COMMUNITY ASSISTANCE
PLANNING REPORT NO. 276

KENOSHA-RACINE-MILWAUKEE CORRIDOR TRANSIT STUDY SUMMARY REPORT AND RECOMMENDED PLAN

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Special acknowledgment is due the following individuals who formerly served on the Advisory Committee during the course of the study: Mr. Joseph S. Clementi, Chairman, Town of Mt. Pleasant; Mr. Edward J. Friede, Systems Planning Manager, District 2, Wisconsin Department of Transportation; and Mr. James M. Smith, Mayor, City of Racine.

COMMUNITY ASSSITANCE PLANNING REPORT
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Southeastern Wisconsin Regional Planning Commission
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INTRODUCTION

This report documents the findings, conclusions, and recommendations for transit service improvement in the Kenosha-Racine-Milwaukee Corridor Transit Study[1]. The study was requested by the Cities and Counties of Kenosha, Milwaukee, and Racine and was funded by the Wisconsin Department of Transportation and the Cities and Counties of Kenosha, Milwaukee, and Racine. This study was an evaluation of commuter rail and commuter bus alternatives connecting the Kenosha, Racine, and Milwaukee areas to each other, and to northeastern Illinois and Chicago. The purpose of this study was to compare commuter bus and commuter rail alternatives, consider funding and implementation options, and provide information to the public and local elected officials so that they may determine whether or not to pursue implementation of improved commuter rail or commuter bus service in the corridor through the selection of a locally preferred alternative. This study constitutes an "Alternatives Analysis" study for purposes of conforming to Federal Transit Administration (FTA) requirements and guidelines for the planning and development of major transit improvements in metropolitan areas.

The study area is located in the travel corridor extending from the existing commuter rail station in downtown Kenosha, through the Town of Somers in Kenosha County, through the City of Racine and the Town of Caledonia in Racine County, through the south shore suburbs of Oak Creek, South Milwaukee, Cudahy, and St. Francis in Milwaukee County, to downtown Milwaukee. The width of the study area generally extends from Lake Michigan west to IH 94. A secondary study area consisted of an extension of the travel corridor into northeastern Illinois to the City of Chicago central business district along Metra's Union Pacific North Line commuter rail route.

The following sections of this chapter identify the purpose of, and need for, transit improvements in the Kenosha-Racine-Milwaukee corridor, summarize the prior planning phases that have been undertaken, identify and describe the final alternatives that were considered under this study, describe the study organization and public involvement program, and set forth the scheme of presentation for the remainder of this report.

PURPOSE AND NEED FOR STUDY

The purpose of this study effort was to evaluate alternative commuter rail and bus services which would better connect the Kenosha, Racine, Milwaukee areas to each other and to northeastern Illinois. The need to conduct this

[1] *The Federal Transit Administration (FTA) refers to recommendations for transit service improvements as the "Locally Preferred Alternative."*

study and to examine alternative public transit improvements in the corridor was established by three principal reasons. These three reasons are:

- Improve transit mobility
- Attract increased transit ridership
- Contribute to desirable economic and community development

Improve Transit Mobility

There is a lack of transportation options and especially public transit options within the Kenosha-Racine-Milwaukee corridor. This lack of options affects the mobility of residents and visitors and their ability to travel within the corridor. The existing public transit system linking the Kenosha, Racine, and Milwaukee areas operates in part as a local transit service with local stops and low travel speeds while carrying passengers for long distances over the same streets and highways used by automobiles and trucks. In addition, growing traffic congestion in the corridor may be expected to continue to increase travel times for public transit as well as for automobiles. Furthermore, the existing transit service between Kenosha, Racine, and Milwaukee does not coordinate well with the existing Metra commuter rail service between Chicago, Waukegan, and Kenosha. The majority of Metra trains between Chicago and Waukegan do not continue on to Kenosha, leaving a significant service gap in this section of the Kenosha-Racine-Milwaukee-Chicago corridor especially for longer-distance travel between the Kenosha-Racine-Milwaukee corridor and northeastern Illinois. In addition, the limited commuter service that is operated between Kenosha and Waukegan is oriented towards accommodating traditional weekday peak-period peak-direction travel to the Chicago central business district and is not designed to serve the many other travel markets that exist in the corridor. Public transit is essential in any metropolitan area to meet the travel needs of persons unable to use a private automobile and to provide an alternative mode of travel, particularly in heavily traveled corridors within and between urban areas.

The year 2020 regional transportation plan for southeastern Wisconsin recommends the improvement and expansion of highway system capacity and public transit services to reduce existing and future traffic congestion. The system plan calls for major increases in the levels of rapid and express transit service in the Region and recognizes the potential to establish commuter rail service as an alternative to improved bus service in several major travel corridors, one of these being the Kenosha-Racine-Milwaukee corridor. The public transit element of the regional transportation system plan is shown on Maps 1 and 2.

Attract Increased Transit Ridership

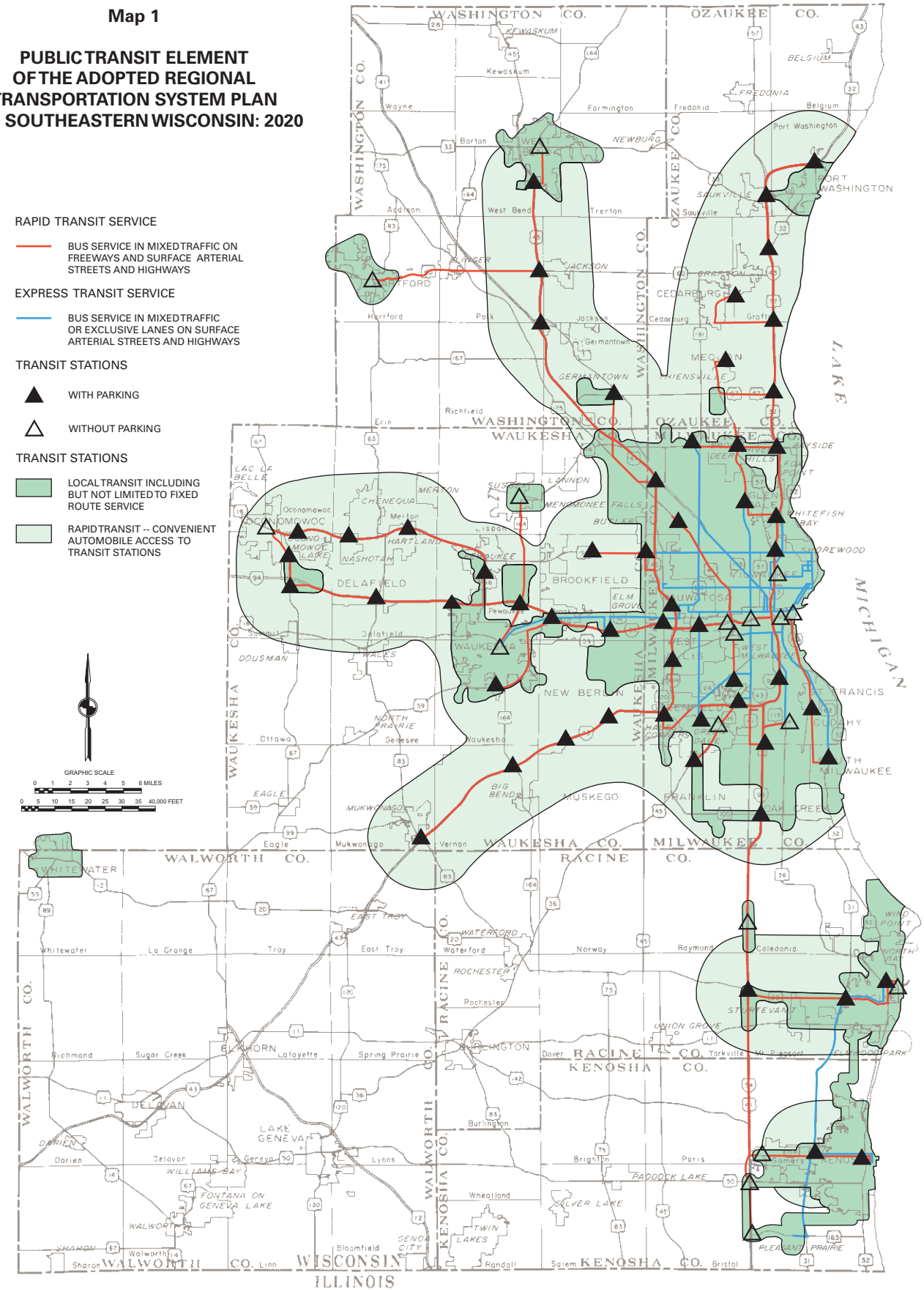
The existing transit service in the corridor attracts a low level of transit ridership. Because of the large concentrations of population and employment throughout the corridor and resulting high level of travel on weekdays and weekends both within the corridor and between the corridor and northeastern Illinois, there is an opportunity for public transit to attract travel from automobiles and highways. The alternatives examined under this study would provide an improved high-quality limited stop service connecting the urban centers of the corridor to each other and to the Milwaukee and Chicago central business districts. Offering a high level of service may attract increased transit ridership that would otherwise be made by automobile.

Contribute to Desirable Economic and Community Development

High quality and attractive public transit service that is appropriate to the various travel needs of a densely developed urban corridor such as Kenosha-Racine-Milwaukee can help meet regional land use objectives through its influence on land development and redevelopment and the promotion of land development and redevelopment in an efficient, desirable and sound manner. Improved transit service can better service existing development in older established central cities within the corridor such as Milwaukee, Racine, Kenosha, and the south shore suburbs of St. Francis, Cudahy, and South Milwaukee. Improved transit service can also help promote desirable development and redevelopment in newer developing areas such as in the City of Oak Creek and the Towns of Caledonia and Somers. High quality permanent transit service improvements have the potential to direct development in a sound and efficient manner. In this way, public transit investment can help promote the stabilization and revitalization of some of the established urban centers of southeastern Wisconsin. It is important to note that IH 94 functions as the primary transportation facility in the corridor but is located along the

Map 1

PUBLIC TRANSIT ELEMENT OF THE ADOPTED REGIONAL TRANSPORTATION SYSTEM PLAN FOR SOUTHEASTERN WISCONSIN: 2020

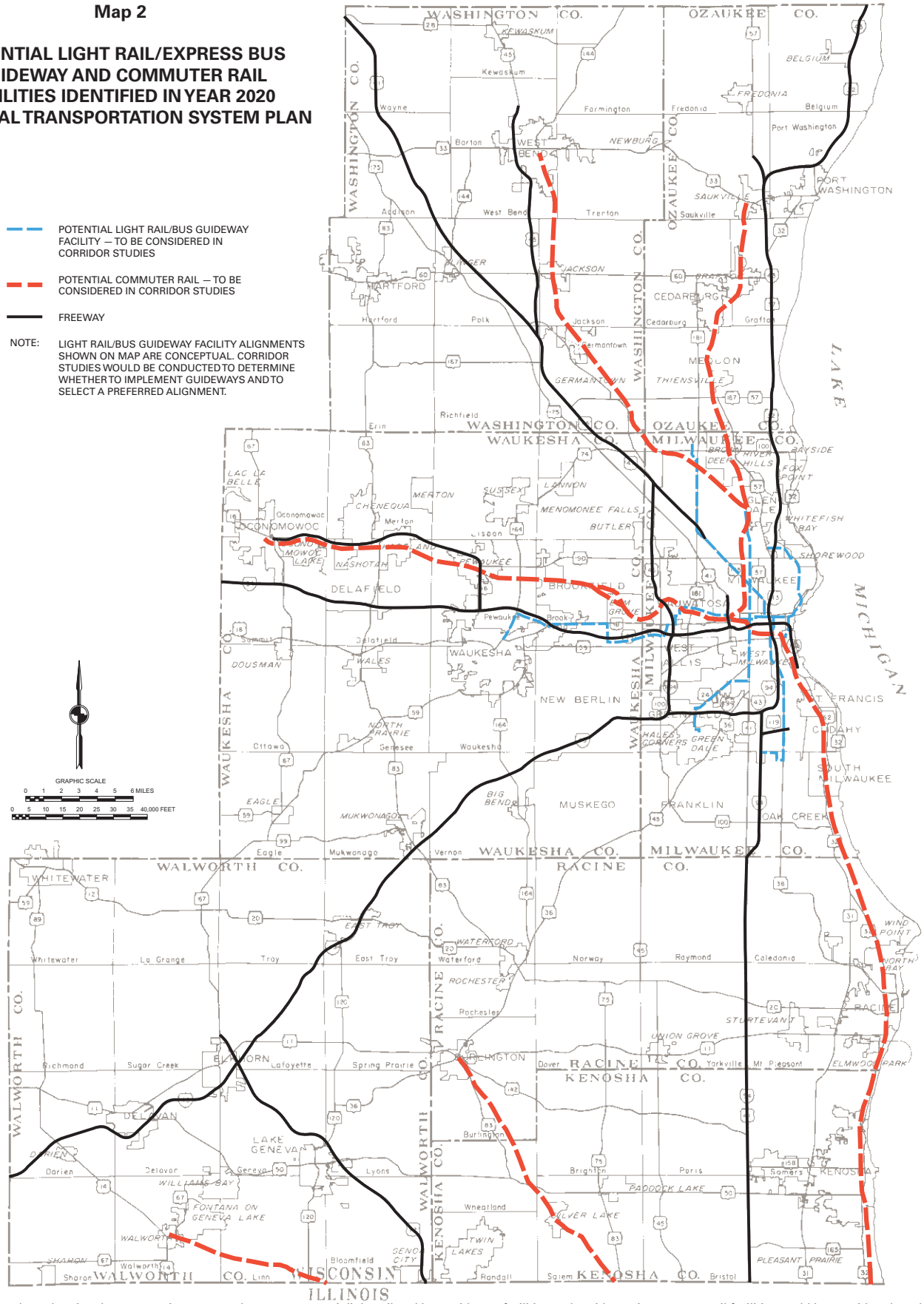


Under the regional transportation system plan, rapid transit commuter rail facilities and express transit light rail facilities would be considered as alternatives to motor-bus transit service over arterial street and highway lanes. Consideration of such fixed-guideway transit service facilities would be initiated as part of federally required detailed transit planning alternatives analysis studies for each of the corridors identified under the plan. The potential corridors for commuter rail and light rail facilities are shown on Map 2. The implementation of these fixed-guideway transit facilities would depend upon the outcome of the corridor studies. Upon completion of each study, the local units of government concerned--particularly, the potential transit operator involved--the Wisconsin Department of Transportation, and the Regional Planning Commission would have to affirm the study findings and, if necessary, amend the regional transportation system plan.

Source: SEWRPC

Map 2

POTENTIAL LIGHT RAIL/EXPRESS BUS GUIDEWAY AND COMMUTER RAIL FACILITIES IDENTIFIED IN YEAR 2020 REGIONAL TRANSPORTATION SYSTEM PLAN



Under the adopted regional transportation system plan express transit light-rail and bus guideway facilities and rapid transit commuter rail facilities could be considered as alternatives to motor-bus transit service in mixed traffic over arterial street and highway lanes. Consideration of such fixed-guideway transit service facilities would be initiated as part of federally required detailed planning transit alternatives analysis studies for each of the identified corridors. The addition of these potential fixed guideway transit facilities to the regional plan, and the ultimate implementation of these fixed guideway transit facilities, depends upon the outcome of the corridor studies. Upon completion of a study, the local units of government concerned -- specifically, the transit operator concerned -- the Wisconsin Department of Transportation and the Regional Planning Commission would have to affirm the study findings, determine to pursue guideway implementation, and, as necessary, amend the regional transportation system plan.

Source: SEWRPC

westernmost edge of the corridor and is therefore a considerable distance away from most of the established population and employment concentrations in the corridor, especially in Kenosha and Racine Counties. This includes the Cities of Kenosha and Racine as well as the older south shore suburbs such as South Milwaukee, Cudahy, and St. Francis. For example, IH 94 is about eight miles from the center of the City of Racine. Investment in attractive and improved public transit services and facilities provides the opportunity to focus desirable and positive land use development and redevelopment in the Cities of Kenosha and Racine and the older south shore suburbs.

PRIOR PLANNING PHASES

This study builds upon previous planning efforts for transportation improvements, and particularly high quality public transit improvements, in the Kenosha-Racine-Milwaukee corridor. Previous efforts have included the adopted regional transportation system plan for southeastern Wisconsin which recommends the implementation of improved rapid commuter bus service and the consideration of commuter rail service as an alternative.[2] This proposed consideration resulted in the conduct of a feasibility study as an initial step toward possible implementation of commuter rail transit service in the corridor.

In 1998, at the request of local communities and counties, the Southeastern Wisconsin Regional Planning Commission (SEWRPC) completed such a feasibility study of commuter rail service in the corridor.[3] The study concluded that the extension of a limited stop commuter rail service connecting the urban centers of Kenosha, Racine, and Milwaukee to each other and to northeastern Illinois was technically feasible and potentially financially feasible. The potential commuter rail service was determined to generate ridership typical of other new-start commuter rail lines and the commuter rail lines typical of outlying portions of the Chicago area. The estimated cost per passenger-mile and proportion of annual operating costs recovered from passenger revenue was determined to be comparable to bus systems in southeastern Wisconsin. It was recommended that a subsequent corridor planning study of commuter rail and commuter bus alternatives be undertaken to determine whether or not to implement commuter rail service. Based on this finding of feasibility, the Kenosha-Racine-Milwaukee Corridor Transit Study was undertaken.

This "alternatives analysis" study effort represents an important step in the FTA planning and project development process for major public transit investments. The status of considering the implementation of improved commuter rail or commuter bus service in the Kenosha-Racine-Milwaukee corridor is compared to the FTA process in Table 1.

FINAL ALTERNATIVES

This section provides a summary of the final commuter rail and bus alternatives. Technical Report No. 2 entitled *Development of Alternatives* documents the development of alternatives for improved commuter rail and bus service in the Kenosha-Racine-Milwaukee corridor. The three final alternatives are:

1. Commuter Bus Alternative
2. Commuter Rail Alternative
   - High Level of Service
   - Medium Level of Service
3. Combination Rail and Bus Alternative High Level of Service
   - Medium Level of Service

The commuter bus alternative also represents the baseline alternative. An overview of the alternative development process and descriptions of each of the final alternatives are provided in the following sections.

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[2] *SEWRPC Planning Report No. 46, A Regional Transportation System Plan for Southeastern Wisconsin: 2020.*
[3] *SEWRPC Community Assistance Planning Report No. 239, Feasibility Study of Commuter Railway Passenger Train Service in the Kenosha-Racine-Milwaukee Corridor.*

Table 1

DESCRIPTION AND STATUS OF CONSIDERING THE IMPLEMENTATION OF COMMUTER RAIL OR COMMUTER BUS SERVICE IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR

Federal Transit Administration (FTA) Planning and Project Development Process	Description and Status in Kenosha-Racine-Milwaukee Corridor
System Planning	▪ Regional Transportation Plan Recommended Consideration of Commuter Rail as an Alternative to Improved Bus Service in Certain Corridors including Kenosha-Racine-Milwaukee
Feasibility Study	▪ Feasibility Study Completed in 1998 at the Request of Cities and Counties in Corridor ▪ Commuter Rail Concluded to be Feasible ▪ Alternatives Analysis Corridor Study Recommended to be Initiated
Alternatives Analysis Corridor Study	▪ Evaluation and Comparison of Commuter Rail and Commuter Bus Alternatives Completed ▪ Final Recommendations for Implementation (Locally Preferred Alternative) are Made ▪ Endorsement to be Obtained from Affected Counties, Municipalities, and Wisconsin Department of Transportation. ▪ Determination by Sponsor to Implement and Conduct Preliminary Engineering to Follow ▪ Adoption by Metropolitan Planning Organization (SEWRPC) and Inclusion in Regional Transportation Plan and Transportation Improvement Program to Follow
Preliminary Engineering including Environmental Impact Statement or Environmental Assessment	▪ Will Require FTA Evaluation and Approval to Begin ▪ Refinement and Detailing of Preferred Alternative Design ▪ Completion of Final Environmental Impact Statement ▪ Commitment of Non-Federal Funding
Final Design Contract Plans and Specifications	▪ Will Require FTA Evaluation and Approval to Begin ▪ Preparation of Plans and Specifications for Construction and Procurement ▪ Will Require Full Funding Agreement from FTA at Completion
Construction and Procurement	▪ Construction, Procurement, and Testing
Start Up	▪ Begin Operations

Source: Federal Transit Administration and SEWRPC.

Overview of Alternatives Development Process

Early in the study, the purpose and need for a major transit improvement in the corridor was defined as described above. Next, a set of overall transit study objectives intended to guide the design and evaluation of the transit service improvements was developed. These objectives for the corridor alternatives are listed in Table 2. Next, a list of potential alternatives was developed encompassing a diverse variety of routing and service options for commuter rail and commuter bus services in the corridor which would meet the purpose and need for transit service improvement in the corridor and satisfy the study objectives. This range of potential alternatives was then screened. Screening was undertaken using the study objectives and applying a set of criteria based upon the objectives. The criteria also reflected the evaluation criteria which are part of the FTA New Starts Program.

Table 2

KENOSHA-RACINE-MILWAUKEE CORRIDOR TRANSIT STUDY
OBJECTIVES FOR CORRIDOR TRANSIT SERVICE ALTERNATIVES

Objective	Description
1	Provide high quality public transportation service to improve mobility and to enhance the attractiveness of public transportation as a mode of choice.
2	Contribute to desirable economic and community development in the corridor and the region.
3	Preserve, protect, and improve the natural and manmade environment.
4	Make investments in public transit that are economical, efficient, and effective.
5	Design facilities that connect with and are compatible with existing and other planned future public transportation systems, and rail freight and private vehicle travel.

Source: SEWRPC.

The following criteria were used in the screening and subsequent selection of alternatives that warranted further analysis and study:

- Compatibility with Land Use Plans
- Potential Ridership
- Potential Construction and Operating Cost
- Environmental Impacts
- Duplication of Existing Transit Service
- Service to the Corridor under Study

The Study Advisory Committee used the input provided by the public scoping meeting held early in the study to help narrow the initial alternatives to the three alternatives that had been selected for further study. The candidate alternatives involved commuter bus, commuter rail, and a rail-bus combination. These are referred to as "build" alternatives. A no-build or baseline option that examines the consequences of making no significant public transit improvements but rather improving the existing corridor transit service to the extent possible without making a major capital investment was also considered. The baseline alternative and the commuter bus alternative were subsequently combined into a single alternative.

Once these candidate alternatives were approved for further study, detailed information was developed for each alternative. This information included:

- Ridership Forecasts
- Capital Improvement Needs and Capital Costs
- Operation and Maintenance Costs
- Environmental Impacts
- Railroad Impacts

The information was used to evaluate and compare the alternatives in detail. The results of this evaluation are documented in Technical Report No. 10 and summarized in Chapter 2 of this report. This information was then presented to the Study Advisory Committee for their consideration. These results form the basis for the Advisory Committee selecting the locally preferred alternative.

Commuter Bus Alternative
The commuter bus alternative would entail the enhancement and expansion of the existing express/local bus service currently operating throughout the entire day between Kenosha, Racine, and Milwaukee. Wisconsin Coach Lines

(WCL), which is now a subsidiary of Coach USA, and its predecessors have operated this service since the 1940s. Since 1985, public financial assistance to operate this service has been provided. Under this alternative, the service would be expanded and coordinated with Metra's Union Pacific North Line train service currently operating between Chicago, and Waukegan and Kenosha. Selected buses would connect with the Metra trains that serve Kenosha. During times of the day when Metra trains do not serve Kenosha, bus service would operate to and from Waukegan, connecting with Metra trains there. In order to serve the various passenger markets within the corridor, additional bus service would be added with Racine serving as a focal point for the expanded service because of its central location in the corridor. Service in the corridor would generally be along STH 32 between Kenosha and Racine; STH 31 and STH 32 between Racine and Cudahy-St. Francis; and STH 794 and IH 794 (the Lake Parkway) between Cudahy-St. Francis and downtown Milwaukee. Buses providing service between Kenosha and Waukegan to connect with Metra trains in Waukegan would be on STH 32 and Illinois State Route 137. The entire route would be about 53 miles in length. The commuter bus alternative is shown on Map 3.

Under this alternative, expanded and enhanced commuter bus service would be operated throughout the entire day. The level of bus service along various sections of the corridor would vary, with service levels matching anticipated demand for each travel market. The buses under this alternative would operate over five coordinated and overlapping routes within the Waukegan-Kenosha-Racine-Milwaukee corridor. Service would consist of 27 buses in each direction, or a total of 54 bus runs on an average weekday. Of these, 22 bus runs would be operated between Racine and Milwaukee, 12 bus runs between Racine and Kenosha, 12 bus runs between Racine and Waukegan, 6 bus runs between Milwaukee and Kenosha, and 2 bus runs between Milwaukee and Waukegan. Based on the manner in which all of these bus runs would overlap, the Milwaukee-Racine segment of the corridor would have a total of 15 scheduled buses in each direction, or 30 buses in both directions on an average weekday. The Racine-Kenosha segment would have 16 scheduled buses in each direction or a total of 32 buses in both directions on an average weekday. The Kenosha-Waukegan segments would also have 16 scheduled buses or trains in each direction when the new bus runs are added to the existing Metra commuter train schedule. Of the 54 bus runs, 18 would be in the A.M. peak period, 13 in the P.M. peak period, 13 during the midday period, and 10 during the evening period.

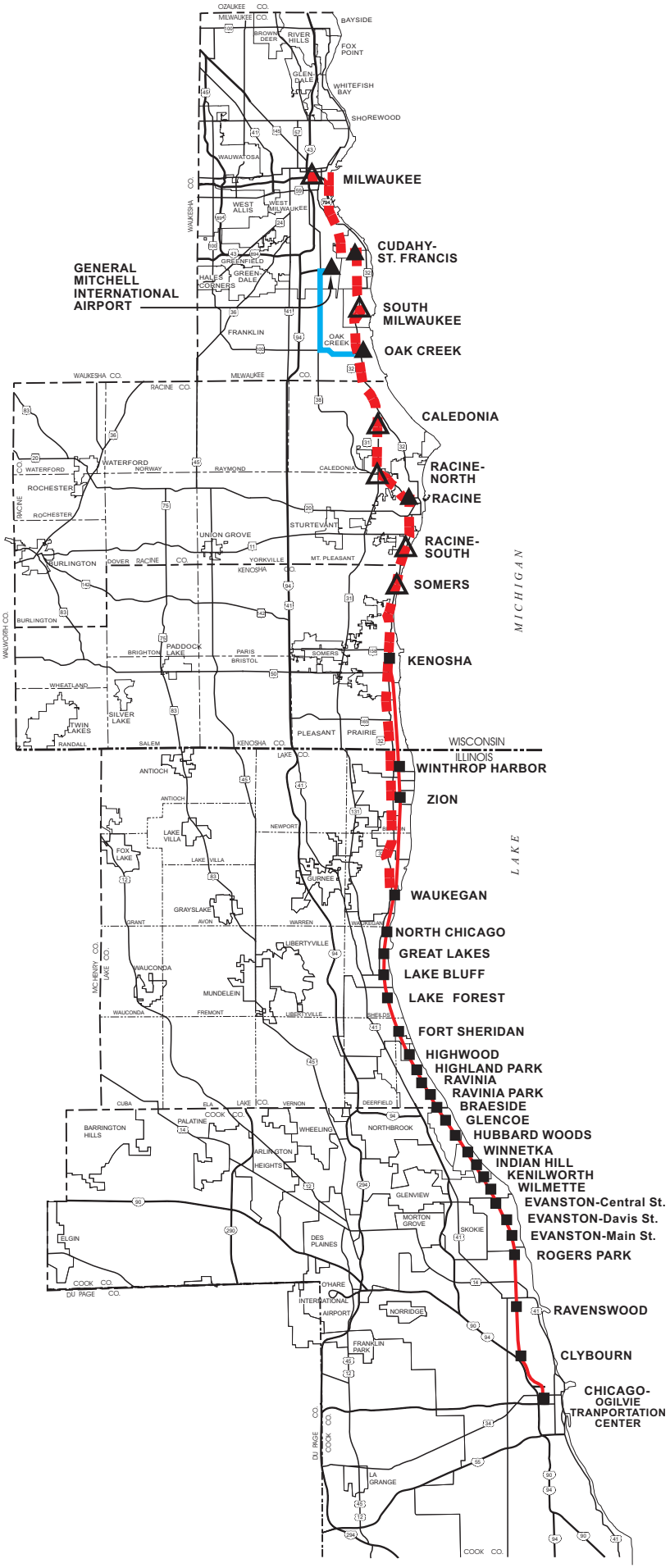
On Saturdays, Sundays, and major holidays, service would consist of 18 buses in each direction or a total of 36 buses per day. There would be 10 bus trips in each direction between Racine and downtown Milwaukee. There would be eight bus runs in each direction between Racine and Kenosha, half of which would continue to and from Waukegan. All buses would make all stops between Waukegan, Kenosha, and Milwaukee. The fare structure would be similar to that used for the current WCL service in the corridor but would be coordinated with the ticket and pass sales procedures used by Metra on its Union Pacific North Line.

Under this alternative, the commuter buses would serve as their own distributor and collector in downtown Milwaukee. All of the buses would circulate along the length of the central business district (CBD) from the area east of the Milwaukee River to as far west as the County Courthouse complex and Marquette University. A new shuttle route would operate between the Cudahy-St. Francis station and General Mitchell International Airport. Shuttles would connect with each arriving and departing bus and would likely be operated by Milwaukee County Transit System (MCTS). Other local bus service serving the Cudahy-St. Francis, South Milwaukee, Oak Creek, Racine, and Kenosha stations would be provided by existing local bus routes with few if any modifications. Some evening service would be added on some Kenosha transit system routes to connect with evening commuter buses. Within the corridor, the commuter bus service would replace two bus routes, those being the Milwaukee-Racine-Kenosha suburban bus route currently operated by WCL and the Route No. 48 - South Shore Flyer - operated by MCTS. In essence, the commuter bus service would serve as an enhancement and expansion of the express bus service now provided by WCL and MCTS South Shore Flyer services.

To provide commuter bus service in the corridor, bus vehicles would need to be procured, transit station facilities would need to be constructed, and bus storage, servicing, and maintenance facilities provided. The commuter bus alternative would utilize existing streets and arterial highways and operate in mixed traffic during all time periods. No new roadways or exclusive "bus-only" lanes or facilities would be constructed, dedicated, or improved specifically for this service.

Map 3

COMMUTER BUS ALTERNATIVE



Potential Enhanced Commuter Bus Service

Existing Metra Commuter Rail Route

Shuttle Bus Route

New Commuter Bus Station

New Commuter Bus Stop

Existing Rail Station

NOTE: ONLY SELECTED CIVIL DIVISIONS ARE SHOWN IN ILLINOIS.

GRAPHIC SCALE

0 1 2 3 4 5 6 MILES

0 5 10 15 20 25 30 35 40,000 FEET

Source: Parsons Transportation Group and SEWRPC.

With respect to procurement of new bus vehicles, conventional suburban or commuter buses would be operated. For this alternative, vehicle requirements include a total of 16 buses, of which 13 would be required for weekday peak period needs. These requirements include the necessary equipment for weekday peak period needs, for spare equipment, and to accommodate equipment that is rotated out of service on a regular basis for major inspections, maintenance, and repair. For the new supporting shuttle bus service, one additional bus would be required.

With respect to transit stations, new facilities would need to be constructed at Oak Creek and Cudahy-St. Francis. Existing facilities would be used at Kenosha and Waukegan. At Racine, the new bus transit center now under development would be used. The new stations would require bus berths, passenger shelters, a parking lot, pedestrian walkways, and other amenities including lighting, signing, and landscaping. In downtown Milwaukee, no special station facility would be required since the commuter buses would make a series of curbside stops as is done today by both WCL and MCTS express buses. Under this commuter bus alternative, other specific stops would be provided at Somers, Racine-South, Racine-North, Caledonia, and South Milwaukee. At these locations, the station would be simpler and consist of bus pull-off areas, shelters, and basic passenger amenities. These locations would not include a park-ride lot.

A facility for the storage, servicing, and maintenance of the buses would need to be constructed at a central location in the corridor. Possible locations for such a facility would be in the Village of Mt. Pleasant or the Village of Sturtevant. Both sites are along the STH 20 corridor, which would provide good access for the buses to get to and from the commuter route. The facility would include an area for the indoor storage of up to 20 buses, offices, operator quarters, areas for vehicle repair, washing, and fueling, an equipment and material storage area, employee parking, and driveways. If the commuter bus service envisioned under this alternative is provided by an existing operator, use of such a facility and the buses necessary may already be available as part of an operator agreement.

Commuter Rail Alternative - High and Medium Level of Service Options

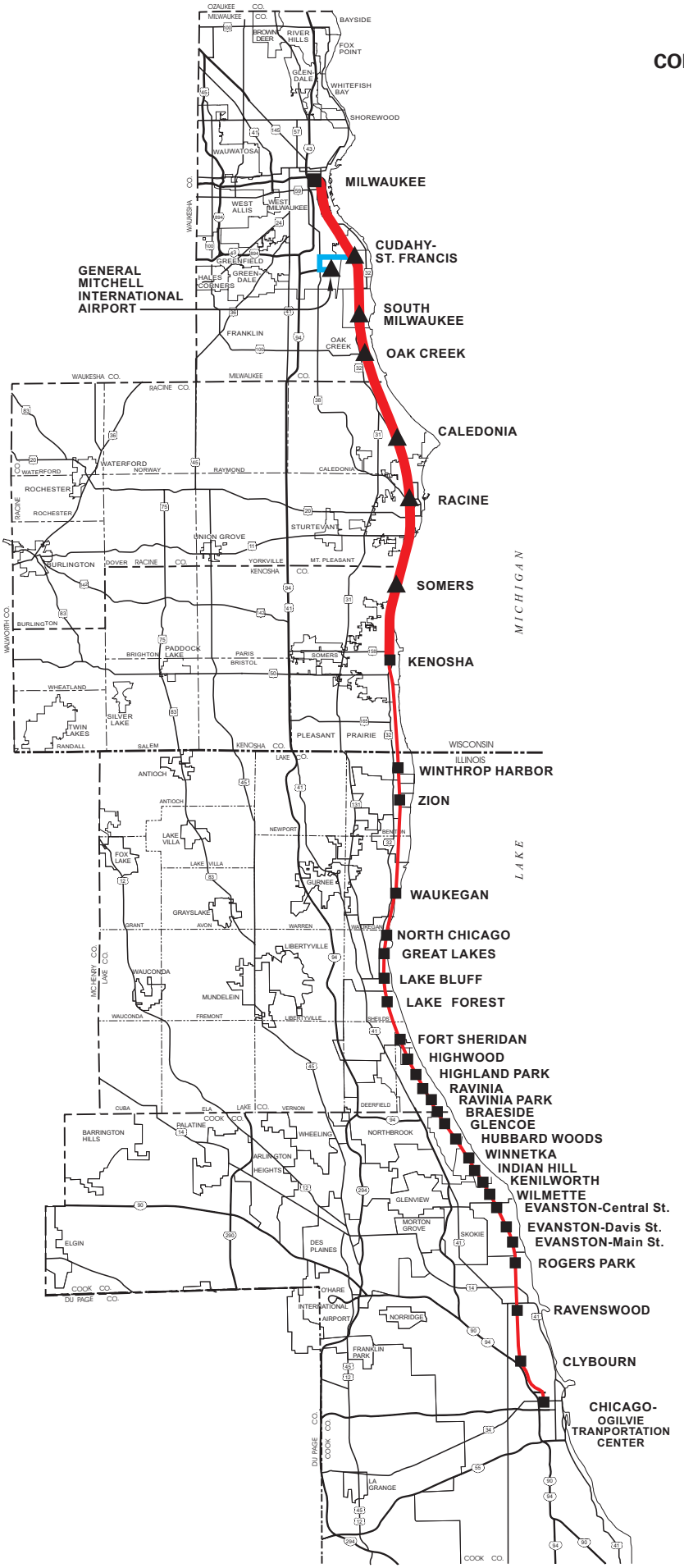
The commuter rail alternative with a high level of service would entail the operation of commuter trains throughout the entire day between Kenosha, Racine, and Milwaukee. The service would be operated as an extension of Metra's Union Pacific North Line currently operating between Chicago, Waukegan, and Kenosha. Selected Metra trains operating between Chicago and Kenosha or Waukegan would be extended along the entire length of the corridor north of Kenosha to Racine and Milwaukee. In order to serve the various passenger markets within the corridor, four of the trains would be new under both the high level of service and the medium level of service options. The service north of Kenosha would be provided over existing rail freight lines owned and operated by Union Pacific Railroad between Kenosha and Washington Street in the City of Milwaukee and by Canadian Pacific Railway between Washington Street and the Amtrak passenger depot in downtown Milwaukee. The route extension would be about 33 miles in length. The commuter rail alternative is shown on Map 4.

Under an assumed high level of service option, commuter rail service would be operated throughout the entire day. On weekdays, peak period service in the morning would consist of three trains in both the northbound and southbound directions along the entire route between Milwaukee, Racine, Kenosha, and Chicago. Peak period service in the afternoon would consist of four trains in each direction. During the midday period, there would be four trains in each direction. During the evening period, there would also be four trains in each direction. Thus, on weekdays, service would consist of 15 trains operating in each direction or a total of 30 trains per day. On Saturdays, Sundays, and major holidays, service would consist of three trains in each direction or a total of six trains throughout the day. All trains would make all stops between Kenosha and Milwaukee. This assumed level of service would be comparable to many commuter rail routes operated by Metra where a full schedule of service is operated throughout the day. The fare structure and ticket and pass sales would be integrated with, and an extension of, that used by Metra on its Union Pacific North Line.

