over 100 demand-responsive transit services of various types known to be operating in the United States. The majority of these are "many-to-many" type systems. Wisconsin's neighboring state, Michigan, has at least 30 demand-responsive transit systems in operation. The City of Merrill, Wisconsin, provides a form of demand-responsive transit service known as route deviation transit service.

The term "demand-responsive transit service" denotes a range of public transportation services characterized by flexible routing and scheduling of relatively small vehicles to provide shared occupancy, door-to-door, personalized transportation on demand and at relatively modest fares. The basic operation of a demand-responsive transit system involves dispatching a vehicle in response to a telephoned request for service to carry the patron from a particular origin to a particular destination, while simultaneously accommodating other patrons in the vehicle whose requests for service are reasonably compatible in terms of both time and geography. The caller informs the communications control center of his or her origin, the desired destination, and the number of persons making the trip. The caller's request for service may be made just before the trip is to be made or some time in advance. An example of a typical advance request is subscription service provided to patrons who wish to utilize the service on a daily or other regular basis.

The underlying elements of a demand-responsive transit system are: a fleet of vehicles, a means of communication between the patron and the service, a means of communication between the service and the vehicle drivers, and a control center to receive requests for service and schedule and dispatch vehicles. Given these basic elements, the concept of demand-responsive transit lends itself to a variety of configurations in terms of organizational character, degree of automation, equipment, work force, service patterns, size of service area, and market role. In fact, the two taxicab companies currently operating in the City of Waukesha, offering shared ride cab service, provide a form of demand-responsive transit service.

There are two kinds of demand-responsive transit service. The first, route deviation service which is available to residents of Merrill, Wisconsin, is a limited form in which a vehicle will deviate from a regular fixed route to pick up or discharge a passenger at a requested location, typically within several blocks of the main route. The more common form of a demand-responsive transit service is known as pure demand-responsive service wherein the routing and scheduling of vehicles depends entirely on the particular requests of patrons. Three variants of the pure form may be employed as a basic service pattern:

> Many-to-One—providing transit service from several origins to a common destination such as a shopping center, industrial center, educational center, or transportation terminal.

Many-to-Few—providing transit service from several origins to a few destinations such as major activity centers or points on a central business district loop.

Many-to-Many—providing transit service between any origin-destination pair in the service area without limitation.

The demand-responsive transit system recommended for the City of Waukesha—to be described later—is proposed as a many-to-many type service with inclusion of other service variants as applicable.

A key attribute of a demand-responsive transit service is the high degree of flexibility that it offers. The service can be changed over time and on the basis of operating experience and riding demand to a fixed route system, a subscription service system, or a system that offers many-to-one or many-to-few transportation capabilities during different periods of the operating day, and during different days of the week, to improve vehicle productivities and the cost effectiveness of the system. This flexibility also is reflected in the many roles that demand-responsive service can play in response to identified need. During peak home-to-work tripmaking it can serve as a feeder service to a line haul commuter bus service such as the one operated between downtown Waukesha, Goerke's Corners, and the Milwaukee central business district. It can serve as a replacement service for conventional fixed route and fixed headway service, particularly during off-peak travel demand periods in low-density areas—a primary function of the Waukesha demand-responsive system. Demand-responsive transit service can also serve as the catalyst for route rationalization and restoration over time of a basic fixed route system in high transit travel demand corridors identified through actual operating experience with demand-responsive transit service supplementing and feeding the fixed-line haul routes from areas of less pronounced travel demand.

Demand-responsive transit service also affords a more personalized service for the elderly and the handicapped. Vehicles can be equipped with special accessibility features such as wheelchair lifts. This is also considered to be an important transportation function to be served by the demand-responsive transit system proposed for the City of Waukesha. Many elderly and handicapped persons have a fear of using conventional transit because it frequently requires long walking distances to bus stops and long wait times at bus stops, subjecting them to exposure to incidents of vandalism and adverse weather conditions. Demand-responsive transit service is also a good substitute for a second or third automobile. Studies have shown that a reasonably priced demand-responsive transit system is better able to attract the "choice" auto driver than a much lower priced fixed route transit service because it provides a highly personalized door-to-door service direct from a person's origin to a destination without the need to transfer.

The inherent flexibility of demand-responsive transit service also provides the opportunity to provide compatible auxiliary services which can supplement user fare revenues to reduce the operating deficit. These services include:

--small parcel delivery
--delivery of mail from post office boxes to business firms and local institutions
--transfer of business data among branch banks
--transportation of blood and other hospital supplies
--shopping services sponsored by retailers
--transportation of children to school

Every effort should be made to promote these auxiliary services to the maximum extent possible.

THE RECOMMENDED PLAN

The type of demand-responsive transit system being recommended for implementation in the City of Waukesha by the Waukesha Mass Transit Citizens and Technical Advisory Committee would be initially instituted as a pure many-to-many type demand-responsive transit system. This type of demand-responsive transit system is capable of providing transit service between any origin-destination pair in the study area without limitation. Thus, this system would provide maximum transit system flexibility and offer a high quality and level of service. It also tends to be the most costly type of demand-responsive transit service when compared to route deviation, subscription, many-to-one, or many-to-few type systems. This is due to the lower vehicle productivities of a pure many-to-many type system. Vehicle productivities on a pure many-to-many type system ordinarily range between four to 10 passengers per hour but rarely exceed an average of seven passengers per vehicle hour, while other types of demand-responsive transit systems regularly carry 10 passengers or more per hour and average about 14. However, the inherent flexibility and higher quality and level of service characteristic of a many-to-many type system enables a justifiably higher user fare to be charged than that ordinarily charged on other types of systems. As a result while operating costs are greater, higher user fares tend to reduce overall system deficits which ultimately must be publicly subsidized.

The more costly many-to-many type demand-responsive transit service has been recommended as the initial type of system for two reasons: First, it would provide a high quality transportation service that would adequately accommodate the needs of the City's transit "captive" markets: the carless, the elderly, the handicapped, the young, and the poor. Second, this many-to-many type service coupled with a moderately high fare will provide a measure of the true existing and latent transit service demand in the City. This existing and latent transit service demand can be used to develop a good transit riding base and habit to support the gradual transition from a pure many-to-many type system to a system which offers a range of more cost-effective special user oriented services—route deviation, subscription, fixed route, many-to-one, and many-to-few—at lower fares. These different service types would be routed and specially designed

based on actual ridership experience and as demand warrants. Development of these types of services should be encouraged and seriously promoted at every opportunity.

It is further recommended that the City of Waukesha institute a many-to-many type demand-responsive transit system that initially operates five days per week Mondays through Fridays excluding holidays. Service would be available 12 hours per day from 6:00 a.m. to 6:00 p.m. Fares would be $1.00 per one-way ride for adults. A half-fare $0.50 per one-way ride would be charged the elderly, the handicapped, and children under 12. A more detailed explanation for the reasons for prescribing the above set of operating characteristics for the initial service will follow. It should also be understood that any characteristic of the service, such as fares, hours, and days of operation can be modified as desired to more accurately reflect changing community service goals and obectives using the operating characteristics presented above. Table 40 sets forth projected operating statistics for the five year 1977-1981 planning period.

Table 40 lists the five key variables which act together to determine the magnitude of any transit system deficit. These variables are: 1) total ridership 2) passengers per vehicle hour, 3) vehicle hours of service, 4) fare box revenues, and 5) operating cost. Upon institution of the recommended system, each of these variables should be carefully monitored to evaluate the transit system performance. Table 40 indicates that if the City provides 144 vehicle hours of service daily, 700 vehicle hours weekly, and 36,720 vehicle hours annually, travel demand could be expected to initially average 700 rides per day, 3,400 rides per week, and 178,500 rides per year. It is estimated that this ridership would develop with service offered during a 12-hour operating day from 6 a.m. to 6 p.m. Mondays through Fridays excluding holidays. Should this demand not fully materialize over the weekday operating period proposed, the number of vehicles in service can be reduced accordingly without any adverse effect on the level or quality of service experienced by the user. This system flexibility in adjusting to actual travel demand is an attractive attribute for a newly instituted system, an attribute not characteristic of a fixed route bus system. This reduction in weekday vehicle operating hours could then be used to extend service into the evening and weekends and holidays in an effort to achieve projected ridership results without exceeding original projected vehicle hours of operation and associated costs and subsidy requirements. This reduction in vehicle hours could also be directly applied to reducing the total system operating costs and resultant system deficits budgeted for the year.

FARES

As already noted, the proposed fare structure for the many-to-many type demand-responsive transit system to be initially implemented in the City of Waukesha is $1.00 per one-way ride for adults and $0.50 for the elderly, the handicapped, and children under 12 years of age. While these fares may appear high, particularly when compared with fixed route transit fares or the out-of-pocket costs of making the same trip by car, it should be noted that:

- Fare has been shown to have less influence on a person's decision to either drive an available auto or use transit than the quality of the transit service. Therefore, an initially lower fare to encourage choice riders to use the proposed transit service was not considered a fiscally responsible objective.