Under an assumed medium level of service, commuter rail service would be operated mostly during peak periods. On weekdays, peak period service in the morning would consist of three trains in both the northbound and southbound directions along the entire route between Milwaukee, Racine, Kenosha, and Chicago. Peak period service in the afternoon would also consist of three trains in each direction. During the midday period, there would be one train in each direction. No trains would be operated entirely within the evening period, although the last afternoon peak train would overlap into the evening period. Thus, on weekdays, service would consist of seven

Map 4

COMMUTER RAIL ALTERNATIVE



- Potential Commuter Rail Extension
- Existing Metra Commuter Rail Route
- Shuttle Bus Route
- New Commuter Rail Station
- Existing Rail Station

NOTE: ONLY SELECTED CIVIL DIVISIONS ARE SHOWN IN ILLINOIS.

GRAPHIC SCALE

0 1 2 3 4 5 6 MILES

0 5 10 15 20 25 30 35 40,000 FEET

Source: Parsons Transportation Group and SEWRPC.

trains operating in each direction or a total of 14 trains per day. On Saturdays, Sundays, and major holidays, service would consist of three trains in each direction or a total of six trains throughout the day. All trains would make all stops between Kenosha and Milwaukee. This assumed level of service would be comparable to newer commuter rail routes and services operated by Metra where a full daily schedule is not practical or cannot be operated. The fare structure and ticket and pass sales would be integrated with, and an extension of, that used by Metra on its Union Pacific North Line.

With respect to supporting and associated bus services, it is proposed that feeder bus services be available in a coordinated manner at selected stations along the route to enable passengers to travel between the stations and nearby origins and destinations. As part of this alternative, two new shuttles would be operated. The first would be a dedicated shuttle bus service operated in the Milwaukee central business district (CBD) to enable passengers to have access to the entire CBD area. This shuttle route would operate in both directions from the Amtrak depot. To the west, the shuttle would serve the County Courthouse complex and Marquette University areas. To the east, the shuttle would serve the CBD area east of the Milwaukee River. The second new shuttle route would operate between the Cudahy-St. Francis station and General Mitchell International Airport. Shuttles would connect with each arriving and departing commuter train and would likely be operated by MCTS. Other local feeder bus service serving the Cudahy-St. Francis, South Milwaukee, Oak Creek, Racine, and Kenosha stations would be provided by existing local bus routes with few if any modifications. Some evening service would be added on some Kenosha transit system routes to connect with evening trains. Within the corridor, the commuter rail service would replace two bus routes, those being the Milwaukee-Racine-Kenosha suburban bus route currently operated by WCL and the Route No. 48 - South Shore Flyer - operated by MCTS.

To provide commuter rail service in the corridor, train equipment would need to be procured, track and signal improvements made, passenger station facilities would need to be constructed, and a train storage and servicing facility provided. With respect to track and signal improvements, the existing single-track railroad line between Kenosha and Washington Street in Milwaukee would be upgraded or improved to allow for a maximum and comfortable mainline operating speed for the commuter trains of at least 59 miles per hour. This will require the improvement of the mainline track, roadbed, and right-of-way and rehabilitation of numerous grade crossings between Kenosha and St. Francis; the complete rehabilitation of the track between Bay View and Washington Street in Milwaukee; and the installation of or upgrading of signals at sidings, junctions, and grade crossings. A second main track or passing siding would have to be reinstalled along four segments of the rail line to allow commuter trains traveling in opposite directions to meet each other and to allow for the continued and coordinated operation of freight train traffic on the line. The sections of additional track would be of sufficient length to enable opposing trains to meet with a minimum of delay. Because the maximum number of trains per day would be significantly less under the commuter rail option with a medium level of service, the total length of passing sidings would be less than under the high level of service option, resulting in a lower necessary capital investment for track and signal improvements. Dispatchers would remotely control turnouts at the ends of these passing sidings. Improvement to the Canadian Pacific Railway freight bypass through Muskego Yard in Milwaukee will also be necessary to allow freight trains to bypass the Amtrak depot trackage.

With respect to procurement of new train equipment, conventional locomotive-hauled commuter train equipment consisting of bi-directional trains made up of a locomotive and bi-level gallery coaches would be operated. This type of equipment and mode of operation is compatible with, and identical to, the kind of equipment and operation used by Metra in the Chicago area. For the high-level-of-service option, equipment requirements include a total of 49 coaches, of which seven would be equipped with control cabs, and seven diesel locomotives. For the medium-level-of-service option, equipment requirements include a total of 35 coaches, of which five would be equipped with control cabs, and five diesel locomotives. Requirements include the necessary equipment for weekday peak period needs, for spare equipment, and to accommodate equipment that would be rotated out of service on a regular basis for major inspections, maintenance, and repair. For the new supporting shuttle bus service, a total of three additional buses would be required.

With respect to stations, new facilities would need to be constructed at Somers, Caledonia, Oak Creek, South Milwaukee, and Cudahy-St. Francis. Existing facilities would be used at Kenosha, Racine, and Milwaukee, but varying levels of improvements would be necessary at these stations. The new stations would require boarding

platforms, passenger shelters, a parking lot, pedestrian walkways, and other amenities including lighting, signing, and landscaping.

A facility for the overnight storage and servicing of the commuter trains would need to be constructed at the Milwaukee end of the corridor. The location for such a facility would be west of the Amtrak depot. The facility would include five tracks for storing trains, an electrical bridge and connections for providing train power and heat, a crew and staff building, an equipment and material storage area, employee parking, and access.

Combination Rail and Bus Alternative – High and Medium Level of Service Options
This alternative would include elements of both the commuter rail alternative and commuter bus alternative to provide service throughout the entire day between Kenosha, Racine, and Milwaukee. Between Kenosha and Racine, the service would be operated as an extension of Metra's Union Pacific North Line currently operating between Chicago, Waukegan, and Kenosha. Selected Metra trains operating between Chicago and Kenosha or Waukegan would be extended north of Kenosha to Racine. In order to serve the various passenger markets within the corridor, four of the trains would be new under both the high level of service and medium level of service options. The service north of Kenosha would be provided over an existing rail freight line owned and operated by Union Pacific Railroad. The commuter rail route extension would be about 10 miles in length. Between Racine and Milwaukee, this alternative would essentially entail the enhancement and expansion of the existing express/local bus service in the corridor. The bus service north of Racine would be coordinated with the commuter rail service south of Racine. Under this alternative, additional bus service would be added north of Racine and the route would generally be along STH 31 and STH 32 between Racine and Cudahy-St. Francis; and STH 794 and IH 794 (the Lake Parkway) between Cudahy-St. Francis and downtown Milwaukee. The commuter bus route portion of this alternative would be about 24 miles in length. The combination rail and bus alternative is shown on Map 5.

For the commuter rail element of this alternative under the high level of service option, weekday peak period service in the morning would consist of three trains in both the northbound and southbound directions and in the afternoon would consist of four trains in each direction. During the midday and evening periods, there would be four trains in each direction. Thus, on weekdays, service would consist of 15 trains operating in each direction or a total of 30 trains per day. On Saturdays, Sundays, and major holidays, service would consist of three trains in each direction or a total of six trains throughout the day. All trains would make all stops north of Kenosha. The fare structure and ticket and pass sales would be integrated with, and an extension of, that used by Metra on its Union Pacific-North Line.

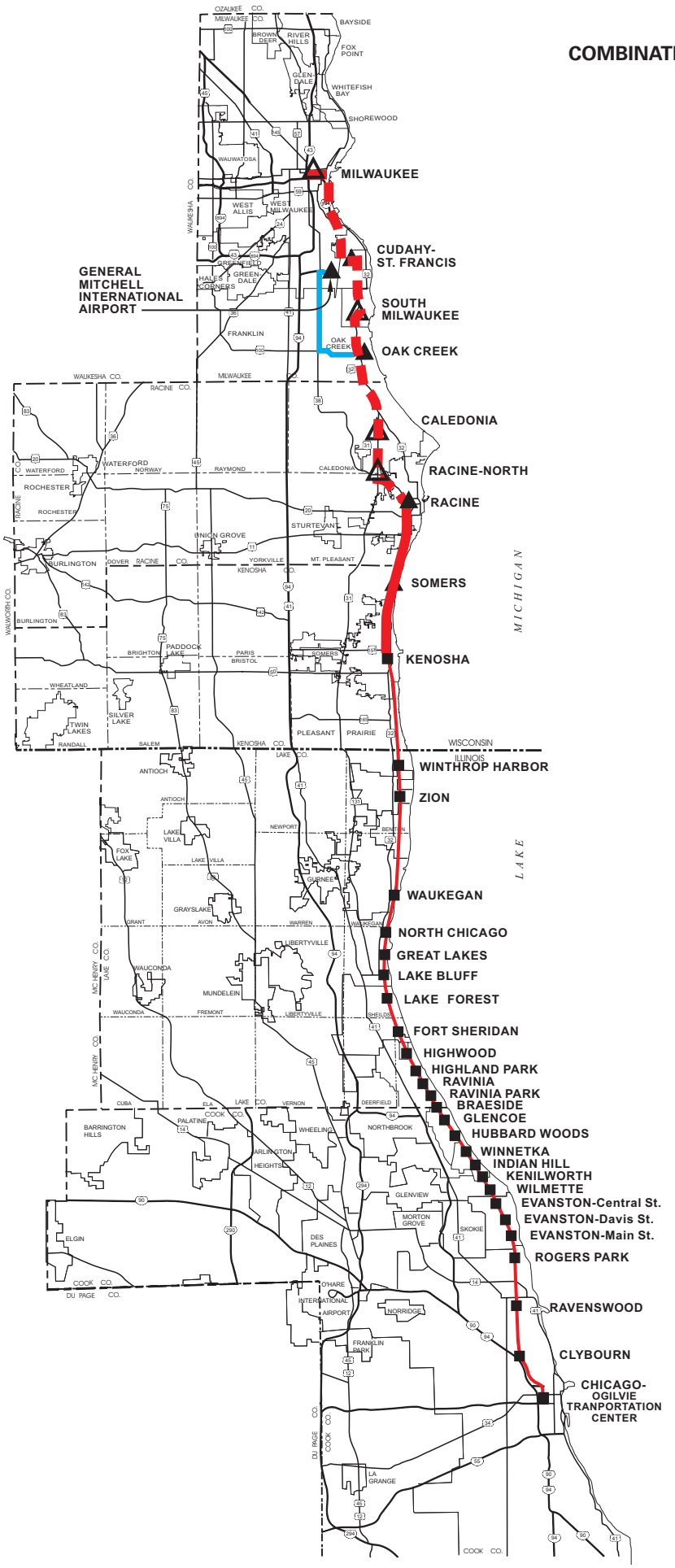
For the commuter bus element of this alternative under the high level of service option, expanded and enhanced commuter bus service would be operated throughout the entire day. There would be 15 weekday bus trips in each direction between Racine and downtown Milwaukee for a total of 30 bus runs buses per day. Of the 30 bus runs, 11 would be in the A.M. peak period, 11 in the P.M. peak period, six during the midday period, and two during the evening period. On Saturdays, Sundays, and major holidays, there would be 10 bus trips in each direction between Racine and downtown Milwaukee or a total of 20 buses per day. Buses would make all stops between Racine and Milwaukee. The fare structure would be similar to that used for the current WCL service in the corridor but would be coordinated with the ticket and pass sales procedures used for the Kenosha-Racine commuter rail extension.

For the commuter rail element of this alternative under the medium level of service option, weekday peak period service would consist of three trains in both the northbound and southbound directions during the morning and afternoon peak periods. During the midday period, there would be one train in each direction. No trains would be entirely operated during the evening period, although the last afternoon peak train would overlap into the evening period. Thus, on weekdays, service would consist of seven trains operating in each direction or a total of 14 trains per day. On Saturdays, Sundays, and major holidays, service would consist of three trains in each direction or a total of six trains throughout the day. All trains would make all stops north of Kenosha. The fare structure and ticket and pass sales would be integrated with, and an extension of, that used by Metra on its Union Pacific-North Line.

For the commuter bus element of this alternative under the medium level of service, expanded and enhanced commuter bus service would be operated throughout the entire day. There would be seven weekday bus trips in each

Map 5

COMBINATION RAIL AND BUS ALTERNATIVE



Potential Enhanced Commuter Bus Service

Potential Commuter Rail Extension

Existing Metra Commuter Rail Route

Shuttle Bus Route

New Commuter Rail or Bus Station

New Commuter Bus Stop

Existing Rail Station

NOTE: ONLY SELECTED CIVIL DIVISIONS ARE SHOWN IN ILLINOIS.

GRAPHIC SCALE

0 1 2 3 4 5 6 MILES

0 5 10 15 20 25 30 35 40,000 FEET

Source: Parsons Transportation Group and SEWRPC.

direction between Racine and downtown Milwaukee for a total of 14 bus runs per day. Of the 14 bus runs, six would be in the A.M. peak period, six in the P.M. peak period, two during the midday period. On Saturdays, Sundays, and major holidays, there would be three bus trips in each direction between Racine and downtown Milwaukee or a total of six buses per day. Buses would make all stops between Racine and Milwaukee. The fare structure would be similar to that used for the current WCL service in the corridor but would be coordinated with the ticket and pass sales procedures used for the Kenosha-Racine commuter rail extension.

Under this combination commuter rail and bus alternative, the commuter buses would serve as their own distributor and collector in downtown Milwaukee. All of the buses would circulate along the length of the central business, district (CBD) from the area east of the Milwaukee River to as far west as the County Courthouse complex and Marquette University. A new shuttle route would operate between the Oak Creek station and General Mitchell International Airport. Shuttles would connect with each arriving and departing bus and would likely be operated by MCTS. Other local feeder bus service serving the Cudahy-St. Francis, South Milwaukee, Oak Creek, Milwaukee and Kenosha stations would be provided by existing local bus routes with little if any modifications. Some evening service would be added on some Kenosha transit system routes to connect with evening commuter buses. Within the corridor, the commuter bus service would replace two bus routes, those being the Milwaukee-Racine-Kenosha suburban bus route currently operated by WCL and the Route No. 48 – South Shore Flyer – operated by MCTS. In essence, the commuter bus service would serve as an enhancement and expansion of the express bus service now provided by WCL and MCTS South Shore Flyer services.

For the commuter rail element, train equipment would need to be procured, track and signal improvements made, passenger station facilities would need to be constructed, and a train storage and servicing facilities provided. With respect to track and signal improvements, the existing single-track railroad line between Kenosha and Racine would be upgraded or improved to allow for a maximum and comfortable mainline operating speed for commuter trains of at least 59 miles per hour. This will require the improvement of the mainline track, roadbed, and right-of-way, the rehabilitation of grade crossings, and the installation or upgrading of signals. For this alternative under the high level of service option, new train equipment requirements include a total of 42 coaches, of which six would be equipped with control cabs, and 6 diesel locomotives. Under this alternative and the medium level of service option, new train equipment requirements include a total of 35 coaches, of which five would be equipped with control cabs, and five diesel locomotives. A new station would need to be constructed at Somers and would require boarding platforms, passenger shelters, a parking lot, pedestrian walkways, and other amenities including lighting, signing, and landscaping. Existing facilities would be used at Kenosha and Racine but varying levels of improvements would be necessary at these stations. A facility for the overnight storage and servicing of the commuter trains would need to be constructed at Racine and would include three tracks for storing trains, an electrical bridge and connections for providing train power and heat, a crew and staff building, an equipment and material storage area, employee parking, and access.

For the commuter bus element, bus vehicles would need to be procured, transit station facilities would need to be constructed, and a bus storage facility provided. The commuter bus service would utilize existing streets and arterial highways and operate in mixed traffic during all time periods. No new roadways or exclusive "bus-only" lanes or facilities would be constructed, dedicated, or improved specifically for this service. Under this alternative at both high and medium service levels, vehicle requirements include a total of 13 buses of which 11 would be required for weekday peak period needs. For the new supporting shuttle bus service, one additional bus would be required. New transit stations would need to be constructed at Oak Creek and Cudahy-St. Francis. At Racine, the new bus transit center now under development would be used. The new stations would require bus berths, passenger shelters, a parking lot, pedestrian walkways, and other amenities including lighting, signing, and landscaping. In downtown Milwaukee, no special station facility would be required since the commuter buses would make a series of curbside stops as is done today by both WCL and MCTS express buses. Under this commuter bus alternative, other specific stops would be provided at Racine-North, Caledonia, and South Milwaukee. At these locations, the station would be simpler and consist of bus pull-off areas, shelters, and basic passenger amenities. These locations would not include a park-ride lot. A facility for the storage, servicing, and maintenance of the buses would need to be constructed at a central location in the corridor. The facility would include an area for the indoor storage of up to six buses, offices, operator quarters, areas for vehicle repair, washing, and fueling, an equipment and material storage area,

employee parking, and driveways. If the commuter bus service envisioned under this alternative is ultimately provided by an existing operator, use of such a facility may already be available as part of an operator agreement.

STUDY ORGANIZATION

Staff

The lead agency for the conduct of this study was the Southeastern Wisconsin Regional Planning Commission. The study was conducted by the Commission staff with the assistance of a consulting transportation engineering firm, with assistance provided by the staffs of the counties and communities within the study area, the Wisconsin Department of Transportation (WisDOT), bus transit operators within the corridor, the various freight railways concerned, and Metra.

Advisory Committee

The study was guided by an Advisory Committee of elected and appointed local officials, business representatives, and representatives of the railroad and transit service operators from within the corridor. The membership of this Committee is listed on the inside front cover of this report. The Committee met on a regular basis throughout this study and reviewed all staff prepared materials and provided overall direction to the study effort. Furthermore the Committee screened the commuter rail and commuter bus alternatives and was instrumental in choosing the alternatives that were evaluated in detail. The Advisory Committee also formulated a preliminary recommendation, considered the public response to that preliminary recommendation, and prepared a final study recommendation.

Primary Technical Activities

This study effort included a series of primary technical activities:

1. Conceptual design of possible transit improvements.
2. Development of an operational concept for each alternative.
3. Estimates of capital, operating and maintenance costs.
4. Estimates of future ridership for each alternative.
5. Review and identification of possible environmental relationships and impacts.
6. Development of implementation options including financing, and organization and management.

Study Technical Reports

The study activities were documented in a series of Technical Reports. The Advisory Committee reviewed these reports and they were revised based on input from the Committee. The Technical Reports are:

Technical Report No.1	Design Policies and Standards
Technical Report No.2	Development of Alternatives
Technical Report No.2A	Plans and Profiles Appendix
Technical Report No.3	Ridership Forecasts for Alternatives
Technical Report No.4	Capital Improvement Needs and Capital Costs of Alternatives
Technical Report No.5	Operating and Maintenance Costs for Alternatives
Technical Report No.6	Environmental Review of Alternatives
Technical Report No.7	Analysis of Railroad Impacts
Technical Report No.8	Financial Analysis of Alternatives
Technical Report No.9	Organization and Management Analysis of Alternatives
Technical Report No.10	Evaluation of Alternatives

PUBLIC INVOLVEMENT

An extensive public involvement program was undertaken to encourage the active participation of both public and private interests such as citizens, public interest groups, private businesses, local units of government and agencies throughout the study and decision-making process. This element of the study was focused exclusively on

providing the public with the opportunity to identify issues and concerns and provide feedback about the study findings and recommendations. Public input was invited and encouraged early in the study process to help refine transportation options before considerable time and effort was spent developing alternatives. This allowed the public, their elected officials, governmental agencies, and community groups to have information on the study, and provided them with an opportunity to help direct the study's course. Public input was also actively solicited near the end of the study to obtain feedback and reaction to the study findings and the preliminary recommendations of the Advisory Committee. This feedback was particularly useful for helping the Advisory Committee understand the public's preferences with regard to the alternatives; whether or not the public agreed with the preliminary recommendations, and other issues concerning the alternatives that the public thought were important.

Through newsletters, briefings, public meetings, and the web site, the public had ample opportunity to participate in and comment on the study. The public reaction to the study findings, conclusions, and preliminary recommendations of the Advisory Committee are documented in a separate report entitled *Record of Public Comments: Kenosha-Racine-Milwaukee Corridor Transit Study: December 11, 2002 – May 16, 2003*. This public record includes written comments received by letter, e-mail, fax, and on comment forms available on the study web site and at the public informational meetings and hearings; oral comments made at the public informational meetings and hearings; pertinent newspaper articles; and examples of the public involvement materials and announcements.

The following sections summarize the public outreach activities that were undertaken. These activities included:

- Study Advisory Committee
- Coordination of Local Government and Agencies
- Public Informational Meetings and Hearings
- Briefings for Public Business and Civic Officials and Groups
- Presentations to Public Officials
- Study Newsletters
- Study Web site

Study Advisory Committee

The Advisory Committee for the study performed two important functions. First, as mentioned above, the Committee was responsible for guiding and directing the study, reviewing materials prepared under the study, and developing preliminary and final recommendations. The Committee also performed the very important function of acting as a direct liaison between the work of the study effort and the local areas that will be responsible for making the decision concerning whether or not to proceed with the public transit improvements being evaluated. As such the Committee was composed of a multi-jurisdictional group of members who represented the various units of government and agencies that would be served by the transportation improvements and or would be expected to be instrumental in implementation of the potential improvements.

Because the Advisory Committee represented the municipalities and counties that would be directly served by the alternatives, the State of Wisconsin Department of Transportation (WisDOT), and the affected transportation operators, the direct and regular participation by the Committee members provided an excellent opportunity for local interests communities, and officials to be kept informed of the study's progress and results. This also allowed the Committee members to easily bring back feedback and concerns from local officials and community areas they represent as the study progressed.

In summary, the broad representation of various corridor interests on the Advisory committee allowed for a two-way exchange of study progress information and feedback and refinement of the study findings and results as the work of the study was being carried out.

Coordination of Local Government and Agencies
Since representatives from the counties and municipalities in the Kenosha-Racine-Milwaukee corridor were included in the membership of the study Advisory Committee, one of their duties was to keep local public officials apprised of study progress. These community representatives regularly drew upon the comments and suggestions regarding the direction of the study made by their local constituencies and staff. In addition, study staff was available to make presentations or progress reports regarding the study.

Public Informational Meetings and Hearings
Two sets of public informational meetings and hearings were held at key points during the Kenosha-Racine-Milwaukee corridor transit study. The first set consisted of public "scoping" meetings as work on the study commenced. These scoping meetings were intended to introduce the study to the public, describe the scope of the study's work effort, and identify project issues and concerns early in the study. Residents, civic leaders, community interest groups, and agencies were invited to comment on what issues should be addressed and what alternatives should be developed and evaluated during the study. Each scoping meeting included a short presentation about the study and an "open house" session during which interested individuals could meet with study representatives to ask questions and discuss the study.

A list of these scoping meetings is presented below:

Tuesday, August 29, 2000
Kenosha Gateway Technical College-Madrigrano Auditorium
3520 30th Avenue
Kenosha, WI
Open house from 2:00 p.m. to 4:00 p.m.; presentation at 2:45 p.m.
Approximately 15 people attended.

Tuesday, August 29, 2000
Racine Gateway Technical College-Great Lakes Room, Racine Building
901 Pershing Drive
Racine, WI
Open house from 6:00 p.m. to 8:00 p.m.; presentation at 6:45 p.m.
Approximately 35 people attended.

Wednesday, August 30, 2000
Cudahy City Hall-Council Chambers
5050 S. Lake Drive
Cudahy, WI
Open house from 6:00 p.m. to 8:00 p.m.; presentation, at 6:45 p.m.
Approximately 40 people attended.

Thursday, August 31, 2000
Downtown Transit Center-Harbor Lights Room
909 E. Michigan Avenue
Milwaukee, WI
Open house from 6:00 p.m. to 8:00 p.m.; presentation at 6:45 p.m.
Approximately 40 people attended.

The second set of public meetings consisted of informational meetings and public hearings held near the conclusion of this study. These meetings were intended to obtain comments and feedback from the public concerning the findings and conclusions of the study effort and the Advisory Committee's preliminary recommendation. Each of these meetings included an "open-house" session to provide an opportunity for interested individuals to meet one-on-one or in small groups with study staff to ask questions and provide feedback and input on the study; a presentation by study staff that summarized the study findings and conclusions; and a public hearing that provided a forum for public comment in "town hall" format.

A list of these public informational meetings and hearings is presented below:

Wednesday, April 23, 2003
Kenosha Gateway Technical College-Madrigrano Auditorium
3520 30th Avenue
Kenosha, WI
Open House from 4:00 p.m. to 6:00 p.m.; presentation at 6:00 p.m.; public hearing at 6:30 p.m.
Approximately 70 people attended.

Thursday, April 24, 2003
Downtown Transit Center-Harbor Lights Room
909 E. Michigan Avenue
Milwaukee, WI
Open House from 4:00 p.m. to 6:00 p.m.; presentation at 6:00 p.m.; public hearing at 6:30 p.m.
Approximately 165 people attended.

Wednesday, April 30, 2003
Racine Gateway Technical College-Great Lakes Room, Racine Building
901 Pershing Drive
Racine, WI
Open House from 4:00 p.m. to 6:00 p.m.; presentation at 6:00 p.m.; public hearing at 6:30 p.m.
Approximately 170 people attended.

Thursday, May 1, 2003
Cudahy City Hall-Council Chambers
5050 S. Lake Drive
Cudahy, WI
Open House from 4:00 p.m. to 6:00 p.m.; presentation at 6:00 p.m.; public hearing at 6:30 p.m.
Approximately 75 people attended.

The dates, locations, and times for both sets of public meetings were widely distributed using the study newsletter, news releases sent to newspapers, radio stations, and television stations serving the corridor, and paid announcements in corridor newspapers.

Briefings for Business and Civic Officials and Groups
The study team conducted numerous presentations throughout the Corridor to brief organizations such as local chambers of commerce, service clubs, business and professional associations about the study. Examples of such organizations and groups included the following:

- Chambers of Commerce – Kenosha Area Business Alliance (KABA), Racine Area Manufacturers and Commerce (RAMAC), Oak Creek, Cudahy, South Milwaukee, and Sturtevant chambers.
- Service Clubs – Kiwanis, Rotary, Lions, and Optimist clubs within the corridor.
- Other – Racine and Kenosha Area Boards of Realtors, Racine County Economic Development Corporation (RCEDC), Greater Racine Committee, West Racine Business and Professional Association, Racine Women's Business and Professional Association, Transit Forum held at Insikerator, Sustainable Racine, Transit Now, Racine County Connection and Visitors Bureau, WisPark, S.C. Johnson & Son, Inc., Downtown Racine Corporation, WGTD-FM—Kenosha, Commuter Rail supporters meeting at Racine City Hall, and Milwaukee's Historic Third ward Association.

Presentations to Public Officials
Individual meetings and presentations were conducted by study staff with numerous public officials including the mayors and county executives for the Cities and Counties of Kenosha, Milwaukee, and Racine. Initial meetings

occurred during the scoping process and an interim status meeting occurred with each official during the course of the study. Elected officials were also contacted and encouraged to attend the informational meetings at the beginning and at the conclusion of the study. They were encouraged to contact SEWRPC with any questions during the course of the study.

Study Newsletters
A newsletter called "Wise Ride" was developed, printed, and distributed. Three newsletters were produced during the course of the study. The newsletters were intended to make interested parties aware of the study, present information concerning the alternatives being considered, describe the study findings and conclusions, announce upcoming public meetings, and foster feedback, comments, and opinions from people in the corridor. The newsletters included:

- Issue One – Summer 2000: Announced the four public informational "scoping" meetings held in August 2000, described the study and the study area, provided rationale for the study, presented potential alternatives, listed the membership of the Study Advisory Committee, described the study scope and schedule and encouraged people to get involved.
- Issue Two – Summer 2001: Described the alternatives selected for further study, identified the screening process, noted two new members of the Advisory Committee, cited some public comments, and discussed what comes next.
- Issue Three – Spring 2003: Announced the four public informational meetings and hearings, provided a summary of the study findings and conclusions, described the alternatives, discussed the evaluation, and presented the major differences among the alternatives and the preliminary recommendations of the Advisory Committee.

The three issues of the study newsletter were mailed to interested persons using a mailing list developed and maintained specifically for the Kenosha-Racine-Milwaukee corridor transit study. The mailing list was maintained and updated throughout the study and included almost 2,300 names. Quantities of newsletters were also made available to Advisory Committee members, public officials, agencies, and groups for distribution.

Study Web Site
A study web site called "Wise Ride" was developed and maintained as a primary means to provide information about the study and its findings and conclusions, to announce upcoming public informational meetings and hearings, and to solicit feedback and comments from the public. The web site can be viewed at http://www.sewrpc/wiseride/. In addition to the cover page, this site contained eight major areas including:

- What's New – This area identified the newest additions or changes to the information presented on the web site, such as announcements for public informational meetings and hearings, different ways people can submit comments, results of Advisory Committee meetings, Advisory Committee meeting minutes and presentations, and recently posted technical reports and maps.
- Background – This area included introductory information concerning the study.
- Study Purpose – This area provided basic information about study organization and purpose.
- Public Involvement – This area includes information on upcoming or recently held public informational meetings and hearings, describes different opportunities for individuals to provide feedback, ask questions and get information about the study, and listed the members of the Advisory Committee.
- Newsletters – This area allowed site visitors to access and view the study newsletters.
- Reports – This area allowed site visitors to access and view the study reports that have been completed and posted to the web site.
- Frequently Asked Questions – This area provided basic information about the study in a question-and-answer format.
- Contact Us – This area provided site visitors with a variety of opportunities for giving comments or asking questions about the study, its findings and conclusions, and the preliminary recommendations of the Advisory Committee. Comments and feedback could be submitted by individuals attending

public meetings and hearings, submitting written comments or questions, by U.S. mail, e-mail, or fax, contacting study staff by telephone, requesting a briefing for a group or organization, or by submitting comments directly through the study web site.

SCHEME OF PRESENTATION

The following chapters in this report present the information, findings, and conclusions pertinent to the development of the preliminary and final recommendations by the study Advisory Committee and the determination of a locally preferred alternative. Chapter 2 summarizes the comparison and evaluation of the final alternatives. Chapter 3 summarizes the organization and management alternatives necessary for the implementation and operation of the commuter rail or commuter bus alternatives. Chapter 4 presents alternative funding requirements for the alternatives. Chapter 5 presents the Advisory Committee's preliminary and final recommendations for transit service improvement, the "locally preferred alternative".

Chapter II

EVALUATION OF ALTERNATIVES

This chapter presents the evaluation of the commuter rail and bus transit alternatives for the Kenosha-Racine-Milwaukee corridor. The basis for this evaluation was a comparison of the costs, benefits, and impacts attendant to each of the commuter rail and bus alternatives being considered, thereby providing the information needed to ultimately recommend a transit service improvement, or locally preferred alternative, upon the conclusion of this study.

The comparative evaluation of transit alternatives used both quantitative and qualitative criteria which measured the attainment of the transit service objectives established earlier under the study. The objectives and supporting criteria relate to transportation level and quality of service, transit ridership, capital and operating costs, land use development and redevelopment, environmental protection, and cost-effectiveness. This chapter assembles the findings, conclusions, and results from study technical reports to compare the performance, impacts, and costs and benefits of the alternatives. These technical reports include:

Technical Report No. 2 – Development of Alternatives

Technical Report No. 3 – Ridership Forecasts for Alternatives

Technical Report No. 4 – Capital Improvement Needs and Capital Costs of Alternatives

Technical Report No. 5 – Operating and Maintenance Costs of Alternatives

Technical Report No. 6 – Environmental Review of Alternatives

Technical Report No. 7 – Analysis of Railroad Impacts

The data and information provided in this report may be used to estimate criteria for "New Start" rail transit project justification established by the Federal Transit Administration (FTA), including: 1) mobility improvement, 2) environmental benefit, 3) operating efficiency, 4) cost-effectiveness, 5) support of existing and future land use policies and patterns, and 6) other factors.

The evaluative information presented in this report for the corridor commuter rail and bus transit alternatives provided information to consider the following questions:

1. Does one or more of the alternatives achieve the objectives for transit in the Kenosha-Racine-Milwaukee corridor?

    - Service – Will potential riders have attractive and convenient transit service?

    - Mobility – Will the corridor population benefit via improved mobility; will there be more and better travel choices to more destinations?

    - Land Use Development and Accessibility – Will development in the corridor be supported, improving economic conditions and increasing job opportunities; will businesses, industries, and other employers be supported by having improved access to labor force?

    - Environmental Benefits – Will there be any measurable air quality, energy conservation, or other environmental benefits for the region?

2. Will the design concept for any of the alternatives produce environmental or other impacts serious enough to eliminate them from further consideration?

3. Which alternative would represent the best investment of public funds? To assess how well this objective is achieved, the following items should be considered:

    - Is there potentially enough ridership to make the investment attractive?

    - Which alternative would be most cost-effective?

    - Which alternative produces sufficient benefits to warrant its cost?

    - Which alternative represents the best investment for long-term development of transportation service in the corridor?

    - Which alternative would support or stimulate economic development for communities in the corridor?

The process of evaluation of alternatives may be described in seven steps, although it was also an interactive process which resulted in the refinement of the alternatives:

Step 1: Define Objectives
Establish the basic goals to be achieved by making a transportation investment. This was done early in the study as part of the scoping and study design.

Step 2: Identify Conceptual Corridor Alternatives
Develop conceptual corridor transit alternatives which provide comparable service for testing and evaluation. This step is documented in Technical Report Number 2, *Development of Alternatives*.

Step 3: Develop Final Candidate Design Alternatives
Specify and refine the design for the final transit alternatives to be evaluated. This step is also documented in Technical Report Number 2, *Development of Alternatives*.

Step 4: Define Evaluation Criteria
Define the criteria needed to measure how well each alternative achieves the objectives.

Step 5: Determine the Performance of the Alternatives with Respect to the Evaluation Criteria
Using the selected set of criteria and measures, estimate the extent to which each alternative performs with respect to each objective and its defined criteria. This step is documented with respect to ridership, costs, environmental impacts, and railroad impacts in the series of technical reports.

Step 6: Compare Corridor Alternatives
Compare the extent to which each corridor alternative performs with respect to the defined evaluation criteria. Assess how each alternative meets the defined objectives, determine whether any alternative may result in impacts which would eliminate it from consideration, and consider the relative costs, benefits, and cost-effectiveness of alternatives.

Step 7: Prepare Evaluation Report
Document the process of the evaluation and the results, to permit the selection of preferred conceptual transit alternatives for the Kenosha-Racine-Milwaukee corridor. This is documented in Technical Report No. 10, *Evaluation of Alternatives*.

The following sections of this chapter present the evaluation findings including level of service, forecast ridership, capital costs, operating costs, cost-effectiveness, economic and land use development impacts, environmental considerations, and railroad impacts. The last section in this chapter provides a summary and conclusions of the evaluation.

LEVEL OF SERVICE FINDINGS

This section summarizes the pertinent findings concerning the level of service that would be provided by the final set of commuter rail and bus alternatives in this study effort. The level-of-service findings are especially relevant to the transportation objectives of increasing mobility and accessibility, and providing a high quality transit service. The development of this information in greater detail is presented in Technical Report No. 3 entitled *Ridership Forecasts for Alternatives* and Technical Report No. 6 entitled *Environmental Review*.

Amount and Type of Service
The amount and type of service offered by each of the alternatives can be defined and compared in terms of the service area, the degree of direct service, the markets served, and the volume and frequency of service. Potential service under each of the alternatives was considered in relation to travel within the Kenosha-Racine-Milwaukee corridor and travel between the Kenosha-Racine-Milwaukee corridor and northeastern Illinois. Each of the alternatives was designed not only to be comparable to the other alternatives, but also to take advantage of the inherent advantages of commuter rail or bus transit technology and operations.

Service Area
The service area for all of the alternatives is the 33-mile long Kenosha-Racine-Milwaukee corridor. The surrounding areas from which the alternatives will draw passengers from are reflected by the distance which people are willing to walk to stations or stops—normally about one-half mile—and the distance people are willing to drive, carpool, otherwise get a ride, or take a connecting local transit service to stations or stops—normally a maximum of about three miles. All of the rail and bus alignments were intended to be as comparable as possible by design. Thus, the railroad alignment under the commuter rail alternative and the highway alignment under the commuter bus and combination alternatives are almost adjacent to each other most of the length of the corridor. Only for a short distance in the Town of Caledonia are the rail and bus alignments more than one-half mile apart. Most of the stations are also at common or nearby locations among the alternatives. Thus, the geographic service areas for all of the alternatives may be considered to be equal.

Direct Service
The degree of direct service offered by each alternative is an important indicator of the type, quality, and attractiveness of a service. Existing and potential passengers will always want to minimize the number of times they need to get on, off, and change vehicles during a trip. Such transfers are regarded as inconvenient, time-

consuming, costly, and aggravating. Regardless of the alternative, the length and location of each individual trip will determine whether one or more transfers will be necessary.

Each alternative has one or more key transfer points. For the commuter bus alternative, these would be Racine, Kenosha, and Waukegan. To a large degree, much of the bus service under this alternative is operated as a system of five separate sub-routes with the frequency varying among the five routes. The sub-routes are designed to be compatible with the different travel markets that have been identified. Because only a small number of bus runs operate over most or the entire length of the route, many of the longer trips within the corridor will be required to change buses at one or more stops. The number and location of such transfers will depend on the length and time of day of each trip. All trips that are going beyond Waukegan to or from northeastern Illinois will need to transfer between bus and train at either Kenosha or Waukegan.

For the combination rail and bus alternative, the key transfer point would be Racine. Bus service under this alternative is operated as a single route north of Racine to Milwaukee. Rail service under this alternative would be operated as an extension of the existing service between Kenosha and Chicago. Any of the longer trips that need to go through Racine will need to transfer between bus and train at Racine. All trips that are going to and from northeastern Illinois from north of Racine will also need to transfer between bus and train at Racine. Trips between northeastern Illinois and Racine or Somers will have a one-seat, no-transfer ride.

For the commuter rail alternative, the key transfer point would be Milwaukee. Rail service under this alternative is operated as a single route and as an extension of the existing service between Kenosha and Chicago. The commuter rail alternative would provide a no-transfer, one-seat ride between stations within the Kenosha-Racine-Milwaukee corridor and between the corridor and northeastern Illinois. For those trips to and from downtown Milwaukee, the commuter rail alternative would require coordinated operation of a shuttle bus service to transport passengers between the station and areas of downtown that are beyond convenient walking distance. The commuter bus and combination rail and bus alternatives would not require a special shuttle since the commuter buses act as their own collector and distributor in the downtown area.

The commuter rail alternative was concluded to offer the largest opportunity for the greatest variety of direct no-transfer trips of all the alternatives for the corridor since its service is operated on a single through route the entire distance between the stations at Milwaukee and Chicago. By comparison, the combination rail and bus alternative requires the coordinated operation of both a bus and rail route and the commuter bus alternative requires the coordinated operation of several commuter bus routes that together need to be coordinated with the existing commuter rail trains serving Kenosha and Waukegan.

Travel Markets to be Served

The alternatives are intended to provide a complete all-day service much more comprehensive and serving many more kinds of trips than would a traditional weekday peak-period, peak-direction commuter service. Importantly, passengers going to and from work would be able to commute from any one station to any other station in either direction along the corridor.

In fact, a key enhancement is that all alternatives would permit travel in both directions along the entire corridor during weekday peak periods as well as during other times of the day. For example, passengers who live in Racine or Kenosha could use the service to commute to jobs in Milwaukee or Chicago. Passengers who live in Milwaukee or Chicago could commute to jobs in Racine and Kenosha. These passengers would have the option of returning home either during the midday or evening. This same kind of service would also be provided to and from other communities along the corridor, including Somers, Caledonia, Oak Creek, South Milwaukee, Cudahy, and St. Francis.

In addition, nonwork trips would be served as well. This would be trips for shopping, entertainment, recreation, sightseeing, medical and other personal appointments, and visiting friends and relatives. For example, passengers could use the service to travel to shows and festivals in Milwaukee and Chicago or to visit museums, events, and restaurants in Racine and Kenosha.

Early in the study, the primary passenger travel markets which would be served by each alternative were identified. Eight specific primary passenger travel markets were defined including:

- Northeast Illinois to Kenosha and Racine Work Trips
- Kenosha and Racine to Northeast Illinois Work Trips
- Kenosha and Racine to Downtown Milwaukee Work Trips
- Northern Racine County and Southern Milwaukee County to Downtown Milwaukee Work Trips
- Milwaukee to Racine and Kenosha Work Trips
- Kenosha and Racine to Downtown Milwaukee Nonwork Trips
- Kenosha and Racine to Northeastern Illinois Nonwork Trips
- Miscellaneous Short-Distance Nonhome-Based Personal and Work Trips

Discussion of these passenger travel markets is documented in greater detail in Technical Report No. 2 entitled *Development of Alternatives*.

All three commuter rail and bus alternatives serve each of these primary markets, but for some of the markets, some of the alternatives provide better service. The commuter bus alternative serves each of these markets through operating five coordinated routes. All of these bus routes are also coordinated with the existing Metra commuter train service between Kenosha, Waukegan, and Chicago. However, for the longer trip markets, passengers need to transfer between commuter bus and commuter train somewhere along their trip. Also within the Kenosha-Racine-Milwaukee corridor, some passengers might need to transfer between commuter buses depending upon the time of day they would be traveling. The commuter rail alternative also serves each of these markets, but by operating all trains along the entire length of the Kenosha-Racine-Milwaukee corridor and into northeastern Illinois to downtown Chicago. Since no change of vehicle would be required enroute for any trips, the markets can easily be considered to be well served by commuter rail. The combination rail and bus alternative would serve the markets at a level somewhere between the commuter bus and commuter rail alternatives since it would not require a change of vehicle for trips south of Racine all the way to Chicago or trips north of Racine to Milwaukee.

The commuter rail alternative will directly serve more travel markets than will the commuter bus or combination alternatives because it will be able to provide a no-transfer ride along the entire length of the corridor. Trips requiring a change of vehicle enroute will always be less attractive to potential users. All three alternatives will serve the shorter markets well, such as Racine and Cudahy to Milwaukee and Racine to Kenosha, where no transfer between modes or routes is required. However, the commuter rail alternative will better serve the longer travel markets, such as for trips between Southeastern Wisconsin and northeastern Illinois, because these trips can be made without a change of mode or vehicle. For the combination rail and bus alternative, all trips traveling through Racine will have to change between rail and bus. For the commuter bus alternative, most trips traveling between Southeastern Wisconsin and northeastern Illinois will have to change between rail and bus at either Kenosha or Waukegan; and in addition, many of the trips traveling through Racine will have to change buses at Racine.

Volume and Frequency

The amount of service offered under the various alternatives may be measured by the number of scheduled trips by train or bus for the alternatives along any particular segment of the corridor as well as the frequency of the service. A summary of the service offered under each of the alternatives is shown in Table 3.

The amount of service provided by each of the three basic alternatives is comparable. This is largely a result of the design of the alternatives. The level of service under each of the alternatives was purposely intended to be as equal as possible to provide a fair comparison of the alternatives. The commuter rail alternative was designed to include 15 scheduled trains in each direction, or a total of 30 trains in both directions, on an average weekday. Some of these trains would be extensions of existing Kenosha-Chicago trains, some would be extensions of existing Waukegan-Chicago trains, and some would be entirely new Milwaukee-Chicago trains.

Table 3

COMPARISON OF TRANSIT SERVICE LEVELS BY ALTERNATIVE

Criteria and Measure	Commuter Bus Alternative	Combination Rail and Bus Alternative		Commuter Rail Alternative	
		High Level of Service	Medium Level of Service	High Level of Service	Medium Level of Service
Average Operating Speed					
Bus	20 miles per hour	23 miles per hour	23 miles per hour	- -	- -
Train	- -	40 miles per hour	40 miles per hour	34 miles per hour	34 miles per hour
Bus and Train Combined	- -	28 miles per hour	28 miles per hour	- -	- -
Amount of Service					
Annual Vehicle Miles					
Bus-Miles	771,700	527,100	263,500	- -	- -
Train-Miles	- -	261,200	129,000	454,700	224,200
Annual Vehicle Hours					
Bus-Hours	34,000	23,600	11,800	- -	- -
Train-Hours	- -	6,800	3,500	13,000	6,800
Weekday Vehicle Trips Per Day (both directions)[a]					
Milwaukee-Racine Segment	30 bus	30 bus	14 bus	30 train	14 train
Racine-Kenosha Segment	32 bus	30 train	14 train	30 train	14 train
Kenosha-Waukegan Segment	18 train and 14 bus	30 train	14 train	30 train	14 train
Schedule Hours (Milwaukee-Kenosha only)					
Northbound					
Bus	5:30 a.m. to 10:00 p.m.	5:30 a.m. to 10:00 p.m.	5:30 a.m. to 10:00 p.m.	- -	- -
Train	- -	6:45 a.m. to 12:30 a.m.	6:45 a.m. to 8:00 p.m.	6:45 a.m. to 1:15 a.m.	6:45 a.m. to 8:45 p.m.
Southbound					
Bus	4:45 a.m. to 11:00 p.m.	6:45 a.m. to 11:00 p.m.	6:45 a.m. to 11:00 p.m.	- -	- -
Train	- -	6:30 a.m. to 10:15 p.m.	6:30 a.m. to 6:45 p.m.	6:00 a.m. to 10:15 p.m.	6:00 a.m. to 6:45 p.m.
Travel Time Between Selected Station Pairs					
Milwaukee-Kenosha	91 Minutes	81 Minutes	81 Minutes	58 Minutes	58 Minutes
Milwaukee-Racine	60 Minutes	60 Minutes	60 Minutes	42 Minutes	42 Minutes
Milwaukee-Chicago	186 Minutes	171 Minutes	171 Minutes	148 Minutes	148 Minutes
Kenosha-Racine	31 Minutes	16 Minutes	16 Minutes	16 Minutes	16 Minutes
Racine-Highland Park	82 Minutes	62 Minutes	62 Minutes	62 Minutes	62 Minutes
Milwaukee-Oak Creek	40 Minutes	40 Minutes	40 Minutes	26 Minutes	26 Minutes
Racine-Waukegan	61 Minutes	38 Minutes	38 Minutes	38 Minutes	38 Minutes
Racine-Chicago	126 Minutes	106 Minutes	106 Minutes	106 Minutes	106 Minutes
Weekday Schedule Convenience					
Number of Peak Period Arrivals					
Milwaukee					
Bus	a.m.-6; P.M.-3	a.m.-7; p.m.-3	a.m.-4; p.m.-2	- -	- -
Train	- -	- -	- -	a.m.-3; p.m.-3	a.m.-3; p.m.-2
Racine					
Bus	a.m.-8; p.m.-8	a.m.-3; p.m.-5	a.m.-3; p.m.-3	- -	- -
Train	- -	a.m.-3; p.m.-3	a.m.-3; p.m.-2	a.m.-7; p.m.-7	a.m.-6; p.m.-5
Kenosha					
Bus	a.m.-6; p.m.-8	- -	- -	- -	- -
Train	- -	a.m.-6; p.m.-6	a.m.-6; p.m.-4	a.m.-8; p.m.-8	a.m.-6; p.m.-5
Number of Peak Period Departures					
Milwaukee					
Bus	a.m.-3; p.m.-6	a.m.-3; p.m.-7	a.m.-2; p.m.-4	- -	- -
Train	- -	- -	- -	a.m.-4; p.m.-4	a.m.-3; p.m.-3
Racine					
Bus	a.m.-11; p.m.-10	a.m.-7; p.m.-4	a.m.-5; p.m.-3	- -	- -
Train	- -	a.m.-3; p.m.-4	a.m.-3; p.m.-2	a.m.-7; p.m.-7	a.m.-6; p.m.-5
Kenosha					
Bus	a.m.-7; p.m.-8	- -	- -	- -	- -
Train	- -	a.m.-6; p.m.-6	a.m.-6; p.m.-4	a.m.-6; p.m.-6	a.m.-6; p.m.-5
Service Reliability	• Operates in mixed traffic with other motor vehicles. • Will be affected by heavy traffic and congestion delays. • May be delayed by inclement weather conditions.	• North of Racine bus will operate in mixed traffic. • Bus will be affected by heavy traffic and congestion delays. • Bus may be delayed by inclement weather conditions. • South of Racine, trains have priority over street and highway traffic. • Trains normally not affected by inclement weather.		• Separated from freight train traffic by schedule. • Priority over street and highway traffic. • Normally not affected by inclement weather.	

[a] *Some peak period bus trips will require more than one vehicle operating on the same schedule to accommodate passenger demand.*

Source: Parsons Transportation Group and SEWRPC.

The commuter bus alternative was designed to include a total of 15 scheduled buses in each direction, or total of 30 buses in both directions, on an average weekday along each major segment of the corridor equivalent to the commuter rail alternative. As described previously, the buses under this alternative operate over five coordinated and overlapping routes within the Waukegan-Kenosha-Racine-Milwaukee corridor. To provide this service, a total of 54 bus runs would be required on an average weekday. Of these, 22 bus runs would be operated between Racine and Milwaukee, 12 bus runs between Racine and Kenosha, 12 bus runs between Racine and Waukegan, six bus runs between Milwaukee and Kenosha, and two bus runs between Milwaukee and Waukegan. Based on the manner in which all of these bus runs would overlap, the Milwaukee-Racine segment of the corridor would have a total of 15 scheduled buses in each direction, or 30 buses in both directions on an average weekday. The Racine-Kenosha segment would have 16 scheduled bases in each direction. The Kenosha-Waukegan segment would also have 16 scheduled buses or trains in each direction when the new bus runs are added to the existing Metra commuter train schedule.

The combination rail and bus alternative was designed to include 15 scheduled trains in each direction, or a total of 30 trains in both directions, on an average weekday between Racine and Kenosha. These trains would be extensions of existing Kenosha-Chicago or existing Waukegan-Chicago trains, or entirely new Racine-Chicago trains. The bus portion of this alternative would include 15 scheduled buses in each direction, or a total of 30 buses in both directions, on an average weekday between Racine and Milwaukee.

Under the commuter rail and combination rail and bus alternatives, a medium-level-of-service option was developed to demonstrate the effects on costs and ridership of reducing the level of service. The commuter rail alternative with a medium level of service was designed to include seven trains in each direction over the entire corridor, or a total of 14 trains on an average weekday. The combination rail and bus alternative with a medium level of service was designed to include seven trains in each direction between Racine and Kenosha and seven bus runs in each direction between Racine and Milwaukee.

The frequency of service provided by each of the three basic alternatives is also comparable. Under all of the alternatives, a basic service is provided during all periods on weekdays with increased frequency during the morning and afternoon peak periods. During weekday peak periods, frequency of service would vary from three to four trains or buses during both the morning and afternoon peak periods. During nonpeak weekday periods, frequency of service would also vary, averaging about every two hours. Weekend service on all alternatives would be limited to about three trains or buses on Saturdays, Sundays, and major holidays. Under the alternatives with a medium level of service, weekday peak period service would vary from two to three trains or buses. During nonpeak periods, service would average about every three to four hours. The amount of service provided by each of the three basic alternatives was concluded to be comparable. As with the volume of service envisioned under the alternatives, this is largely a result of the design of the alternatives.

Two additional considerations with regard to the frequency of service are worth noting here. First, many of the operating distances and times for train and bus services under these alternatives are especially long. This is a result of developing a commuter service between Milwaukee, Racine, and Kenosha that is integrated with the existing commuter service between Kenosha, Waukegan, and Chicago and which can then serve the variety of travel markets in the corridor. Thus, the total distance along the Milwaukee-Racine-Kenosha-Waukegan-Chicago route is 85 miles. Commuter trains that currently operate between Kenosha and Chicago take about one and one-half hours because of the numerous intermediate stops. Extending these trains to Racine and Milwaukee will require about a two and one-half hour time period to make one trip. This will result in a lengthy commuter service run in terms of both distance and time compared to most other commuter rail and bus service elsewhere in the United States. As a result, most of the scheduled services under these alternatives will only be able to serve peak period passengers during a portion of the train or bus run.

Second, sample departure and arrival times for trains and buses suggested under this study should not be regarded as absolute. Actual schedules for a service to be implemented will likely be finalized only a short time prior to service start-up and will undergo many revisions up until that time as a result of input from all the parties involved. Regardless, the experience of other new commuter service start-ups indicates that every effort will be made to provide the most attractive schedule for both weekday peak period and nonpeak period services.

Conclusions

With regard to amount of service, all of the alternatives providing a high level of service were found to be comparable in terms of the volume of service, frequency of service, and the geographic area served. Under an option with a medium level of service, all of the alternatives were also found to be comparable. This was due to intentionally making the alternatives as similar as possible in order to highlight differences due to each mode. With regard to type of service, the commuter rail alternative, and to a lesser extent the combination rail and bus alternative, would provide the most direct service in the corridor because of its ability to provide a no-transfer, one-seat ride between all stations. As a result, the commuter rail alternative would best be capable of serving the most travel markets within the corridor in a direct manner. The commuter bus alternative would be least able to provide direct no-transfer service and the combination rail and bus alternative would provide direct no-transfer service for that portion of the corridor between Racine and Chicago.

Service Quality and Mobility

Service quality and mobility for each of the alternatives can be defined and compared in terms of comfort, reliability, average speeds, travel time, and capacity. While many of these measures are qualitative in nature, potential users often give them high importance when deciding how to make a trip. To a large degree, these measures are explained not so much as differences among the alternatives, but rather as differences between the attributes of the commuter rail mode and the commuter bus mode. These service quality measures are described below.

Comfort

Personal comfort of passengers will be critical to the long-term acceptance, attractiveness, and use of a new or improved transit service. As major metropolitan areas grow in size and daily commute times increase and become more complicated and stressful as a result of increasing traffic, people place greater importance on services and conditions that make travel to and from work easier and more productive. Thus, the relative comfort level of various transit vehicles is important.

Commuter rail trains and their passenger coaches are much larger and more spacious than buses and can therefore offer a wider choice of amenities. Because of this, commuter rail coaches can be expected to be more comfortable than buses. Compared to typical buses used in urban commuter service, commuter rail coaches have more passenger area, wider aisles, larger seats, more seat legroom, more and better interior lighting, higher ceilings, and larger rest rooms. Because buses have size and shape limitations imposed because of street and highway use, their interior passenger area and individual seat areas are often constricted and cramped for many adults. The vehicle length, height, and narrow aisle do not allow for easy passenger walking or other movement. Restricted room to walk, move, and otherwise maneuver is especially critical with disabled passengers or passengers with special mobility needs, elderly and older passengers in general, passengers who are tall or large, passengers who are carrying packages, luggage, or other items, and passengers who desire “elbow room” for other activities while traveling. The additional room afforded by commuter train coaches allows passengers to easily walk around, stretch, socialize with other passengers, have personal or work-related meetings or discussions, read, conduct work, sleep or rest, eat, drink, and other possible activities.

The nature of the actual physical train movement is also more conducive to many of the activities listed above. Both commuter trains and buses allow the passenger to engage in other activities since he or she is not driving. However, compared to buses, commuter rail coaches are larger and heavier vehicles. Commuter trains operate on a dedicated right-of-way not shared with a wide variety of vastly different vehicles and have priority over other rail and motor vehicle traffic. They operate on a strict schedule according to a strict set of operating rules on an alignment where all traffic is strictly controlled. Thus, their normal performance is smooth, predictable, and consistent. Stops are normally made only at stations. Buses operate in mixed traffic together with a wide variety of other motor vehicles. Traffic conditions and actions of other drivers vary widely even under the best of driving conditions and can be unpredictable and erratic. Along nonfreeway segments of highways and on urban streets, buses may encounter frequent stopping and starting for traffic signals and congested traffic conditions and possible sudden stops or movements also as a result of traffic, road, or weather conditions. The actual schedule performance of buses will be dependent upon those same traffic, road, and weather conditions.

The comfort of passengers in station areas will be largely dependent upon the type of facility, kind of shelter, and variety of amenities available at each individual location. The kind of passenger facilities and amenities at a particular station could be the same regardless of whether service is bus or rail. In practice, commuter rail stations tend to be larger because of train size, have more sheltered passenger areas, and be equipped with more amenities. Frequently, commuter rail stations include a new or restored depot building, which is often regarded as a neighborhood centerpiece. Commuter rail stations tend to attract and be surrounded by more shops and businesses used by commuters. The proximity of destinations to rail stations enables passengers to be more efficient with their day-to-day tasks. Most commuter bus stations tend to be equipped with simple waiting shelters and basic amenities. Some bus stations would require no more than a curbside stop area with a basic shelter along major roads. In any case, regular commuters try to minimize their time waiting at station facilities and in terms of comfort will place the most importance on in-vehicle time.

Based on these attributes for the commuter bus and commuter rail modes, it may be concluded that the commuter rail alternative would offer the highest level of comfort. Contemporary vehicle design will enable any bus or rail vehicles to offer comfortable seats and interior amenities to the extent possible for the particular vehicle being ordered from the manufacturer. However, commuter rail vehicles, because of their size and design, will possess a level of comfort superior to that of commuter buses. Many of the characteristics identified above form the basis in many people's minds for perceiving commuter rail service as a high-quality, premium transportation service. On a relative basis, the commuter bus alternative would offer the lowest level of comfort. The combination rail and bus alternative would be in between with a higher level of comfort attributable to the Racine-Kenosha-Chicago segment and a lower level of comfort attributable to the Racine-Milwaukee segment.

Reliability

The commuter rail alternative can be expected to be the most reliable of the three alternatives, especially during weekday peak travel periods and times of inclement weather. Because it would be on a separate nonhighway alignment, it would have priority over other traffic and would not suffer interference from other automobile and truck traffic. Most inclement weather will have little impact on the service with delays occurring only during the most severe weather conditions. Regardless of weather or traffic conditions, commuter rail has a record of being on time. Unlike automobiles, trucks, or buses, commuter rail is not much affected by ice storms, excessive heat or traffic jams. In Chicago, a city with a climate similar to the Kenosha-Racine-Milwaukee corridor, Metra commuter rail service has a 98 percent on time rating. Riders can count on getting to work on time regardless of the weather. The commuter bus alternative can be expected to be the least reliable since it would operate in mixed traffic, therefore being affected by the unpredictable nature of street and highway congestion and delays resulting from high peak period traffic volumes and adverse weather conditions. The combination alternative would experience reliability similar to the commuter rail alternative south of Racine and similar to the commuter bus alternative north of Racine.

Overall Quality

The quality of transit service may also be regarded as a benefit of those alternatives that include commuter rail service. Proponents of rail transit argue that potential transit passengers will prefer rail service to bus transit and will therefore make greater use of rail. This is based on the contention that rail modes are intrinsically more attractive than bus modes even if the levels of service provided are the same. This attraction is usually described in terms of ease of use, ride quality, comfort, and image. This is often cited in proposals for rail service initiation, extension, or expansion as an aspect that can provide a greater potential for attracting ridership. The more visible and obvious a service is, the easier it will be to use by most potential passengers. A commuter rail service will be far more apparent than will a commuter bus service simply because of the greater amount of infrastructure necessary to provide rail service, and the larger size and scope of facilities and equipment. Unlike buses, which operate in mixed traffic over public streets, commuter trains utilize tracks on a dedicated alignment making it very certain for passengers to know where the service will be operating and where stations are located. Another consideration is that as a through service over the entire length of the corridor, the commuter rail alternative can be perceived as being the easiest of the alternatives to use because of its simplicity. Passengers have no complicated route structure or transfers to understand, hence the rail schedules would be easy to understand, and transfers would not be required for many trips. Perceived ease of use, whether in regard to a new potential passenger considering using the service, or in regard to a regular passenger who must use or has decided to use

the service on a long-term basis, although largely of an intangible nature, remains an important criteria to individuals in deciding if and how to make a trip.

Overall quality of transit service is also related to rider comfort and reliability. Because commuter rail coaches are much larger than buses, the rail mode normally provides the passenger with larger seats, more leg room, wider aisles, a more open and spacious passenger compartment making for a less crowded environment, and space to stand and walk around in. On trains, on-board rest room facilities are normally available. The interior of railroad cars is more spacious and quieter than a bus. For many people, the environment inside a railroad coach is more conducive for speaking with friends and coworkers, socializing, reading, doing work, sleeping, or thinking. As such, passengers who use commuter rail can use the time on board the train for other purposes and therefore be more productive. Since commuter trains have priority over other traffic and are on an exclusive right-of-way, they are not subject to rush hour traffic conditions such as stopping and starting and highway congestion. Rider comfort is enhanced by smooth acceleration and deceleration. The stress and irritation levels of passengers may also be much lower than if those passengers had to drive. Commuter rail stations typically are roomier and offer better protection from inclement weather than bus stations or stops.

Rail transit is also perceived by many as representing a positive factor in the image of an area. It is the belief of some that commuter rail and other rail transit modes can assist in promoting a community or area as an important and progressive area. This is because commuter rail and other types of rail transit are very common and widespread in most other areas around the world. By having rail transit service, a community can more easily equate itself with other well-developed cities that are respected as desirable and cosmopolitan places.

Importantly, all three alternatives would provide additional transportation choices in the form of improved public transit service to groups of people who are unable to drive or who do not have an automobile available. Such groups include those who are not yet old enough to drive, those who are too old to drive, those who cannot drive due to physical, medical, or other conditions, those who cannot afford an automobile, those who are visiting, working, or conducting other business in the corridor, and who do not have an automobile available. This would also include persons who choose not to drive for particular trips. To the extent that one alternative can provide a faster, more comfortable and convenient, and more attractive service compared to the other alternatives within the service area, that alternative will, in effect, provide better mobility.

Average Speeds

The overall average speeds for the alternatives are shown in Table 3. The commuter rail alternative will be able to offer the service with the highest average speed of about 34 miles per hour over the entire route. This is the result of the commuter rail mode having its own separate alignment largely free from other uncontrolled traffic. The commuter bus alternative will have the lowest average speed of about 20 miles per hour since it must operate over streets and highways in mixed automobile and truck traffic. The combination rail and bus alternative would have a high average speed only along the commuter rail segment. The remaining bus segment will have a lower average speed. Thus, the combination rail and bus alternative would have a combined average speed of about 28 miles per hour over the entire route. Moreover, the commuter rail alternative has the potential for operating speeds and average speeds to be increased in the future if additional improvements to track and signals are made.

Travel Time

The commuter rail alternative would provide the shortest travel times of all the alternatives between most stations. The commuter bus alternative would have the longest travel times. Under the combination rail and bus alternative, travel times for trips north of Racine would be similar or the same as the commuter bus alternative, and travel times for trips south of Racine would be similar or the same as the commuter rail alternative. For trips traveling through Racine, travel times would be in between the commuter bus and commuter rail alternatives. In general, the longer the trip, the more travel time advantage is gained by trips using commuter rail under both the commuter rail alternative and the combination rail and bus alternative. For the commuter rail and combination rail and bus alternatives, the travel times would be the same under both the high and medium levels of service. Table 4 provides a comparison of travel times between selected origins and destinations under each of the three alternatives.

Table 4

ESTIMATED TOTAL STATION-TO-STATION TRAVEL TIMES FOR SELECTED TRIPS IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR BY ALTERNATIVE IN MINUTES

Kenosha-Racine-Milwaukee Corridor Stations by Alternatives	Stations Between Milwaukee and Chicago									
	Milwaukee CBD–West Side[a]	Milwaukee CBD–East Side[b]	General Mitchell International Airport	Cudahy-St. Francis	Oak Creek	Racine	Kenosha	Waukegan	Highland Park	Chicago CBD
Milwaukee CBD - West Side[a]										
Commuter Bus	- -	6	66	20	40	60	91	118	142	186
Combination Rail and Bus	- -	6	66	20	40	60	81	103	127	171
Commuter Rail	- -	7	30	15	26	42	58	80	104	148
Milwaukee CBD - East Side[b]										
Commuter Bus	6	- -	60	14	34	54	85	112	136	180
Combination Rail and Bus	6	- -	60	14	34	54	75	97	121	165
Commuter Rail	7	- -	42	27	38	54	70	92	116	160
Cudahy - St. Francis										
Commuter Bus	20	14	46	- -	20	40	71	98	122	166
Combination Rail and Bus	20	14	46	- -	20	40	61	83	107	151
Commuter Rail	15	27	10	- -	11	27	43	65	89	133
Oak Creek										
Commuter Bus	40	34	21	20	- -	20	51	78	102	146
Combination Rail and Bus	40	34	21	20	- -	20	41	63	87	131
Commuter Rail	26	38	26	11	- -	16	32	54	78	122
Racine										
Commuter Bus	60	54	46	40	20	- -	31	58	82	126
Combination Rail and Bus	60	54	46	40	20	- -	16	38	62	106
Commuter Rail	42	54	42	27	16	- -	16	38	62	106
Kenosha										
Commuter Bus	91	85	77	71	51	31	- -	22	46	90
Combination Rail and Bus	81	75	67	61	41	16	- -	22	46	90
Commuter Rail	58	70	58	43	32	16	- -	22	46	90

NOTE: All travel times represent station-to-station travel. Transfer times of five minutes included whenever a change between vehicles would be necessary. Commuter rail alternative travel times to Milwaukee CBD-East Side include shuttle.

[a]*Milwaukee CBD-West Side assumed to be Amtrak depot for commuter rail alternative and intersection of N. 7th Street and W. Wisconsin Avenue for commuter bus and combination rail and bus alternatives.*

[b]*Milwaukee CBD-East Side assumed to be intersection of N. Cass Street and E. Wisconsin Avenue for all alternatives.*

Source: Parsons Transportation Group and SEWRPC.

Of course, the actual travel time for each individual trip will be dependent upon the how far the passenger's actual origin and destination are from the rail or bus station being used, what mode the passenger decides to use to and from the rail or bus station at each end of the trip, and how long the passenger elects to wait at the station prior to the train or bus arriving. Most passengers are far more sensitive to access time and wait time than they are to time spent in the vehicle. In this regard, station location relative to the passenger's final destination, such as his or her work place, is critical.

This is particularly important with regard to the stations serving downtown Milwaukee, the most heavily used station for all alternatives. While the commuter rail mode will generally provide the shortest travel times for most trips in the Kenosha-Racine-Milwaukee corridor, this may not be the case for some trips to and from downtown Milwaukee. Many of the major employers in downtown Milwaukee are located on the east side of the downtown, making this area an important commuter destination. The only Milwaukee station under the commuter rail alternative would be the Amtrak depot, located in the southwest corner of the downtown area. Because of the distance, this will require many passengers to use the dedicated shuttle bus service if they elect not to walk or use a taxi. Commuter bus service under the commuter bus and combination rail and bus alternatives, on the other

hand, would enter and exit the east end of downtown directly from the Lake Parkway and Hoan Bridge and proceed along Wisconsin Avenue providing service directly to many employers and other destinations. Thus, for many trips between suburban Milwaukee County stations and downtown Milwaukee, where the east side of downtown Milwaukee is one end of the trip, the commuter bus and combination rail and bus alternatives may offer a shorter travel time. For trips between downtown Milwaukee and places outside of Milwaukee County, the faster line-haul travel time of the commuter rail mode would be expected to equal or offset the travel time advantage of the commuter bus mode for trips to the east side of downtown Milwaukee.

Table 5 provides a comparison of the travel time savings among the alternatives. In general, a comparison of the alternatives indicates that the combination rail and bus alternative can provide a travel time savings over the commuter bus/baseline alternative ranging from 16 to 22 percent for trips south of Racine depending on the length of the trip. For trips between Racine and Milwaukee, there would be no difference in travel time between the combination rail and bus alternative and the commuter bus/baseline alternative since the respective services would be identical. The commuter rail alternative can provide a travel time savings over both the commuter bus alternative and the combination rail and bus alternative ranging from 11 to 29 percent. As discussed above, an exception to this would be for trips between suburban Milwaukee and the east side of downtown Milwaukee where alternatives employing the commuter bus mode would be expected to have a distinct advantage.

Capacity

In terms of service quality, both commuter rail and commuter bus are flexible when it comes to adding capacity. If demand would increase on a regular basis, the capacity of either mode would be expected to be increased to meet demand. Alternatives using commuter bus would increase capacity by adding more buses to the additional schedules. Buses are generally limited to a seated vehicle capacity of 47 passengers. Each additional bus will require another driver. Alternatives using commuter rail would increase capacity by adding additional coaches to the existing trains. Each additional coach will have a seated capacity of 145 passengers (138 passengers in coaches with control cabs). An additional train crew member would need to be added for every two coaches added. If the normal train size of about eight coaches was increased to more than 12 coaches, an additional diesel locomotive would be required. Short-term or sporadic increases in ridership may require standees to be accommodated. Standees can be handled in a safe, convenient, and relatively comfortable manner much easier on commuter trains than on buses. This is because of the greater interior area available and the smoother operation not normally subject to frequent changes in speed and stop-and-go operation. Accordingly, the commuter rail mode has an advantage in more easily handling unpredictable peak period demands such as during inclement weather and special events. From a cost-effective perspective, the commuter rail mode would be expected to represent better labor efficiency. For example, one train crew of four persons can operate a train with a carrying capacity of over 1,000 people while one bus operator can serve only about 50 people.

Conclusions

With regard to service quality, the commuter rail alternative which would provide commuter rail service along the entire Kenosha-Racine-Milwaukee corridor was concluded to be clearly superior to the other alternatives in terms of comfort, reliability, overall quality and overall average speed. This applies to the commuter rail alternative under both the high and medium level of service options. The combination rail and bus alternative would share these attributes, but only for the service from Racine south to Chicago since that segment would be operated with commuter rail. With regard to travel time, the commuter rail alternative would perform better than the combination and bus alternatives for almost all of the travel within the corridor. The only exception to this is for travel to the east side of downtown Milwaukee wherein the commuter bus and combination alternatives would be likely to have a distinct travel time advantage for shorter trips, mostly those entirely within Milwaukee County. Commuter rail would have the best travel time advantage with the longest distance trips along the corridor and especially for trips between the corridor and Northeastern Illinois. All of the alternatives were concluded to possess sufficient capacity and to be able to increase passenger capacity if necessary. Commuter rail was judged to be better at handling unanticipated large crowds and special events in a more efficient manner that would the commuter bus mode. On an overall basis, the high level of service that could be offered by commuter rail would enhance the attractiveness of public transportation as a mode of choice.

Table 5

COMPARISON OF TRAVEL TIME SAVINGS BY ALTERNATIVE

Sample Trip	Commuter Bus Alternative	Combination Rail and Bus Alternative[a]	Commuter Rail Alternative[a]
Milwaukee CBD West Side-Kenosha Travel Time in Minutes	91	81	58
Travel Time Savings in Minutes (Reduction from Baseline)	Baseline	-10 (11%)	-33 (36%)
Milwaukee CBD East Side-Kenosha Travel Time in Minutes	85	75	70
Travel Time Savings in Minutes (Reduction from Baseline)	Baseline	-10 (12%)	-15(18%)
Milwaukee CBD West Side-Racine Travel Time in Minutes	75	75	60
Travel Time Savings in Minutes (Reduction from Baseline)	Baseline	0(0%)	-15 (20%)
Milwaukee CBD East Side-Racine Travel Time in Minutes	54	54	54
Travel Time Savings in Minutes (Reduction from Baseline)	Baseline	0(0%)	0 (0%)
Racine-Chicago CBD Travel Time in Minutes	126	106	106
Travel Time Savings in Minutes (Reduction from Baseline)	Baseline	-20 (16%)	-20 (16%)
Racine-Waukegan Travel Time in Minutes	58	38	38
Travel Time Savings in Minutes (Reduction from Baseline)	Baseline	-20 (34%)	-20 (34%)
Racine-Highland Park Travel Time in Minutes	82	62	62
Travel Time Savings in Minutes (Reduction from Baseline)	Baseline	-20 (24%)	-20 (24%)

[a]*Information is the same for both the Medium Level of Service and the High Level of Service rail options.*

Source: Parsons Transportation Group and SEWRPC.

Accessibility

Accessibility is a measure of how easy it is for potential passengers to get to and from their intended origins and destinations by using the transportation services in question. As such, accessibility is closely associated with existing and future land uses and development impacts. Rather than focusing on an individual's movement, accessibility is defined as a quality of land use. It is a location-specific quality in which land-use locations benefit by having better or improved access to their markets or trade area, to customers, to employees, or to residential areas. To a large degree, accessibility is explained by the amount and quality of service inherent in each alternative.

One way to measure accessibility is to estimate how many people and jobs are within the service area of the proposed stations and stops for each alternative. This would include the population and employment located within one-half mile walking distance of the stations or stops along the routes, and the population within a three mile driving distance of a station with a park-ride lot. The population and employment within a three-mile distance of a proposed station also represents the estimated population and employment within an estimated fifteen minute ride time on connecting bus services at those stations where connecting bus services would be available. In the Kenosha-Racine-Milwaukee corridor, connecting bus services include those operated by Milwaukee County Transit System, the City of Racine Belle Urban System, and the Kenosha Transit System. The population within driving distance of a park-ride lot is of particular importance since the experience of successful commuter rail and commuter bus services in other parts of the United States indicates that driving to such lots is perhaps the most popular way for commuters to access the service. Table 6 identifies the estimated year 2020 population and employment served based on these service areas. Based on this information, the following conclusions were reached.

All three alternatives provide a similar level of accessibility in terms of serving population and employment. This is a result of the alternatives being specifically designed to be as comparable as possible. As a result, most of the stations are in the same or nearly same locations regardless of the alternative. However, there are some

Table 6

YEAR 2020 POPULATION AND EMPLOYMENT ACCESSIBILITY AT STATIONS BY ALTERNATIVE

Station or Stop	Commuter Bus Alternative		Combination Rail and Bus Alternative		Commuter Rail Alternative	
	Within ½ Mile Walking Distance	Within 3 Miles Driving Distance	Within ½ Mile Walking Distance	Within 3 Miles Driving Distance	Within ½ Mile Walking Distance	Within 3 Miles Driving Distance
Milwaukee						
Population (persons)	16,700	- -[b]	16,700	- -[b]	32,400	237,200
Employment (jobs)	113,000	- -[b]	113,000	- -[b]	130,500	219,800
Cudahy - St. Francis						
Population (persons)	4,700	65,500	4,700	65,500	4,700	65,500
Employment (jobs)	2,100	28,700	2,100	28,700	2,100	28,700
South Milwaukee						
Population (persons)	3,900	- -[b]	3,900	- -[b]	3,900	54,500
Employment (jobs)	2,100	- -[b]	2,100	- -[b]	2,100	31,000
Oak Creek						
Population (persons)	1,000	33,000	1,000	33,000	1,000	33,000
Employment (jobs)	100	9,100	100	9,100	100	9,100
Caledonia						
Population (persons)	700	- -[b]	700	- -[b]	1,000	43,300
Employment (jobs)	100	- -[b]	100	- -[b]	1,200	14,200
Racine - North						
Population (persons)	2,100	- -[b]	2,100	- -[b]	- -[c]	- -[c]
Employment (jobs)	200	- -[b]	200	- -[b]	- -[c]	- -[c]
Racine						
Population (persons)	7,700	87,000	7,700	87,000	7,700	87,000
Employment (jobs)	5,600	48,900	5,600	48,900	5,600	48,900
Racine - South						
Population (persons)	1,800	- -[b]	- -[c]	- -[c]	- -[c]	- -[c]
Employment (jobs)	2,100	- -[b]	- -[c]	- -[c]	- -[c]	- -[c]
Somers						
Population (persons)	600	- -[b]	600	27,400	600	27,400
Employment (jobs)	100	- -[b]	100	10,600	100	10,600
Kenosha						
Population (persons)	6,700	82,300	6,700	82,300	6,700	82,300
Employment (jobs)	5,800	37,600	5,800	37,600	5,800	37,600
Totals[a]						
Population (persons)	45,900	267,800	44,100	276,500	58,000	540,000
Employment (jobs)	131,200	124,300	129,100	127,800	147,500	362,100

[a] *Totals adjusted to remove double counting due to overlapping station service areas.*

[b] *Not applicable because there would not be a park-ride lot at this stop.*

[c] *No station or stop at this location under this alternative.*

Source: SEWRPC.

differences among the alternatives with respect to the number of persons and jobs served. First, the commuter bus and combination rail and bus alternatives include a small number of additional stops in the Racine area. Second, in Caledonia, the route for the commuter bus and combination alternatives and the alignment for the commuter

rail alternative are not adjacent to each other for several miles. This includes that part of the respective routes where the Caledonia stations would be located. Third, the route alignment for the commuter bus and combination alternatives in the Milwaukee central business district along Wisconsin Avenue is different than the route for the dedicated shuttle bus service required for the commuter rail alternative. The shuttle bus route would form two loops going in a northeasterly and a northwesterly direction from the Amtrak depot. Each of these three differences would include a small amount of population and employment and in terms of total population and employment served by the alternatives, would tend to balance each other out. Fourth, the commuter rail alternative provides a park-ride lot at every potential station enabling this alternative to serve a larger total number of persons and jobs. As a result of this greater number of park-ride lots plus a more extensive Milwaukee CBD routing for the shuttle bus service, the commuter rail alternative may be expected to serve a larger total number of residents and jobs than would the commuter bus and combination rail and bus alternatives.