- The recommended fare structure is lower than that charged by the two existing taxicab companies for a service that should be equal or better. The flat $0.50 one-way fare for the majority of captive riders expected to use the system, the elderly, the handicapped, and children under 12, is comparable to the present cost of a typical three mile trip by auto.

- Studies have indicated that most demand-responsive transit systems offer service at a user cost below what riders would actually be willing to pay for the service.

- To achieve ridership goals, it is easier to lower fares which prove to be too high than to raise fares which are found to be too low. While initially lower user fares might result in artificially high ridership demand, the high initial fare structure proposed provides sufficient opportunity to eventually implement fixed route, subscription, many-to-one, and many-to-few as warranted at relative lower fares for these lesser quality services to encourage and promote ridership shifts to these more cost-effective systems.

OPERATING DEFICITS

The best technique for limiting transit system operating deficits is to improve vehicle productivities, that is, passengers served per vehicle hour. Therefore, should ridership projections exceed those forecast for 1977, every effort should be made to hold vehicle operating hours constant by increasing productivity. Ordinarily, vehicle productivity on a pure many-to-many type demand-responsive transit system ranges between four and 10 passengers per vehicle hour. However, it is unusual for productivities to exceed seven passengers per vehicle hour. Table 40 indicates that, as experience is gained in the operation of the City's demand-responsive transit system, vehicle productivities should steadily increase to accommodate projected ridership increases with no further increase in vehicle hours of operation.

Projected operating deficits are also affected by the average revenue generated per vehicle operating hour. An average fare of $0.70 per one-way ride was assumed on the proposed pure many-to-many type demand responsive system. Thus, the projected average revenue figure per vehicle operating hour for use in evaluating

Table 40

PROJECTED TRANSIT SYSTEM OPERATING CHARACTERISTICS
UNDER RECOMMENDED BUS-BASED DEMAND-RESPONSIVE SERVICE: 1977-1981

Operating Characteristic	1977[a]	1978	1979	1980	1981
Ridership Projections					
Daily	700.00	750.00	800.00	850.00	900.00
Annual	178,500.00	191,200.00	204,000.00	216,800.00	229,500.00
Passengers Per Vehicle Hour	4.90	5.20	5.60	5.90	6.20
Vehicle Hours of Service					
Daily	144.00	144.00	144.00	144.00	144.00
Annual	36,720.00	36,720.00	36,720.00	36,720.00	36,720.00
Revenue Estimates[b]					
Per Vehicle Hour	$ 3.43	$ 3.64	$ 3.92	$ 4.13	$ 4.34
Annual	125,000.00	133,800.00	142,800.00	151,800.00	160,600.00
Operating Cost					
Per Vehicle Hour	$ 16.64	$ 17.80	$ 19.05	$ 20.38	$ 21.81
Per Ride	3.40	3.42	3.40	3.45	3.52
Annual	611,000.00	653,600.00	699,500.00	748,400.00	800,900.00
Transit System Deficit					
Per Ride	($ 2.72)	($ 2.72)	($ 2.73)	($ 2.75)	($ 2.79)
Annual	(486,000.00)	(519,800.00)	(556,700.00)	(596,600.00)	(640,300.00)
Deficit as Percent of Operating Cost	$ 80.00	$ 79.50	$ 80.30	$ 79.70	$ 79.30
Public Subsidy Requirements					
Federal (50 percent)	$243,000.00	$259,900.00	$278,350.00	$298,300.00	$320,150.00
State (33.3 percent)[c]	162,000.00	173,300.00	185,550.00	198,900.00	213,450.00
Local (16.7 percent)	81,000.00	86,600.00	92,800.00	99,400.00	106,700.00

[a] *Assumes service begins January 1, 1977.*

[b] *Assumes average fare for many-to-many demand-responsive service is $0.70 per one-way ride.*

[c] *Assumes legislative action to provide transit funding support at levels equal to two-thirds of nonfederal share. Such funding levels during 1976-1977 biennium were insufficient to meet statewide needs.*

Source: SEWRPC.

system performance is $3.43 for 1977. This is based on a vehicle productivity rate of 4.9 passengers per vehicle hour, each paying an average fare of $0.70 per one-way ride. With good management, this projected revenue figure could be expected to increase from $3.43 in 1977 to $4.43 per vehicle hour in 1981 based on an assumed increase in vehicle productivity. However, if vehicle productivities can be increased beyond the assumed figures, a lower fare could be charged to generate the projected revenue per vehicle hour. Thus, if many-to-one, many-to-few, fixed route, and subscription services can be implemented during certain periods of the operating day in travel corridors experiencing good transit riding demand, reduced fares could be charged to achieve the projected revenue figure thereby promoting increased transit system riding. Depending on the type of service, average vehicle productivities on these services could be expected to range between 10 and 14 revenue passengers per hour with maximum productivities limited only by the capacity of vehicle, a characteristic not found in a pure many-to-many type demand-responsive transit system.

Typical examples of more cost-effective services which could be introduced at lower fares would be: 1) group riding rates—members of same family riding together for a special rate; 2) peak hour subscription school tripper or work trip service, 3) many-to-few demand-responsive

service from residential areas to the downtown central business district, and 4) many-to-one demand-responsive service from residential areas to Goerke's Corners commuter express service to downtown Milwaukee or the Waukesha County Technical Institute. These service variations and others as demand warrants should be identified, designed, implemented, and vigorously promoted to successfully restore an attractive and viable user oriented transit service that is well utilized.

TYPE OF TRANSIT VEHICLE

The transit vehicle to be used to provide demand-responsive service can be ordinary passenger cars such as those used by the existing taxicab companies, stretch limousines, vans, or small buses. In a pure many-to-many type service mode, it is unusual to have more than five passengers in a vehicle at one time. Therefore, it is possible to provide many-to-many type demand-responsive transit service using taxicabs. However, to provide the flexibility to allow for a gradual transition to the operation of fixed route subscription, many-to-one or many-to-few type services during certain high travel demand periods of the operating day may find that use of larger capacity vehicles may be more cost-effective in the long run. Based on the experience of other systems operating throughout the country, small 15- to 26-passenger transit buses have proven most popular. Figure 3 shows examples of small bus vehicles currently in service. Autos, vans, and stretch limousines are less costly, but they are difficult to get into and out of easily without disturbing all the passengers in the vehicle. In addition, the lack of roominess and the need for the passenger to open a side door by himself and maneuver in and out of the vehicle can make use difficult, particularly for the elderly and the handicapped and especially when operating in the many-to-many mode. Finally, autos, vans, and stretch limousines used in this type service generally have a service life of no more than three years or 150,000 miles. Small buses, while initially more costly, will generally have a service life of six years or 300,000 miles.

Based on estimates of ridership and typical vehicle productivity rates for a many-to-many type demand-responsive transit system, it is anticipated that a maximum of 16 vehicles may be needed to provide a desirable level of service. Two of these vehicles would serve as spares with an average of 12 vehicles being used in service during the 12 hour operating day. Tables 41 and 42 project the anticipated capital equipment needs and expenditures for the City of Waukesha over the 1977-1981 five year planning period.

Table 41 has been developed on the assumption that upon implementation of a City owned many-to-many type demand-responsive transit system a substantial number of taxicab users who currently have no other mode choice will switch to the City transit service offering equal or better service at lower fares. If this occurs, it may not be possible for both existing taxicab companies to remain in business. Consequently, it may be practical for the City to initiate the recommended service by purchasing up to a maximum of 16 taxicabs and necessary radio communications equipment from the two private operators. This would enable the City to begin service at least six months sooner than if it has to wait until new equipment arrives. The position the Urban Mass Transportation Administration (UMTA) would take on providing federal funds to assist in the acquisition of certain assets of the two taxicab companies is presently undefined. Historically, UMTA has not participated in funding the acquisition of taxicab company assets. Therefore, it must be assumed that the City would have to use all local funds to acquire these assets.

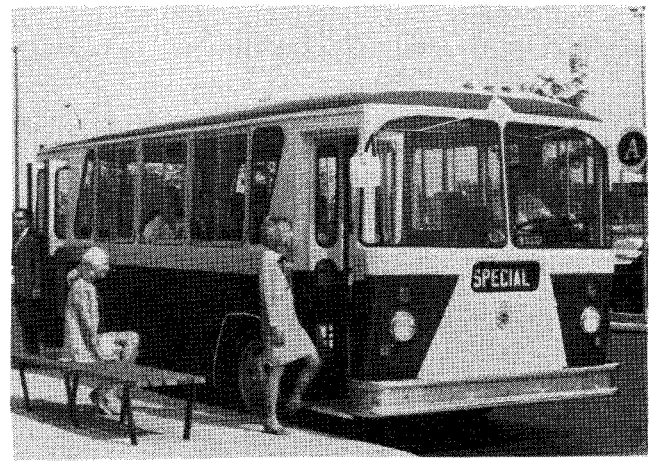
Figure 3

EXAMPLES OF SMALL BUS VEHICLES CURRENTLY IN SERVICE

Mercedes-Benz 0 309 D Bus

Source: Mercedes-Benz of North America, Inc.