All three alternatives would provide very good overall coverage of the Kenosha-Racine-Milwaukee corridor. All three alternatives would be providing additional public transit service and a higher quality transit service than currently exists. The alternatives that are able to provide travel time savings and more convenient travel and commuting opportunities because of higher and more reliable operating and average speeds and minimizing the times passengers will be required to transfer between vehicles will best be able to provide increased accessibility. As discussed elsewhere, the commuter rail alternative—and to a limited extent, the combination rail and bus alternative—will be capable of providing the highest speed service, the most reliable service, and the greatest amount of one-seat-ride, no-transfer service for the most passenger markets. In general, this implies that alternatives that include commuter rail will result in a service that makes the corridor and the communities within the corridor more accessible. In this regard, the more direct service along the corridor is available, the easier longer trips will be for potential passengers. This results in more efficient connections between communities and major activity centers over longer distances.

By virtue of the higher speeds and more direct service along the entire Milwaukee-Racine-Kenosha-Chicago corridor, the commuter rail alternative would be expected to create a much stronger linkage between the Kenosha-Racine-Milwaukee corridor and northeastern Illinois. Improved commuter service would enhance access to labor forces for corridor-based businesses and access to businesses for potential customers. In effect, the through service provided by the commuter rail alternative will increase the trade area throughout the corridor by making more opportunities more accessible, especially from central portions of the corridor towards Milwaukee or Chicago. These benefits would be very important and could create opportunities for development that could mutually benefit communities in both Wisconsin and Illinois.

An alternative that includes commuter rail not only would actually increase mobility within the corridor, but it is possible that it would be widely perceived as improving mobility for people living and working in the corridor because it represents a new transportation option. The perception would be that commuter rail is providing a convenient, reliable, affordable option for travel to and from lakeshore cities between Milwaukee and Chicago. While daily commuting would be its biggest use, the service would also be used for occasional commuting such as during poor weather and during highway construction, for special events, for entertainment and recreation, for visiting friends and family, and to access General Mitchell International Airport. It would also provide improved access and connections to regional businesses and the educational community.

The accessibility benefits are of particular interest for work force development. An increased level of through service would provide more access to labor in a larger geographic area. The improved service would expand the available labor force having accessibility to jobs resulting from industrial and business development and expansion within the corridor. From an employment perspective, improved and expanded service is seen as a reliable regional transportation option since it provides reliable access to jobs and education opportunities. It is also a marketing tool in that improved and expanded service helps draw businesses and new jobs and helps expand the labor market by attracting new talent. The commuter alternative that provides the greatest improvement in a high quality service is viewed by many as a key component in developing the Milwaukee-Chicago economic corridor.

Potential Effect on Highway System

The transit ridership under each alternative represents trips that if not made on transit, may be made by automobile over streets and highways. The streets and highways principally affected would be IH 94, IH 794, and STH 794, which parallel the proposed transit service alternatives. Table 7 demonstrates the potential effects of each alternative. The impact on vehicle traffic is greater under each alternative during the peak travel hour as a higher proportion of total weekday travel may be expected to be carried during the peak hour on these transit alternatives, as compared to automobile and truck travel over streets and highways. The impact of the commuter rail alternative is greater than that of the other transit alternatives, as the commuter rail alternative may be expected to carry up to 25 percent more transit riders per weekday, and the average trip length of commuter rail passengers may be expected to be about 50 percent longer as well. The potential reduction in total and peak hour weekday traffic of the corridor transit alternatives is about 50 percent of total transit ridership as new transit trips under each alternative are estimated to account for about 50 percent of total forecast transit ridership under each alternative.

Environmental Justice Considerations

An important aspect of mobility is the issue of environmental justice. Environmental justice is the objective of making sure that no person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. In particular, a 1994 Executive Order (No. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) focused attention on this issue by providing that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

There are three fundamental Environmental Justice principles:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations.

2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.

3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.

It is therefore useful to identify concentrations of minority groups of people that would be served and potentially affected by commuter rail or bus improvements in the Kenosha-Racine-Milwaukee corridor. Minority persons served by the alternatives are defined by the U.S. Department of Transportation Order on Environmental Justice as including: Black (a person having origins in any of the black racial groups of Africa), Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race), Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands), and American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition). Estimates of the magnitude and location of minority and low-income populations were taken from U.S. Census data for the year 2000. The Commission's estimate of minority populations included the categories of Black/African American persons, American Indian and Alaskan Native persons, Asian and Pacific Islander persons, Hispanic persons, and Other Minority persons. Due to the manner in which the U.S. Census Bureau collects data about the race and ethnicity of individuals, a small proportion of individuals may be reported in more than one category. The percentage of such individuals who are counted more than once was found to be very small and is estimated to be no more than five percent of the total population for the Southeastern Wisconsin Region.

For the commuter rail alternative, the number of minority persons in census tracts within one-half mile of potential station locations was estimated to be about 65,900. This represents about 38 percent of the total

Table 7

POTENTIAL EFFECT ON AVERAGE WEEKDAY VEHICLE TRAFFIC REPRESENTED BY PROJECTED NEW AVERAGE WEEKDAY RIDERSHIP ON COMMUTER RAIL AND BUS ALTERNATIVES IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR

Commuter Rail-High Level of Service						
	Total Average Weekday			Average Weekday Morning Peak Hour Peak Direction		
Segment	Estimated Existing Year 2001 Average Weekday Vehicle Traffic	Forecast Year 2020 Average Weekday New Transit Ridership	Potential Percentage Effect on Vehicle Traffic Represented by New Transit Ridership	Estimated Existing Year 2001 Average Weekday Vehicle Traffic	Forecast Year 2020 Average Weekday New Transit Ridership	Potential Percentage Effect on Vehicle Traffic Represented by New Transit Ridership
IH 94 between STH 50 and STH 158	66,400	670	1.0	2,460	180 Southbound	7.3
IH 94 between STH 20 and STH 11	68,300	670	1.0	2,210	120 Southbound	5.5
IH 94 between Rawson Avenue and College Avenue	116,000	670	0.5	4,190	120 Northbound	2.9
IH 94 between Marquette Interchange and National Avenue	130,000	610	0.5	7,340	180 Northbound	2.5
IH 794 between Lake Interchange and Carferry Drive	44,800	730	1.6	3,760	180 Northbound	4.9

Combination Rail and Bus-High Level of Service						
	Total Average Weekday			Average Weekday Morning Peak Hour Peak Direction		
Segment	Estimated Existing Year 2001 Average Weekday Vehicle Traffic	Forecast Year 2020 Average Weekday New Transit Ridership	Potential Percentage Effect on Vehicle Traffic Represented by New Transit Ridership	Estimated Existing Year 2001 Average Weekday Vehicle Traffic	Forecast Year 2020 Average Weekday New Transit Ridership	Potential Percentage Effect on Vehicle Traffic Represented by New Transit Ridership
IH 94 between STH 50 and STH 158	66,400	210	0.3	2,460	50 Southbound	2.1
IH 94 between STH 20 and STH 11	68,300	160	0.2	2,210	50 Southbound	2.2
IH 94 between Rawson Avenue and College Avenue	116,000	210	0.2	4,190	50 Northbound	1.2
IH 94 between Marquette Interchange and National Avenue	130,000	210	0.2	7,340	50 Northbound	0.7
IH 794 between Lake Interchange and Carferry Drive	44,800	730	1.6	3,760	200 Northbound	5.3

Table 7 (continued)

Commuter Bus						
	Total Average Weekday			Average Weekday Morning Peak Hour Peak Direction		
Segment	Estimated Existing Year 2001 Average Weekday Vehicle Traffic	Forecast Year 2020 Average Weekday New Transit Ridership	Potential Percentage Effect on Vehicle Traffic Represented by New Transit Ridership	Estimated Existing Year 2001 Average Weekday Vehicle Traffic	Forecast Year 2020 Average Weekday New Transit Ridership	Potential Percentage Effect on Vehicle Traffic Represented by New Transit Ridership
IH 94 between STH 50 and STH 158	66,400	100	0.2	2,460	25 Southbound	1.1
IH 94 between STH 20 and STH 11	68,300	100	0.2	2,210	25 Southbound	1.2
IH 94 between Rawson Avenue and College Avenue	116,000	200	0.2	4,190	25 Southbound	0.6
IH 94 between Marquette Interchange and National Avenue	130,000	200	0.2	7,340	50 Northbound	0.7
IH 794 between Lake Interchange and Carferry Drive	44,800	700	1.6	3,760	200 Northbound	5.3

Source: SEWRPC

174,100 persons in these census tracts. For the commuter bus and combination rail and bus alternatives, the number of minority persons in census tracts within one-half mile of the potential station locations was estimated to be about 67,800. This represents about 35 percent of the total 194,200 persons in these census tracts. By comparison, about 24 percent of the Region's total population consisted of minority populations. The total minority populations represented the following portions of each county's total population: Kenosha County, 16 percent; Milwaukee County, 40 percent; Ozaukee County, 4 percent; Racine County, 21 percent; Walworth County, 10 percent; Washington County, 3 percent; and Waukesha County, 6 percent. Thus, the percentage of minority populations being served by the three alternatives within one-half mile of the potential stations and stops would be greater than the overall percentage of minority populations for the entire Region and for both Kenosha and Racine Counties, and similar to the percentage of minority populations for Milwaukee County.

The number of minority persons served within one mile of potential station locations is larger than the number of minority persons within one-half mile although the resulting percentages are similar. For the commuter rail alternative, the number of minority persons in census tracts within one mile of the potential station locations was estimated to be about 121,900. This represents about 41 percent of the total 298,900 persons in these census tracts. For the commuter bus and combination rail and bus alternatives, the number of minority persons in census tracts within one mile of the potential station locations was estimated to be about 105,500. This represents about 36 percent of the total 291,900 persons in these census tracts. Thus, as was the case for minority populations within one-half mile of the potential stations and stops, the percentage of minority populations being served by the three alternatives within one mile would be greater than the overall percentage of minority populations for the entire Region and for both Kenosha and Racine Counties. It would be similar to the percentage of minority populations for Milwaukee County.

The number of minority persons served within a half-mile distance is fairly similar among the three alternatives. This is largely due to the station locations being in the same location regardless of the alternative. The slight difference between the minority persons served by the commuter bus alternative and by the other alternatives is accounted for by the difference in route alignments through the City of Racine and the Town of Caledonia. In addition, the commuter bus alternative has two additional stations compared to the commuter rail alternative. The number of minority persons served within a one-mile distance is slightly more for the commuter rail alternative than for the commuter bus and combination rail and bus alternatives. It can therefore be concluded that all of the alternatives provide increased mobility to a substantial number of minority persons in the Kenosha-Racine-Milwaukee corridor by virtue of the additional service. Because the commuter bus alternative and the commuter bus portion of the combination rail and bus alternative provide a lower average speed than does the commuter rail alternative and also require many passengers to transfer between rail and bus for the longer trips, it can also be concluded that minority persons will also have better mobility on the commuter rail alternative than on the commuter bus or combination rail and bus alternatives.

It is also useful to identify low-income populations served by the potential transportation improvements being considered under these alternatives. The ability of a transportation improvement to serve low-income populations is important since such groups of people frequently do not have an automobile available. Low-income population was defined as families with income below federally defined poverty levels. The magnitude and location of low-income populations served by alternatives in the Kenosha-Racine-Milwaukee corridor were also based upon the U.S. census data for the year 2000. Concentrations of low-income families were determined by estimating how many such families were located in the census tracts that are within one-half mile and also one mile of the proposed commuter rail and bus stations. A distance of one-half mile was used as this represents a widely accepted maximum walking distance to and from stations for premium types of public transit services such as express bus routes, light rail, and heavy rail lines. However, commuter bus and commuter rail services normally provide a higher level of service for longer-distance trips over routes with longer distances between stations compared to the traditional bus, light rail, and heavy rail modes. Therefore, it is sometimes suggested that passengers are willing to accept a somewhat longer access distance to and from a commuter service station than they would for other modes. Accordingly, a distance of one-mile was also used to determine low-income families served.

For the commuter rail alternative, the number of families with income below the poverty level in the census tracts within one-half mile of potential station locations was estimated to be about 5,000. This represents about 16 percent of the total 30,700 families in these census tracts. For the commuter bus and combination rail and bus alternatives, the number of families with income below the poverty level in the census tracts within one-half mile of the potential station locations was estimated to be about 5,800. This represents about 15 percent of the total 37,300 families in these census tracts. By comparison, about seven percent of the Region's total families consisted of families with income below the poverty level. The total number of families with income below the poverty level represented the following portions of each county's total population: Kenosha County, 5 percent; Milwaukee County, 12 percent; Ozaukee County, 2 percent; Racine County, 6 percent; Walworth County, 5 percent; Washington County, 3 percent; and Waukesha County, 2 percent. Thus, the percentage of low-income families being served by the three alternatives within one-half mile of the potential stations and stops would be greater than the overall percentage of low-income families for the entire Region as well as for Kenosha, Milwaukee, and Racine Counties.

The number of low-income families served within one mile of potential station locations is larger than the number of low-income families within one-half mile although the resulting percentages are similar. For the commuter rail alternative, the number of families with income below the poverty level in the census tracts within one mile of potential station locations was estimated to be about 9,100. This represents about 17 percent of the total 54,100 families in these census tracts. For the commuter bus and combination rail and bus alternatives, the number of families with income below the poverty level in the census tracts within one mile of potential station locations was estimated to be about 9,400. This represents about 16 percent of the total 59,000 families in these census tracts. Thus, as was the case with low-income families within one-half mile of the potential stations and stops, the percentage of low-income families being served by all three alternatives within one mile of the potential stations and stops would be greater than the overall percentage of low-income families for the entire Region as well as for Kenosha, Milwaukee, and Racine Counties.

The number of low-income families served within either a half-mile or one-mile distance is fairly similar among the three alternatives. This is largely due to the station locations being in the same location regardless of the alternative. The slight difference between the families served by the commuter bus alternative and by the other alternatives is accounted for by the difference in route alignments through the City of Racine and the Town of Caledonia. In addition, the commuter bus alternative has two additional stations compared to the commuter rail alternative. Therefore, it can be concluded that all of the alternatives provide increased mobility to a substantial number of low-income residents in the Kenosha-Racine-Milwaukee corridor by virtue of the additional service. Because the commuter bus alternative and the commuter bus portion of the combination rail and bus alternative provide a lower average speed than does the commuter rail alternative and also require many passengers to transfer between rail and bus for the longer trips, it can also be concluded that the low-income residents will also have better mobility on the commuter rail alternative than on the commuter bus or combination rail and bus alternatives.

All of the alternatives avoid and minimize disproportionately high and adverse human health or environmental effects, including social and economic effects on minority populations and low-income populations in the Kenosha-Racine-Milwaukee corridor. The alternatives rely on already-existing alignments and technologies and do not require significant land acquisition or any displacements. Furthermore, the alternatives do not prevent or reduce benefits to minority populations and low-income populations. Actually, the alternatives would increase mobility and transportation benefits to these population groups by improving the public transportation options in a corridor where the options for improving transportation are very limited and where sizable groups of minority and low-income populations reside. To this end, the commuter rail alternative would benefit these groups to a greater degree because of its higher average speed and ability to provide a higher quality no-transfer ride for trips within the corridor and between the Kenosha-Racine-Milwaukee corridor and northeastern Illinois including Chicago.

RIDERSHIP FINDINGS

This section summarizes the pertinent findings concerning the forecast probable levels of ridership for the final set of alternatives. Technical Report No. 3, entitled *Ridership Forecasts for Alternatives,* described the procedure

for the development of ridership forecasts and the levels of ridership forecast for improved commuter rail and bus service in the Kenosha-Racine-Milwaukee corridor. The ridership forecasts are relevant to the transportation objective of providing a high quality transportation service and increasing public transportation ridership.

Forecast Ridership

The ridership forecasts for the year 2020 for the three alternatives are shown in Table 8. The commuter rail alternative has the highest forecast ridership. With a high level of service consisting of 30 weekday trains operating over the entire length of the Kenosha-Racine-Milwaukee corridor, average weekday ridership would total 5,100 person trips, or 1,416,000 trips annually. The commuter bus alternative has the lowest forecast ridership. With a level of service equivalent to the commuter rail consisting of about 30 bus trips over the length of the Kenosha-Racine-Milwaukee corridor, average weekday ridership would total 4,100 person trips, or 1,138,000 trips annually. The commuter bus alternative also serves as the baseline alternative. The combination rail and bus alternative has a forecast ridership that is between the other two alternatives. With a high level of service consisting of 30 weekday trains and 30 weekday buses, average weekday ridership would total 4,400 person trips, or 1,235,000 trips annually.

Under a high level of service, the incremental difference between the commuter bus/baseline alternative and the commuter rail alternative is 1,000 trips per average weekday, or 278,000 trips on an annual basis. The incremental difference between the commuter bus/baseline alternative and the combination rail and bus alternative is 300 trips per average weekday, or 97,000 trips on an annual basis. Under a high level of service, the commuter rail alternative may be expected to generate about 24 percent greater ridership than the commuter bus/baseline alternative and about 16 percent greater ridership than the combination rail and bus alternative. The combination rail and bus alternative may be expected to generate about 7 percent greater ridership that the commuter bus/baseline alternative.

For the commuter rail and combination rail and bus alternatives, a medium level of service option was also developed. Under this option, a reduction in the level of service would result in a decrease in forecast ridership. With a medium level of service consisting of 14 instead of 30 weekday trains, the average weekday ridership under the commuter rail alternative would total 4,100 person trips, or 1,139,000 trips annually. For the combination rail and bus alternative with a medium level of service consisting of 14 trains and 30 weekday buses instead of 30 trains and 30 buses as under a high level of service, the average weekday ridership would total 3,700 person trips, or 1,028,000 trips annually.

With respect to the incremental difference in ridership for the alternatives with a medium level of service, there would be no difference between the commuter bus/baseline alternative and the commuter rail alternative on an average weekday. The incremental difference between the commuter bus/baseline alternative and the combination rail and bus alternative would be a reduction of 400 trips per average weekday. Under a reduced medium level of service, the commuter rail and commuter bus/baseline alternatives may be expected to generate about the same ridership and the ridership under the combination rail and bus alternative would be about 10 percent less.

For comparison purposes, current average weekday ridership levels on various new-start commuter rail lines in the United States and Canada are presented in Table 9. For these 18 new-start routes, the number of average weekday trips ranges from 600 to 9,700. The forecast average weekday ridership levels for the commuter rail alternative in the Kenosha-Racine-Milwaukee corridor are 5,100 under a high level of service and 4,100 under a medium level of service. This represents a “mid-range” typical or average level of ridership when compared to the current levels of average daily ridership on the 18 new-start commuter rail lines in the United States and Canada. For all 18 new-start lines, the mean and median average weekday ridership is about 4,900 trips.

Types of Forecast Trips

Also shown in Table 8 is the number of trips under each alternative which would be intraregional trips, or trips entirely within the Kenosha-Racine-Milwaukee corridor. The commuter rail alternative would attract the most interregional—or longer-distance—trips traveling between Southeastern Wisconsin and northeastern Illinois. The commuter bus alternative would attract the least such trips. The combination alternative would attract a level of

Table 8

RIDERSHIP FORECASTS FOR ALTERNATIVES IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR

Category	Alternatives				
		Combination Rail and Bus		Commuter Rail	
	Commuter Bus/ Baseline	High Level of Service	Medium Level of Service	High Level of Service	Medium Level of Service
Year 2020 Weekday Ridership					
Intraregional trips.....	3,100	3,200[a]	2,700	3,100	2,600
Interregional trips.....	1,000[b]	1,200[b]	1,000	2,000	1,500
Total	4,100	4,400	3,700	5,100	4,100
Year 2020 Annual Ridership					
Weekday	1,045,000	1,134,000	944,000	1,300,000	1,046,000
Sat. Sun. & Holidays	93,000	101,000	84,000	116,000	93,000
Total	1,138,000	1,235,000	1,028,000	1,416,000	1,139,000
Incremental Ridership[c]					
Weekday					
Intraregional	- -	+100	-400	same	-500
Interregional	- -	+200	same	+1000	+500
Total	- -	+300	-400	+1000	same
Annual	- -	+97,000	-110,000	+278,000	+1000

[a] *2,300 person trips by commuter bus and 900 by commuter rail.*

[b] *All by commuter rail.*

[c] *Relative to Baseline, also called Commuter Bus Alternative.*

Source: Parsons Transportation Group and SEWRPC.

long-distance trips between the other two alternatives. The need for passengers to transfer between modes as would be required under some of the alternatives has an effect on the level of forecast ridership for the longer interregional trips. This is reflected in the average length of trips under each alternative. The average trip length is 18 miles for the commuter bus/baseline alternative, 19 miles for the combination rail and bus alternative, and 27 miles for the commuter rail alternative. A large proportion of the trips under all three alternatives would be relatively short, such as between Kenosha and Racine, Caledonia and Racine, South Milwaukee and Milwaukee, and Cudahy-St. Francis and Milwaukee. Under the commuter rail alternative, although the average length for all trips is 27 miles, the average length only for those trips with both ends of the trip within the 33-mile long Kenosha-Racine-Milwaukee corridor is 10 miles. The forecast trip length may be compared to the average trip length on the Metra commuter rail systems, which is 22 miles.

Because the commuter rail alternative would attract the most interregional—or longer-distance—trips and would have the longest average trip length, it would generate the largest amount of annual passenger-miles of travel. Estimates of annual passenger-miles of travel explain the overall amount of travel that could be expected on an alternative since the measure reflects both the volume and length of the trips made. The commuter bus alternative would generate about 20.0 million annual passenger-miles of travel. The commuter rail alternative

Table 9

ESTIMATED AVERAGE WEEKDAY RIDERSHIP ON NEW-START COMMUTER RAIL LINES: 2001

Metropolitan Area	System Name	Number of Weekday Trips
Burlington, Vermont	Champlain Flyer	600
New Haven, Connecticut	Shore Line East	1,200
Seattle, Washington	Sounder	2,400
Los Angeles, California	Metrolink - Inland Empire Route	2,900
San Jose, California	Altamont Commuter Express	3,200
Los Angeles, California	Metrolink - Ventura County Route	3,700
Chicago, Illinois	Metra - North Central Service	4,500
Los Angeles, California	Metrolink - Riverside Route	4,600
San Diego, California	Coaster	4,900
Washington, D.C.	Virginia Railway Express - Manassas Route	4,900
Los Angeles, California	Metrolink - Antelope Valley Route	5,000
Washington, D.C.	Virginia Railway Express - Fredericksburg Route	5,400
Los Angeles, California	Metrolink - Orange County Route	6,000
Chicago, Illinois	Metra - Southwest Service	7,000
Dallas, Texas	Trinity Railway Express	7,600
Vancouver, British Columbia	West Coast Express	8,000
Miami, Florida	Tri-Rail	8,800
Los Angeles, California	Metrolink - San Bernardino Route	9,700

Source: APTA, FTA, Commuter Rail Operators, and SEWRPC.

would generate about 38.2 million annual passenger-miles under a high level of service and about 30.8 million annual passenger-miles under a medium level of service. Therefore, the commuter rail alternative could generate up to almost twice the annual passenger-miles of travel compared to the commuter bus alternative. The combination rail and bus alternative would generate about 23.6 million annual passenger-miles under a high level of service and about 19.7 million annual passenger miles under a medium level of service. As a result, the combination rail and bus alternative would generate a level of annual passenger-miles far less than that of the full commuter rail alternative and very close to that of the commuter bus alternative.

With regard to the level of ridership for those trips solely within the Kenosha-Racine-Milwaukee corridor, there is almost no difference among the alternatives. This is the intraregional travel – or shorter distance trips entirely within Southeastern Wisconsin. If everything else were equal, the higher average speed of commuter rail would attract more passengers than would commuter bus. However, many of the trips using the commuter rail alternative to and from Milwaukee would need to use the dedicated shuttle between the depot and many areas of downtown. Trips using the commuter bus or combination alternative to and from downtown Milwaukee would not need to use a shuttle since the commuter bus service acts as its own distributor in the downtown area. Thus, the lower average line-haul speeds and longer travel times under the commuter bus and combination alternatives are compensated for in terms of attractiveness by passengers not having to transfer between commuter rail and a downtown shuttle. Thus, the primary difference among the alternatives with respect to ridership is the volume of interregional travel each alternative is able to attract. This is largely the travel between Southeastern Wisconsin and Northeastern Illinois. For the commuter bus, combination rail and bus, and commuter rail alternatives, the proportion of total travel on each alternative that is interregional in nature is about 24 percent, 27 percent, and 38 percent, respectively. Table 10 presents the estimated boarding and alighting passengers for each station under each alternative.

With regard to trip purpose, work trips would be the dominant reason for travel on all three alternatives. It was estimated that work trips would account for about 65 percent of all trips under the commuter bus alternative and about 70 percent of all trips under the commuter rail and combination rail and bus alternatives. Work trips would include trips to and from work, to and from work-related meetings, seminars, and other assignments, and travel

Table 10

FORECAST YEAR 2020 AVERAGE WEEKDAY BOARDINGS AND ALIGHTINGS FOR ALTERNATIVES IN KENOSHA-RACINE-MILWAUKEE CORRIDOR BY STATION

Station	Alternatives									
			Combination Rail and Bus				Commuter Rail			
	Commuter Bus/Baseline		High Level Of Service		Medium Level Of Service		High Level Of Service		Medium Level Of Service	
	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs
Milwaukee	920	920	930	930	780	780	1070	1070	860	860
Cudahy-St. Francis	470	470	470	470	390	390	500	500	410	410
South Milwaukee	270	270	280	280	230	230	290	290	230	230
Oak Creek	110	110	120	120	100	100	210	210	170	170
Caledonia	180	180	190	190	160	160	310	310	250	250
Racine-North	120	120	120	120	100	100	- -	- -	- -	- -
Racine	680	680	820	820	690	690	790	790	630	630
Racine-South	110	110	- -	- -	- -	- -	- -	- -	- -	- -
Somers	170	170	170	170	140	140	170	170	140	140
Kenosha	610	610	740	740	620	620	750	750	600	600
Waukegan	50	50	60	60	50	50	100	100	80	80
Lake Forest	60	60	60	60	50	50	80	80	60	60
Highland Park	70	70	90	90	80	80	120	120	90	90
Braeside	20	20	30	30	20	20	40	40	30	30
Wilmette	20	20	30	30	20	20	40	40	30	30
Evanston	40	40	60	60	50	50	100	100	80	80
Chicago	210	210	290	290	250	250	520	520	420	420

NOTE: The ridership shown at stations in Northeastern Illinois is only that ridership with the other end of the trip within Southeastern Wisconsin.

Source: Parsons Transportation Group and SEWRPC.

outside the corridor for work-related or business-related purposes. The remaining trips under each of the alternatives would be comprised of a variety of trip purposes including school, vacation, recreation, shopping, and other personal business.

Ridership Diverted From Other Public Transportation Modes
An important aspect of the ridership forecasts are estimates of how many trips are attracted to each of the alternatives from other modes of public transportation and how many trips are new trips, or trips which would otherwise be made by automobiles.

Some of the trips attracted to the three alternatives would represent diversion from bus routes being replaced and from the parallel Amtrak Milwaukee-Chicago passenger train service. For example, service under all three alternatives would replace the existing Kenosha-Racine-Milwaukee suburban bus service currently operated under contract by WCL and the South Shore Flyer operated as MCTS Route No. 48. Some trips would also be expected to be diverted from MCTS Route No. 15 which operates between South Milwaukee, Cudahy, St. Francis, and Milwaukee because of faster travel times on the new service; and from Amtrak Milwaukee-Chicago trains because of the more frequent service and lower fares. The diversion estimates are shown in Table 11.

It was estimated that all of the ridership on the WCL suburban service and on the MCTS South Shore Flyer would be diverted to the new or improved service under all three alternatives. This would total about 700 trips on an average weekday for each of the three alternatives. For travel diverted from MCTS Route No. 15, it was estimated that an amount ranging from about 300 trips to about 700 trips on an average weekday would be attracted to the alternatives. With respect to the Amtrak Milwaukee-Chicago *Hiawatha Service*, it was estimated that the combination rail and bus alternative would divert from 100 to 200 trips per weekday and the commuter rail alternative would divert about 300 trips per weekday.

Based upon these estimates of trips diverted from other public transportation modes, the amount of new trips attracted to the service offered under the alternatives can be determined. Under the commuter bus/baseline alternative, about 2,100 trips on an average weekday would be new trips. This would represent about 51 percent of the total weekday ridership. Under the combination rail and bus alternative with a high level of service, about 2,300 trips on an average weekday would be new trips. This would represent about 52 percent of the total weekday ridership. Under the combination rail and bus alternative with a medium level of service, about 1,800 trips on an average weekday would be new trips. This would represent about 47 percent of the total weekday ridership. Under the commuter rail alternative with a high level of service, about 3,100 trips on an average weekday would be new trips. This would represent about 61 percent of the total weekday ridership. Under the commuter rail alternative with a medium level of service, about 2,200 trips on an average weekday would be new trips. This would represent about 54 percent of the total weekday ridership. All of the new trips would be diverted from the automobile mode.

CAPITAL COST, OPERATING COST, AND COST EFFECTIVENESS FINDINGS

This section provides a summary of, and pertinent findings related to, the capital costs, operating costs, and cost-effectiveness for the final set of commuter bus and commuter rail alternatives considered in this study. This material is based on the detailed capital cost information presented in Technical Report No. 4, entitled *Capital Improvement Needs and Capital Costs of Alternatives,* and the detailed operating cost information presented in Technical Report No. 5, entitled *Operating and Maintenance Costs of Alternatives*.

Capital Costs
A summary of the capital costs by major cost category for each alternative is shown in Table 12. The commuter rail alternative has the largest amount of capital improvement needs, and has the highest capital cost of $225 million under a high level of service and $152 million under a medium level of service. For commuter rail, capital investment requirements include track and signal improvements, locomotive and coach procurement, station and park-ride lot development, and train equipment storage facilities. Locomotives and coaches account for

Table 11

FORECAST YEAR 2020 NEW AND DIVERTED RIDERSHIP FOR ALTERNATIVES IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR: NUMBER OF TRIPS ON AN AVERAGE WEEKDAY

Category	Alternatives				
		Combination Rail and Bus		Commuter Rail	
	Commuter Bus/ Baseline	High Level of Service	Medium Level of Service	High Level of Service	Medium Level of Service
Diverted Ridership From Existing Bus Services					
WCL Kenosha-Racine- Milwaukee Suburban Route	300	300	300	300	300
MCTS Route No.48 "South Shore Flyer"	400	400	400	400	400
MCTS Route No. 15	700	600	500	400	300
Diverted Ridership From Existing Rail Services					
Amtrak Milwaukee-Chicago "Hiawatha Service"	- -	200	100	300	300
Ridership From Existing Rail Services					
Metra Union Pacific North Line	600	600	600	600	600
New Ridership	2,100	2,300	1,800	3,100	2,200
Total Ridership	4,100	4,400	3,700	5,100	4,100

Source: Parsons Transportation Group and SEWRPC.

Table 12

CAPITAL COSTS OF ALTERNATIVES IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR

Category	Cost of Alternatives (in millions of dollars)				
		Combination Rail and Bus		Commuter Rail	
	Commuter Bus/ Baseline	High Level of Service	Medium Level of Service	High Level of Service	Medium Level of Service
Vehicles	$5.2	$123.3	$103.2	$140.8	$100.8
Stations	2.8	7.1	7.1	10.1	10.1
Track and Signals	- -	22.0	22.0	69.9	37.2
Storage and Servicing	11.4	13.9	13.9	4.0	4.0
Total	$19.4	$166.2	$146.2	$224.8	$152.1

Source: Parsons Transportation Group and SEWRPC.

about 65 percent of the total capital cost. Track and signal improvements for the railway line also represent a significant portion of the total cost. This includes the rehabilitation and upgrading of main line track, the addition of segments of new second main track to serve as locations where trains can meet and pass, new turnouts and signals at locations where the two main tracks merge into one track, and grade crossing surface and signal improvements. The commuter rail alternative will also require improvement to trackage in Canadian Pacific Railway's Muskego Yard in Milwaukee to provide a mainline route for freight trains to bypass the Amtrak station. This item has been estimated to cost $7.5 million but is not included in the total capital cost at this time since it may be performed under one or more other proposed rail passenger projects. The capital cost of the commuter rail alternative under a medium level of service reflects the reduced need for train equipment and track improvements as compared to a high level of service.

The commuter bus alternative has the lowest amount of capital improvement needs, and has an estimated capital cost of $19 million. For commuter bus, the only capital investment requirements are for buses, park-ride lots and bus stops, and bus garage facilities. Vehicles account for about 25 percent of the total capital cost. Vehicle storage and servicing facilities represent a significant portion of the total capital cost. The commuter bus alternative also serves as the baseline alternative.

The combination rail and bus alternative has a capital cost much closer to that of the full commuter rail alternative than to the commuter bus alternative. It has a capital cost of $166 million under a high level of service and $146 million under a medium level of service. Capital requirements include track and signal improvements, locomotive and coach procurement, station and park-ride lot development, and train equipment storage facilities for the commuter rail portion of the service south of Racine; and buses, park-ride lots and bus stops, and bus garage facilities for the commuter bus portion of the service north of Racine. Vehicles account for about 75 percent of the total capital cost.

The incremental capital cost necessary to go from the commuter bus alternative to either the combination rail and bus alternative or the commuter rail alternative is significant. The incremental cost for the combination rail and bus alternative is $147 million under a high level of service and $127 million under a medium level of service. The incremental cost for the commuter rail alternative is $205 million under a high level of service and $133 million under a medium level of service.

Overall capital costs for commuter rail development are highly influenced by the amount of improvements to fixed facilities that would be necessary. There are improvements to the track, roadbed, right-of-way, signals, station areas, and storage facilities that will need to be made to initiate any service, regardless of the number of trains operated. These improvements will be necessary along the entire 33-mile long Kenosha-Racine-Milwaukee route. This level of track and signal improvements should be regarded as the minimal level of improvements necessary to operate a permanent and complete weekday schedule of commuter trains as an extension of Metra's Union Pacific North Line. Discussions with railroad officials—including Metra—have suggested that as a potential commuter rail project proceeds closer to implementation, concerns about service and schedule reliability may prompt a need to consider a higher level of capital improvements. This would involve issues such as providing a double-track railway line instead of a single-track line with passing sidings; provisions of a complete Centralized Traffic Control (CTC) signal system, and eventual replacement of all main track jointed rail with continuous welded rail.

That portion of the total capital cost of the commuter rail alternative for locomotives and coaches is highly influenced by the length of the route extension north of Kenosha and by peak train size requirements for the already-established Metra service south of Kenosha. Train sizes must remain constant over an entire run and must be sized for the maximum demand, which will be along Chicago's North Shore suburbs. Maximum demand north of Kenosha will be much less than south of Kenosha. The relatively long route of 84 miles between Chicago, Kenosha, Racine, and Milwaukee will also affect car utilization and the number of times per day a set of equipment can be turned and used again while still being in proper rotation cycles for servicing, inspection, and repair.

The cost of locomotives and coaches is also highly influenced by the desire to provide service for reverse commuters, which is included in the commuter rail alternative with both high and medium service levels. This part of the service package requires new trains to be added in the nontraditional-peak direction (northbound during the A.M. peak period and southbound during the P.M. peak period) and operated over the entire length of the corridor.

Operating Costs and Revenues

A summary of the annual operating costs and revenues for each alternative is shown in Table 13. For determining the one-way adult fares assumed to be charged, a zone system was defined for the rail and bus alternatives based on an extension of the distance-based fare zone system used by Metra on its commuter rail lines radiating out of the Chicago central business district. The assumed fare structure would therefore be integrated with the fare structure in place on the Metra system. This is important since the service under this alternative was assumed to be operated as an extension of the Metra Union Pacific North Line route. The one-way fares are shown on Tables 14 and 15 and were based on the 2000 Metra fare structure, with some minor adjustments. It was also assumed that multi-ride reduced fares in the form of ten-ride tickets and monthly passes similar to those available from Metra would be available under the alternatives. The fares assumed under this study are comparable to commuter rail fares on other systems in the United States.

The commuter rail alternative has the highest annual operating cost: $26.8 million under a high level of service and $18.6 million under a medium level of service. Annual operating revenue directly generated by this alternative from ticket sales and fares would also be the highest among all alternatives; $4.0 million under a high level of service and $3.2 million under a medium level of service.

The commuter bus alternative has the lowest annual operating cost at $3.4 million. Annual operating revenue directly generated by this alternative from fares would be the lowest among all alternatives at $1.6 million.