Twin Coach



Source: Highway Products, Inc.

Table 41

MAJOR PROJECTED CAPITAL EQUIPMENT PURCHASES: 1977-1981

Year	Quantity	Description	Estimated Unit Cost (in Dollars)	Cost Total (in Dollars)
1977	8 (Approximately)	1950-51 45-passenger GMC transit buses and related supply and equipment inventories to be acquired from private operator	1,250	10,000
	16	Used taxicabs including radios; vehicle fleets to be acquired from two existing taxicab companies	1,875	30,000
	1	Used radio base unit (from an existing cab company)	2,500	2,500
	1	Base antenna (from an existing cab company)	200	200
1978	7	15- to 26-passenger buses with raised roof, air conditioning, and mobile radio	35,000	245,000
	3	Wheelchair conversion kits	7,500	22,500
1979	5	15- to 26-passenger buses with raised roof, air conditioning, and mobile radio	37,500	187,500
1980	4	15- to 26-passenger buses with raised roof, air conditioning, and mobile radios	40,000	160,000
1981	--	No capital expenditures anticipated	--	--
		Five Year Total Capital Investment		657,700
		Contingency (10 percent)		65,800
		Total Capital Investment		723,500

[a] *Following recommended discussions between the City and Waukesha Joint School District officials to clarify the continued future need and demand for school tripper service as a result of a proposed change of central high school to a middle school, it may be necessary for the City to also acquire up to seven 45-passenger, air conditioned buses not identified above for use in peak period school tripper service at a total cost of about $455,000 to be purchased using 80 percent federal and 20 percent local funds.*

Source: SEWRPC.

There are at least two advantages to acquiring the existing fleets of taxicabs from the two private taxicab companies. First, acquisition affords the owners of the existing taxicab companies the opportunity, should they choose, to recover part of the capital investment in their equipment if they elect to abandon service as a result of the implementation of a citywide demand-responsive transit system. Second, it allows for a gradual program of fleet replacement of either similar vehicles or larger capacity buses based on actual operating experience. This will enable the City to determine more precisely on the basis of actual experience and with only a minimal investment in capital equipment the number and type of vehicles that can best serve the developing travel demand.

In addition to the possible purchase of the vehicle fleets and related equipment from the two private taxicab companies, the City would be obligated to acquire any assets of the private transit company which were previously used to provide transit service to the City that the private transit owner may want to be compensated for. Initially it was believed that purchase of the private transit operator's city service fleet would allow the City to continue to provide school tripper service. Although it may be possible to keep some of these aged vehicles operating, the City and School Board should determine a mutually satisfactory school busing policy before major bus fleet replacement is made. The Committee learned that a school redistricting scheduled for 1978 may reduce the need for substantial school busing. If a reduced school rider demand does result, such demand may be satisfied through use of the smaller demand-responsive vehicles or under an alternative system such as private yellow school bus contract; at any rate, its user of a lesser number of large vehicles. The Committee did not believe it necessary to purchase new buses to meet this need, and no capital or operating costs were pressed upon the recommended City transit operation.

Beginning in 1978 and continuing through 1980 the City should begin a program of taxicab fleet replacement since these vehicles, which were purchased used, will be approaching the end of the normal service life. Replacement vehicles should be small buses to allow for the flexibility of providing more cost-effective transit services as warranted during peak travel demand periods by increasing vehicle productivities. While a program of vehicle fleet replacement has been set forth in the table, actual transit vehicle needs and the proper timing of the fleet replacement can be modified based on actual operating experience.

Table 42

ANNUAL COST BREAKDOWN OF PROJECTED CAPITAL EXPENDITURES: 1977-1981

Year	Subtotal (in Dollars)	Contingency (in Dollars)	Total (in Dollars)	80 Percent Federal Share (in Dollars)	20 Percent Local Share (in Dollars)
1977	42,700	4,300	47,000	9,000	38,000[a]
1978	267,500	26,800	294,300	235,440	58,860
1979	187,500	18,700	206,200	164,960	41,240
1980	160,000	16,000	176,000	140,800	35,200
1981	--	--	--	--	--
Totals (Five Years)	657,700	65,800	723,500	550,200	173,300

[a] *Federal participation in acquisition of only transit related equipment.*

Source: SEWRPC.

At least three of these vehicles should be equipped to serve persons confined to wheelchairs. A capital grant application should be prepared as soon as possible for the acquisition of the first seven buses because it will require at least six months for delivery. Table 42 provides a yearly summary of the required funds and funding sources for the capital expenditures throughout the five year planning period.

VEHICLE STORAGE AND MAINTENANCE FACILITIES

Once the vehicle fleet has been acquired and service has begun, garage facilities will be required to store and maintain the vehicles. Typically, in communities the size of Waukesha having a transit fleet size of only 16 small transit vehicles, temporary storage and maintenance facilities can be provided in existing municipally owned garages. If space is available, it not only makes for more efficient use of an existing facility but this in-kind contribution can offset the local share of the operating costs. Every opportunity should be made to utilize existing facilities not only for vehicle storage and maintenance but also for the transit program administrative functions. In addition, if City personnel can be used to provide vehicle maintenance and other transit system related services, this could further substantially offset the one-sixth local matching share of the system operating deficits. Should adequate facilities not be available on a long-term basis, it is recommended that an UMTA Section 9 grant be obtained to undertake a study of the storage, maintenance, and administrative facilities needed to accommodate the transit system. Following the outcome of this study, an UMTA Section 3 grant should be obtained to provide 80 percent of the cost of constructing or acquiring the necessary facilities.

OWNERSHIP AND MANAGEMENT OF THE TRANSIT SYSTEM

It is recommended that the City own the capital equipment and retain the certificate of common motor carrier convenience to provide local public transit service in the City. A new staff position to be discussed later herein should be created to coordinate services and planning activities and plan transit service for the City.

It is recommended that the City of Waukesha should begin operation of the many-to-many type demand-responsive transit system under a management contract arrangement. Thus, the day to day operations of the transit system would be handled by a private enterprise management team. The management fee in such a situation is usually based on a percentage of gross revenue, with a guaranteed minimum supplemented by an additional incentive payment based on ridership in order to encourage aggressive management. This management alternative allows the transit system to obtain full exemptions from property taxes and provides direct control by the City over the levels and costs of service. The use of a management contract will also avoid an increase in the number of employees on the City payroll. The personnel employed to provide transit service will be employees of the management firm and not public employees. Therefore, certain problems involving labor contracts, pensions, and other employee benefits can be minimized.

MARKETING

In order for a transit system to adequately perform its important transportation function in the City, those persons in need of the service must be informed of its availability. They must also understand how the transit

system operates. A strong marketing program is necessary to provide the necessary information to the public. Marketing will also enhance the image of transit service within the community. It is, therefore, recommended that up to 3 percent of the hourly vehicle operating cost be devoted to a transit marketing program. This marketing program should focus on identifying and informing the various user groups that could avail themselves of the transit service oriented to meet their respective needs. Marketing also is accomplished through service reliability and driver attitude, the two most important characteristics of a good transit system. For this reason, strict attention should be given to maintaining a good driver attitude and reliable service.

PLAN IMPLEMENTATION

Plan implementation should consist of the following steps: 1) Submittal of the transit development program presented herein to a citywide referendum in order to determine conclusively the attitudes of the electorate toward City acquisition of the assets and operating authority of the private taxicab and transit operators and the provision of the proposed demand-responsive transit service; 2) Creation of a new City staff position to coordinate the public acquisition of the existing taxicab and transit service and the initiation of the proposed public service; 3) Retention of a transit management firm to provide the service.

How soon actual transit service can begin depends on how quickly the City can act to implement the service once the suggested local referendum has been held and a favorable response obtained from the electorate.

The first step in formation of a demand-responsive transit system, or any public transit system for that matter, is the preparation and adoption of a five year transit development program which sets forth the locally adopted plan to provide public transportation service. This plan is to be consistent with the area's comprehensive long-range land use plan, urban development objectives, and the area's overall social, economic, environmental, and energy conservation goals and objectives. This document, if adopted locally and by the Southeastern Wisconsin Regional Planning Commission, can constitute the required five year transit development program document.