The combination rail and bus alternative would have an annual operating cost in between the commuter rail and commuter bus alternatives, but closer to the commuter rail alternative. Under a high level of service, The annual operating cost for the combination alternative would be $18.2 million under a high level of service and would be $12.7 million under a medium level of service. Annual operating revenue directly generated by this alternative would be $2.8 million under a high level of service and $2.3 million under a medium level of service.

The incremental annual operating cost from the baseline commuter bus alternative for the combination rail and bus alternative is $14.8 million under a high level of service and $9.0 million under a medium level of service, and for the commuter rail alternative is $23.0 million under a high level of service and $15.2 million under a medium level of service.

The reduction in the level of service from high to medium levels under the commuter rail alternatives does not result in a corresponding reduction in operating costs. This is because many components of the total operating cost, such as certain facilities and support services, are fixed. For example, peak car requirements do not change much relative to the reduction in daily trains between the high and medium levels of service. Thus, the cost of maintaining only a slightly smaller fleet compared to the reduction in service does not change much.

The forecast operating cost recovery rate for the commuter rail alternative under a high level of service was estimated to be 15 percent. Under a medium level of service, the recovery rate for the commuter rail alternative was estimated to be 17 percent. For the combination rail and bus alternative, the recovery rate was estimated to be 15 percent with an assumed high level of service and 18 percent with an assumed medium level of service. The commuter rail operating cost recovery rate should not be considered unreasonably or undesirably low. The reasons for the forecast operating cost recovery rate are discussed below, including a discussion of why the forecast operating cost recovery rate for commuter rail service under this study is less than the estimated 39 percent under the previous feasibility study. Also discussed are potential factors which could contribute to a higher operating cost recovery rate being achieved should the implementation of commuter rail be pursued.

Table 13

OPERATING COSTS AND REVENUES FOR ALTERNATIVES IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR

Category	Annual Cost of Alternatives (in millions of dollars)				
		Combination Rail and Bus		Commuter Rail	
	Commuter Bus/ Baseline	High Level of Service	Medium Level of Service	High Level of Service	Medium Level of Service
Operating Expense	$3.4	$18.2	$12.7	$26.8	$18.6
Farebox Revenue	1.6	2.8	2.3	4.0	3.2
Net Operating Expense	1.8	15.4	10.4	22.8	15.4
Operating Cost Recovery Rate	47%	15-23%[a]	18-28%[a]	15-19%[a]	17-23%[a]

[a] *Under these alternatives, some of the new commuter rail service would operate within northeastern Illinois and would attract and serve additional northeastern Illinois trips. The range of operating cost recovery rates reflects how much of the operating expenses for the new service operating within northeastern Illinois may be ultimately allocated to Wisconsin. The lower rate is based on all operating expenses being allocated to Wisconsin. The higher rate is based on some of the operating expenses being allocated to northeastern Illinois. The actual allocation of such costs would be determined through negotiation and agreement among appropriate parties. The operating costs of commuter rail will also be affected by the need to operate longer trains in the Kenosha-Racine-Milwaukee corridor than would otherwise be necessary to accommodate the peak loads along Chicago's north shore suburbs. For this reason, most peak period trains would likely be at least eight cars in length whereas the demand solely from the Kenosha-Racine-Milwaukee corridor could be handled with a train no more than three or four cars in length.*

Source: Parsons Transportation Group and SEWRPC.

Table 14

STATION-TO-STATION ONE-WAY ADULT FARES FOR POTENTIAL COMMUTER RAIL SERVICE

Station	Station							
	Milwaukee CBD	Cudahy-St. Francis	South Milwaukee	Oak Creek	Caledonia	Racine	Somers	Kenosha
Milwaukee CBD	- -	- -	- -	- -	- -	- -	- -	- -
Cudahy-St. Francis	2.20	- -	- -	- -	- -	- -	- -	- -
South Milwaukee	2.60	2.20	- -	- -	- -	- -	- -	- -
Oak Creek	2.60	2.20	1.80	- -	- -	- -	- -	- -
Caledonia	3.00	2.60	2.20	2.20	- -	- -	- -	- -
Racine	3.40	3.00	2.60	2.60	2.20	- -	- -	- -
Somers	3.80	3.40	3.00	3.00	2.60	2.20	- -	- -
Kenosha	4.20	3.80	3.40	3.40	3.00	2.60	2.20	- -
Waukegan	5.40	5.00	4.60	4.60	4.20	3.80	3.40	3.00
Lake Forest	6.20	5.80	5.40	5.40	5.00	4.60	4.20	3.80
Highland Park	6.60	6.20	5.80	5.80	5.40	5.00	4.60	4.20
Braeside	6.60	6.20	5.80	5.80	5.40	5.00	4.60	4.20
Wilmette	7.40	7.00	6.80	6.60	6.20	5.80	5.40	5.00
Evanston - Davis St.	7.40	7.00	6.60	6.60	6.20	5.80	5.40	5.00
Chicago	8.20	7.80	7.40	7.40	7.00	6.60	6.20	5.80

Source: SEWRPC.

Table 15

STATION-TO-STATION ONE-WAY ADULT FARES FOR POTENTIAL COMMUTER BUS SERVICE

Station	Station							
	Milwaukee CBD	Cudahy-St. Francis	South Milwaukee	Oak Creek	Caledonia	Racine	Somers	Kenosha
Milwaukee CBD	- -	- -	- -	- -	- -	- -	- -	- -
Cudahy-St. Francis	1.80	- -	- -	- -	- -	- -	- -	- -
South Milwaukee	1.80	1.80	- -	- -	- -	- -	- -	- -
Oak Creek	1.80	1.80	1.80	- -	- -	- -	- -	- -
Caledonia	3.00	2.60	2.20	2.20	- -	- -	- -	- -
Racine	3.40	3.00	2.60	2.60	2.20	- -	- -	- -
Somers	3.80	3.40	3.00	3.00	2.60	2.20	- -	- -
Kenosha	4.20	3.80	3.40	3.40	3.00	2.60	2.20	- -
Waukegan	5.40	5.00	4.60	4.60	4.20	3.80	3.40	3.00
Lake Forest	6.20	5.80	5.40	5.40	5.00	4.60	4.20	3.80
Highland Park	6.60	6.20	5.80	5.80	5.40	5.00	4.60	4.20
Braeside	6.60	6.20	5.80	5.80	5.40	5.00	4.60	4.20
Wilmette	7.40	7.00	6.80	6.60	6.20	5.80	5.40	5.00
Evanston - Davis St.	7.40	7.00	6.60	6.60	6.20	5.80	5.40	5.00
Chicago	8.20	7.80	7.40	7.40	7.00	6.60	6.20	5.80

Source: SEWRPC.

Allocation of All Costs of Service to Kenosha-Racine-Milwaukee Corridor

The total operating and maintenance costs and farebox recovery rate include the costs of all new commuter rail service proposed under each commuter rail alternative. This includes service within the Southeastern Wisconsin Region, and as well, new service within northeastern Illinois. Much of this new service within northeastern Illinois is reverse-commute service, including service in the morning outbound from the Chicago Loop and in the afternoon, inbound to the Chicago Loop. Approximately $6.0 million of the $26.8 million total annual operating and maintenance costs of commuter rail service under the high level of service option is such service within northeastern Illinois, and under the medium level of service option, approximately $4.5 million of the $18.6 million annual total operating and maintenance costs are due to service entirely within northeastern Illinois. It is reasonable to expect that should the commuter rail alternative proceed towards implementation, negotiations would occur to allocate the costs of this new service between northeastern Illinois and Southeastern Wisconsin. In any case, the farebox revenue attributable to trips made entirely within northeastern Illinois on this new service have not been estimated or included in the fare box revenue estimates of the commuter rail service. Potential allocation of the costs of the new commuter rail service to northeastern Illinois or inclusion of farebox revenue on the new service entirely within northeastern Illinois may be expected to reduce Wisconsin state and local cost shares and increase farebox recovery rates from between 15 and 18 percent to between 19 and 28 percent.

Increase in Metra Union Pacific Commuter Rail Line Operating Costs

The operating costs for Metra Union Pacific commuter rail lines have steadily increased since the completion of the feasibility study without a corresponding increase in passenger fares. The operating costs estimated for the Kenosha-Racine-Milwaukee commuter rail service extension were based largely on Metra Union Pacific commuter rail operating cost experience. In 1996 the overall cost per train-mile for the three Metra Union Pacific commuter rail routes was about $48 per train-mile. In 2001, the overall cost per train-mile for the same three routes was about $61 per train-mile, a 27 percent increase over five years. Metra passenger ticket prices however, did not change during this same period between 1996 and 2001. This factor alone would contribute to a decline in

farebox cost recovery from 39 percent in the feasibility study to about 30 percent under this study. Increases in passenger fares could address this estimated decline in the farebox recovery rate. In June 2002, Metra did institute a five percent fare increase, the first fare increase since 1996 and only the second since 1989.

Necessary Sizing of Equipment Needs and Train Size To Accommodate Northeastern Illinois Needs

Examination of Metra operating procedures through review and staff meetings has confirmed that it would not be reasonable to assume the number of cars in any train can be adjusted midway during that train's scheduled run. Thus, train size must remain constant over the entire run and also must be sized for the peak load. Between Chicago, Kenosha, Racine, and Milwaukee, the peak load will always be along Chicago's North Shore suburbs because of the larger volume of passengers boarding there than anywhere in Wisconsin. Trains running all the way through to, or from, Racine and Milwaukee will be sized for that demand, not the maximum demand north of Kenosha, which will be much smaller. Thus, trains running north of Kenosha will include a significant amount of excess seating capacity because of the much higher demand south of Kenosha. The cost of operating all of this equipment over a fairly long 33-mile long route extension constitutes a significant amount of the total operating and maintenance costs and as well capital costs.

Additional and Nonpeak Direction Train Service

Under this study, the Advisory Committee directed that a significantly increased level of service be considered over the level of service assumed in the feasibility study, and even under the lesser medium level of service, the commuter rail alternative includes nonpeak direction service. The purpose of the proposed expanded service was to serve a wider variety of potential travel markets within the entire Chicago-North Shore-Kenosha-Racine-Milwaukee corridor, and in particular, nontraditional commuter train service markets. A higher level of service requires additional trains, train-miles, train-hours, increased labor requirements, and more support functions of all types. All of this results in additional operating costs. Most of the additional service would be operating during nonpeak periods or in nonpeak directions when ridership would be less. Also, the inclusion of new commuter rail service going northbound in the A.M. peak period from the Chicago central business district to Milwaukee, and returning home in a southbound direction in the P.M. peak required the introduction of entirely new trains operating the entire length of the line between Chicago and Milwaukee rather than extending existing trains from Kenosha to Milwaukee.

Impact of Fixed Portion of Operating Costs

Compared to buses, rail passenger trains require larger investment in facilities and support services that must be operated and maintained to enable train operation. Various components of commuter rail operating and maintenance costs are largely fixed and must be incurred regardless of changes in the number of weekday trains. The large proportion of the operating costs that are fixed explains why total commuter rail operating costs do not decrease proportionally with a reduction in service. In the case of the Kenosha-Racine-Milwaukee study, peak car requirements did not change very much by reducing the number of trains by half. Thus, much of the fixed portion of the operating costs remained. However, the reduction in service did result in a reduction in ridership. That reduction in ridership was about the same proportion as the variable part of the operating cost adjustment. Thus, with the actual reduction in the operating cost being very similar to the reduction in passengers and therefore revenue, the resulting operating cost recovery rate didn't change much.

Annualized Capital and Operating Costs

Table 16 shows estimates of the annualized cost of each alternative. The total annualized cost refers to a combined estimate of both the capital and operating costs per year. The commuter rail alternative has the highest total annualized cost: $45.7 million under a high level of service and $31.7 million under a medium level of service. The commuter bus alternative has the lowest total annualized cost at $5.2 million. The combination rail and bus alternative would have a total annualized cost of $32.3 million under a high level of service and $25.1 million under a medium level of service.

Cost Effectiveness

Cost effectiveness is the measurement of the benefits or product resulting from a potential alternative action relative to the costs or effort required for implementing and operating that alternative. Thus, for transit projects, it is the extent to which an alternative returns benefits in relation to its costs. There are a variety of performance

Table 16

ANNUALIZED COSTS OF ALTERNATIVES

Item	Annualized Cost (in millions of dollars)				
		Combination Rail and Bus		Commuter Rail	
	Commuter Bus	High Level of Service	Medium Level of Service	High Level of Service	Medium Level of Service
Capital Cost:					
Current Dollars	$19.4	$166.2	$146.2	$224.8	$152.1
Year of Expenditure[a]	21.9	187.8	165.2	254.0	171.9
Annualized Capital Cost					
Current Dollars	1.8	14.1	12.4	18.9	12.8
Year of Expenditure	2.0	15.9	14.0	22.4	14.5
Annual Operation and Maintenance Cost					
Current Dollars	3.4	18.2	12.7	26.8	18.6
Year of Expenditure[b]	5.9	31.7	22.1	46.6	32.4
Total Annualized Cost					
Current Dollars	5.2	32.3	25.1	45.7	31.7
Year of Expenditure	7.9	47.6	36.1	69.0	46.9
Incremental Total Annualized Cost Relative to Baseline Alternative					
Current Dollars	- -	27.1	19.9	40.5	26.5
Year of Expenditure	- -	39.7	28.2	61.1	39.0

[a] *Computed for year 2005 with overall inflation factor of 1.13.*

[b] *Revenue service in year 2009 with overall inflation factor of 1.74.*

Source: Parsons Transportation Group and SEWRPC.

measures that may be used to measure the cost-effectiveness of the alternatives. There is no one measure that best represents the cost effectiveness of a transit improvement. The standard accepted measures that are widely used in the industry are described below and in the accompanying tables and are used here to compare the alternatives. These measures also allow the alternatives to be compared with other similar transit systems elsewhere in the United States.

A summary of the basic operating characteristics for each alternative is shown in Table 17. In addition, a summary of the primary operating and performance characteristics for each alternative is shown in Table 18. Of particular interest are the performance-related measures including the operating cost recovery rate, passenger trips per vehicle-mile, the operating expense per passenger trip, the operating expense per passenger-mile, and the operating expense per vehicle-mile. These characteristics represent some of the commonly used industry-wide measures used by operators, state transit agencies, and the Federal Transit Administration to compare different systems in a standardized manner. An important means of assessing the cost-effectiveness and efficiency of the alternatives is to compare the alternatives with similar transit systems and services in the United States. For purposes of this study, this would include other new-start commuter rail systems in the United States, other long-established commuter rail systems in the United States, and existing bus transit systems in Southeastern Wisconsin. Data for new start commuter rail lines is shown in Table 19, for long-established commuter rail systems in Table 20 and for existing bus transit systems in Southeastern Wisconsin is in Table 21.

Operating Cost Recovery Rate

The operating cost recovery rate refers to the percent of the total annual operating cost that is recovered from annual operating revenue generated from passenger fares. The commuter bus alternative has the highest operating cost recovery rate at 47 percent. The commuter rail alternative has the lowest operating cost recovery rate: 15 percent under a high level of service and 17 percent under a medium level of service. The combination rail and bus alternative has an operating cost recovery rate slightly above that of the commuter rail alternative: 15 percent under a high level of service and 18 percent under a medium level of service. By comparison, the operating cost

Table 17

BASIC OPERATING CHARACTERISTICS BY ALTERNATIVE

Characteristic	Alternative				
		Combination Rail and Bus		Commuter Rail	
	Commuter Bus	High Level of Service	Medium Level of Service	High Level of Service	Medium Level of Service
Service:					
Trains or Commuter Bus Trips Per Weekday	30	30	14	30	14
Train-Miles Per Year	0	261,200	129,000	454,700	224,200
Train-Hours Per Year	0	6,800	3,500	13,000	6,800
Commuter Bus-Miles Per Year	771,700	527,100	263,500	0	0
Local Bus-Miles Per Year[a]	269,400	269,400	124,100	186,100	124,100
Commuter Bus-Hours Per Year	34,000	23,600	11,800	0	0
Local Bus-Hours Per Year[a]	14,100	14,100	10,300	15,300	10,300

[a] *Reflects net change in local bus service by Milwaukee County Transit service, City of Racine Transit, and City of Kenosha Transit in support of Kenosha-Racine-Milwaukee Corridor Transit services.*

Source: Parsons Transportation Group and SEWRPC.

Table 18

COMPARISON OF SELECTED CHARACTERISTICS FOR TRANSIT ALTERNATIVES IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR: FORECAST YEAR 2020

Characteristic	Alternative				
		Combination Rail and Bus		Commuter Rail	
	Commuter Bus	High Level of Service	Medium Level of Service	High Level of Service	Medium Level of Service
System					
Number of Routes	5	2	2	1	1
Length (in miles)	102	34	34	33	33
Ridership					
Weekday Trips	4,100	4,400	3,700	5,100	4,100
Annual Trips (millions)	1.14	1.24	1.03	1.42	1.14
Annual Passenger-Miles (millions)	20.00	23.64	19.68	38.23	30.75
Operating					
Annual Vehicle-Miles (millions)[a]	0.77	2.62	1.30	3.64	1.79
Passenger Trips per Vehicle-Mile	1.48	0.47	0.79	0.39	0.64
Passenger-Miles per Vehicle-Mile	26.0	9.0	15.1	10.5	17.2
Operating Cost					
Annual Operating Expense (millions)	$3.4	$18.2	$12.7	$26.8	$18.6
Annual Fare Revenue (millions)	$1.6	$2.8	$2.3	$4.0	$3.2
Annual Net Operating Expense (millions)	$1.8	$15.4	$10.4	$22.8	$15.4
Recovery Rate (percent)[b]	47	15-23	18-28	15-19	17-23
Performance					
Operating Expense per Passenger Trip	$2.98	$14.68	$12.33	$18.87	$16.32
Operating Expense per Passenger-Mile	$0.17	$0.77	$0.64	$0.70	$0.60
Operating Expense per Vehicle-Mile	$4.42	$6.95	$9.77	$7.36	$10.39

[a] *Car-miles for commuter rail and bus-miles for commuter bus.*

[b] *Under these alternatives, some of the new commuter rail service would operate within northeastern Illinois and would attract and serve additional northeastern Illinois trips. The range of operating cost recovery rates reflects how much of the operating expenses for the new service operating within northeastern Illinois may be ultimately allocated to Wisconsin. The lower rate is based on all operating expenses being allocated to Wisconsin. The higher rate is based on some of the operating expenses being allocated to northeastern Illinois. The actual allocation of such costs would be determined through negotiation and agreement among appropriate parties.*

Source: Parsons Transportation Group and SEWRPC.

Table 19

COMPARISON OF SELECTED CHARACTERISTICS FOR EXISTING NEW-START COMMUTER RAIL SYSTEMS: 2000

Characteristic	Altamont Commuter Express - San Jose	Coaster - San Diego	Metrolink - Los Angles	Sounder - Seattle	Shore Line East - New Haven	Trinity Railway Express - Dallas	Tri-Rail - Miami	Virginia Railway Express - Washington
System								
Number of Routes	1	1	6	1	1	1	1	2
Length (in miles)	86	42	385	39	51	34	71	89
Year Open	1998	1995	1992	2000	1990	1996	1989	1992
Ridership								
Weekday Trips	8,200	4,300	26,300	1,800	1,100	2,400	7,400	8,100
Annual Trips (millions)	2.10	1.19	6.98	0.10	0.28	0.67	2.23	2.01
Annual Passenger-Miles (millions)	22.48	33.85	256.39	3.01	5.93	6.42	67.10	67.62
Operating								
Annual Vehicle-Miles (millions)[a]	0.44	1.06	6.48	0.74	0.37	0.32	1.82	1.54
Passenger Trips per Vehicle-mile	4.77	1.12	1.08	1.37	0.78	2.12	1.23	1.30
Passenger-Miles per Vehicle-mile	51.1	31.9	39.6	4.1	16.0	20.1	36.9	43.9
Operating Cost								
Annual Operating Expense (millions)	$8.03	$11.26	$82.02	$48.06	$6.21	$9.03	$20.57	$18.73
Annual Fare Revenue (millions)	$2.58	N/A	$31.87	$6.04	N/A	N/A	$5.14	$8.76
Annual Net Operating Expense (millions)	$5.45	N/A	$50.15	$42.02	N/A	N/A	$15.43	$9.97
Recovery Rate (percent)[c]	32	28[a]	38	13	25[b]	10[b]	25	47
Performance								
Operating Expense per Passenger Trip	$3.82	$9.48	$11.75	$38.32	$21.77	$13.53	$9.22	$9.30
Operating Expense per Passenger-Mile	$0.36	$0.33	$0.32	$1.28	$1.05	$1.41	$0.31	$0.28
Operating Expense per Vehicle-Mile	$18.23	$10.64	$12.65	$52.34	$16.94	$28.65	$11.31	$12.13

[a] *Same as car-miles for commuter rail.*

[b] *System-wide estimate. Includes bus and other modes.*

[c] *Based only on revenues earned from passenger fares and does not include revenues and funds from other sources.*

N/A-Not available.

Source: Federal Transit Administration and SEWRPC.

recovery rate ranges from 10 percent to 38 percent for other new-start commuter rail systems, from 34 percent to 59 percent for other long-established commuter rail systems, and from 14 percent to 31 percent for bus transit systems in Southeastern Wisconsin. Thus, the operating cost recovery rate for the commuter rail alternative could be considered comparable to some of the other new-start commuter rail systems as well as all of the Southeastern Wisconsin bus transit systems except for MCTS, but lower than all of the established commuter rail systems. The commuter bus alternative has a recovery rate comparable to many of the established commuter rail systems and higher than the new-start commuter rail systems and the Southeastern Wisconsin bus transit systems.

Table 20

COMPARISON OF SELECTED CHARACTERISTICS FOR LONG ESTABLISHED COMMUTER RAIL SYSTEMS: 2000

Characteristic	Caltrain - San Francisco	Long Island Rail Road - New York City	MARC - Baltimore-Washington	MBTA - Boston	Metra - Chicago	Metro-North - New York City	New Jersey Transit - New York City	SEPTA - Philadelphia	South Shore Line - Chicago
System									
Number of Routes	1	13	3	12	11	5	10	7	1
Length (in miles)	77	319	187	355	470	273	546	225	90
Ridership									
Weekday Trips	30,600	355,000	20,800	129,500	268,400	249,000	212,000	104,200	12,800
Annual Trips (millions)	8.73	105.15	5.32	36.42	72.34	71.74	63.89	29.77	3.61
Annual Passenger-Miles (millions)	189.57	2,380.56	160.11	715.04	1,579.89	2,030.10	1,349.41	415.74	101.10
Operating									
Annual Vehicle-Miles (millions)[a]	4.27	56.74	4.54	21.83	35.95	48.84	45.55	14.63	2.81
Passenger Trips per Vehicle-mile	2.05	1.85	1.17	1.67	2.01	1.47	1.40	2.04	1.29
Operating Cost									
Annual Operating Expense (millions)	$51.12	$696.00	$43.73	$175.77	$393.57	$546.22	$420.64	$157.89	$28.55
Annual Fare Revenue (millions)	$20.86	$355.29	N/A	$70.90	$188.94	N/A	N/A	$77.28	$13.65
Annual Net Operating Expense (millions)	$30.26	$340.71	N/A	$104.87	$204.63	N/A	N/A	$80.61	$14.90
Recovery Rate (percent)[c]	40	51[a]	34[b]	40	45	59[b]	48[b]	49	48
Performance									
Operating Expense per Passenger Trip	$5.85	$6.62	$8.22	$4.83	$5.44	$7.61	$6.58	$5.30	$7.90
Operating Expense per Passenger-Mile	$0.27	$0.29	$0.27	$0.25	$0.25	$0.27	$0.31	$0.38	$0.28
Operating Expense per Vehicle-Mile	$11.97	$12.27	$9.64	$8.05	$10.95	$11.18	$9.23	$10.80	$10.17

[a] *Same as car-miles for commuter rail.*

[b] *System-wide estimate. Includes bus and other modes.*

[c] *Based only on revenues earned from passenger fares and does not include revenues and funds from other sources.*

N/A-Not available.

Source: Federal Transit Administration and SEWRPC.

Table 21

COMPARISON OF SELECTED CHARACTERISTICS FOR EXISTING BUS TRANSIT SYSTEMS IN SOUTHEASTERN WISCONSIN: 2000

Characteristic	Kenosha-Racine-Milwaukee Bus Service	Kenosha Transit System	Milwaukee County Transit System	Ozaukee County Transit System	Racine Transit System	Washington County Transit System	City of Waukesha Transit System	Waukesha County Transit System
System								
Number of Routes	1	9	79	1	10	1	11	6
Length (in miles)	66	79	845	93	88	136	58	204
Ridership								
Weekday Trips	250	6,700	236,600	800	7,300	200	2,700	3,000
Annual Trips (millions)	0.08	1.82	71.68	0.21	2.12	0.04	0.75	0.85
Annual Passenger-Miles (millions)	1.92	5.64	205.54	0.51	6.63	N/A	2.65	9.62
Operating								
Annual Vehicle-Miles (millions)	0.35	1.09	25.85	0.48	1.61	0.40	0.82	1.42
Passenger Trips per Vehicle-Mile	0.22	1.66	2.77	0.46	1.32	0.11	0.92	0.60
Passenger Miles per Vehicle-Mile	5.5	5.2	8.0	1.1	4.1	N/A	3.2	6.8
Operating Cost								
Annual Operating Expense (millions)	1.14	$4.36	$123.38	$0.69	$5.53	$0.79	$2.90	$3.24
Annual Fare Revenue (millions)	0.23	0.92	$38.45	$0.12	$1.26	$0.11	$0.42	$0.74
Annual Net Operating Expense (millions)	0.91	3.44	$84.93	$0.57	$4.27	$0.68	$2.48	$2.50
Recovery Rate (percent)[a]	20	21	31	18	23	14	14	23
Performance								
Operating Expense per Passenger Trip	14.25	$2.40	$1.72	$3.27	$2.61	$17.82	$3.85	$3.80
Operating Expense per Passenger-Mile	0.59	$0.80	$0.60	$1.35	$0.83	N/A	$1.09	$0.34
Operating Expense per Vehicle-Mile	3.26	$3.99	$4.77	$1.50	$3.43	$1.97	$3.55	$2.28

[a] *Based only on revenues earned from passenger fares and does not include revenues and funds from other sources.*

N/A-Not available.

Source: Federal Transit Administration and SEWRPC.

Operating Cost per Passenger

The operating cost, or expense, per passenger refers to the average annual operating expense of each passenger trip. The commuter bus alternative has the lowest operating expense per passenger at $2.98 per trip. The commuter rail alternative has the highest operating expense per passenger at $18.87 per trip under a high level of service and $16.32 under a medium level of service. The operating expense per passenger for the combination rail and bus alternative would be $14.68 under a high level of service and $12.33 under a medium level of service. By comparison, the operating expense per trip ranges from about $4 to about $14 for most new-start commuter rail systems although two systems reported an expense per trip as high as $22 and $38. The operating expense per trip ranges from about $5.00 to about $8.00 for long-established commuter rail systems and from about $1.75 to about $3.75 for bus transit systems in Southeastern Wisconsin. Of note is the existing Kenosha-Racine-Milwaukee bus service which has an operating expense per trip of $14.25. The operating expense per passenger trip for the commuter rail and combination rail and bus alternatives which varies between about $12 and $19 per trip is significantly higher than for the commuter bus alternative which is about $3 per trip. This measure, however, is comparable to some of the new-start commuter rail systems, but higher than all of the older, established commuter rail systems and almost all of the bus transit systems in Southeastern Wisconsin. The operating expense per passenger trip for the commuter bus alternative is close to the average of the six largest Southeastern Wisconsin bus transit systems and lower than all of the new-start and established commuter rail systems. This reflects the relatively low operating cost inherent in commuter bus transit due to the mode's minimal need for infrastructure and support function costs.

Operating Cost per Passenger-Mile

The operating cost, or expense, per passenger-mile for the commuter rail and combination rail and bus alternatives which varies between $0.60 and $0.77 is significantly greater than for the commuter bus alternative which is $0.17. This measure provides a standardized way of comparing the cost among different systems for moving one passenger a standard distance of one mile. This measure for the commuter rail and combination rail and bus alternatives is comparable to many of the bus transit systems in Southeastern Wisconsin and is lower than some of the new-start commuter rail systems. The measure is greater than that for the established commuter rail systems and also some of the new-start commuter rail systems.

Operating Cost per Vehicle-Mile

The operating cost per vehicle-mile refers to the average total unit cost to operate a bus, a train, or a single commuter rail coach an average distance of one mile. For the commuter bus alternative, vehicle-miles are equivalent to bus-miles. For the commuter rail alternative, vehicle-miles are equivalent to car-miles. Since commuter trains consist of several cars, commuter rail train-miles can also be estimated. For the combination rail and bus alternative, vehicle-miles are equivalent to the sum of the bus-miles and car-miles. The commuter bus alternative has the lowest operating cost per vehicle-mile at $4.42. The commuter rail alternative has the highest operating cost per vehicle-mile at $7.36 under a high level of service and $10.39 under a medium level of service. The operating cost per vehicle-mile for the combination rail and bus alternative would be $6.95 under a high level of service and $9.77 under a medium level of service. By comparison, the operating cost per vehicle-mile varies from about $11 to about $18 for most new-start commuter rail systems (although two systems report costs as high as $29 and $52 per vehicle-mile), from about $8 to about $12 for long-established commuter rail systems, and from about $2 to about $5 for bus transit systems in Southeastern Wisconsin. Thus, the operating expense per vehicle-mile for the alternatives that include commuter rail are very comparable to the established commuter rail systems and to the new-start commuter rail systems The operating expense per vehicle-mile for the commuter bus alternative is similar to the expense for many of the other Southeastern Wisconsin bus transit systems.

ECONOMIC AND LAND USE DEVELOPMENT IMPACT FINDINGS

This section provides a summary of the pertinent findings related to potential economic development and land use development and redevelopment impacts that may be expected to result from the commuter rail alternatives considered under this study effort. It is widely accepted that commuter rail alternatives may be expected to have land use development and economic development impacts, while bus alternatives may not. Fixed-rail urban transit such as commuter rail represents a permanent long-term commitment to high quality transit service. Development investment in residential and office development, and attendant retail development can be linked to the

investment in commuter rail. Bus service over existing streets and highways is flexible, and provides no long-term service commitment, and therefore, no link to investment in land development and redevelopment.

Potential Land Use Impacts

The impact that the commuter rail alternative may be expected to have on land development and redevelopment would be expected to occur within the immediate vicinity—within one-quarter to one-half mile—of the commuter rail stations. A station may be expected to promote the development of retail businesses such as dry cleaners, drug stores, food stores, and restaurants that benefit from the additional market of the commuter rail passengers. Residential and office development also will have incentive, with attendant retail development, to locate in proximity to high quality, permanent rail transit service.

The potential influence of commuter rail on land development and redevelopment is apparent from Metra's experience in northeastern Illinois. Many communities in northeastern Illinois along Metra's commuter rail routes use their commuter rail stations as a central focal point for community redevelopment and development efforts. Evanston, Highland Park, Arlington Heights, Glenview, Lake Forest, Naperville, and Elmhurst are a few examples of such communities. As a result of the land redevelopment and development which already has occurred and the potential for future substantial additional land development and redevelopment, Metra has invested in the preparation of guidelines and other planning documentation to assist local government and developers. Some examples of such Metra publications include:

1. "Land Use in Commuter Rail Station Areas." This report provides guidelines for land use planning and implementation of land use development and redevelopment in commuter rail station areas.

2. "Land Use in Commuter Rail Station Areas: Guidelines for Communities." This brochure is a companion to the above report and provides summary recommendations.

3. "Local Economic Impacts in Commuter Rail Station Areas: Recommendations for Reinforcing the Commuter/Merchant Interface." This report describes the current and potential relationships among commuter rail stations, commuters, station area businesses, and residential development, and presents principles and strategies for promoting station area land development and redevelopment. There is also a separate Appendix describing existing land uses in 18 station areas and the results of a detailed survey of commuters regarding local businesses.

4. "Local Economic Benefits of Commuter Rail Stations for Communities and Businesses." This brochure is a companion to the above report and illustrates many of the principles outlined in the full report.

5. "Metra Rail Service and Residential Development Study: Summary of Findings." This report provides strategies and recommendations for the types of residential development that encourage the use of commuter rail. The guidelines and strategies are intended for use by local communities, real estate professionals, and others in the planning, development, and redevelopment of residential areas near commuter rail stations in ways that promote desirable land use development, enhance commuter rail ridership, and benefit the surrounding communities by helping make them a more desirable place to live.

6. "Residential Development Near Commuter Rail Stations: Strategies and Recommendations for Communities and Real Estate Professionals." This brochure is a companion to the above report and provides an illustrated summary to the approaches described in the full report.

The benefits of promoting land development and redevelopment in the vicinity of proposed commuter rail stations in the Kenosha-Racine-Milwaukee corridor are important for the long developed communities of Kenosha, Racine, South Milwaukee, Cudahy, St. Francis and Milwaukee. The significance of the influence of commuter rail on land development and redevelopment is already being recognized in the Cities of Racine and Cudahy as they are including transit center/commuter rail stations in their downtown redevelopment plans. Commuter rail in

the Kenosha-Racine-Milwaukee corridor through its influence on land development and redevelopment would assist in meeting regional land use development objectives through the promotion of sound land use development and redevelopment in desired central city locations, and the evolution of a more desirable regional land use pattern. The attendant benefits would include regional environmental and resource protection; preservation and rehabilitation of central city areas; and reductions in the public and private costs of land development and redevelopment.

While it is widely accepted that commuter rail facilities and services may be expected to have an impact on land development and redevelopment in the vicinity of its stations, it is also widely recognized that other factors may need to be present to fully achieve these land development and redevelopment benefits. These conditions include the presence of economic forces and demand which support land use development and redevelopment in the larger urban area; the attractiveness of sites surrounding and in the vicinity of planned rail stations in terms of ease of access, utilities, and other urban services, physical features, and social characteristics; the existence of a public land use policy which encourages such development through coordinated tax policies, development incentives, infrastructure supply, land use controls, and local neighborhood approval; and the presence of land near the planned station sites which is available or can be readily assembled. These supporting conditions exist in the Kenosha-Racine-Milwaukee corridor, and in particular, in the cities of Cudahy and Racine which are actively planning for the development of commuter rail stations, and attendant land development and redevelopment.

A special study was recently completed which analyzed the potential land use development and redevelopment opportunities for the area surrounding a commuter rail station in the City of Racine. The study was sponsored by the Racine County Economic Development Corporation and focused on the land use impacts that may result from the implementation of commuter rail service in Racine. The report was published in January 2003 and is entitled "Kenosha-Racine-Milwaukee Commuter Rail: An Analysis of Current and Potential Economic Activity Surrounding the Racine Station Area." A summary of the findings and conclusions of this study are presented here.

- Commuter rail can have a positive impact on the surrounding real estate market. Commuter rail stations can act as a focus for new businesses, employers, and residential development. A combination of active public policy and favorable real estate market conditions has led to successful transit-oriented development (TOD) in several U.S. metropolitan areas including Washington, D.C.; Portland, Oregon; and San Francisco, California. Based on a review of transit oriented development efforts across the country, those that have succeeded have consistently 1) worked with market forces, 2) enjoyed the cooperative support of transit agencies and local government, and 3) been of a scale appropriate to the station setting.

- Many of the conditions for successful development already exist in the Racine station area. The current development plans for the station – regardless of the extent of economic impact – are a viable redevelopment model for the city to pursue. The use of the former Western Publishing Building to house nonprofit organizations, supplemented by service oriented businesses, the stabilization of a transitional neighborhood; transportation alternatives for local residents; and linkages to other parts of the city and county are all enhanced by commuter rail service. Proximity to bus service, the availability of suitable properties for redevelopment, the current mix of property types, and the potential for increased traffic in the center city enhance the viability of station redevelopment at this location.

- Commuter rail and transit-related development would contribute to the stabilization of neighborhoods around the Racine station by increasing employment and transportation opportunities. More than one quarter of households in the area do not own a motor vehicle. This lack of transportation alternatives likely contributes to lower labor force participation rates, as well as dramatically higher poverty rates and current high unemployment. Commuter rail would provide more and better access to regional jobs for population groups in these areas. Although homeownership rates in the area rose during the 1990s at a pace slightly above that of the county and the state, additional gains depend on a continued rise in household income levels, which have also outpaced county and statewide figures in the last decade.

- If an aggressive development strategy is pursued, the impact of station and related development on property tax could be significant. Additional property tax revenue generated by transit-oriented development within one-half mile of the Racine station is estimated at $1.5 million over a 10-year period, an increase of 7 percent over the baseline scenario for the study area. Using a more aggressive approach—one in which local interests would work to expand development opportunities around the station and to link this development with other parts of the community—could result in an impact of up to $6.7 million over 10 years, or 30 percent above the baseline scenario.

- If the analysis is extended to a three mile radius of the station—which encompasses virtually the entire city of Racine—the annual impact of a successful commuter rail line would be between $3.3 million and $4.1 million in additional property tax revenue for the city. When this figure is combined with the scenarios modeled for properties within one-half mile, the estimated annual impact of transit-oriented development would range from $3.6 million to $5.7 million.

Potential Economic Development Impacts

While it is widely accepted that commuter rail may have land development and redevelopment impacts in the vicinity of its stations, it is also widely accepted in commuter rail planning literature that investment in commuter rail may not be expected to affect the total amount of economic and population growth within a region. That is, commuter rail may generally only be expected to attract land development and redevelopment, and result in a shift in development and redevelopment location within a region. However, a report published by the Racine County Economic Development Corporation (RCEDC) in April 2002 entitled, "Racine County Strategic Development Plan" advocates for the implementation of commuter rail in the Kenosha-Racine-Milwaukee corridor due to its potential to increase economic development and growth in Racine County. The RCEDC strategic plan envisions that commuter rail will more closely link Racine County with the Milwaukee area and the Chicago area, and assist in establishing a Chicago-Kenosha-Racine-Milwaukee mega-metropolitan area. The strategic plan of the RCEDC envisions that such linkage will result in more economic and population growth for the Chicago-Kenosha-Racine-Milwaukee corridor, and more economic and population growth specifically for Racine County.

The RCEDC strategic plan as well as the RCEDC land use development study for the Racine station discussed above emphasized the importance of developing a strong and well-interconnected corridor. Regional growth patterns across the country show the economic importance of linking small and medium-sized communities to larger metropolitan areas. The potential for a commuter rail line that expands transportation alternatives can improve the desirability of communities between Chicago and Milwaukee. While IH 94 serves as a major transportation artery connecting Milwaukee and Chicago, it bypasses the lakeshore communities and suburbs to the east. As a result, Racine and, to a lesser extent, Kenosha and other smaller communities are without convenient access to their major metropolitan neighbors. Improved transportation connections directly connecting the lakeshore communities will allow the Racine and Kenosha areas to share economic opportunities and benefits ranging from developable land and work force to recreation and tourism with the Milwaukee and Chicago metropolitan areas as part of a well-connected single corridor.

An important potential economic development impact would be the ability of a new high quality transportation link such as commuter rail to offer an improved level of service that would allow more access for both employers and employees. Employers in the corridor could draw employees from many more communities along the entire 90-mile long Milwaukee-Racine-Kenosha-Chicago corridor. Employees would also have more convenient commuting access to a much larger variety of job opportunities throughout the entire corridor including northeastern Illinois. As a result, better transportation linkages will allow the local and regional workforces to grow in ways they could not if they were only able to draw on local labor forces within a specific community. A workforce development strategy that uses commuter rail is consistent with the goals of the RCEDC strategic plan with respect to the recruitment of skilled labor, young professionals, and recent graduates necessary to support business and employer growth in the corridor and Racine County. This would also assist in providing a greater variety of employment opportunities for minority and low-income populations in the corridor. Serving a larger potential pool of commuters also helps address the need for employers to look beyond their local community to find qualified workers necessary for expansion of their business and in light of the expected aging of the present workforce.

Companies located in the corridor such as S.C. Johnson & Son, Inc. have indicated improved transportation options to be very important in retaining and attracting qualified employees. S.C. Johnson & Son has stated that a high-quality commuter rail service is essential to maintaining and expanding its presence in the Kenosha-Racine-Milwaukee corridor. S.C. Johnson & Son maintains its world headquarters as well as major manufacturing plants in the Racine area in the heart of the corridor. Having alternative forms of transportation available to get to and from work on a regular basis is attractive to both employers and employees. Such service would also allow employees to more easily live throughout the corridor and still conveniently commute to and from work. S.C. Johnson has specifically pointed out its need to be able to attract qualified personnel, many of who may live some distance from work. In many cases, getting to and from work in a convenient and reliable manner becomes an important consideration in a potential employee's decision to accept a position for employment.

Overall economic development implications of commuter rail service in the Kenosha-Racine-Milwaukee corridor were identified in both the RCEDC strategic plan and the RCEDC land use development study for the Racine station. Besides reiterating the importance of linking the communities of the corridor together and providing access to a large workforce, the Racine station land use development study noted that commuter rail stations are portals to the city in which they are located. It suggested that if potential ridership on a commuter rail service consists only of commuters, the potential for cities along the line to benefit from a flow of visitors to local businesses may be limited. The presence of off-peak service, such as during evening periods, in the long run would increase the contribution commuter rail can make to the corridor's vitality and desirability. This is because the improved transportation service that could be offered by commuter rail has the potential to provide improved nonwork travel by providing improved access to recreational, cultural, and heritage opportunities in Chicago and Milwaukee and in communities along the entire corridor, as well as to the growing retail base of corridor communities such as Racine and Kenosha.

ENVIRONMENTAL REVIEW FINDINGS

This section provides a summary of the findings of the environmental review of the final commuter rail and bus alternatives. This information was presented in greater detail in Technical Report No. 6, entitled *Environmental Review*. The purpose of this environmental review was to identify the environmental costs and benefits of the transit alternatives in the Kenosha-Racine-Milwaukee corridor and to determine whether the commuter rail alternative or bus alternative would result in any environmental impact sufficiently serious to eliminate it from further consideration.

Comparison of Environmental Impacts of Transit Alternatives

Table 22 provides a summary of the anticipated environmental impacts of the commuter rail and bus alternatives in the Kenosha-Racine-Milwaukee corridor. The review indicates minimal environmental impacts of the alternatives, and no environmental impact which would warrant eliminating any alternative from consideration. The environmental impacts of the transit alternatives are modest, as the alternatives use existing facilities and rights-of-way, and new construction is limited to stations, park-ride lots, and storage and servicing facilities.

A summary of the assessment of environmental impacts is as follows:

- Compatibility with Existing Land Use--Because of the existing alignments and right-of-way, each alternative may be considered compatible with existing adjacent land uses.

- Land Acquisition and Displacements--Right-of-way and land acquisition will be minimal for all alternatives.

- Environmental Justice/Title VI--No negative equity or environmental justice-related impacts were identified for any alternatives.

- Visual and Aesthetic Impacts--Visual and aesthetic considerations are subjective. Most visual and aesthetic impacts attendant to the commuter rail and bus alternatives would occur as a result of station facility development. Station facility and potential surrounding area development would likely represent beneficial impacts, and would particularly occur under the commuter rail alternative.

Table 22

COMPARISON OF ENVIRONMENTAL IMPACTS OF THE COMMUTER RAIL AND BUS ALTERNATIVES IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR

Potential Environmental Impacts	Alternative		
	Commuter Bus	Combination Rail and Bus	Commuter Rail
Compatibility with Existing Land Use	Yes. Buses would operate in mixed traffic with autos and trucks on arterial streets.	Yes. Rail line has been present for many years; land-uses have adjusted to it.	Yes. Rail line has been present for many years; land-uses have adjusted to it.
Land Acquisition and Displacement	One commercial building in Cudahy.	One commercial building in Cudahy.	Possible contractor storage yard and shed for rail maintenance facility in Milwaukee; one commercial building in Cudahy.
Environmental Justice/Title VI	No impacts.	No impacts.	No impacts.
Visual and Aesthetic	No significant impacts.	Opportunity to upgrade appearance of Kenosha station and Racine station area.	Opportunity to upgrade appearance of Kenosha, Racine, and Cudahy station areas.
Historic and Cultural Sites	16 historic sites and one district in general vicinity, no direct impacts expected.	17 historic sites and one district in general vicinity, no direct impacts expected.	10 sites and two districts in general vicinity, no direct impacts expected.
Parks and Open Space	16 parks and playgrounds in general vicinity, no disruption or direct impacts expected.	20 parks and playgrounds in general vicinity, no disruption or direct impacts expected.	12 parks and playgrounds in the general vicinity; Racine Co. Bike Trail may require minor relocation at Caledonia station; no disruption or direct impacts expected for other locations.
Farmland	Oak Creek station would use existing farmland. This land, however, is slated for development in local plans.	Somers and Oak Creek stations would use existing farmland. This land, however, is slated for development in local plans.	Somers and Oak Creek stations would use existing farmland. This land, however, is slated for development in local plans.
Water Resources	No impacts expected except site design for Oak Creek station will have to be adjusted to avoid wetland.	No impacts expected except site design for Oak Creek station will have to be adjusted to avoid wetland.	No impacts expected except site design for Oak Creek station will have to be adjusted to avoid wetland.
Biological Resources	No impacts expected; further studies needed for Oak Creek station.	No impacts expected; further studies needed for Somers and Oak Creek stations.	No impacts expected; further studies needed for Caledonia, Somers, and Oak Creek stations.
Hazardous Material Sites	11 potential hazardous material sites.	11 potential hazardous material sites.	21 potential hazardous material sites.
Noise and Vibration	Minimal impacts expected, as bus traffic would represent minimal increase in vehicle traffic	Little vibration impact expected; some noise from train activity and horns at 17 grade crossings.	Little vibration impact expected; noise from train activity and horns at 56 grade crossings.

Table 22 (continued)

Potential Environmental Impacts	Alternative		
	Commuter Bus	Combination Rail and Bus	Commuter Rail
Safety	Minimal impact as additional buses represent minimal increase in vehicle traffic.	Minimal impact although 17 at-grade rail crossings represent potential for vehicle and pedestrian train-related accidents.	Minimal impact although 56 at-grade rail crossings represent potential for vehicle and pedestrian train-related accidents.
Air Quality and Pollutant Emissions	Reduction in ozone-related air pollutants Year 2020 Tons per hot summer day Volatile organic compounds (VOC) .01 Nitrogen Oxides (NOX) .01 Represents reduction in regional transportation system emissions of 0.05 percent for VOC and for NOX	Reduction in ozone-related air pollutants Year 2020 Tons per hot summer day Volatile organic compounds (VOC) .01 Nitrogen Oxides (NOX) .01 Represents reduction in regional transportation system emissions of 0.05 percent for VOC and for NOX	Reduction in ozone-related air pollutants Year 2020 Tons per hot summer day Volatile organic compounds (VOC) .02 Nitrogen Oxides (NOX) .02 Represents reduction in regional transportation system emissions of 0.1 percent for VOC and for NOX

Source: Parsons Transportation Group and SEWRPC.

- Historic and Cultural Impacts--No negative historic or cultural impacts were identified for any alternatives. The commuter rail alternative would particularly support preservation of the historic Racine railroad passenger depot building.

- Farmland Impacts--Impact on farmlands would be limited to minimal land needed for station development, and these farmlands are not planned to be preserved as farmland, but are planned to be developed for urban uses under local land use plans.

- Park and Open Space Impacts--No acquisition or direct impacts to parks and open space were identified under any of the alternatives.

- Water Resource Impacts--No significant water resource or floodplain impacts were identified for the alternatives. Mitigation measures will be necessary during construction of stations, park-ride lots, and storage facilities, and construction of passing sidings and second tracks for the commuter rail alternative.

- Biological Resource Impacts--No significant biological resource impacts with respect to natural areas, endangered species, environmental corridors, or wetlands were identified for any of the alternatives.

- Hazardous Material Site Impacts--No adjacent or nearby existing hazardous material site may be expected to constrain or affect the implementation of commuter rail or bus alternatives.

- Noise and Vibration Impacts--Noise and vibration impacts of the commuter bus alternative may be expected to be negligible as the additional buses operating in mixed traffic over arterial streets and highways will represent a minimal increase in total vehicle and heavy vehicle traffic. There would be some noise and vibration impact from commuter rail trains. The additional vibration of individual commuter trains would be small compared to that of typical freight trains. There would be additional noise resulting from diesel locomotives passing, blowing of horns, and activation of signal bells at grade crossings.

- Safety—There would be minimal impacts for all alternatives, although commuter rail represents the potential for vehicle and pedestrian accidents at grade crossings.

- Air Quality and Pollutant Emissions—The new ridership under the commuter rail and bus alternatives may be expected to result in a very small reduction in ozone-related air pollutants ranging from reductions of 0.01 tons per hot summer weekday of volatile organic compounds and nitrogen oxide emissions, or about a 0.05 percent reduction, in regional transportation system emissions under the bus and combination rail/bus alternatives, to reductions of 0.02 tons, or about a 0.1 percent reduction, under the commuter rail alternative.

RAILROAD IMPACT FINDINGS

This section presents a summary of the issues and concerns of the affected railroads with respect to the implementation of a new commuter rail service between Kenosha, Racine, and Milwaukee. These other railroads include the two freight railroads—Union Pacific Railroad and Canadian Pacific Railway—and two passenger railroads—Metra and Amtrak. The summary of these issues and concerns presented in the chapter are based upon Technical Report No. 7, entitled *Analyses of Railroad Impacts*. Many of the issues identified represent detailed design, engineering, or organizational considerations that would need to be resolved prior to an agreement between the various railroads and a Wisconsin implementing organization.

Metra

Metra would be affected by the implementation of commuter rail service from Kenosha to Racine and Milwaukee since such service would most likely be operated as an extension of Metra's Union Pacific-North Line already operating between Chicago and Kenosha. Metra service on the Union Pacific-North Line between Chicago and Kenosha is operated by the Union Pacific Railroad. It is likely that potential commuter rail service north of Kenosha would be operated under a similar agreement. The potential extension of commuter rail service north of Kenosha would require that Metra's existing level of service not be adversely affected and possibly be improved. This route along with two others are managed and operated by Union Pacific Railroad as one entity. The service levels, schedule, personnel, equipment requirements, and maintenance on the North route are integrated with that of the other two routes. Regular and spare equipment and train crews and supervisory personnel are rotated among all three routes. Any changes or modifications on one route will affect the other two routes. Efficient equipment and crew utilization schemes have been developed and fine-tuned over many years of service. Thus, Metra and Union Pacific will be very sensitive to any changes in these routes.

Schedule Adjustments

Metra and Union Pacific can be expected to be resistant to making any major adjustments to the existing schedule of trains operating between Chicago, Waukegan, and Kenosha. Even small changes in the arrivals and departures of existing trains can have operational ramifications. Changes in schedules for even one or two trains may be expected to affect equipment assignments, train crew assignments, train turnaround and layover logistics, rotation schedules for servicing and maintenance, and coordinated operations with other commuter trains operated by Metra. In addition, regular passengers have scheduled their personal and work schedules around train arrival and departure times. For these reasons, adjustments to schedules are very seldom made and done very cautiously.

Ability to Conduct Maintenance Work

The potential extension of commuter rail service north of Kenosha includes some additional new trains running along the entire length of the Chicago-Kenosha-Racine-Milwaukee corridor. An increase in the number of trains operating in both directions will reduce the opportunities for providing work windows for maintenance and repair

activities. The additional trains also increase the complexity of operating and dispatching when one of the two tracks is taken out of service for repair or construction projects.

Schedule Reliability

As an extension of the existing Metra commuter train service, the potential Kenosha-Racine-Milwaukee train service would result in a route length increase from 52 to 84 miles and a total travel time increase for trains operating over the entire route from about one and one-half to two and one-half hours. This may be expected to increase the potential for train delays which in turn can result in passenger dissatisfaction, complaints, passengers missing connections and appointments, and disruptions to train operations and servicing routines. In many cases, such delays can build in a cumulative fashion with delays increasing as the day progresses. With already tightly scheduled operations, train turnaround times, peak period slots for specific operations at junctions and stations, and servicing routines, Metra can be expected to be very sensitive to any potential of train service delays, which would affect its longstanding reputation of on-time performance and customer satisfaction.

Equipment Needs

Metra service and equipment utilization will be impacted by the additional train sets required to run the new commuter train service north of Kenosha. To maintain schedule reliability and accommodate peak passenger loads, any new train sets will have to be sized to accommodate the peak demands between Chicago and Milwaukee so that additional coaches would not have to be switched in and out of the train enroute. The additional locomotives and coaches required for the Kenosha-Racine-Milwaukee service will need to include sufficient spare coaches and locomotives for any necessary stand-by train sets as well as for those train sets that would be rotated out of service at periodic intervals for regular inspection and maintenance, and for repairs and other major work.

Equipment Servicing and Storage

Metra service and storage facilities in Chicago may be expected to experience impacts. At Chicago, the additional train arrivals and departures will result in additional trains that need to be turned around for operation in the opposite direction as well as additional equipment moves for storage and servicing. Some train sets would be stored overnight at Milwaukee under the commuter rail alternative or at Racine under the combination rail and bus alternative.

Metra Agreement with Union Pacific Railroad

Metra presently contracts with Union Pacific Railroad to provide commuter train service on the Chicago-Kenosha route. If commuter rail service were extended north of Kenosha, it is likely that Union Pacific Railroad would continue to be the operator of the service under an agreement similar to that which now exists between Metra and Union Pacific. The current agreement, however, is a long standing agreement that is based on operating costs and characteristics that predate both Union Pacific Railroad and Metra as the current operators and providers of the service. Thus, it may be anticipated that a potential agreement between Union Pacific and Metra for the provision of commuter rail service north of Kenosha would result in a rigorous review and renegotiation of the contract terms for at least the new service, and proposals to do the same for existing service—which would be resisted by Metra.

Benefits to Metra

There may be benefits gained by Metra and northeastern Illinois as a result of participating in such a service extension. Benefits might include: availability of additional coaches and locomotives; additional trains and increased level of service on the Union Pacific North Line; some reduction in passenger and parking demand at the northernmost stations in Illinois such as Waukegan; greater reverse commute travel service options providing mobility and accessibility to jobs and other attractions for residents in Northeastern Illinois along the Union Pacific North Line; provision of commuter rail service for Northeastern Illinois residents connecting Northeastern Illinois and Southeastern Wisconsin; and availability of additional overnight train service and storage and servicing facilities for Union Pacific North Line equipment.

Bridge Replacement Project
Beginning in 2003 and extending through 2011, Metra and Union Pacific Railroad will be undertaking a major bridge replacement program that will include the complete replacement of 26 railroad bridges. The project will extend for a distance of about four miles within the City of Chicago, and will necessitate single-track operation for lengthy periods of time. With only one track in service capacity will be severely limited especially during peak periods, making it difficult to add additional reverse direction peak-period commuter trains.

State Line to Kenosha Segment
Metra's Union Pacific North Line commuter rail service currently terminates at, and provides service to, the City of Kenosha, which is outside Metra's six-county northeastern Illinois service area. Service to Kenosha has largely been continued as a convenience to Metra, Union Pacific Railroad, and Union Pacific predecessors because of the overnight train storage and trains facilities located there. No operating funding assistance is being provided by Wisconsin sources for service north of the Wisconsin-Illinois state line although the City of Kenosha has funded improvements to the Kenosha train station. If the development of commuter rail service north of Kenosha would continue to proceed as an extension of the existing Metra service from Chicago, it could be expected that the allocation of costs for that portion of the existing service already within Wisconsin may need to be addressed and negotiated.

Express Service
Because of the length of the potential extension north of Kenosha and the duration of travel times that would be involved, initiation of additional express service may be expected to be suggested at some point. This would be in addition to such service already operated during weekday peak periods and would likely pertain to the frequent stops along the North Shore suburbs between Evanston and Waukegan. Since it will be difficult to add any more peak-direction peak-period trains to the current schedule, providing more express service may be limited to eliminating some existing stops made by existing trains. This will have the effect of reducing the long-standing level of service at some stations within Northeastern Illinois.

Union Pacific Railroad
Union Pacific would be affected by the implementation of commuter rail service from Kenosha to Racine and Milwaukee since such service would operate largely over its Kenosha Subdivision, a secondary freight line between Chicago and Milwaukee. Union Pacific is a privately owned for-profit company that owns and operates the freight line that would be used by the potential commuter rail service. Overall increases in the volume of freight being handled by railroads across the United States have made railroad company officials very sensitive to any proposals that may affect the current and future rail line capacity for handling freight traffic. Accommodations by Union Pacific Railroad to cooperate with the potential extension of commuter rail service north of Kenosha would require that existing and anticipated levels of freight service not be adversely affected.

Negotiations with Railroad
Public agencies that are negotiating with freight railroads such as Union Pacific for use of their lines will need to understand the perspective of those companies. The focus of private railroad companies is on the bottom-line profit for owners and shareholders who will therefore want to know how any new service such as a commuter train service will affect their operations and profit potential. Since the 1990's rail freight business has been rapidly growing and railroad companies are being pressured by customers to provide faster, more timely, and more reliable freight delivery service than in the past. As a result, freight railroads have generally concluded that their capacity for existing and future freight traffic is very limited at best and in some cases at its limit. Accordingly, freight railroads are now very reluctant to make any capacity for passenger trains available on mainline railways without adequate improvements to preserve that capacity. These capacity pressures have made freight railroad operators more and more reluctant to discuss passenger train access, let alone negotiate and reach agreement. While communications with Union Pacific may be established very early in the planning and development process, freight railroads will not seriously negotiate until a project is well along and defined.

In general, recent experience of freight railroads with existing and potential commuter rail service operations suggests a list of basic guidelines that railroads may be expected to require. These include:

- No commuter rail service may degrade the freight railroad service provided to freight customers.
- The freight railroad must be compensated for costs associated with service changes and increased track speeds.
- Capital investments necessary for commuter rail service additions or changes are the responsibility of the commuter rail service sponsor.
- Actual operating conditions and costs must be considered in commuter rail proposals for service or changes. For example construction costs must reflect the actual local labor contract costs.
- Projected freight growth must be considered in commuter rail service proposals.
- The freight railroad must not incur a higher tax burden as a result of commuter rail investments.
- The freight railroad must retain operating control of its rail facilities, dispatching, maintenance, and construction.
- Appropriate grade crossing warning devices and fencing must be included in improvements.
- Additional railroad property needed for commuter rail services should be handled under a separate lease agreement.
- Freight railroads will incur no liability for commuter rail operations.

Extension of commuter rail service beyond Kenosha by Metra would likely require, at a minimum, revisions to the purchase-of-service agreement that Metra has with Union Pacific Railroad. Extension of commuter rail service might also require changes in the Illinois Regional Transportation Authority legislation since Metra would be operating service outside of Illinois. Also, Metra's agreement with Union Pacific Railroad for the provision of commuter rail service is exclusive. Therefore, commuter rail trains operated between Kenosha and Chicago by some entity other than Union Pacific or Metra would not be allowed without agreement and permission of both Union Pacific and Metra.

Coordination with Coal, Local, and Other Train Movements

On the Kenosha Subdivision, the principal customer is the Oak Creek electric power generating station that receives large volumes of coal that is delivered on a regular daily basis. WE Energies (formerly the Wisconsin Electric Power Company) is planning for a major expansion of the Oak Creek generating station. This may result in an increase in the average daily number of coal trains serving the power plant. Both WE Energies and Union Pacific Railroad will be sensitive to the need for maintaining sufficient railroad line capacity for this traffic as well as appropriate track space in the vicinity of the power plant for handling cars.

The Kenosha Subdivision typically serves only a small amount of other freight traffic on a regular basis. This consists of local rock trains serving the quarry at Ives north of Racine and local freight service for the few remaining customers in the Racine, Cudahy, and South Milwaukee areas. The relatively short length and low tonnage of the local freight trains compared to the unit coal trains on the Kenosha subdivision would make them easier for dispatchers to coordinate with other scheduled train traffic such as commuter trains. The current and potential future freight traffic is not an obstacle to implementing commuter rail. The operation of commuter trains on a regular basis over the Kenosha subdivision would make the detouring of mainline freight trains from other routes more complex in the future.

St. Francis Junction

The track configuration for the junction at St. Francis is such that the addition of regularly scheduled commuter trains using the Kenosha Subdivision would share a single piece of common track for a short distance with freight train traffic on the main line. This could be a potential congestion point. Ultimately, a reconfiguration of the track arrangement in this area may benefit both potential commuter rail and freight train operations.

Railroad Personnel Agreements

On the Union Pacific North Line, direct operations of the service are handled by Union Pacific personnel as part of the agreement with Metra. If commuter rail service were extended north from Kenosha, it may be expected that similar labor, crew, and staffing arrangements would apply for the new service extension. A crew base may need to be initiated at Milwaukee as some of the trains will originate there. This would apply not only to personnel

directly involved in actual train operation, but also to train dispatching, track and signal maintenance and repair, equipment maintenance and repair, and supervisory personnel.

Ownership of Railroad Line
If commuter rail service is indeed implemented between Kenosha, Racine, and Milwaukee, even a low initial level of commuter train service will result in the passenger service being the dominant user of the line in terms of number of train movements. Thus, it may be in the best interest of the Wisconsin commuter rail sponsor to secure ownership of the railroad line from Kenosha to Washington Street in Milwaukee through outright purchase or lease. Union Pacific Railroad would need to retain access rights to the Oak Creek generating station for existing and future coal deliveries as well as to continue to provide service to other customers along the route. Metra would not be a potential owner of any of the railroad line within Wisconsin.

Storage and Maintenance Facility Site
Extension of the potential commuter rail service only to Racine will require the construction of an overnight train storage and servicing facility on a site located south of the passenger station.

Liability
A private freight railroad company such as Union Pacific Railroad would be expected to be concerned about the liability arising from the increased exposure of passengers and pedestrians to potential mishaps while on board trains, at stations, and while on railroad property. This would mostly involve potential claims from accidents and injuries. As part of any agreement, railroad companies will want to be protected to the extent possible from this kind of action. Based on the recent experience of other new-start commuter rail systems, freight railroads can be expected to insist that they incur no liability for new commuter rail operations operated on their tracks.

Canadian Pacific Railway
Canadian Pacific would be affected by the implementation of commuter rail service from Kenosha to Racine and Milwaukee since the commuter rail service would need to use its mainline to travel from Union Pacific tracks to the passenger depot in downtown Milwaukee. Like Union Pacific, Canadian Pacific is a privately owned for-profit company that owns and operates the railroad line serving the depot. Overall increases in the volume of freight being handled by railroads across the United States have made railroad company officials very sensitive to any proposals that may affect the current and future rail line capacity for handling freight traffic. Accommodations by Canadian Pacific Railway to cooperate with the potential extension of commuter rail service into Milwaukee would require that existing and anticipated levels of freight service not be adversely affected.

Negotiations with Railroad
In general, Canadian Pacific Railway would have the same concerns as the Union Pacific Railroad about its ability to easily handle the operation of additional commuter trains. Specific operational and technical concerns would differ because of the individual characteristics of the railroad mainline segment being used. Because of the relatively short distance commuter trains would operate over trackage that already hosts Amtrak passenger trains, the primary concern of Canadian Pacific would be to assure that its ability to efficiently and expeditiously move existing and future freight train traffic through the Milwaukee terminal area is not compromised.

The focus of private railroad companies like the Canadian Pacific is on the bottom-line profit for owners and shareholders who will want to know how any new service such as a commuter train service will affect their operations and profit potential. Freight railroads will not seriously negotiate on particular terms until a project is well along and defined. The same list of suggested basic guidelines identified earlier for the Union Pacific Railroad would also be applicable for Canadian Pacific.

Freight Train Operations through Passenger Depot
The majority of Canadian Pacific freight trains operating through the Milwaukee area are routed through the passenger station. This segment of railway is Canadian Pacific's main freight line and is shared with Amtrak intercity passenger trains. Most freight trains moving through the passenger depot are very long and proceed slowly, occupying trackage in the area for significant periods of time. Canadian Pacific officials have indicated that should commuter trains between Kenosha, Racine, and Milwaukee be added to the already high volume of

freight and Amtrak train traffic through the depot there will likely be congestion problems for all train traffic. Initiation of commuter train operations and/or expanded Amtrak service into the Milwaukee passenger station would necessitate having all freight trains bypass the station. To do this, an existing freight route through Muskego yard would need to be upgraded to mainline standards.

Some of the necessary improvements to provide this freight bypass route have already been made by Canadian Pacific as part of its major capital improvement program during the late 1990s. Completed improvements include major upgrading of Muskego Yard trackage, reconfiguring the track arrangement at the west entrance to the yard, and redesigning and upgrading appropriate signals attendant to these improvements. To date, this work has been funded entirely by the Canadian Pacific Railway. The following additional work remains to be completed to provide a mainline freight bypass:

- Major track work includes: construction of a new second main track extending from the existing end of double track at S. 3rd Street to the junction of the freight main with the passenger main at Maple Street; rehabilitation and upgrading of both eastbound and westbound main tracks between the east end of Muskego Yard at approximately S. 11th Street to S. 3rd Street; construction of a new yard lead track extending in an easterly direction from the east end of Muskego Yard; and rehabilitation and improvement of turnouts along the new main tracks through Muskego Yard.
- Major signal work includes: installation and upgrading of signals at both ends of Muskego Yard and on the main lines leading to Muskego Yard; and installation of a new power crossover at the west end of Muskego Yard.
- Replacement of the existing Burnham Bridge drawbridge structure with a fixed bridge designed to accommodate the new yard lead track at the east end of Muskego Yard in addition to the two tracks for the main freight line.
- Access improvements include: miscellaneous removal and rearrangement of selected yard trackage; improvements to private railroad access roads along the new freight main line; and construction of a private pedestrian overpass over the main tracks at the Muskego Yard office.
- Maintaining this mainline freight route through Muskego Yard and the Menomonee Valley free of any at-grade public street, highway, or pedestrian crossings.

The Muskego Yard freight bypass work will also be necessary for implementation of high-speed intercity passenger train service between Milwaukee and Madison and Chicago, Milwaukee, and Minneapolis-St. Paul. This work is therefore assumed to be included as part of that proposed project. If the high speed rail project that includes this bypass work does not occur or is postponed and development of Kenosha-Racine-Milwaukee commuter rail service proceeds, then the responsibility for undertaking and funding these freight service improvements may rest with the commuter rail project.

Washington Street Connection

To permit the efficient operation of commuter trains through this connecting track between Union Pacific and Canadian Pacific trackage, track and signals will require rehabilitation and improvement. Ultimately some reconfiguration of the track arrangement in this area may be desirable, especially if Canadian Pacific freight trains are rerouted through Muskego yard instead of the passenger station.

Storage and Maintenance Facility Site

Extension of the potential commuter rail service to Milwaukee will require the construction of an overnight train storage and servicing facility on a site located west of the Milwaukee passenger station and access to the facility over Canadian Pacific tracks.

Liability

A private freight railroad company such as Canadian Pacific Railway would be expected to be concerned about the liability arising from the increased exposure of passengers and pedestrians to potential mishaps while on board trains, at stations, and while on railroad property. This would mostly involve potential claims from accidents and injuries. As part of any agreement, railroad companies will want to be protected to the extent possible from this

kind of action. Based on the recent experience of other new-start commuter rail systems, freight railroads can be expected to insist that they incur no liability for new commuter rail operations operated on their tracks.

Amtrak

Amtrak would be affected by the implementation of commuter rail service from Kenosha and Racine to Milwaukee since both services would need to use the same station in downtown Milwaukee. Amtrak uses Canadian Pacific trackage under an access agreement similar to what would be in place for the commuter rail service. However, Amtrak service, routines, and schedules are obviously well-established since Amtrak has been operating passenger train service through Milwaukee since 1971. Any accommodations by Amtrak to cooperate with the potential extension of commuter rail service into Milwaukee would require that existing and anticipated levels of service not be adversely affected.

Current and Future Levels of Service

Potential commuter train operations serving the Milwaukee passenger station would need to be coordinated with Amtrak intercity passenger train operations that use the same facility. Proposed improvements to intercity passenger train service serving Milwaukee, such as the introduction of high-speed service, could substantially increase train and passenger traffic handled at the facility.

Milwaukee Passenger Depot

The Wisconsin Department of Transportation purchased this passenger depot in December 2000. A major project was being initiated for the renovation and improvement of the depot facility and its transformation into a multimodal transportation center. As such, it is intended to serve as a station for Amtrak service, future high speed passenger train service to Madison and Chicago, and for intercity buses as well as potential commuter rail services including the Kenosha-Racine-Milwaukee service, and for pedestrian and other connections to downtown Milwaukee.

EVALUATION SUMMARY AND CONCLUSIONS

This section provides a summary of the evaluation of the three alternative transit services in the Kenosha-Racine-Milwaukee Corridor: commuter rail, commuter bus, and combination rail and bus. Both the commuter rail and combination alternatives include two options, one with a high level of service and one with a medium level of service. The commuter bus alternative also serves as the baseline alternative, to which the commuter rail and combination commuter rail and bus alternatives are compared.

Level of Service Findings

- Each of the three alternatives would provide improved and coordinated public transit service in the Kenosha-Racine-Milwaukee corridor and between the corridor and northeastern Illinois. A key service enhancement of all three alternatives is that each alternative would permit travel in both directions along the corridor during weekday morning and afternoon peak periods, as well as during midday and evening periods and on weekends.

- The amount of service provided by each of the three alternatives is equivalent, which is a result of the specific design of the alternatives. Each alternative—commuter bus, commuter rail with a high level of service, and combination rail and bus with a high level of service—provides 30 one-way trips, or 15 round trips between Kenosha and Milwaukee with connections to northeastern Illinois. Modified versions of the commuter rail and combination rail and bus alternatives were also developed which provide a lesser or medium level of service, of 14 one-way trips or seven round trips.

- The service area of the three alternatives is equivalent by design. The railroad alignment under the commuter rail alternative and the highway alignment under the commuter bus and combination rail and bus alternatives are almost identical, being adjacent to each other most of the length of the corridor. Only for a short distance in the Town of Caledonia are the rail and bus alignments more than one-half mile apart. Most of the stations are also at common or nearby locations among the alternatives.

- The commuter rail alternative will be able to offer the service with the highest average speed of about 34 miles per hour over the entire route. The commuter bus alternative will have the lowest average speed of about 20 miles per hour since it must operate over local streets and highways in mixed automobile and truck traffic. The combination rail and bus alternative will have a combined average speed of about 28 miles per hour over the entire route. The commuter rail alternative has the potential for average speeds to be increased in the future if additional improvements to track and signals are made to permit top speeds to increase from 59 to 79 miles per hour.

- The commuter rail alternative can be expected to be the most reliable of the three alternatives, especially during congested weekday peak travel periods and times of inclement weather. Because it would be on a separate nonhighway alignment, it would have priority over other traffic and would not suffer interference from other automobile and truck traffic. Most inclement weather will have little impact on the service with delays occurring only during the most severe weather conditions. The commuter bus alternative can be expected to be the least reliable since it would operate in mixed traffic, therefore being affected by street and highway congestion and delays resulting from high peak-period traffic volumes and adverse weather conditions. The combination alternative would experience reliability similar to the commuter rail alternative south of Racine and similar to the commuter bus alternative north of Racine.

- The commuter rail alternative would provide a convenient and direct, no-transfer, one-seat ride between stations within the Kenosha-Racine-Milwaukee corridor and between the corridor and northeastern Illinois. The commuter bus alternative would require passengers to transfer between bus and train at either Kenosha or Waukegan. The combination rail and bus alternative would require passengers to transfer between rail and bus at Racine. Requiring passengers to transfer between modes or vehicles is inconvenient and takes additional travel time, and may affect potential ridership levels. The commuter rail alternative does require transfer to an exclusive shuttle in downtown Milwaukee for trips that cannot be made conveniently by walking.

- Alternatives employing the commuter rail mode would provide the highest level of passenger comfort because of the large and spacious vehicle design, operating characteristics attributable to use of a dedicated railway route alignment separated from other traffic, and normal stopping and starting only at stations. Passengers may be expected to perceive the comfort level of commuter rail as superior to buses and therefore more attractive than buses. On a relative basis, the commuter rail alternative would provide the highest level of comfort; the commuter bus alternative would provide the lowest level of comfort; and the combination rail and bus alternative would provide a high level of comfort only for the Racine-Kenosha-Chicago segment, which would be operated with commuter rail. By offering a high level of service, commuter rail would enhance the attractiveness of public transportation as a mode of choice.

- To increase capacity, alternatives using the commuter bus mode would need to add additional buses and drivers, most likely increasing peak-period fleet and driver requirements. Alternatives using the commuter rail mode could increase capacity by adding additional coaches. However, because of the need for train sizes in the Kenosha-Racine-Milwaukee corridor to be consistent with train sizes between Kenosha and Chicago, the commuter rail alternative already has a large amount of excess capacity available for handling future growth of commuter rail use in the Kenosha-Racine-Milwaukee corridor. This excess capacity would be expected to extend south of Kenosha well into the northeastern Illinois suburbs.

- All three alternatives provide a similar overall level of accessibility in the corridor in terms of serving population and employment as a result of the alternatives being designed to be as comparable as possible. There are some differences in the amount of population and employment served by each alternative. These differences are attributable to the commuter bus and combination rail and bus alternatives including a small number of additional stops in the Racine area, the commuter rail and

commuter bus routes not being adjacent to each other for several miles in Racine County, the route alignment for the commuter bus service in downtown Milwaukee being different than the route for the dedicated shuttle bus used for commuter rail service, and the commuter rail alternative having a park-ride lot at every station. However, the higher speeds, greater amount of direct no-transfer service along the entire Milwaukee-Racine-Kenosha-Chicago corridor, and reliability offered by the commuter rail alternative would be expected to create a much stronger linkage within the corridor and between the corridor and northeastern Illinois. This would be of particular interest with respect to economic development in terms of access to labor forces and customers for corridor-based employers and businesses.

Ridership Findings

- The commuter rail alternative has the highest forecast ridership. Under a high level of service, average weekday ridership would total 5,100 person trips or 1,416,000 trips annually. The commuter bus alternative has the lowest forecast ridership. Average weekday ridership would total 4,100 person trips or 1,138,000 trips annually. The combination rail and bus alternative has a forecast ridership that falls between the other two alternatives. Under a high level of service, average weekday ridership would total 4,400 person trips or 1,235,000 trips annually.

- For the commuter rail and combination rail and bus alternatives, a medium level of service option was also developed. Under this type of reduced-service option, forecast ridership would decrease under the commuter rail alternative to 4,100 person trips per weekday or 1,139,000 trips annually and under the combination rail and bus alternative to 3,700 person trips per weekday or 1,028,000 trips annually.

- With respect to the incremental difference in ridership for the alternatives under a high level of service, the difference between the commuter bus/baseline alternative and the commuter rail alternative would be 1,000 trips per average weekday. The incremental difference between the commuter bus/baseline alternative and the combination rail and bus alternative would be 300 trips per average weekday. Under a medium level of service, there would be no difference between the commuter bus/baseline alternative and the commuter rail alternative on an average weekday. The incremental difference between the commuter bus/baseline alternative and the combination rail and bus alternative would be a reduction of 400 trips per average weekday.

- All three alternatives would attract trips that would be new to transit and would otherwise be made by automobile. The commuter rail alternative would attract the most new trips on an average weekday; about 3,100 trips or about 61 percent of the total weekday ridership under a high level of service, and about 2,200 trips or about 54 percent of the total weekday ridership under a medium level of service. The commuter bus and combination rail and bus alternatives would attract similar levels of new trips. The commuter bus alterative would attract about 2,100 trips or about 51 percent of the total weekday ridership. The combination rail and bus alternative would attract about 2,300 trips under a high level of service and about 1,800 trips under a medium level of service, representing about 52 and 47 percent of the total weekday ridership, respectively.