The second step in the plan implementation process is to seek citizen approval through a citywide referendum on acquisition of the assets of the private transit operator's city bus service and of the existing taxicab companies, and of the provision of demand-responsive transit service under City ownership to the Waukesha area. The successful adoption of this local referendum is required by state statutes before a city can enter into the business of providing a city owned transit service. It would be highly desirable to include as a part of the referendum an advisory question related to the type of service that should be provided to determine whether the residents of the city generally agree that a demand-responsive transit system as proposed should be provided. It is extremely important that every effort be made to fully inform the local citizenry about the plan and the alternatives thereto in order that their ultimate collective decision can be grounded in logical and informed thought.

The third step involved in plan implementation, once the referendum has been held and the plan has been adopted, would be for the City to create a new staff position; transit coordinator/planner. Initially the responsibilities of this position should include directing and coordinating the necessary actions required to achieve plan implementation. This person would oversee the smooth and orderly transition of the existing transit and taxicab systems from private to public ownership. The responsibilities of the position would include the preparation of application to UMTA for federal grants in partial support of the plan implementation including: 1) Section 9 technical study grant to conduct an appraisal of the net worth of the physical assets of the existing City bus system and to undertake a study of the City's transit vehicle maintenance and storage facility needs; and 2) a Section 3 capital grant to acquire the physical assets of the existing City bus system, to construct as needed transit vehicle storage and maintenance facilities, and to purchase vehicle rolling stock, special vehicle assessibility options, and communications equipment. The position would also be responsible for coordinating the negotiation of UMTA Section 13C labor agreements with the existing local transit union and the preparation of UMTA Section 5 and State grant applications for federal and State grants that together could supply nearly 84 percent of the anticipated transit system annual operating deficit. In addition, the position would be responsible for the development of a management contract for the retention of a transit services management firm to operate the demand-responsive transit system.

Upon completing the work involved in the acquisition and implementation of demand-responsive transit service, the responsibilities of the transit coordinator/planner would involve staff liaison duties between the City and the management of the transit firm employed to provide the service. Major responsibilities will include a transit improvement program planning function which in concert with the management firm would make recommendations to the Mayor and Common Council concerning necessary and desirable changes in service based on careful analysis of ridership, revenue, and cost data, and based on actual operating experience. The transit coordinator/planner would also prepare an annual transit operating budget and all transit related development programs for submission to the Mayor and Common Council.

The final step in implementing the transit plan is retention of a transit management firm to operate the system. Proposals to provide the transit system management function should be solicited from interested and qualified parties. This solicitation could include the present private transit operator, Wisconsin Coach Lines, Inc.; either or both of the two existing private taxicab operators, the Yellow Taxicab Company and the Checker Cab Com-

pany; Milwaukee Transport Services, Inc., and other local as well as national firms interested and experienced in operating a demand-responsive transit system. A transit management contract should be developed that specifies the management fee, the management responsibilities, and performance evaluation criteria. The management firm should be given full responsibility for satisfactorily providing transit service in the City.

SUMMARY

The many-to-many type demand-responsive transit system (DRT) recommended for implementation in the City of Waukesha represents a new form of transit service in Wisconsin. Such service, however, is not new nationally. A literature search indicates that there are over 100 demand-responsive transit systems of various types in operation throughout the United States. The State of Michigan has at least 30 demand-responsive systems in operation. The popularity of demand-responsive systems can be attributed to the high degree of flexibility offered in routing and scheduling. This allows for provision of a wide range of public transportation services using relatively small vehicles to provide shared occupancy door-to-door personalized transportation on demand. The service can be easily modified to meet changing or new travel demand on the basis of actual operating experience without disruption in the basic level and quality of service. In areas where no transit service exists or where transit riding demand has been poor, demand-responsive transit service can act as a catalyst for route rationalization and restoration of a basic fixed route transit system by restoring and creating a transit riding habit. The flexibility and the personalized door-to-door service offered by a demand-responsive transit system is especially attractive to the elderly and the handicapped because it is convenient to use at modest fares. The need to improve the mobility of these two potential transit user groups should be a primary consideration in the development of a transit system. While demand-responsive transit service is more costly to provide than conventional fixed route transit service, it offers a high level of quality service and is the most economical way to provide city-wide service available to anyone desiring to travel between any point of origin and point of destination within the City. To moderate the relatively high costs of demand-responsive transit service, an effort should be made to promote the provision of compatible auxiliary services such as small package delivery and shopping center services sponsored by retailers. In addition and as demand warrants, during periods of high travel, demand service modifications also discussed in the chapter such as subscription fixed route and many-to-one type services should be made to increase vehicle productivities and passengers served thereby moderating vehicle operating costs.

The demand-responsive transit system recommended for implementation in the City of Waukesha would begin initially offering service five days per week Mondays through Fridays excluding holidays. Service would be available from 6:00 a.m. to 6:00 p.m. and initially the fares would be established at $1.00 per one-way ride for adults. A half-fare of $0.50 per one-way ride would be charged the elderly, the handicapped, and children under 12. On the basis of these initial operating characteristics, anticipated ridership, vehicle productivities, hours of service, revenues, and operating cost were projected. Ridership was projected to total about 700 revenue passengers per day within the first year after the service is initiated. This represents the majority of those person trips currently being served by the two existing taxicab companies as well as the 75 persons who were using the local transit system before the service was discontinued on June 1, 1976. The daily ridership is projected to increase steadily over the five year planning period to about 900 rides per day by 1981. The projected annual operating deficits for the proposed system may be expected to range from about $486,000 in 1977 to about $640,300 in 1981 with the local public subsidy required ranging from about $81,000 in 1977 to about $106,700 in 1981. The total five year capital equipment costs are estimated to be about $724,000. The total five year capital costs to the City would be about $173,300 or an average of approximately $35,000 per year. It should be noted, however, that following recommended discussions between the City and Waukesha Joint School District officials to clarify the continued future need and demand for school tripper service as a result of a proposed change of central high school to a middle school, it may be necessary for the City to acquire up to seven 45-passenger air conditioned buses not included in these figures. These buses would be used to provide peak period school tripper and would cost about $455,000 to purchase the necessary vehicle fleet using 80 percent federal and 20 percent local funds. Many of these capital investments would have continued value beyond the five year planning period. These projections should be viewed as benchmarks of system performance. To achieve these benchmarks it may be necessary to adjust system operating characteristics and user fares based on actual operating experience and identified travel demand. As either higher or lower than projected travel demand may warrant, modifications to service and fares can and should be made up or down to increase vehicle productivities and moderate operating costs without adversely affecting the overall level or quality of service. This high degree of system flexibility is a favorable attribute not characteristic of fixed route transit service.

There are three basic steps involved in the initiation of demand-responsive transit service in the City of Waukesha. The first step is to hold a citywide referendum to determine whether the City should provide a publicly owned transit service and whether or not such service should be the demand-responsive type recommended herein. If voter response to the referendum questions is favorable, the City can then proceed with initiation of the demand-responsive transit service.

The second step would be to create a new City staff position to coordinate the transition from private to public ownership of the local transit system and to oversee the subsequent implementation activities. Although demand-responsive transit service can be initiated using

ordinary passenger cars, stretch limousines, vans, or small buses, it is recommended that the City acquire up to a maximum of 16 used taxicabs and related communications equipment from the private taxicab operators should they elect to go out of business in response to City provision of demand-responsive transit services with which to initiate recommended service. A fleet replacement program would then serve to introduce the use of small 15- to 26-passenger transit buses, some of which would be equipped with special features for service to the handicapped. Use of small buses is recommended even though the first cost of such buses may be more than automobiles or vans because bus operating life is greater and the convenience to transit passengers is greater than available in automobiles or small vans.

The third basic step would be to retain a transit management firm to operate the demand-responsive service for the City of Waukesha, providing day to day transit services under the direction and coordination of City staff and under the overall policy direction of the Common Council. Subsequent implementation activities will necessarily depend upon actual operating experience.

Chapter VIII

SUMMARY

INTRODUCTION

On June 14, 1974, Mayor Paul G. Vrakas of the City of Waukesha appointed a seven-member Citizens Mass Transit Study Committee and charged the Committee with the responsibility of studying the present and probable future need for public transit service in the City of Waukesha and environs and with recommending the best course of action for the City to take to meet the identified need. By December 1974 the Citizens Mass Transit Study Committee had determined:

1. That a significant number of Waukesha residents could be identified as potential users of mass transit;

2. That the then existing level of transit service in the Waukesha area was inadequate to serve those who need or would prefer to use mass transit or to provide a realistic alternative to the automobile as a mode of travel; and

3. That the increasing cost of motor fuel and increasing dependence of the United States on foreign sources of petroleum require responsible public action toward maximizing the uses of those forms of transportation which use motor fuel most efficiently.

The Committee, therefore, recommended to Mayor Vrakas that a transit development program be prepared to accurately define the City's mass transit needs and to qualify the City for federal and state grants and aid for any needed mass transit improvements. The Committee also recommended that technical assistance from the Southeastern Wisconsin Regional Planning Commission be sought in preparing a transit development program.

In accordance with the Citizens Mass Transit Study Committee findings and recommendations, Mayor Vrakas, on December 20, 1974, formally requested the Southeastern Wisconsin Regional Planning Commission to assist in the preparation of a transit development program for the Waukesha area. In addition, the Mayor acted in March 1975 to expand the membership of the Citizens Mass Transit Study Committee to create a combined Waukesha Mass Transit Citizens and Technical Coordinating and Advisory Committee and charged the reorganized Committee with preparing a five year mass transit development program for the City of Waukesha and environs. The expanded Committee membership includes not only the previous broad spectrum of citizen interest but also representation of several agencies affected by or involved in the provision of urban mass transit services in the Waukesha area, including the Waukesha County Highway and Transportation Committee; the Waukesha school system; the Wisconsin Department of Transportation, Divisions of Highways and Planning; and the U. S. Department of Transportation, Urban Mass Transportation Administration.

The expanded advisory Committee, working from April 3, 1975 to January 6, 1977, developed the recommended transit development program presented in this report. The program consists of a set of capital investments and operating subsidies which would not only restore transit service to the City of Waukesha and environs but would ensure that such service provides a reasonable alternative to the automobile as a means of transportation in the Waukesha area. The recommended program is based on a careful analysis of the existing transit service, the existing and probable future travel demands, and the need for transit service in the area, and on the identification and evaluation of alternative courses of action which could be taken to address the identified needs. The recommended program is intended to provide a sound basis for reestablishing and subsequently improving mass transit service in the Waukesha area. To this end the program is intended to provide a point of departure for:

1. Making the public policy determinations necessary to reestablish transit service and carry out mass transit service improvements in a systematic manner over time;

2. Assuring the most effective use of public resources in the provision of mass transit service; and

3. Providing support for capital and operating assistance grant applications to the state and federal governments.

This chapter briefly summarizes the salient findings and recommendations of the program and the planning process which produced that program.

The transit development program for the Waukesha area presented in this report is consistent with the adopted long-range transportation plan for southeastern Wisconsin which recommends that improved and expanded mass transit service be provided within the major urban areas of the seven-county Southeastern Wisconsin Region in an effort to provide a more balanced transportation system and assure an adequate level of transportation for all segments of society. In the long-range regional transportation plan, the rubber-tired transit bus was identified as the best vehicle for providing cost-effective public transit service within the Region. The Waukesha transit development program constitutes both a refinement of the adopted regional transportation plan and a means for its

implementation. Implementation of the adopted regional transportation plan in the Waukesha area has included, to date, the construction of a public transit station and park-ride lot at the IH 94 and USH 18 interchange (Goerke's Corners) and the initiation of modified rapid transit service between downtown Waukesha and downtown Milwaukee by Waukesha County in cooperation with the Wisconsin Department of Transportation on a demonstration program basis. The Waukesha transit development program has been developed in conformance with transit development objectives and standards originally prepared and adopted by the Southeastern Wisconsin Regional Planning Commission for use in regional mass transit planning efforts and modified by the Waukesha Mass Transit Citizens and Technical Coordinating and Advisory Committee for local transit planning purposes.

CHARACTERISTICS OF TRANSIT SERVICE AREA

The Waukesha transit service area is a part of the Milwaukee urbanized area and, for purposes of this study, was identified as a planning analysis area consisting of all of the City of Waukesha and the Town of Waukesha and part of the Town of Pewaukee. This area approximates a rational urban planning district identified as part of a regional planning effort which takes into account current census tract boundaries in addition to the corporate limits of the minor civil divisions; also takes into account existing and potential mass transit service areas; the availability of certain other urban facilities and services; residential neighborhood boundaries; travel patterns centered on major commercial and industrial land use concentrations; school district boundaries; natural and man-made constraints on development such as environmental corridors, watershed boundaries, and major transportation routes; existing and probable future land use development; soils; operational areas of private real estate firms, land developers and builders, as well as banking and mortgage loan institutions; and the existence of a community of interest that can be marshalled in the establishment of subregional planning programs. The Waukesha transit development program does, however, as necessary, consider certain major traffic generators located outside the study area such as the Waukesha County Technical Institute and the major park-ride lot at the interchange of IH 94 and USH 18 (Goerke's Corners).

The resident population of the study area was estimated to be almost 56,000 persons in 1975, an increase of almost 20 percent over the 47,121-person resident population level recorded in the 1970 U. S. census. The resident population of the City of Waukesha alone increased from 39,695 persons in 1970 to an estimated 1975 population of 47,744, thus representing the major proportion of the population of the study area.

The study area is bisected by the Fox River which is bridged at a limited number of locations; and is traversed by three railroad rights-of-way which, with few exceptions, cross the street at grade, resulting in periodic traffic delay. The study area also is marked by topographic conditions which have contributed to development of an irregular street pattern within the central portion of the City of Waukesha. The irregular street pattern, limited bridge crossings, and railroad crossings influence transit routing and use within the area.

Population groups highly dependent on mass transit for mobility in the study area are students, the elderly, low-income families, minority groups, the handicapped, and those with limited access to automobile transportation. In 1970, the elderly constituted 7 percent of the total resident population of the study area; minority groups, about 5 percent; low-income households, 6 percent; handicapped persons, 12 percent; and school age children, about 21 percent. About 11 percent of the households within the study area do not have an automobile available to them. The residential locations of the elderly, the handicapped, school age children, low-income families, and those households without automobiles, are generally widely dispersed throughout the study area. Minority groups, however, are concentrated in the central area of the City of Waukesha and the areas immediately northeast and south of this central area.

Major trip generators in the study area—including employment centers, shopping centers, educational institutions, public and medical institutions, and certain recreational areas—were identified for consideration in developing improved transit service. The 1972 inventory of travel conducted by the Regional Planning Commission indicated that about 201,000 person trips are made within the study area on an average weekday. Of this total, about 149,000 trips, or about 75 percent, are made entirely within the study area. The City of Brookfield, including the Brookfield Square Shopping Center, located outside the study area, constitutes the singularly largest area of attraction for trips leaving the study area. About 42 percent of the total number of work trips generated within the study area are made to employment destinations located outside of the study area. The Waukesha central business district and the industrial area located in the eastern section of the planning area along Lincoln Avenue were the most significant attractors of work-purpose trips within the study area. The highest concentrations of shopping trip attractions within the study area included the Waukesha central business district and the commercial area located at Sunset Drive and East Avenue.

Transit ridership within the service area on an average weekday in 1972 averaged about 135 riders per day exclusive of student use of the school tripper service. About 90 percent of those riders were destined for the Waukesha central business district. Popular destinations of riders on the commuter route to Milwaukee were the Brookfield Square Shopping Center, the Allis-Chalmers Manufacturing Company plant in West Allis, and the Milwaukee central business district. About 80 percent of local transit ridership, exclusive of school tripper service, is female; about 88 percent is white; about 29 percent is in the 16 to 24 age bracket; and about 12 percent is in the over 65 age bracket. About 58 percent of the riders indicated that they did not possess a driver's license; and about 10 percent are from households with family incomes below $4,000 per year. In a special home inter-

view study conducted by the Regional Planning Commission within two selected subareas of the study area which should have had—but did not have—a significant proportion of transit users, 39 and 46 percent of the heads of households in the two areas, respectively, stated that they would not use mass transit under any conditions, and 23 to 30 percent indicated that they would ride mass transit only if there were no other choice.

The inventories and analyses conducted under the planning program indicated that provision of transit service has become difficult in the Waukesha area for the following reasons:

1. The resident population of the study area, while rapidly increasing, is spreading outward, resulting in lower population densities;

2. Many of the special resident population groups identified as requiring special attention in the transit planning effort are also generally widely dispersed throughout the study area;

3. No major concentrations of trip origins and destinations exist to support direct transit service between places of residence and places of work;

4. The Waukesha central business district has declined in significance as a major trip generator due in part to the development of outlying shopping centers and attendant employment opportunities.

5. A sizable portion of work trips is made to locations beyond the study area.

LOCAL TRANSIT SERVICE

On May 28, 1976, local bus service was discontinued in the City of Waukesha, marking the end of over 80 years of transit service that began in 1895 with the construction of an electric car line between Waukesha and Waukesha Beach, a then-popular recreation area located on Pewaukee Lake. Local bus service was inaugurated in the City of Waukesha by Waukesha Transit Lines in August 1941, and bus service in the Milwaukee-Waukesha corridor was inaugurated by the same company in 1951 through assumption of a route previously operated by Greyhound Lines, Inc. The latter route replaced electric interurban railway services between Milwaukee and Waukesha discontinued in June 30, 1951. When in 1963 Waukesha Transit Lines obtained operating rights to several other interurban bus routes formerly operated by Greyhound Lines, Inc., the company changed its corporate name from Waukesha Transit Lines to Wisconsin Coach Lines, Inc. At the time local bus service was discontinued, transit service was being provided by one bus traveling two routes on 60-minute headways focused on the downtown area, a level no longer capable of responding to travel demands of the expanding city and its population.