- The forecast average weekday ridership levels for the commuter rail alternative in the Kenosha-Racine-Milwaukee corridor would equal about the average level of weekday ridership on 18 new-start commuter rail lines in the United States and Canada, or about 5,000 trips per weekday.

- The commuter rail alternative would attract the most interregional or longer-distance trips traveling between Southeastern Wisconsin and northeastern Illinois. The commuter bus alternative would attract the least such trips. The combination alternative would attract a level of long-distance trips between the other two alternatives. As a result the estimated average trip length for commuter rail passengers is 27 miles, for combination commuter rail and bus passengers is 19 miles and for commuter bus passengers is 18 miles.

- The forecast annual passenger-miles of travel for the commuter rail alternative would be almost twice as much as the other alternatives under a high level of service and almost 50 percent greater than the other alternatives under a medium level of service. The commuter rail alternative would generate about 38 million annual passenger-miles under a high level of service and about 31 million annual passenger miles under a medium level of service. The combination rail and bus alternative would generate about 24 million annual passenger-miles under a high level of service and about 20 million annual passenger-miles under a medium level of service. The commuter bus alternative would generate about 20 million annual passenger-miles.

Capital Cost Findings

- The commuter rail alternative has the largest amount of capital improvement needs. It has the highest capital cost of $225 million under a high level of service and $152 million under a medium level of service.

- The commuter bus alternative has the lowest amount of capital improvement needs. It has the lowest capital cost which would be $19 million. The commuter bus alternative also serves as the baseline alternative.

- The combination rail and bus alternative has a capital cost much closer to that of the full commuter rail alternative than to the commuter bus alternative. It has a capital cost of $166 million under a high level of service and $146 million under a medium level of service.

- The incremental capital cost from the commuter bus alternative to the combination rail and bus alternative is $147 million under a high level of service and $127 million under a medium level of service. The incremental cost attendant to the commuter rail alternative is $205 million under a high level of service and $133 million under a medium level of service.

- The cost of purchase of locomotives and coaches represents between 65 and 75 percent of the total capital cost for the commuter rail and combination rail and bus alternatives. Train equipment requirements are significantly influenced by peak train size requirements for the already-established Metra service south of Kenosha, and by the proposed service design which provides service for reverse commuters that will require new trains to be added in the nontraditional-peak direction and operated over the entire length of the corridor.

Operating Cost and Revenue Findings

- The commuter rail alternative has the highest annual operating cost; $26.8 million under a high level of service and $18.6 million under a medium level of service. Annual operating revenue directly generated by this alternative from fares would also be the highest: $4.0 million under a high level of service and $3.2 million under a medium level of service.

- The commuter bus baseline alternative has the lowest annual operating cost at $3.4 million. Annual operating revenue directly generated by this alternative from fares would be the lowest at $1.6 million.

- The combination rail and bus alternative would have an annual operating cost somewhat less than the commuter rail alternative. Under a high level of service, the annual operating cost for the combination alternative would be $18.2 million and would be $12.7 million under a medium level of service. Annual operating revenue directly generated by this alternative would be $2.8 million under a high level of service and $2.3 million under a medium level of service.

- The commuter rail alternative has the highest annual net operating cost; between $16.8 million and $22.8 million under a high level of service and between $10.9 million and $15.4 million under a medium level of service. The combination rail and bus alternative has an annual net operating cost of

between $9.4 million and $15.4 million under a high level of service and between $5.9 million and $10.4 million under a medium level of service. The commuter bus alternative has the lowest annual net operating cost of $1.8 million.

- The total and net annual operating cost of the commuter rail alternative and the commuter rail portion of the combination rail and bus alternative are influenced by peak train size requirements. Train sizes must remain constant over an entire run and must be sized for the maximum demand, which will be along Chicago's North Shore suburbs, not along the extension north of Kenosha. In essence, operating costs for commuter rail north of Kenosha will include the cost of operating excess seating and coach capacity together with the attendant supporting costs.

- The total and net annual operating costs for commuter rail includes service within the Southeastern Wisconsin Region, and as well, new service within northeastern Illinois. Much of this new service within northeastern Illinois is reverse-commute service, including service in the morning outbound from the Chicago Loop and in the afternoon, inbound to the Chicago Loop. Approximately $6.0 million of the $26.8 million total annual operating costs of commuter rail service under the high level of service option is such service within northeastern Illinois, and under the medium level of service option, approximately $4.5 million of the $18.6 million annual total operating costs are due to service entirely within northeastern Illinois. It is reasonable to expect that should the commuter rail alternative proceed towards implementation, negotiations would occur to allocate the costs of this new service between northeastern Illinois and Southeastern Wisconsin. In any case, the farebox revenue attributable to trips made entirely within northeastern Illinois on this new service have not been estimated or included in the farebox revenue estimates of the commuter rail service.

Cost-Effectiveness Findings

The definition of cost-effectiveness that has been applied to transit projects is the measurement of the benefits of a transit project relative to its costs. There is no one measure that best represents the cost-effectiveness of investment of a transit project. Some of the measures that are widely used are presented below.

- The operating cost recovery rate is the percent of the total annual operating cost that is recovered from annual operating revenue generated from passenger fares. The commuter bus alternative has the highest operating cost recovery rate at 47 percent. The commuter rail alternative has the lowest operating cost recovery rate; 15 percent under a high level of service and 18 percent under a medium level of service. The combination rail and bus alternative has an operating cost recovery rate similar to that of the commuter rail alternative: 15 percent under a high level of service and 17 percent under a medium level of service. By comparison, the operating cost recovery rate ranges from 10 percent to 38 percent for other new-start commuter rail systems, from 34 percent to 59 percent for other long-established commuter rail systems, from 14 percent to 31 percent for bus transit systems in Southeastern Wisconsin, and from 10 percent to 21 percent for bus transit systems in Wisconsin outside the Southeastern Wisconsin Region. As noted earlier, the total and net annual operating costs of the commuter rail alternatives include the costs of all new commuter rail service proposed under each commuter rail alternative, including service within the Southeastern Wisconsin Region, as well as new service within northeastern Illinois. Potential allocation of the costs of the new commuter rail service to northeastern Illinois or inclusion of farebox revenue on new service entirely within northeastern Illinois may be expected to increase the farebox recovery ratio of the commuter rail alternatives from between 15 and 18 percent to between 19 and 28 percent.

- The operating cost per passenger refers to the average annual operating cost of each passenger trip. The commuter bus alternative has the lowest operating cost per passenger at $2.98 per trip. The commuter rail alternative has the highest operating cost per passenger at $18.87 per trip under a high level of service and $16.32 under a medium level of service. The operating cost per passenger for the combination rail and bus alternative would be $14.68 under a high level of service and $12.33 under a medium level of service. By comparison, the operating cost per trip ranges from about $4 to about $14 for most new-start commuter rail systems although two systems reported a cost per trip as high as

$22 and $38. The operating cost per trip ranges from about $5 to about $8 for long-established commuter rail systems and from about $1.75 to about $3.75 for bus transit systems in Southeastern Wisconsin. However, the existing Kenosha-Racine-Milwaukee bus service has an operating cost per trip of $14.25.

- The net operating cost per passenger refers to the average amount of the operating cost of each passenger trip not covered by operating revenue generated from passenger fares. The commuter bus alternative has the lowest net operating cost per passenger at $1.58 per trip. The commuter rail alternative has the highest net operating cost per passenger at $16.06 per trip under a high level of service and $13.51 under a medium level of service. The net operating cost per passenger for the combination rail and bus alternative would be $12.42 under a high level of service and $10.10 under a medium level of service.

- The net operating cost per passenger-mile refers to the amount of the annual operating cost per passenger-mile not covered by operating revenue generated from passenger fares. The commuter bus alternative has the lowest net operating cost per passenger-mile at $0.09 per trip. The combination rail and bus alternative has the highest net operating cost per passenger-mile at $0.65 per trip under a high level of service and $0.53 under a medium level of service. The net operating cost per passenger-mile for the commuter rail alternative would be $0.60 under a high level of service and $0.50 under a medium level of service.

- The operating cost per vehicle-mile refers to the average total unit cost to operate a bus, a train, or a single commuter rail coach an average distance of one mile. For the commuter bus alternative, vehicle-miles are equivalent to bus-miles. For the commuter rail alternative, vehicle-miles are equivalent to car-miles. Since commuter trains consist of several cars, commuter rail train-miles can also be estimated. For the combination rail and bus alternative, vehicle-miles are equivalent to the sum of the bus-miles and car-miles. The commuter bus alternative has the lowest operating cost per vehicle-mile at $4.42. The commuter rail alternative has the highest operating cost per vehicle-mile at $7.36 under a high level of service and $10.39 under a medium level of service. The operating cost per vehicle-mile for the combination rail and bus alternative would be $6.95 under a high level of service and $9.77 under a medium level of service. By comparison, the operating cost per vehicle-mile varies from about $11 to about $18 for most new-start commuter rail systems (although two systems report costs as high as $29 and $52 per vehicle-mile), from about $8 to about $12 for long-established commuter rail systems, and from about $2 to about $5 for bus transit systems in Southeastern Wisconsin.

Economic and Land Use Development Impact Findings

- Commuter rail alternatives may be expected to have land use development and economic development impacts, while bus alternatives may not. Fixed-rail urban transit such as commuter rail represents a permanent long-term commitment to high quality transit service. Developer investment in residential and office development, and attendant retail development can be linked to the investment in commuter rail. Bus service over existing streets and highways is flexible, and provides no long-term service commitment, and therefore, no link to investment in land development and redevelopment.

- The impact that the commuter rail alternative may be expected to have on land development and redevelopment would be expected to occur within the immediate vicinity—within one-quarter to one-half mile—of the commuter rail stations. A station may be expected to promote the development of retail businesses such as dry cleaners, drug stores, food stores, and restaurants that benefit from the additional market of the commuter rail passengers. Residential and office development also will have incentives, with attendant retail development, to locate in proximity to high-quality, permanent rail transit service. The potential influence of commuter rail on land development and redevelopment is apparent from Metra's experience with many communities in northeastern Illinois, including Evanston, Highland Park, Arlington Heights, Glenview, Lake Forest, Naperville, and Elmhurst.

- The benefits of promoting land development and redevelopment in the vicinity of proposed commuter rail stations in the Kenosha-Racine-Milwaukee corridor are important for the long-developed communities of Kenosha, Racine, South Milwaukee, Cudahy, St. Francis and Milwaukee. The significance of the influence of commuter rail on land development and redevelopment is already being recognized in the Cities of Racine and Cudahy as they are including transit center/commuter rail stations in their downtown redevelopment plans. Commuter rail in the Kenosha-Racine-Milwaukee corridor through its influence on land development and redevelopment would assist in meeting regional land use development objectives through the promotion of sound land use development and redevelopment in desired central city locations.

- A study conducted by the Racine County Economic Development Corporation has identified the potential land use development impacts associated with the City of Racine commuter rail station. The study is documented in a report published in January 2003 and entitled "Kenosha-Racine-Milwaukee Commuter Rail: An Analysis of Current and Potential Economic Activity Surrounding the Racine Station Area." The study concluded that:

    - Commuter rail can have a positive impact on the surrounding real estate market by acting as a focus for new businesses, employers, and residential development.

    - Transit-oriented development surrounding the station will have a direct impact on generating increased property tax revenues, this being dependent on the aggressiveness of a coordinated development strategy.

    - Many of the conditions for successful development already exist in the Racine station area.

    - Commuter rail and related development would contribute to the stabilization of neighborhoods around the Racine station by increasing employment and transportation opportunities.

    - It is likely that other stations along the potential commuter rail line might realize even higher gains than those estimated in the study for Racine. This would be especially applicable to station sites that currently have unused land nearby for development opportunities.

    - The study also noted that the positive implications of commuter rail also extend to other areas including: increasing the local and regional available workforce for Racine, providing similar development benefits to smaller communities along the corridor, and contributing to the enrichment of the corridor in terms of access to cultural and recreational opportunities.

- While it is widely accepted that commuter rail may have land development and redevelopment impacts in the vicinity of its stations, it is also widely accepted in commuter rail planning literature that investment in commuter rail may not be expected to affect the total amount of economic and population growth within a region. That is, commuter rail may generally only be expected to attract land development and redevelopment, and result in a shift in development and redevelopment location within a region.

    - However a report published by the Racine County Economic Development Corporation (RCEDC) in April 2002 entitled, "Racine County Strategic Development Plan" envisions that commuter rail will more closely link Racine County with the Milwaukee area and the Chicago area, and assist in establishing a Chicago-Kenosha-Racine-Milwaukee mega-metropolitan area. The strategic plan of the RCEDC envisions that such linkage will result in more economic and population growth for the Chicago-Kenosha-Racine-Milwaukee corridor, and more economic and population growth specifically for Racine County.

- Moreover, major employers such as S.C. Johnson & Son, Inc. have stated that commuter rail service is essential to maintaining and expanding their presence in the corridor and to attracting qualified employees and adding to the quality of life in the area. Other major employers in the corridor have endorsed commuter rail including Case New Holland, WE Energies, Twin Disc Inc., and Modine Manufacturing Company. In addition, a wide range of business, educational, development and real-estate organizations support and have endorsed the extension of commuter rail in the corridor.

Environmental Review Findings

A review of the anticipated environmental impacts of the commuter rail and bus alternatives in the Kenosha-Racine-Milwaukee corridor indicates minimal environmental impacts of the alternatives, and no environmental impact which would warrant eliminating any alternative from consideration. The environmental impacts of the transit alternatives are modest, as the alternatives use existing facilities and rights-of-way, and new construction is limited to stations, park-ride lots, and storage and servicing facilities.

- Compatibility with Existing Land Use--Because of the existing alignments and right-of-way, each alternative may be considered compatible with existing adjacent land uses.

- Land Acquisition and Displacements--Right-of-way and land acquisition will be minimal for all alternatives.

- Environmental Justice/Title VI--No negative equity or environmental justice-related impacts were identified for any alternatives. The alternatives would increase mobility and transportation options to areas of the corridor where groups of minority and low-income populations reside.

- Visual and Aesthetic Impacts--Most visual and aesthetic impacts attendant to the commuter rail and bus alternatives would likely represent beneficial impacts, particularly under the commuter rail alternative.

- Historic and Cultural Impacts--No negative historic or cultural impacts were identified. The commuter rail alternative would particularly support preservation of the historic Racine railroad passenger depot building.

- Farmland Impacts--Impact on farmlands would be limited to minimal land needed for station development.

- Park and Open Space Impacts--No acquisition or direct impacts to parks and open space were identified.

- Water Resource Impacts--No significant water resource or floodplain impacts were identified.

- Biological Resource Impacts--No significant biological resource impacts with respect to natural areas, endangered species, environmental corridors, or wetlands were identified.

- Hazardous Material Site Impacts--No adjacent or nearby existing hazardous material site may be expected to constrain or affect implementation.

- Noise and Vibration Impacts--Noise and vibration impacts of the commuter bus alternative may be expected to be negligible. There would be some noise and vibration impact from commuter rail trains but these impacts would be modest.

- Safety--There would be minimal impacts for all alternatives, although commuter rail represents the potential for vehicle and pedestrian accidents at grade crossings.

- Air Quality and Pollutant Emissions--The new ridership under the commuter rail and bus alternatives may be expected to result in a very small reduction in ozone-related air pollutants ranging from reductions of 0.01 tons per hot summer weekday of volatile organic compounds and nitrogen oxide emissions, or about a 0.05 percent reduction, in regional transportation system emissions under the bus and combination rail/bus alternatives, to reductions of 0.02 tons, or about a 0.1 percent reduction, under the commuter rail alternative.

Railroad Impact Findings

Issues and concerns of the affected railroads with respect to the implementation of a new commuter rail service between Kenosha, Racine, and Milwaukee are as follows:

- Metra may be expected to be concerned with effects on schedule reliability, potential schedule changes for existing service, effects on track maintenance work, and equipment servicing and storage.

- The freight railroads—Union Pacific and Canadian Pacific—will insist that alternatives that include commuter rail must preserve their ability to serve customers and operate freight services with no degradation of service. Capital improvements will be needed with respect to freight railroad facilities.

Chapter III

ORGANIZATION AND MANAGEMENT ALTERNATIVES

This chapter defines and considers the alternatives for the organization and management of the implementation and operation of the commuter rail and bus public transit alternatives in the Kenosha-Racine-Milwaukee corridor. The following sections of this chapter describe key considerations that affect potential organization and management alternatives; describe organization and management functions that must be performed in providing commuter rail and/or commuter bus service; identify organization and management alternatives which may be used to provide commuter rail and bus transit service; and present conclusions and recommendations with respect to organization and management.

KEY CONSIDERATIONS

There are six key factors which may be expected to affect potential organization and management alternatives for the proposed Kenosha-Racine-Milwaukee corridor commuter rail and bus service:

1. Limited scope and single mode of service.
2. Need to operate on Metra controlled tracks south of Kenosha and be integrated with Metra service.
3. Need to coordinate with existing local bus service providers.
4. Need for minimal organization and management structure for commuter bus service.
5. Findings of Governor's Blue Ribbon Task Force on Passenger Rail.
6. Past consideration of Regional Transportation Authority.

Limited Scope and Single Mode of Service

Extending commuter rail service north of Kenosha or providing an improved commuter bus service in the Kenosha-Racine-Milwaukee corridor would represent a significant improvement of public transportation in the corridor. However, this improvement would be limited to a single transportation mode and a well-defined geographic area. Therefore, the organization and management structure required to implement and operate commuter rail or commuter bus service may be narrowly defined and limited in nature.

Metra Operation of the Commuter Rail Service

Metra has indicated that they will require that only Metra operate commuter rail service south of Kenosha. Therefore, in order to operate through service between Milwaukee and northern Illinois without a transfer at Kenosha, Metra must be the commuter rail service provider. A separate commuter rail operator could provide service between Milwaukee and Kenosha, but this would require passengers to transfer to Metra trains at Kenosha

for trips between the Kenosha-Racine-Milwaukee corridor and northern Illinois. Moreover, given the current focus of most Metra service on the Chicago Loop, cross-platform transfers at Kenosha would not serve well northbound morning commuters and southbound afternoon commuters, making the service impractical for those who choose to live in Illinois and work in Racine or Milwaukee. Accordingly, it is assumed that commuter rail service in the Kenosha-Racine-Milwaukee corridor would be provided through a contract with Metra for service, and that Metra operational considerations will be met.

Need for Coordination with Existing Local Bus Service Operators

Both commuter rail and bus alternatives for the Kenosha-Racine-Milwaukee corridor will require service coordination with the existing bus systems operating within the corridor: the Milwaukee County, City of Kenosha, and City of Racine bus systems, and the existing bus route which operates between the communities of Kenosha, Racine, and Milwaukee. The City of Racine has historically assumed organization and management responsibilities for the existing Kenosha-Racine-Milwaukee corridor bus service, which is provided under contract by a private operator, Wisconsin Coach Lines, Inc., a subsidiary of Coach USA. The service coordination necessary with existing bus transit systems include route and schedule modifications to create linkages to, and provide transfer opportunities with, new corridor commuter rail or bus service. Any new organization providing transit service in the Kenosha-Racine-Milwaukee corridor will need to establish effective working relationships with the existing transit systems.

Organization and Management Structure for Commuter Bus Service

Three potential organization and management alternative structures are examined and rank-ordered in this report: Multi-Government Cooperative, State of Wisconsin, and Multi-County Transit Authority. All three are appropriate for consideration with respect to the commuter rail alternative, but only the Multi-Government Cooperative would appear to be appropriate for the commuter bus alternative, given its limited costs and the potential for an existing unit of government to be the service operator. The City of Racine has historically assumed responsibility for the operation of commuter bus service between Kenosha, Racine, and Milwaukee with a private operator providing service under contract. No agreement or contract has been necessary between the local governments within the Corridor, as the limited service has been fully funded with federal and state funds, and has required no local funds.

Governor's Blue Ribbon Task Force on Passenger Rail

In March 1999, Wisconsin Governor Tommy Thompson created the Governor's Blue Ribbon Task Force on passenger rail service. One of the responsibilities of this Task Force was to make recommendations with respect to the appropriate government role regarding the implementation and funding of intercity passenger rail and commuter passenger rail services. With respect to intercity passenger rail, the Task Force recommended that the State of Wisconsin should be the lead in implementing intercity passenger rail and that the funding of intercity passenger rail should be accomplished with a combination of federal and state funds with no local share. The Task Force further endorsed the Midwest regional rail system plan and the maintenance and enhancement of the existing Hiawatha intercity passenger rail service between Milwaukee and Chicago. The Wisconsin Department of Transportation is the lead agency for the State in the operation and funding of the Hiawatha service between Chicago and Milwaukee, which is operated by Amtrak.

With respect to commuter rail, the Task Force could not reach agreement on the level of government which should lead the implementation and manage the operation of commuter rail and the responsibilities of levels of government with respect to funding the implementation and operation of commuter rail. There were two perspectives reflected in the deliberations of the Task Force. One perspective was that, as with intercity passenger rail, the State should be responsible for implementation and operation of commuter rail, and that commuter rail should be funded with a combination of federal and state funds without a local share. Those on the Task Force who shared this perspective noted that trips which would be made on commuter rail would be longer trips, which would most likely be between and through the counties of the State and would be trips that, if not carried on commuter rail, would be carried on State trunk highways, which are the responsibility of the State of Wisconsin to implement and operate.

The other perspective on the Task Force with respect to commuter rail was that local governments should take the lead in implementing and managing the operation of commuter rail and that funding commuter rail should be accomplished with a combination of federal, state, and local funds. Those on the Task Force sharing this perspective believed that commuter rail was similar to urban public transit. They proposed that the State should share in the capital costs of commuter rail implementation, including consideration of a new state program which would provide for an equal sharing between state and local government of the non-Federal share of the capital cost of implementing commuter rail, assuming that the Federal share would not fall below 50 percent. With respect to operating costs, the State would fund the operating costs of commuter rail in the same way as the State participates in the operating costs of urban public transit, that is, that the State fund about 40 to 50 percent of the operating costs of commuter rail service. Local government representatives—particularly those from southeastern Wisconsin—stated in response that this local commuter rail implementation and management option would either require state legislation for a commuter rail or transit authority, or state legislation providing dedicated funding for commuter rail or all public transit.

Southeastern Wisconsin Regional Transportation Authority

The 1991-1993 State of Wisconsin biennial budget created a Regional Transportation Authority (RTA) for the seven-county southeastern Wisconsin Region, with the authority to study the need for a regional transportation authority and make recommendations with respect to the implementation of such authority and to the responsibilities and funding of such an authority. The Regional Transportation Authority completed its study in May 1993, and made recommendations with respect to regional transportation authority functions and responsibilities, governance, geographic scope, revenue sources, and revenue allocation methods. With respect to functions and responsibilities, it was recommended that a regional transportation authority be established permanently, not to provide for greater coordination and planning of transportation system development, but rather to provide an institutional structure for the collection and distribution of nonproperty tax revenue for supporting county and municipal arterial highway and transit project implementation and to provide an institutional structure that would facilitate and potentially deliver the provision of transit services over broader areas of the Region. It was recommended that regional transportation planning should continue to be done by the Regional Planning Commission with the RTA Board being an active participant in that effort. Specifically, with respect to highways, it was recommended that the RTA be enabled to provide funds to county and local governments for county and municipal arterial street and highway construction and operation and maintenance. With respect to transit, it was recommended that the RTA also provide funds to county and local governments to deliver transit services, but that the RTA also be authorized to directly sponsor and provide transit services.

With respect to governance, it was recommended that the Board have 11 members, all appointed by the Governor, with one member being the Secretary of Transportation. The remaining 10 members of the Board would include one representative from each participating county and three at-large members, with one appointed from within the City of Milwaukee.

With respect to geographic scope, it was recommended that the RTA serve the seven-county Southeastern Wisconsin Region.

With respect to regional revenues, it was recommended that revenues of $90 to 95 million be generated annually to fully fund the implementation of the public transit and county and municipal arterial street and highway elements of the adopted regional transportation plan and the replacement of local property tax dollars currently allocated to county and municipal arterial highways and public transit. At the local level, the revenue would be raised through an additional 0.4 percent general sales tax and an additional five cents per gallon motor fuel tax (except on diesel fuel) in the seven-county Southeastern Wisconsin Region.

With respect to revenue allocation, it was recommended that each county be guaranteed to receive over a six-year period 98 percent of the total revenue determined to be generated in that county, and that within each county, a consensus seeking process involving local governments, with the regional transportation plan as the basis, should be utilized to allocate money between highways and public transit and between the county and municipalities.

The recommendations of the Regional Transportation Authority were considered by all seven county boards within southeastern Wisconsin. Only one county—Milwaukee—passed a resolution in support of the RTA's final recommendations. But, that action was conditional upon substantial modifications to the RTA's recommendations, and rejected the proposed new regional taxes. As a result, the Regional Transportation Authority itself recommended that it be disbanded and that a permanent authority not be created at that time.

ORGANIZATIONAL AND MANAGEMENT FUNCTIONS

The functions that the organization and management structure for the commuter rail and bus service in the Kenosha-Racine-Milwaukee corridor will need to perform include:

- Overall Management and Policy Definition
- Administration
- Coordination
- Implementation
- Ownership and Operations

Another function is finance, which is discussed in Chapter 4 of this report and in a separate technical report, *Financial Analysis of Alternatives*, Study Technical Report No. 8.

Overall Management and Policy Definition
The overall management and policy definition function includes determining the scope of service to be provided within a necessary budget, and the formulation, review, and approval of budgets. It also includes the review, negotiation, and approval of service agreements and contracts. In addition, this function includes setting service policies, including service frequency and schedule, station and stop frequency and location, and passenger fares.

In most private sector companies and many public or semi-public sector institutions, this overall direction is provided by a board of directors. The powers of a board of directors may vary depending upon the size of the organization and legislative direction and restrictions. Usually the board of directors is not involved in the day-to-day management of the organization. This task is delegated to a chief executive officer and staff. The chief executive officer is appointed by the board and operates under the board's direction. Similarly, in the public sector, a chief elected official together with the unit of government's legislative body provides overall direction and management to departments. The department head and staff provide the day-to-day management.

Administration
Administrative functions include payroll, personnel, and contract administration. These functions may be performed by the organization and management, or contracted out to other governmental organizations or to consultants.

Coordination
In order to provide transportation services effectively, the organization and management providing the commuter rail or bus transportation services must coordinate effectively with numerous other organizations. The coordination activities required are listed below:

- Coordinate with public transit operators,
- Work with local governments and developers on land use plans and projects at and near stations,
- Coordinate with freight railroads and other commuter rail operators, and
- Work with the Southeastern Wisconsin Regional Planning Commission in the preparation of long-range regional land use and transportation plans, and short-range plans for the commuter rail or bus service.

The commuter rail/bus organization must coordinate with numerous organizations on many issues ranging from long-range plan development to daily bus and rail schedules.

Implementation
The implementation of commuter rail service in the Kenosha-Racine-Milwaukee corridor, including vehicle purchase and construction—track and signal improvements, stations, and yards—is largely a one-time event not to be repeated for decades. Therefore, it is likely that the organization would contract for the supervision of the construction and start-up of service.

Implementation of the commuter bus alternatives will not involve extensive implementation activities or construction. All service and facilities, except stops and stations, have the potential to be provided under contract with a private or existing public operator.

Should this study conclude with a decision to implement commuter rail service, the next step would be preliminary engineering and design and formal environmental documentation, followed by final engineering, right-of-way acquisition, and construction. All of these next step activities should be undertaken by the new organization to implement and manage the commuter rail service. Therefore, if commuter rail is recommended to be implemented, the first implementation task would be to create and mobilize the new organization.

Ownership and Operations
The following ownership and operations assumptions are necessary to the consideration of organization and management alternatives:

- Metra will be the provider of commuter rail service in the Kenosha-Racine-Milwaukee corridor.
- A Wisconsin entity will purchase sufficient Metra-compatible commuter rail rolling stock to allow Metra to expand service to the Kenosha-Racine-Milwaukee corridor in a bi-directional mode.
- Both Metra-owned and Wisconsin-owned rolling stock will operate in the Kenosha-Racine-Milwaukee corridor and the rest of the Metra system as required for scheduling purposes.
- Tracks, signals, and rights-of-way will continue to be owned and maintained by the Canadian Pacific and Union Pacific railroads.
- Rail and bus stations may be owned by the transit operator, or by the State or a municipality or county.
- The new commuter bus service, including attendant bus equipment and maintenance and storage facilities, could be operated under a service agreement with one of the existing public transit operators in the Kenosha-Racine-Milwaukee corridor, or with a private operator.

Ownership and operations functions of the new organization and management of the new commuter rail or bus service will include ongoing responsibilities for contract operator supervision, programming and implementation of long- and short-range plan recommended actions, preparation of federal and state capital and operating assistance grant applications, and annual budget and capital program/operating plan preparation.

ORGANIZATIONAL ALTERNATIVES

Three concepts for organizational structure were defined for the Kenosha-Racine-Milwaukee commuter rail service:

- Multi-Government Cooperative,
- State of Wisconsin, and
- Multi-County Commuter Rail or Transit Authority.

All three organizational structures would be capable of owning, operating, and managing commuter rail service in the Kenosha-Racine-Milwaukee corridor. Each organization would be expected to contract with Metra to provide commuter rail service. As concluded earlier, the only organizational structure appropriate for the commuter bus alternative is the Multi-Government Cooperative.

Table 23 presents a summary of each of the functions that these organizational structures would need to perform to implement and operate commuter rail service, along with funding assumptions attendant to each organizational structure.

Multi-Government Cooperative

A Multi-Government cooperative represents the implementation and management of the commuter rail or bus service through a joint contract between the local governments—county and/or municipal—within the Kenosha-Racine-Milwaukee corridor. Wisconsin law permits local units of governments (municipal and county) to enter into cooperative agreements to provide public transit and other services. The applicable laws are flexible with respect to how these multi-government cooperatives would be organized. Current legislation limits funding for such cooperatives from local governments to funds from existing local revenues, which are primarily property taxes. Funding to match local funds would include fare revenues, and federal and state funds.

A Multi-Government Cooperative for commuter rail or bus service could be formed by member governments including the Counties and/or the Cities of Milwaukee, Kenosha, and Racine, and other municipalities in the corridor. The Multi-Government Cooperative joint contract would commit the members to contracting for the desired transit service, outline the governance and staffing requirements and responsibilities for managing the service, and specify the funding arrangements and responsibilities. Under this organizational structure alternative, the necessary staff could be from member governments and/or a relatively small Multi-Government Cooperative staff, and could be supplemented by consultants.

It may be assumed under this alternative, based upon the recommendations of the Governor's Passenger Rail Task Force, that capital costs would be funded by Federal funds, with the non-Federal share being equally divided between the State and local governments. These State funds would require a new State capital program. In addition, operating assistance would entail State assistance in the amount of 40 to 50 percent of operating costs similar to the current program for urban bus transit, and also local funds, as well as perhaps some limited federal funds. The State operating assistance would require expansion of the current urban bus transit operating assistance program.

While this organizational and management structure does not require enabling legislation for creation, local governments within the corridor have strongly stated that existing funding available to local governments will not permit the implementation of commuter rail service, or improved and expanded commuter bus service. New legislation providing dedicated funds for commuter rail or all public transit would be required as well under this organization and management alternative.

State of Wisconsin

One option for the provision of commuter rail service would be for the State of Wisconsin to be responsible for implementation and management. The States of New Jersey and Maryland operate commuter rail systems that provide service to the most populated areas of those states. The proposed commuter rail service for the Minneapolis-St. Paul area would be implemented and largely funded by the State of Minnesota with some local capital cost funding participation. The State of Wisconsin is the lead for the intercity passenger rail service between Milwaukee and Chicago, which is operated by Amtrak. The Wisconsin Department of Transportation is the lead agency for the State of Wisconsin for the Hiawatha intercity service, and would be the appropriate lead agency under this organizational structure alternative. The State fully funds the capital and operating subsidies attendant to the Hiawatha intercity service, and under this organizational structure alternative, would fund, together with Federal funds, the implementation and operation of the Kenosha-Racine-Milwaukee commuter rail service. State budget authority would be required to implement this organizational alternative.

Table 23

KENOSHA-RACINE-MILWAUKEE COMMUTER RAIL SERVICE
ORGANIZATIONAL AND MANAGEMENT ALTERNATIVES

Function	Organizational and Management Alternative		
	State of Wisconsin	Multi-Government Cooperative	Multi-County Transit Authority
Overall Management and Policy Definition Determine scope of service within budget. • Review and propose/-approve budget • Review and approve service agreements and contracts • Establish operation policies	Governor sets the overall direction with approval by State Legislature in consultation with local governments. Existing (Wisconsin Department of Transportation) or new state agency manages service and policy direction.	Joint contract would establish means of governance which could be Board of Directors appointed by, and represent-ing, participating units and levels of government. Public Works Department or transit system heads could be these government representatives. Participating units and levels of government establish budget and scope of service.	Board of Directors manages service and sets policy. Enabling legislation establishes selection of Board of Directors.
Administration Contract Administration • Personnel • Payroll	State Agency personnel.	Provided by member govern-ment staff, consultant, or small cooperative staff.	Transit Authority personnel.
Coordination Transit Operators • Local governments • Freight Railroads • Land Developers • SEWRPC	State Agency personnel.	Member governments staff or small cooperative staff.	Transit Authority personnel.
Implementation • Preliminary and final engineering • Vehicle purchase • Construction – track, stations, yards, signals • Right-of-way acquisition	State Agency personnel and consultants.	Member governments staff, small cooperative staff, consultants.	Transit authority personnel and consultants.
Ownership and Operations • Contract Operator supervision • Contract operator negotiation • Programming and ongoing implementation • Grant application preparation • Annual budget and capital program/-operating plan preparation	State Agency personnel.	Member government staff, small cooperative staff, and consultants	Transit authority personnel.

Table 23 (continued)

Function	Organizational and Management Alternative		
	State of Wisconsin	Multi-Government Cooperative	Multi-County Transit Authority
Funding	Capital Costs • Federal funds • State funds Net Operating Costs • Limited federal funds • State funds Requirements • State legislation to provide implementation and operation authority to Wisconsin Department of Transportation to provide capital and operating funds.	Capital Costs • Federal funds • Non-Federal share equally allocated between State and cooperative Net Operating Costs • State assistance similar to urban bus program (40 to 50 percent of costs) • Limited federal funds • Cooperative to provide remaining assistance Requirements • State legislation to create new capital program • State legislation to expand operating assistance program • Existing local revenues insufficient to provide local operating and capital shares. State legislation to provide dedicated funding likely will be necessary.	Capital Costs • Federal funds • Non-Federal share equally allocated between State and Transit Authority Net Operating Costs • State assistance similar to urban bus program (40 to 50 percent of costs) • Limited federal funds • Transit authority to provide remaining assistance. Requirements • State legislation to create new capital program • State legislation to expand operating assistance program • State legislation to create transit authority including responsibilities, governance, and taxes.

Source: SEWRPC

Multi-County Commuter Rail or Transit Authority

Regional transit authorities exist in most metropolitan areas. A regional transit authority has the authority to implement and operate transit services, and the authority to raise the revenues to fund transit service. Typical revenue sources include motor fuel taxes and sales taxes.

Under this organizational and management structure, a multi-county authority to implement and operate commuter rail would be created under new State legislation. The legislation would also need to create a revenue source for the authority, and identify the governance of the authority. The multi-county authority would have its own staff to implement and manage the operation of commuter rail service.

In the alternative, a transit authority could be established to fund and/or operate all public transit, with commuter rail only being one element of the public transit system.

CONCLUSIONS AND RECOMMENDATIONS

Based upon review of the identified considerations affecting the potential organization and management alternatives, previous consideration of the organization and management alternatives in southeastern Wisconsin (Governor's Blue Ribbon Task Force on Passenger Rail and Southeastern Wisconsin Regional Transportation Authority), and review of the functions to be performed by the organization and management alternatives in the

Kenosha-Racine-Milwaukee corridor, the following conclusions were reached concerning the organization and management structure necessary to implement commuter bus and rail service in the Kenosha-Racine-Milwaukee corridor:

Commuter Rail Service

- Each of the organization and management structure alternatives—Multi-Government Cooperative, State of Wisconsin, and Multi-County Commuter Rail Authority—given the enactment of necessary legislation and provision of necessary funding would have the capacity to implement and manage the operation of commuter rail service in the Kenosha-Racine-Milwaukee corridor.

- Each of the organization and management alternatives would require, as a practical matter, new state legislation which may be expected to be difficult to achieve and have significant obstacles. With respect to the Multi-Government Cooperative, obtaining state legislation to provide dedicated funding for commuter rail may be difficult to obtain, particularly given the need for dedicated funding to maintain and improve existing urban public transit. With respect to the State of Wisconsin management alternative, obtaining State legislation which would provide the State authority to implement, manage, and fully fund the operation of commuter rail without any local share may be difficult as well. Also, obtaining the State legislation for a multi-county commuter rail authority, including consideration of governance and special multi-county taxes, may be expected to be very difficult.

- Because each of the organization and management alternatives has the capability to implement and manage the operation of the commuter rail service, but also has significant obstacles which may make them difficult to implement, one organization and management alternative was not recommended over another, but rather a sequential attempt toward implementation was recommended. In the event it is not possible to implement a particular alternative, attempts would be made to pursue the next alternative.