Since the early 1950's ridership on the local bus system has ranged between a low of 451,000 annual passengers per year in 1963 to a high of 641,000 in 1956. In 1970 the local school board decided to discontinue subsidizing bus rides for students living in the City but more than two miles from their school. The effect of this policy change was a sudden nearly 50 percent decline in ridership, from 614,000 annual revenue passengers in 1970 to 316,000 in 1971. Faced with a marked decline in revenues, the private operator initiated service cuts and fare increases in an effort to remain in business, a self defeating cycle which finally culminated in a request by Wisconsin Coach Lines, Inc., to the Wisconsin Public Service Commission in October 1975 to discontinue local transit service. The City of Waukesha then agreed to provide $6,000 to subsidize continuation of local transit service through May 28, 1976, and to determine if a need for continued transit service did, in fact, exist. By the time transit service was discontinued, its social and economic value to the community was marginal at best, providing service between 8:00 a.m. and 6:00 p.m. to only about 75 riders per day. Service had deteriorated to so poor a level it did not provide an even remotely viable alternative to the use of the private automobile. Many City residents were beyond the limited service area of the shrinking transit system. The average age of the bus fleet in local and school tripper service was 24 years, four years beyond the commonly considered useful vehicle life. In 1976, all that remains of the local bus system is a privately operated, slightly profitable peak hour school tripper service, a service provided with obsolete buses that the private operator cannot, under existing conditions, afford to replace.

In addition to the declining local service, commuter service between Waukesha and Milwaukee is provided by Wisconsin Coach Lines, Inc. Improved transit service in the corridor, was initiated in 1975 as a demonstration program, a program financed by Waukesha County and the Wisconsin Department of Transportation. Waukesha County also provides a free dial-a-ride bus service for senior citizens living within the County. This service is funded by a federal grant administered through the Southeastern Wisconsin Area Agency on Aging. Public transportation is also provided on a shared-ride, zone fare basis by two private taxicab operators within the study area. The taxi service carries between 450 and 500 persons per day, over six times the number of persons carried by the local transit system during its final period of operation. The inventory of existing transit service indicated that there appears to be no prospect that a private transit operator will be able to restore the needed level of public transit service to the City of Waukesha without a public subsidy of both capital and operating costs.

ALTERNATIVE LOCAL TRANSIT DEVELOPMENT PROGRAMS

The Committee, beginning its study effort confronted by the dismal transit system performance of the recent past and a general prevailing apathy toward the need to restore transit service, directed study efforts first toward determining the need for public transit service in the area and then toward evaluating alternative means to accommodate that need effectively and efficiently. The Committee concluded that in the Waukesha area transit service

is needed primarily to provide improved mobility for the elderly, the handicapped, the young, and carless persons who, in the absence of adequate public transit service, are unable to travel as freely as the majority of the population. As a minority these groups tend to be less visible, less vocal, and less organized than their peers in larger cities; as a result, their mobility needs tend to be overlooked. The Committee determined that, in addition to providing transportation for 850 student riders per day, some form of public transportation was required by the "auto-less" residents of the area who, even though they may represent a relatively small segment of the total population, should be provided some means of satisfying their basic travel needs.

Following rejection of a "do nothing" alternative, the Committee evaluated two basic alternative means of providing the needed transit service: a conventional fixed route, fixed scheduled transit system and demand-responsive transit system. Within these two basic alternatives, a number of variations capable of producing varying levels of service at different operating costs were identified and investigated. In all, seven alternative transit systems were considered by the Committee. These are described briefly in the following sections.

Fixed Route-Fixed Schedule Transit Service

Under the basic fixed route-fixed schedule transit service alternative, three different levels of service were postulated and evaluated.

The first level of service considered was continuation of the service provided by the private operator prior to May 28, 1976, but with operating losses subsidized by the public. Under this alternative, one local service bus would operate on one-hour headways over two routes from approximately 8:00 a.m. to 6:00 p.m. Mondays through Fridays. Transit fares would remain constant at 50 cents for adults, 25 cents for children ages 6 to 11, and 33 1/3 cents for students throughout the five year planning period from 1976 to 1981. However, a new half-fare policy of 25 cents per trip for the elderly and handicapped would be instituted in conformance with federal regulations requiring that such a policy exist on federally assisted local transit systems. School tripper service would continue to be provided during the morning and afternoon peak periods for school arrivals and departures, respectively. The City would assume responsibility for acquisition and replacement of capital equipment necessary to provide both the local as well as the school tripper bus service since the City—not the private operator—would be eligible for the federal funds available for these capital investments. To maintain the assumed level of service under this alternative would require two 15- to 26-passenger air conditioned buses for use in local service and seven 45-passenger buses for use in peak period school tripper service. The two smaller buses would be designed and equipped to conveniently serve the handicapped with hydraulically operated lifts, wheelchair securement devices, and grab rails and other assists for the semiambulatory.

Under the second and third levels of fixed route-fixed schedule service considered, four and 10 routes, respectively, would be provided. Under each of these route configurations, headways would be reduced from one hour between buses to 30 minutes, and service would be available five days per week between 6:00 a.m. and 6:00 p.m., an increase of two hours daily over the previous ten-hour operating schedule. Fares would be reduced to 40 cents per trip for adults, 20 cents for children ages 6 to 11, and would include a half-fare program of 20 cents per ride for the elderly and the handicapped. The existing levels of school tripper service would be continued at 33 1/3 cents per student trip. Because of an increased involvement by the City in the operating affairs of the local bus system under these two alternative levels of service, the City would assume public ownership of the local bus system by purchasing from the private operator that portion of his capital equipment and facilities used to provide the local bus service, including the school tripper service. The City then would provide the local bus service, retaining a transit management firm to operate this sytem. A fleet replacement program would also be required under each of these alternatives.

To implement the improved four fixed route-fixed schedule bus system, the City would need to purchase five 15- to 26-passenger air-conditioned buses equipped to serve the handicapped for use in local service and seven 45-passenger air-conditioned buses for use in peak period school tripper services. To provide an improved City-wide system over 10 bus routes would require the purchase of twelve 15- to 26-passenger air-conditioned buses equipped to serve the handicapped for use in local service; and five 45-passenger air-conditioned buses for use in peak period school tripper service. School tripper service would be integrated into regular service to the maximum extent practicable.

Demand-Responsive Transit Service

As an alternative to restoring fixed route-fixed schedule transit service, the Committee evaluated a series of demand-responsive transit systems, ranging from subsidization of the taxi fares of the elderly and the handicapped to provision of a publicly owned system of buses providing a demand-responsive service. Demand-responsive transit service may be defined as a range of service characterized by the flexible routing and scheduling of relatively small vehicles to provide shared occupancy door to door personalized transportation on demand.

Demand-responsive transit service tends to be more costly to provide than traditional fixed route-fixed schedule service because the transit vehicle typically has a lower productivity rate, commonly expressed in terms of passengers served per vehicle hour operated, than a vehicle operating along a fixed route. Increased costs also are incurred because of the need to provide additional personnel to receive and dispatch requests for the door-to-door transit service. Demand-responsive

transit systems are much more flexible, however, than fixed route-fixed schedule bus systems and can more effectively respond to changes in travel demand and patterns. The door-to-door, no-transfer characteristics of demand-responsive systems permits such systems to provide high quality transportation, particularly convenient for use by the elderly and the handicapped. To offset part of the increased costs of such a system, higher fares are commonly charged with little or no discernible adverse effect on ridership demand.

The two existing privately owned taxicab companies presently provide a demand-responsive service to the City of Waukesha and its environs. Taxicab hourly vehicle operating costs are generally lower than prevailing bus hourly operating costs primarily because of lower driver wage rates. The Committee evaluated three alternative ways to subsidize the current taxi fare structure as a means of maintaining or expanding transit service to the residents. Under the first alternative, the taxi fare of elderly and handicapped riders would be subsidized. Under the second alternative, the taxi fare of the elderly, the handicapped, and low-income persons would be subsidized; and under the third alternative, the fare of all taxi users would be subsidized. The taxi fare charged subsidized users under the first two alternatives would be limited to 50 cents per trip, but all other users would pay the fares charged under the current fare structure. Under the third alternative, the fare for taxicab rides would be limited to $1.00 for adult fares per trip and 50 cents for elderly and handicapped users and children between the ages of 6 and 11. The operating costs of the taxi systems not met by these fares would be subsidized by local and available state and federal operating assistance funds. At a minimum, such reduced subsidized fare taxicab service would be available between the hours of 6:00 a.m. and 6:00 p.m., five days per week. Initially, such service would be provided between any trip origin and destination but, as ridership increased, many-to-one, many-to-few, and subscription services could be developed to serve such major trip generators as places of employment, schools, and line haul commuter bus stops such as the Goerke's Corners transit station. In addition to operating the transportation service under these three alternatives, acquisition and ownership of capital equipment to provide the service would be the responsibility of the private taxicab firms.

A fourth alternative demand-responsive service, a publicly owned, privately managed, bus-based service also was evaluated. Service characteristics would be similar to those of the taxi-based system except that small 15- to 26-passenger air-conditioned buses equipped to serve the handicapped would be used to provide transit service. Prevailing transit driver wage rates would be paid; and fares were assumed to be $1.00 per ride for adults and 50 cents per ride for the elderly, the handicapped, and children 6 to 11 years old. Under this alternative initially-purchased taxi vehicles would be replaced by a fleet of sixteen 15- to 26-passenger buses, three of which would be equipped for use by the handicapped, to provide the demand-responsive local transit service. In addition, seven 45-passenger air-conditioned buses would be required for provision of school tripper service.

Ridership estimates, operating costs and revenues, and capital investments required under each of the evaluated alternatives were identified and the local share of operating deficits and capital investments determined. The important findings of this evaluation of alternatives are summarized in Table 43.

In addition to analysis of the characteristics summarized within the table, the alternatives also were evaluated on the basis of certain attributes considered important in the provision of an effective citywide transit system. These attributes were ranked in the following order of priority: 1) equity, 2) cost, 3) quality, 4) flexibility, and 5) fare. After careful consideration, the Committee unanimously concluded that a publicly owned demand-responsive transit system operated by a private transit management firm offered the best alternative for providing public transit service in the City of Waukesha and environs. In arriving at this conclusion, the Committee noted that fixed route-fixed schedule transit systems worked best in areas of relatively high residential density with the substantial travel demand directed to concentrated major trip attractors; that such transit systems are relatively inflexible in terms of schedules, routes, and areas served; and unless an extensive service is provided, the system would be unavailable to many residents who would be supporting the system through taxes. The cost of providing an extensive fixed route-fixed schedule transit system approximates that of providing the more flexible demand-responsive system, a system capable of providing a more convenient and higher quality of service. The demand-responsive transit system works well in areas of low to medium density where trip origins and destinations are dispersed rather than concentrated. In addition, demand-responsive transit service is more convenient for use by the semiambulatory, those persons who have difficulty walking without a cane or a crutch, and by persons in wheelchairs, whereas fixed route service may neither be available nor accessible to such persons. Further, the natural and man-made barriers within the Waukesha area, the Fox River, the railroad grade crossings, and the irregular street pattern do not lend themselves to establishment of an easily understandable fixed route transit system. Importantly, the demand-responsive transit system can be easily modified to meet changing or new travel demands on the basis of actual operating experience without disruption in the basic level and quality of service. The number and size of vehicles in operation can be scheduled to meet changing demand. In areas where no transit service exists or where transit riding demand has been poor, demand-responsive transit systems can help to restore the transit riding habit. As demand warrants during periods of peak travel demand, service modifications can be readily made in the demand-responsive system such as subscription and many-origin-to-limited-destination service. Such modifications can increase vehicle productivity and, thus, can moderate transit system operating costs and attendant subsidies.

Table 43

SUMMARY OF COST AND REVENUE ESTIMATES: ALTERNATIVE TRANSIT SYSTEMS FOR THE WAUKESHA STUDY AREA

Transit System Alternative		Estimated 1978 Operating Characteristics					Estimated 1981 Operating Characteristics								Five-Year Capital Investment in Constant Dollars[a]	
									Operating Cost		Operating Deficit		Local Share of Deficit			
Number	Name	Anticipated Ridership	Anticipated Fare Box Revenue (in Dollars)	Operating Cost (in Dollars)	Operating Deficit (in Dollars)	Local Share of Deficit (in Dollars)	Anticipated Ridership	Anticipated Fare Box Revenue (in Dollars)	Assuming 7 Percent Annual Price Inflation (in Dollars)	Assuming Constant Dollars (in Dollars)	Assuming 7 Percent Annual Price Inflation (in Dollars)	Assuming Constant Dollars (in Dollars)	Assuming 7 Percent Annual Price Inflation (in Dollars)	Assuming Constant Dollars (in Dollars)	Total (in Dollars)	Local Share (in Dollars)
1	Do Nothing	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2	Reestablish May 1976 Fixed Route-Fixed Schedule System (Two Routes)															
	Local Routes	21,165	8,466	43,274	(34,800)	--	21,675	8,900	53,000	43,300	(44,300)	(34,400)	--	--		
	School Trippers	158,580	52,800	48,900	3,900	--	162,000	53,900	59,900	48,900	(6,000)	5,000	--	--		
	Total	179,745	61,266	92,174	(30,900)	(5,150)	183,675	62,800	112,900	92,200	(50,300)	(29,400)	(8,400)	(4,900)	570,000	114,000
3A	Establish New Fixed Route-Fixed Schedule System (Four Routes)															
	Local Routes	110,200	35,300	207,700	(172,400)	--	138,900	44,500	254,500	207,700	(210,000)	(163,200)	--	--		
	School Trippers	158,600	52,800	48,900	3,900	--	162,000	53,900	59,900	48,900	(6,000)	5,000	--	--		
	Total	268,800	88,100	256,600	(168,500)	(28,050)	300,900	98,400	314,400	256,600	(216,000)	(158,200)	(36,000)	(26,400)	675,000	135,000
3B	Establish New Fixed Route-Fixed Schedule System (Ten Routes)															
	Local Routes	214,200	68,500	519,300	(450,800)	--	269,300	86,200	636,200	519,300	(550,000)	(433,100)	--	--		
	School Trippers	158,600	52,800	48,900	3,900	--	162,000	53,900	59,900	48,900	(6,000)	5,000	--	--		
	Total	372,800	121,300	568,200	(446,900)	(74,500)	431,300	140,100	696,100	568,200	(556,000)	(428,100)	(92,700)	(71,400)	787,500	157,500
4A	Establish Demand-Responsive System—Subsidize Selected Taxi Fares[b]															
	Elderly and Handicapped	112,000	56,000	224,000	(168,000)	--	154,200	77,100	385,500	231,300	(308,400)	(154,200)	--	--		
	School Trippers	158,600	52,800	48,900	3,900	--	162,000	53,900	59,900	48,900	(6,000)	5,000	--	--		
	Total	270,600	108,800	272,900	(164,100)	(27,350)	316,200	131,000	445,400	280,200	(314,400)	(149,200)	(52,400)	(24,900)	500,000	100,000
4B	Establish Demand-Responsive System—Subsidize Selected Taxi Fares[b]															
	Elderly, Handicapped, and Low Income	156,400	78,200	351,900	(273,700)	--	205,600	102,800	565,400	308,400	(462,600)	(205,600)	--	--		
	School Trippers	158,600	52,800	48,900	3,900	--	162,000	53,900	59,900	48,900	(6,000)	5,000	--	--		
	Total	315,000	131,000	400,800	(269,800)	(45,000)	367,600	156,700	625,300	357,300	(468,600)	(200,600)	(78,700)	(33,400)	500,000	100,000
4C	Establish Demand-Responsive System—Subsidize All Taxi Fares[b]															
	All Users	178,500	125,000	510,500	(385,500)	--	214,200	149,900	749,700	321,300	(612,000)	(462,100)	--	--		
	School Trippers	158,600	52,800	48,900	3,900	--	162,000	53,900	59,900	48,900	(6,000)	5,000	--	--		
	Total	315,000	177,800	559,400	(381,600)	(63,600)	376,200	203,800	809,600	370,200	(618,000)	(457,100)	(103,000)	(76,200)	500,000	100,000
4D	Establish Publicly Owned Bus-Based Demand-Responsive System															
	Local Service	191,200	133,800	653,600	(519,800)	--	229,500	160,600	800,900	653,600	(640,300)	(493,000)	--	--		
	School Trippers	158,600	52,800	48,900	3,900	--	162,000	53,900	59,900	48,900	(6,000)	5,000	--	--		
	Total	349,800	186,600	702,500	(515,900)	(86,000)	391,500	214,500	860,800	702,500	(646,300)	(488,000)	(107,700)	(81,300)	1,183,000	236,600

[a] *Capital expenditures shown do not include the cost to purchase the tangible assets of the existing local transit system from the private operator.*

[b] *Alternatives 4A, 4B, and 4C would subsidize rides for users of a privately owned and operated shared ride taxi service. Shared ride taxi services can be designed to be eligible for federal funds to offset 50 percent of the system operating deficits, including profit and capital depreciation. It must be noted, however, that it is uncertain whether existing state legislation recognizes shared ride taxi service as being eligible for the state's transit subsidy program which would fund one-third of the local operating deficit. The state transit aid program will not subsidize that part of the private operator's operating cost representing profit and capital depreciation. The figures reflected in the column indicating local share subsidy do not include the City's payment of any profit and depreciation not paid by the state; thus, any amount of the operating costs not borne by the state would have to be assumed by the city. In addition, Alternatives 4A, 4B, and 4C do not assume that a labor protection agreement (Section 13C of 1964 Urban Mass Transportation Act) would need to be negotiated between the city and the transit union representing the employees of the private transit operator. Should a Section 13C agreement be necessary, a significant increase in deficits should be anticipated.*

Source: SEWRPC.

Although subsidizing reduced fares to riders of the local taxicab systems appeared to be an attractive alternative to either a citywide fixed route-fixed schedule bus system or a bus-based demand-responsive system, the Committee recognized the need to consider several adverse aspects of such an approach, particularly if state and federal operating assistance is to be sought. Among these aspects would be the eventual need to pay regular transit system driver wage rates, which wage rates represent an important element of transit system operating costs. Should it become necessary or desirable to provide increased driver wage rates, the operating cost of a taxi-based system would more nearly approximate the cost of a bus-based system. Other aspects considered advantageous by the Committee for the publicly operated bus-based system were direct public control of the transit system and use of bus vehicles which offer more convenient boarding and alighting than taxicabs, especially for the elderly and handicapped. In addition, the Committee felt the use of buses rather than taxis provided substantially more capacity to accommodate ridership during the peak hours of demand. It was also noted that buses would provide greater flexibility to modify the transit service to provide subscription, and fixed route transit services where increased ridership demand warranted.

RECOMMENDED TRANSIT DEVELOPMENT PROGRAM FOR WAUKESHA

Based upon careful evaluation of the various operating and management alternatives considered, the Committee acted unanimously to recommend the following actions toward the reestablishment and improvement of public mass transit service to the City of Waukesha and environs:

1. The City of Waukesha should acquire the local public mass transportation franchise from Wisconsin Coach Lines, Inc., and retain a private transit operating firm to initiate demand-responsive transit service within the City and its environs.

2. The demand-responsive service should be initially provided by taxi vehicles acquired either from the existing taxi operators, should they choose not to offer taxi service in competition with the public system, or from other sources.

3. School tripper service should be continued as an element of local transit service using available equipment acquired from Wisconsin Coach Lines, Inc., or other vehicles as necessary. Negotiations should be undertaken with the School Board to determine the magnitude of need for such specialized peak period services so that a fleet replacement decision can be made early in the life of the new public transit operation.

4. Taxi vehicle fleet replacement should be scheduled through purchase of small 15- to 26-passenger air-conditioned buses, some of which would be specially equipped to accommodate the handicapped. The fleet replacement schedule would be based upon need and passenger demand as experienced under actual operating conditions.

5. Demand-responsive service should be offered five days per week, Monday through Friday, excluding holidays, between 6:00 a.m. and 6:00 p.m., at a fare of $1.00 per adult ride with a half-fare program for the elderly, the handicapped, and children under 12 years of age. School tripper service would be continued during peak periods at a fare of 33 1/3 cents per trip. The demand-responsive service would be available to all users within the study area to provide public transportation upon call from any origin to any destination.

It is estimated that ridership on the proposed system would average about 750 revenue passengers per day in 1978, the anticipated first full year of operation, resulting in a total estimated annual ridership, including local school tripper service, of about 350,000. It is anticipated that ridership would increase by 1981 to about 900 rides per day, representing a total annual ridership of about 391,500. The capital investment required over the five year planning period, not including acquisition of the assets of the existing private transit operation and the existing taxi vehicles, is estimated at nearly $1.2 million, of which the local share would approximate $237,000. The cost of acquiring the relevant capital assets of the private transit operator and the private taxi operators is estimated at about $40,000. The proposed bus acquisition program would, within the five year period, provide sixteen 15- to 26-passenger buses to replace the obsolete buses now in operation for school tripper service and to replace the used taxicabs. Three of these bus vehicles should be especially equipped to accommodate handicapped riders. In addition, it would be necessary to obtain radios and a base station for vehicle dispatching services and to provide facilities for vehicle storage and maintenance, although the cost of the latter has not been included in the cost of the program at the suggestion of the City of Waukesha staff who indicated that existing facilities could be made available for that purpose.

In the first full year of operation, the operating deficit would approximate $516,000 ($1.47 per ride), with a local share of nearly $86,000 (24 cents per ride). Under a future cost-revenue analysis that assumes no fare increases and an annual 7 percent rate of price inflation, the estimated operating deficit in 1981 would be $646,000 ($1.65 per ride), with a local share of nearly $108,000 (28 cents per ride). Under a second future cost-revenue analysis that assumes that inflation would affect both revenues and costs proportionately, the estimated operating deficit in 1981 would be $488,000 ($1.25 per ride), with a local share of about $81,000 (21 cents per ride).

Based upon these estimates of transit system supply and demand, the Committee concluded that an areawide demand-responsive public transportation service can be established within the Waukesha study area for a local annual operating and capital cost estimated to range from $135,000 per year in 1978 to $156,000 per year in 1981 or from $2.80 to $3.25 per capita per year. A high level of transit service capable of meeting the specialized needs of the elderly and the handicapped would be available to all residents of the service area for trips from all origins to all destinations, including connections with commuter service to Milwaukee County.

To implement this recommended transit system requires three basic steps. The first step will be to obtain a favorable vote of the electorate authorizing acquisition of the existing private transit operations and reestablishment of public transportation in the Waukesha area as a public service and to provide such public transportation in the form of a demand-responsive service.

Following favorable voter response, the City can then, as the second step, proceed with initiation of the demand-responsive service through creation of a new City staff position to coordinate the transition from private to public ownership of the local transit system and to oversee subsequent implementation activities that include retaining a transit management firm to operate the transit service for the City of Waukesha, providing coordination between the operating firm and the Common Council, undertaking the fleet replacement program, and promoting use of the new transit system. The third and final step of implementing the transit system is the retention of a transit management firm for the operating, monitoring, and expansion of transit services to residents within the City of Waukesha and environs.

The Waukesha Mass Transit Citizens and Technical Coordinating and Advisory Committee recommends that this transit development program be used to provide information for consideration by the City electorate in any referendum on the issue of reestablishing transit service within the City and its environs; and following approval of the referendum that the program be adopted by the City of Waukesha and Waukesha County as a guide to reestablishing and then improving transit service in the Waukesha area.

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APPENDICES

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Appendix A

WAUKESHA MASS TRANSIT STUDY COMMITTEE

David J. Boulay . . . . . Member, Waukesha Junior Chamber of Commerce
Chairman

Iva Jean Downs . . . . . Citizen Member

Robert J. Foley . . . . . Citizen Member

Joan Marx . . . . . Member, Retail Division, Waukesha Chamber of Commerce

Charles G. Rohr . . . . . Transportation Program Coordinator,
Waukesha Joint School District

Edward J. Stoltz . . . . . Citizen Member

Michael L. Thaller . . . . . Citizen Member

Appendix B

WAUKESHA MASS TRANSIT CITIZENS AND TECHNICAL ADVISORY COMMITTEE

David J. Boulay . . . . . Member, Waukesha Junior Chamber of Commerce
Chairman

David R. Markiewicz . . . . . Citizen Member
Recording Secretary

E. Helen Backhaus . . . . . Past President, Waukesha Golden Agers Club

Iva Jean Downs . . . . . Citizen Member

Robert J. Foley . . . . . Citizen Member

Joan Marx . . . . . Member, Retail Division, Waukesha Chamber of Commerce

Richard Nettum . . . . . Staff Member, Retail Division, Waukesha Chamber of Commerce

Charles G. Rohr . . . . . Transportation Program Coordinator, Waukesha Joint School District

Edward J. Stoltz . . . . . Citizen Member

Michael L. Thaller . . . . . Citizen Member

Staff services to the Committee were provided by an interagency staff consisting of the following individuals: Kurt W. Bauer, Executive Director, SEWRPC; Nicholas D. Carso, Acting Regional Representative, Urban Mass Transportation Administration, U. S. Department of Transportation; Thomas R. Clark, District Planning Engineer, Division of Highways, Wisconsin Department of Transportation; V. F. Demshar, County Highway Commissioner, Waukesha County; John M. Hartz, Chief, Urban Transit Section, Division of Planning, Wisconsin Department of Transportation; and Timothy A. Mueller, Assistant Director of Planning, Department of Planning, City of Waukesha.

ERRATA SHEET

Chapter VI

Page 72, left column, last line, should read: "from 92 per day in 1977 to"

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INTERAGENCY STAFF
WAUKESHA AREA TRANSIT DEVELOPMENT PROGRAM
1977-1981

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