- The first organization and management alternative recommended to be pursued was State management and operation of commuter rail through the Wisconsin Department of Transportation. The trips expected to be made on the proposed commuter rail service include interstate trips between the States of Wisconsin and Illinois, and longer distance trips between and through southeastern Wisconsin counties. These trips if not on commuter rail would largely be made on state trunk highways, including the interstate highway system, which are the responsibility of the State of Wisconsin. In addition, the Wisconsin Department of Transportation staff has experience in passenger rail implementation and operations, having been the lead agency for the provision of Amtrak *Hiawatha* intercity passenger rail service between Milwaukee and Chicago. The State, through the Wisconsin Department of Transportation, also is pursuing the implementation of the Midwest Regional High Speed Rail System, and one option for that system includes the operation and implementation of a service which would connect Eau Claire, Wisconsin, to the Minneapolis-St. Paul area in the State of Minnesota with a passenger rail service which may be considered to be commuter rail. It is recognized that there are obstacles to implementation of this organization and management structure for commuter rail. The Governor's Blue Ribbon Passenger Rail Task Force in the year 2001 could not agree on the State taking the lead and principal funding responsibility for implementing commuter rail. This organization and management alternative will likely require State legislation to direct the Wisconsin Department of Transportation to implement and manage the operation of commuter rail and to provide with Federal and State funds the necessary capital and operating funding.

  A sub-option, should this prove infeasible, would be for the State to take the lead agency role in implementation given its expertise and experience in passenger rail implementation, contracting, and operations, but to require local cost shares for both capital and operating costs as under the Multi-Government Cooperative or Rail Authority options. This sub-option would require legislation as well for dedicated local funding for commuter rail, and perhaps all public transit.

- Should State organization and management of commuter rail service prove infeasible, it was recommended that the next option pursued be the Multi-Government Cooperative. This option also has obstacles as existing local funds would be insufficient for implementation and operation of commuter rail, and new dedicated funding for commuter rail and possibly all public transit would need to be obtained. Also, establishing a joint contract between local governments to implement and fund the initial operation of commuter rail service may be expected to be difficult as well, along with the subsequent annual joint approval of budget.

- The last option proposed to be pursued is the Multi-County Commuter Rail Authority. This is the last option recommended given the past difficulty of pursuing a regional transit authority, and that issues of both governance and taxes will need to be addressed.

Commuter Bus Service

- The Multi-Government Cooperative would appear to be the best option to implement the commuter bus alternative. The City of Racine, without any joint contract or agreement, is responsible for the existing public transit service in the Kenosha-Racine-Milwaukee corridor, which is provided under contract by a private transit operator. The City of Racine prepares the necessary federal and state grant applications and negotiates, administers, and monitors the contract with the private operator. This has largely been possible because the service has been funded entirely with federal and state funds, and has not required any local funds. The commuter bus alternative may be expected to require local operating and capital funding, and State legislation providing dedicated funding for public transit may also be necessary for the implementation of this alternative. A Multi-County Transit Authority would not be warranted, and attempts to have the State implement the commuter bus alternative would be problematic.

Chapter IV

FINANCIAL ANALYSIS OF ALTERNATIVES

This chapter presents potential implementation schedules and funding requirements for the commuter rail and bus alternatives in the Kenosha-Racine-Milwaukee corridor. Previous reports prepared under the study have presented the design and operations plans for the commuter rail and bus alternatives, ridership and farebox revenue forecasts, and the estimated total capital and annual operations and maintenance costs of those alternatives. (See Technical Report No. 2, *Definition of Alternatives*; Technical Report No. 3, *Ridership Forecasts for Alternatives*; Technical Report No. 4, *Capital Improvement Needs and Costs of Alternatives*; and Technical Report No. 5, *Operating and Maintenance Costs of Alternatives*.) The proposed funding requirements for the commuter rail and bus alternatives have been developed in conjunction with the consideration of organization and management alternatives for the implementation and operation of commuter rail and bus service in the corridor, as presented in Chapter 3 of this report.

The purpose of this chapter is to assess the total capital and annual operating and maintenance costs of commuter rail and bus service implementation and operations in the Kenosha-Racine-Milwaukee corridor. The following sections of this chapter present the total capital and annual total and net annual operating and maintenance costs of the commuter rail and bus alternatives, an implementation schedule for each alternative and attendant annual capital and operating cost funding requirements, and potential funding options for each transit alternative.

COST ESTIMATES AND IMPLEMENTATION SCHEDULE

Cost estimates have been prepared for total capital costs and for annual total and net operating and maintenance costs for each of the three candidate alternatives: commuter bus, commuter rail, and combination rail and bus (commuter rail extending to Racine with connecting commuter bus service extending from Racine to Milwaukee). This section presents these cost estimates, along with the implementation schedule for each alternative.

Capital Costs

Table 24 presents a summary of the estimated capital costs of the commuter rail and bus alternatives. These capital costs are presented in detail in study Technical Report No. 4, *Capital Improvement Needs and Capital Costs of Alternatives.* All costs are in year 2001 dollars.

Table 24

ESTIMATED CAPITAL COSTS OF COMMUTER RAIL AND BUS ALTERNATIVES IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR

Capital Improvement Needs	Commuter Rail		Combination Commuter Rail and Bus		Commuter Bus ($ million)
	High Level of Service ($ million)	Medium Level of Service ($ million)	High Level of Service ($ million)	Medium Level of Service ($ million)	
Stations	$ 10.1	$ 10.1	$ 7.1	$ 7.1	$ 2.8
Tracks and Signals	66.9	37.2	22.0	22.0	- -
Storage and Service Facilities	4.0	4.0	13.9	13.9	11.4
Vehicles	140.8	100.8	123.2	103.2	5.2
Total	$224.8	$152.1	$166.2	$146.2	$ 19.4

Source: Parsons Transportation Group and SEWRPC.

A potential schedule of implementation for the commuter rail and bus alternatives would be as follows:

Preliminary and Final Design	3 years
Facility Construction-Rail	2 years
Procurement of Rail Vehicles	4 years
Procurement of New Buses	3 years

Table 25 presents for the bus alternative this potential implementation schedule and the attendant annual capital cost funding requirements. The maximum annual capital cost funding requirement would be $8 million including $6 million for bus storage and maintenance facilities and passenger stations and $2 million for bus purchases. This schedule assumes a multi-government cooperative would implement and operate this service with new buses and stations. The service could be implemented in possibly two-to-three years or less—substantially less than the seven years shown—if service was obtained through contract with an existing private or public operator with existing buses, and temporary stations and park-ride lots were used.

Table 26 presents for the commuter rail alternatives the potential implementation schedule and attendant annual capital cost funding requirements. For the commuter rail alternative with the high level of service (15 weekday round trips), the maximum annual capital cost funding requirement would be $63 million. Of this amount, $38 million would be for facility construction ($6 million for station/site work, $2 million for grade crossings, and $30 million for railway improvements) and $25 million would be for equipment procurement. The commuter rail alternative implementation schedule assumes that locomotive and rail car purchases would occur over two periods, with 70 percent of equipment acquired between 2006 and 2009 and the remaining 30 percent acquired between 2013 and 2016.

Operating and Maintenance Costs

Based on the proposed operating plan for each transit alternative as described in Chapter 1 of this report and in Study Technical Report No. 5, *Operating and Maintenance Costs for Alternatives*, and the forecast passenger ridership and annual farebox revenue as presented in Chapter 2 of this report and in Study Technical Report No. 3, *Ridership Forecasts for Alternatives*, annual total and net (total less farebox revenue) operating and maintenance costs have been estimated. These estimates are also in year 2001 dollars. The method applied in the estimation of operating and maintenance costs divides costs into fixed and variable costs. Fixed Costs include management and other overhead costs. Variable costs are a function of the proposed schedule of service and the

Table 25

ESTIMATED IMPLEMENTATION SCHEDULE AND CAPITAL COST FUNDING REQUIREMENTS FOR THE COMMUTER BUS ALTERNATIVE[a]

Year	2003	2004	2005	2006	2007	2008	2009
Design	■■■	■■■	■■■				
Construction				■■■	■■■		
Vehicle Procurement				■■■	■■■	■■■	
Begin Revenue Service							■■■
Total Annual Capital Cost Funding ($ million)	$1	$1	$1	$8	$8	$1	- -

[a]*This schedule assumes a multi-government cooperative would implement and operate this service with new buses and stations. The service could be implemented in possibly two to three years or less—substantially less than the seven years shown—if service was obtained through contract with an existing private or public operator with existing buses, and temporary stations and park-ride lots were used.*

Source: Parsons Transportation Group and SEWRPC.

resulting vehicle-miles and vehicle-hours of service provided. For the rail alternative, Metra was used as the basis to estimate commuter rail operations and maintenance costs. For the bus alternative, Milwaukee County Transit System was used as the basis to estimate commuter bus operations and maintenance costs.

As indicated by the service implementation schedules in Tables 25 and 26, revenue service would begin in year 2009 for the commuter bus alternative and year 2010 for commuter rail alternatives. The annual operations and maintenance costs would begin in these years and continue on an annual basis. Table 27 presents the estimated annual total operations and maintenance costs of each alternative, and the estimated annual net operations and maintenance costs of each alternative based upon the forecast ridership and proposed fares.

FUNDING STRATEGIES AND FINANCIAL FEASIBILITY

This section of the report presents the financial requirements and funding strategies for each alternative: commuter rail, combination commuter rail and bus, and commuter bus. The funding strategies presented are consistent with the organizational and management structure alternatives presented in Chapter 3 of this report and Technical Report No. 9, *Organization and Management Alternatives*. These alternatives include State implementation and operation, and local government implementation and operation through a multi-government cooperative or multi-county transit authority. The funding strategies for these state and local organization and management alternatives are consistent with the findings and recommendations of the Governor's Blue Ribbon Task Force on Passenger Rail presented in 2001. Table 28 presents the funding requirements and a potential funding approach under each organization and management alternative consistent with the Task Force report.

The Blue Ribbon Task Force could not reach agreement on the level of government which should lead the implementation and manage the operation of commuter rail, and the responsibilities of levels of government with respect to funding the implementation and operation of commuter rail. There were two perspectives on the Task Force. One perspective was that as with intercity passenger rail, the State should be responsible for implementation and operation of commuter rail, and that commuter rail should be funded with a combination of federal and state funds without a local share. Those on the Task Force who shared this perspective noted that trips which would be made on commuter rail would be longer trips, which would most likely be between and through the counties of the State and would be trips that, if not carried on commuter rail, would be carried on State trunk highways, which are the responsibility of the State of Wisconsin to implement and operate.

Table 26

ESTIMATED IMPLEMENTATION SCHEDULE AND ANNUAL CAPITAL COST FUNDING REQUIREMENTS FOR THE COMMUTER RAIL ALTERNATIVES

Commuter Rail – High Level of Service (15 Weekday Roundtrips)

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Design	■■	■■	■■											
Construction				■■	■■									
Vehicle Procurement[a]				■■	■■	■■	■■				■■	■■	■■	■■
Begin Revenue Service								■■						
Annual Capital Funding ($ million)	$4	$3	$3	$62	$63	$25	$25	- -	- -	- -	$10	$10	$10	$10

Commuter Rail – Medium Level of Service (7 Weekday Roundtrips)

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Design	■■	■■	■■											
Construction				■■	■■									
Vehicle Procurement[a]				■■	■■	■■	■■				■■	■■	■■	■■
Begin Revenue Service								■■						
Annual Capital Funding ($ million)	$4	$3	$3	$38	$39	$18	$17	- -	- -	- -	$8	$8	$7	$7

Combination Commuter Rail and Commuter Bus (15 Weekday Roundtrips)

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Design	■■	■■	■■											
Construction				■■	■■									
Vehicle Procurement[b]				■■	■■	■■	■■				■■	■■	■■	■■
Begin Revenue Service								■■						
Annual Capital Funding ($ million)	$3	$2	$2	$44	$44	$23	$22	- -	- -	- -	$7	$7	$6	$6

Combination Commuter Rail and Commuter Bus (7 Weekday Roundtrips)

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Design	■■	■■	■■											
Construction				■■	■■									
Vehicle Procurement[b]				■■	■■	■■	■■				■■	■■	■■	■■
Begin Revenue Service								■■						
Annual Capital Funding ($ million)	$3	$2	$2	$40	$40	$19	$19	- -	- -	- -	$6	$6	$5	$5

[a] *Rail fleet acquired in two periods – 70 percent in years 2006 to 2009 and 30 percent in years 2013 to 2016.*

[b] *Rail fleet acquired in two periods – 80 percent in years 2006 to 2009 and 20 percent in years 2013 to 2016.*

Source: Parsons Transportation Group and SEWRPC.

The other perspective on the Task Force was that local governments should take the lead in implementing and managing the operation of commuter rail and that funding commuter rail should be accomplished with a combination of federal, state, and local funds. Those on the Task Force sharing this perspective believed that commuter rail was similar to urban public transit. They proposed, though, that the State share in the capital costs of commuter rail implementation, recommending consideration of a new state program which would provide for an equal sharing between state and local government of the non-federal share of the capital cost of implementing commuter rail. With respect to operating costs, they recommended that the state fund the operating costs of

Table 27

ESTIMATED TOTAL AND NET ANNUAL YEAR 2020 OPERATING AND MAINTENANCE COSTS FOR COMMUTER RAIL AND BUS ALTERNATIVES IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR[a]

Category	Commuter Rail		Combination Commuter Rail and Bus Service		Commuter Bus Service ($ million)
	High Level of Service ($ million)	Medium Level of Service[c] ($ million)	High Level of Service ($ million)	Medium Level of Service[c] ($ million)	
Annual Operating and Maintenance Costs					
For Commuter Rail	$26.0	$18.1	- -	- -	- -
For Commuter Rail/Bus	- -	- -	$17.4	$12.2	- -
For Commuter Bus	- -	- -	- -	- -	$2.6
For Shuttle and Local Bus	0.8	0.5	0.8	0.5	0.8
Total	26.8	18.6	18.2	12.7	3.4
Annual Farebox Revenues	4.0	3.2	2.8	2.3	1.6
Net Annual Operating and Maintenance Costs[b]	$22.8	$15.4	$15.4	$10.4	$1.8

[a] *All estimates are in year 2001 dollars.*

[b] *The implementation and operation of each commuter rail and bus alternative may be expected to permit the elimination, or reduction in service, of selected existing bus services in the Kenosha-Racine-Milwaukee corridor and their attendant total and net operating and maintenance costs. Under all the alternatives, the existing Wisconsin Coach Lines and MCTS South Shore Flyer routes would be replaced by the enhanced corridor bus or rail service; some evening service would be added for the Kenosha transit system; local MCTS bus routes would be extended from South Milwaukee to the Oak Creek station; and shuttle service would be added between General Mitchell International Airport and the corridor bus or rail service. Under the commuter rail alternatives, shuttle bus service between the Milwaukee Station and downtown destinations would also be added.*

[c] *The total operating and maintenance costs shown include the costs of all new commuter rail service proposed under each commuter rail alternative. This includes service within the southeastern Wisconsin region, and as well, new service within northeastern Illinois. Much of this new service within northeastern Illinois is reverse-commute service, including service in the morning outbound from the Chicago Loop and in the afternoon, inbound to the Chicago Loop. Approximately $6.0 million of the $26.8 million total annual operating and maintenance costs of commuter rail service under the high level of service option is such service within northeastern Illinois, and under the medium level of service option, approximately $4.5 million of the $18.6 million annual total operating and maintenance costs are due to service entirely within northeastern Illinois. It is reasonable to expect that should the commuter rail alternative proceed towards implementation, negotiations would occur to allocate the costs of this new service between northeastern Illinois and southeastern Wisconsin. In any case, the farebox revenue attributable to trips made entirely within northeastern Illinois on this new service have not been estimated or included in the farebox revenue estimates of the commuter rail service. Potential allocation of the costs of the new commuter rail service to northeastern Illinois or inclusion of farebox revenue on new service entirely within northeastern Illinois may be expected to increase the farebox recovery ratio of the commuter rail alternatives from between 15 and 20 percent to between 20 and 25 percent and to reduce the net annual operating and maintenance costs by 10 to 20 percent.*

Source: Parsons Transportation Group and SEWRPC.

commuter rail in the same way as the state participates in the operating costs of urban public transit; that is, the State would fund between 40 and 50 percent of the operating costs of commuter rail service. Local governments within Southeastern Wisconsin have indicated that this commuter rail management and implementation will require as well state legislation for a commuter rail or transit authority or state legislation for dedicated funding for commuter rail, and possibly for all public transit.

Table 28

ALTERNATIVE FUNDING APPROACHES FOR COMMUTER RAIL AND BUS ALTERNATIVES IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR AS PROPOSED BY THE GOVERNOR'S BLUE RIBBON PASSENGER TASK FORCE

State Implementation and Operation	Local Implementation and Operation	
State of Wisconsin	Multi-Government Cooperative	Multi-County Transit Authority
Capital Costs • Federal funds • State funds	Capital Costs • Federal funds • Non-Federal share equally allocated between State and Cooperative	Capital Costs • Federal funds • Non-Federal share equally allocated between State and Transit Authority
Net Operating Costs • Limited Federal funds • State funds	Net Operating Costs • State assistance similar to urban bus program (40 to 50 percent of costs) • Limited Federal funds • Cooperative to provide remaining assistance	Net Operating Costs • State assistance similar to urban bus program (40 to 50 percent of costs) • Limited Federal funds • Transit authority to provide remaining assistance
Requirements • State legislation to provide implementation and operation authority to Wisconsin Department of Transportation and to provide capital and operating funds.	Requirements • State legislation to create new State capital program • State legislation to expand State operating assistance program • Existing local revenues insufficient to provide local operating and capital shares. State legislation to provide dedicated funding will be necessary.	Requirements • State legislation to create new State capital program • State legislation to expand State operating assistance program • State legislation to create transit authority including responsibilities, governance, and funding.

Source: Parsons Transportation Group and SEWRPC.

Alternative Funding Strategies for Commuter Rail

Table 29 presents funding strategies for the commuter rail alternative under a potential high level of service (15 weekday round trips and three weekend/holiday round trips) and medium level of service (seven weekday roundtrips and three weekend/holiday round trips), and as well for the combination commuter rail and bus alternative.

Funding strategies for these three alternatives are presented under two organizational and management structure scenarios: one proposing State implementation and operation and the other proposing local government implementation and operation, either through a Multi-Government Cooperative or Multi-County Transit Authority.

The funding strategy for commuter rail capital costs includes obtaining an 80 percent federal cost share including:

- 50 percent Federal Transit Administration New Starts fixed guideway discretionary grant funding. This would vary from $73.1 to $112.4 million depending on the commuter rail alternative (high level of service, medium level of service, or combination rail and bus alternative).

- 18 to 27 percent Federal Highway Administration Congestion Mitigation and Air Quality Improvement Program (CMAQ) funding. This would vary from $26.6 to $48.4 million depending on the specific commuter rail alternative. It would be obtained over a number of years, perhaps as many as eight to ten years.

Table 29

FUNDING STRATEGY FOR COMMUTER RAIL ALTERNATIVES IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR

Category	Commuter Rail High Level of Service (15 weekday round trips/ 3 weekend round trips)		Commuter Rail Medium Level of Service (7 weekday round trips/ 3 weekend round trips)		Combination Commuter Rail and Bus Service High Level of Service (15 weekday round trips/ 3 weekend round trips)		Combination Commuter Rail and Bus Service Medium Level of Service (7 weekday round trips/ 3 weekend round trips)	
	State of Wisconsin Implementation and Operation	Multi-County Authority or Multi-Government Cooperative Implementation and Operation	State of Wisconsin Implementation and Operation	Multi-County Authority or Multi-Government Cooperative Implementation and Operation	State of Wisconsin Implementation and Operation	Multi-County Authority or Multi-Government Cooperative Implementation and Operation	State of Wisconsin Implementation and Operation	Multi-County Authority or Multi-Government Cooperative Implementation and Operation
Capital Costs								
Federal Funds								
Federal Transit Administration New Starts Fixed Guideway Discretionary Grant	$112.4 million or 50 percent	$112.4 million or 50 percent	$76.1 million or 50 percent	$76.1 million or 50 percent	$83.1 million or 50 percent	$83.1 million or 50 percent	$73.1 million or 50 percent	$73.1 million or 50 percent
Federal Highway Administration Congestion Mitigation and Air Quality Improvement Program (CMAQ) Funds	$48.4 million or 22 percent	$48.4 million or 22 percent	$26.6 million or 18 percent	$26.6 million or 18 percent	$44.9 million or 27 percent	$44.9 million or 27 percent	$38.9 million or 21 percent	$38.9 million or 27 percent
Federal Transit Administration Section 5307 Formula Funds — Commuter Rail Funds	$14.0 million or 6 percent	$14.0 million or 6 percent	$14.0 million or 9 percent	$14.0 million or 9 percent	- -	- -	- -	- -
Federal Highway Administration Surface Transportation Program (STP) Funds from State STP-Discretionary Program	$5.0 million or 2 percent	$5.0 million or 2 percent	$5.0 million or 3 percent	$5.0 million or 3 percent	$5 million or 3 percent	$5 million or 3 percent	$5 million or 3 percent	$5 million or 3 percent
State Funds								
New State Commuter Rail Transit Capital Program (Proposed by Governor's Blue Ribbon Passenger Task Force)	$45.0 million or 20 percent	$22.5 million or 10 percent	$30.4 million or 20 percent	$15.2 million or 10 percent	$33.2 million or 20 percent	$16.6 million or 10 percent	$29.2 million or 20 percent	$14.6 million or 10 percent
Local Funds								
Local Funds to Match Federal and State Funds	- -	$22.5 million or 10 percent	- -	$15.2 million or 10 percent	- -	$16.6 million or 10 percent	- -	$14.6 million or 10 percent
Total Funds	$224.8 million	$224.8 million	$152.1 million	$152.1 million	$166.2 million	$166.2 million	$146.2 million	146.2 million
Annual Net Operating and Maintenance Costs[a]								
Federal Funds[a]	$5.0 million or 22 percent	$5.0 million or 22 percent	$5.0 million or 32 percent	$5.0 million or 32 percent	- -	- -	- -	- -
State Funds[a]	$17.8 million or 78 percent	$12.1 million or 53 percent	$10.4 million or 68 percent	$8.4 million or 55 percent	$15.4 million or 100 percent	$8.2 million or 53 percent	$10.4 million or 100 percent	$5.7 million or 55 percent
Local Funds[a]	- -	$5.7 million or 25 percent	- -	$2.0 million or 13 percent	- -	$7.2 million or 47 percent	- -	$4.7 million or 45 percent
Total Annual Net Operating and Maintenance Funds[a]	$22.8 million	$22.8 million	$15.4 million	$15.4 million	$15.4 million	$15.4 million	$10.4 million	$10.4 million

[a] *The total operating and maintenance costs and state and local cost shares shown include the costs of all new commuter rail service proposed under each commuter rail alternative. This includes service within the southeastern Wisconsin region, and as well, new service within northeastern Illinois. Much of this new service within northeastern Illinois is reverse-commute service, including service in the morning outbound from the Chicago Loop and in the afternoon, inbound to the Chicago Loop. Approximately $6.0 million of the $26.8 million total annual operating and maintenance costs of commuter rail service under the high level of service option is such service within northeastern Illinois, and under the medium level of service option, approximately $4.5 million of the $18.6 million annual total operating and maintenance costs are due to service entirely within northeastern Illinois. It is reasonable to expect that should the commuter rail alternative proceed towards implementation, negotiations would occur to allocate the costs of this new service between northeastern Illinois and southeastern Wisconsin. In any case, the farebox revenue attributable to trips made entirely within northeastern Illinois on this new service have not been estimated or included in the farebox revenue estimates of the commuter rail service. Potential allocation of the costs of the new commuter rail service to northeastern Illinois or inclusion of farebox revenue on new service entirely within northeastern Illinois may be expected to increase the farebox recovery ratio of the commuter rail alternatives from between 15 and 20 percent to between 20 and 25 percent and to reduce estimated annual net operating and maintenance costs by 10 to 20 percent.*

Source: Parsons Transportation Group and SEWRPC.

- 0 to 9 percent Federal Transit Administration Section 5307 Formula Funds–Commuter Rail Funds. This would be an estimated $14 million for those commuter rail alternatives extended to the Milwaukee area, and would be from an estimated annual $7 million of formula funds provided to the Milwaukee area as a result of commuter rail service initiation.
- 2 to 3 percent Federal Highway Administration Surface Transportation Program funds from the State Surface Transportation Program–Discretionary funds in the amount of $5.0 million.

The 20 percent match to the federal funds would be provided entirely by the State under a State implementation and operation option, and would be divided equally between the State and local government under a multi-county authority or cooperative implementation and operation option.

The funding strategy for commuter rail operating costs includes:

- 0 to 32 percent Federal Transit Administration Section 5307 Formula transit funds. An estimated $7 million annually of such funds would be provided to the Milwaukee area with the initiation of commuter rail service, and $5 million annually of those funds are assumed to be provided for funding operating costs. These would be new funds available to the Milwaukee area solely as a result of the implementation and operation of the commuter rail service. These funds would not be taken or reallocated from other existing Federal transit funds already being provided to Southeastern Wisconsin. No such funds would be provided by formula to the Racine area if commuter rail is only extended from Kenosha to Racine.

- 45 to 100 percent State funds. Under the options which would have the State implement, operate, and fund commuter rail, the State would provide $10.4 to $17.8 million annually in operating assistance, funding commuter rail net operating and maintenance costs with federal and state funds only. Under the options which would have commuter rail service implemented and operated by a multi-county cooperative or authority, the State would expand its transit operating assistance program to fund about 45 percent of commuter rail operating costs, similar to state funding of urban public bus transit systems. This would entail funding of $5.7 to $12.1 million annually. Another sub-option would be for the State to require, as is the case with Metra in northeastern Illinois, local governments to be responsible for the implementation, funding, construction, and operation of station facilities, including depot buildings and park-ride lots.

- 0 to 45 percent local funds. Under those options of Multi-County Authority or Cooperative implementation and operation of commuter rail, the local share of commuter rail net operating costs would range from $2.0 to $7.2 million annually.

Although not identified above, another possible source for some funding of commuter rail service operating costs could be mitigation funds from southeastern Wisconsin freeway reconstruction projects. However, given the amount of such funding likely to be available and the demands for such funds, use of mitigation funds for new transit projects may be expected to be limited and would likely not be available for capital funding purposes.

Alternative Funding Strategies for Commuter Bus

Table 30 presents funding strategies for the commuter bus alternative. Commuter bus alternatives would provide an equivalent level of service for the high level of service under the commuter rail alternative which would include 15 weekday round-trips and 10 weekend/holiday round-trips. Under the commuter bus alternative, the only potential organization and management structure scenario would be a multi-government cooperative.

The funding strategy for commuter bus capital costs includes obtaining an 80 percent federal cost share with Federal Highway Administration Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds. The necessary $15.5 million could be obtained over three years. The local share of the estimated $19.4 million of capital costs would be $3.9 million, or about 20 percent. No State program exists which would assist in matching federal funds, although proposals have been made over the years for the State to equally share in the match to federal funds, providing 10 percent of capital costs, with local funds limited to the remaining 10 percent of capital costs. The funding strategy for commuter bus operating cost does not include any federal funds as very limited additional federal funds would flow to the Kenosha, Milwaukee, and Racine areas with the implementation of the commuter bus alternative. The funding strategy for commuter bus operating costs includes approximately $1.5 million annually of State funds which would need to be matched by an annual amount of about $300,000 of local funds.

Table 30

FUNDING STRATEGY FOR THE COMMUTER BUS ALTERNATIVE IN THE KENOSHA-RACINE-MILWAUKEE CORRIDOR

Category	Commuter Bus (15 Weekday Roundtrips - 10 Weekend Roundtrips)
Capital Costs	
Federal Funds	
Federal Highway Administration Congestion Mitigation and Air Quality Improvement Program (CMAQ) Funds	$15.5 million or 80 percent
State Funds	- -
Local Funds	
Local Funds to Match Federal Funds	$3.9 million or 20 percent
Total Capital Funds	$19.4 million
Annual Net Operating and Maintenance Costs	
Federal Funds	--
State Funds	$1,500,000 or 83 percent
Local Funds	$300,000 or 17 percent
Total Annual Net Operating and Maintenance Funds	$1,800,000 or 100 percent

Source: Parsons Transportation Group and SEWRPC.

CONCLUSIONS AND RECOMMENDATIONS

This report presents implementation schedules, financial requirements, and potential funding options for commuter rail and commuter bus alternatives in the Kenosha-Racine-Milwaukee corridor with respect to both total capital costs and annual net operating and maintenance costs. With respect to commuter rail, federal funds may be available to fund 80 percent of total capital costs, with Federal Transit Administration new start fixed guideway discretionary grants limited to 50 percent of total capital costs. The remaining 30 percent of capital costs expected to be federally funded could come from Federal Highway Administration Congestion Mitigation and Air Quality Improvement Program funds, Federal Highway Administration Surface Transportation–Program State Discretionary Program funds, and Federal Transit Administration Section 5307 Formula funds which would be allocated to the Milwaukee area only upon the initiation of commuter rail service. Under those options which would have the State of Wisconsin responsible for the implementation, operation, or funding of commuter rail, the remaining 20 percent of capital cost would be funded by the State, and under those options which would have a multi-county authority or multi-government cooperative implement or operate and share in the funding of commuter rail would have the State fund half of the remaining total capital cost, or about 10 percent, with the multi-county authority or multi-government cooperative funding the other 10 percent of total capital cost. With respect to annual net operating and maintenance costs of commuter rail, a combination of federal, state, and local funds has been identified as the likely funding strategy, with local funds expected only under the alternative with multi-county authority or multi-government cooperative implementation and operation. Local governments within southeastern Wisconsin have indicated that those commuter rail implementation and management options which entail a local share of capital and operating costs will require state legislation for a commuter rail or transit

authority, or state legislation providing dedicated funding for commuter rail and possibly all public transit. With respect to the commuter bus alternative, it may be expected that federal funds, principally Federal Highway Administration Congestion Mitigation and Air Quality Improvement Program funds, may be available to fund 80 percent of the capital costs, with the remaining 20 percent being matched by local funds in the absence of a state program which would equally share in the matching of federal funds. With respect to net operating and maintenance costs, it is expected that these costs would be funded by a combination of state and local funds.

Chapter V

RECOMMENDED PLAN FOR CORRIDOR TRANSIT FACILITIES AND SERVICES

Previous chapters of this report have presented the information prepared for, and the process applied in, the design and evaluation of alternative public transit improvements in the Kenosha-Racine-Milwaukee corridor. More specifically, these chapters have documented the need for consideration of the public transit alternatives, the selection from all reasonable alternatives of a limited range of the most promising commuter rail and bus alternatives, and a comparison of those final alternatives with regard to their broadly defined benefits and costs, including level of service, ridership, capital and operating costs and farebox revenues, and their land use development, economic development, environmental, and railroad impacts. This process enabled all of the promising commuter bus and rail alternatives appropriate for providing improved public transit service in the Kenosha-Racine-Milwaukee corridor to be logically and efficiently considered, designed, tested, and evaluated, thereby providing a sound basis for the selection of a recommended transit service improvement, or "locally preferred alternative" as referred to by the Federal Transit Administration.

This chapter identifies the recommended plan for transit facilities and services (the locally preferred alternative) under the Kenosha-Racine-Milwaukee Corridor Transit Study and the reasons for its selection by the study Advisory Committee. Selection of a locally preferred alternative is a crucial step toward implementation of a major transit service improvement in the corridor since it represents a consensus within the corridor regarding the implementation of a recommended plan of transit facilities and services. Selection of a locally preferred alternative is also the last major technical step of the Federal Transit Administration's alternatives analysis phase of public transit project development. The next step of project development following alternatives analysis is preliminary engineering.

After carefully considering all of the study findings and conclusions together with the results of the evaluation of the final alternatives, the Advisory Committee made a preliminary recommendation. Extensive public comment and reaction was then solicited and considered by the Advisory Committee. The Advisory Committee then prepared a final recommendation which considered the public response to the study findings and conclusions and to the Committee's preliminary recommendation.

The following sections of this chapter summarize the development of the recommended plan for corridor transit facilities and services, specifically, the preliminary recommended plan, the public comment obtained on the preliminary plan, and the Advisory Committee's reaction and response to the public comment, and the final recommended plan advanced by the Advisory Committee. The chapter concludes with a discussion of the next steps that need to be taken toward implementation of the recommended plan.

PRELIMINARY RECOMMENDATION OF THE ADVISORY COMMITTEE

Members of the Advisory Committee for the Kenosha-Racine-Milwaukee Corridor Transit Study met on December 11, 2002, to consider and discuss the findings and conclusions of the study. At this meeting, the Advisory Committee reviewed and approved three key study technical reports. One of the three reports reviewed was Technical Report No. 10: Evaluation of Alternatives. This report documents a comprehensive comparative evaluation of the final commuter rail, commuter bus, and combination rail and bus alternatives. Within this report, the final alternatives are explicitly compared with respect to their level of service, ridership, capital and operating costs, cost effectiveness, land use impact, railroad impact, and environmental impact. Another of the three reports reviewed was Technical Report No. 8: Financial Analysis of Alternatives. This report presents proposed implementation schedules and possible funding strategies for the commuter rail and commuter bus alternatives. The third report reviewed was Technical Report No. 9: Organization and Management Alternatives. This report defines and considers the alternatives for the organization and management necessary for the implementation and operation of commuter rail and improved commuter bus service in the Kenosha-Racine-Milwaukee corridor.

After considering the costs and benefits of the alternatives, and alternative funding strategies and organization and management options, the Advisory Committee made a preliminary recommendation that the commuter rail alternative with a medium level of service be implemented, that the State of Wisconsin be responsible for implementation, and that funding for implementation and operation be provided from a combination of Federal and State sources with no local share. A few Committee members suggested that options for funding commuter rail service, especially with regard to whether or not there would be a local share, should not be foreclosed at this time as doing so could be an obstacle to proceeding with preliminary engineering and implementation. The Advisory Committee did discuss that, as in other commuter rail systems, local governments should agree to be responsible for the costs attendant to the construction, operation, and maintenance of station facilities for their communities. The Committee members representing the Wisconsin Department of Transportation abstained from voting on the preliminary recommendation, noting that there is no formal State policy relative to State sponsorship of commuter rail services, that there would soon be a new Governor and administration at the Wisconsin Department of Transportation, and that any position on the State's role for commuter rail implementation and operation would have to await installation of the new administration. The previous administration at the Wisconsin Department of Transportation had taken the position that commuter rail should be implemented by the local governments concerned and the funding of commuter rail implementation should include both state and local funds, along with Federal funds.

The Advisory Committee made the preliminary recommendation that the commuter rail alternative be implemented because it concluded that the potential advantages of commuter rail over commuter bus were significant and greatly outweighed the increased cost of commuter rail. Figure 1 summarizes the assessment of the relative advantages of the commuter bus and rail alternatives.

Level of Service

The Advisory Committee concluded that the commuter rail alternative would offer the highest level of service because it would provide the most direct no-transfer service, the best coordination with existing Metra service, the highest average speeds, and the shortest travel times for the majority of trips within the corridor and particularly for longer distance trips. Commuter rail would also provide the highest level of passenger comfort and reliability and would have the greatest potential to increase passenger carrying capacity in the short and long term. The Advisory Committee recognized that the level of service offered by commuter rail would be particularly important to improving mobility and accessibility, thereby providing a public transit alternative that would be attractive compared to the private automobile.

Capital and Operating Costs

The Advisory Committee concluded that the commuter rail alternative would have significantly higher capital costs as well as annual operating costs and net annual operating costs, even though it would be expected to generate the highest annual operating revenues as a result of attracting the highest ridership. With respect to cost-effectiveness, the operating costs for the alternatives on a per-unit basis were determined to be comparable to

Figure 1

MAJOR DIFFERENCES AMONG THE ALTERNATIVES

Potential advantages of commuter rail over commuter bus include:

1 Higher Ridership

- Greater number of weekday and annual passengers
- Up to twice the annual passenger-miles of travel—serving more interregional, or longer-distance trips

2 Higher Level of Service

- Greater level of comfort: larger and spacious vehicles—smoother vehicle operation due to route alignment separated from other traffic; passengers have opportunities to do many other things while en route
- More reliable—especially during weekday peak periods and inclement weather due to nonhighway right-of-way; no interference and delays from other auto and truck traffic or weather conditions
- Would enhance the attractiveness of public transportation as a mode of choice

3 Faster and More Convenient Service

- Direct no-transfer ride between all stations in Milwaukee-Racine-Kenosha-Chicago corridor; improved coordination with northeastern Illinois transit services to Chicago
- Higher average speeds due to route alignment free from other traffic
- Shorter travel times for many trips due to higher average speed

4 Potential to influence land development and redevelopment around stations

- Commuter rail is a long-term permanent commitment to, and investment in, a high quality transit service
- Investment in residential, office, and attendant retail development within one-quarter to one-half mile of stations can be linked to investment in commuter rail
- Can help attract retail businesses that benefit from the additional market of commuter rail passengers
- Will further influence adjacent neighborhoods beyond the station area in a positive manner

5 Potential to increase overall economic development

- Will help establish and promote a Milwaukee-Racine-Kenosha-Chicago mega-metropolitan corridor by interconnecting all corridor communities to each other and to Milwaukee and Chicago
- Would help promote economic and population growth for entire Kenosha-Racine-Milwaukee corridor and especially for Racine County and intermediate communities
- Helps set Milwaukee-Racine-Kenosha-Chicago corridor apart—a high quality service other areas don't have

6 Expected benefits for employers and employees

- Makes employers more accessible to potential work force in corridor including northeastern Illinois. Companies such as S.C. Johnson & Son have indicated this to be very important
- Attractiveness of alternative forms of transportation
- Provides employees with improved access to jobs throughout the entire corridor

Potential advantages of commuter bus over commuter rail include:

1 Lower costs

- Lower capital cost
- Lower operating cost

2 Acts as own distributor in downtown Milwaukee

- No need for dedicated shuttle

3 Flexibility

- Routes and stops can be moved or changed easier

4 Faster and easier implementation

Source: SEWRPC.

other commuter rail and bus transit systems, indicating that the estimated costs were realistic and reasonable. The operating costs per passenger-mile for commuter rail were generally similar to bus transit systems in southeastern Wisconsin and the operating costs per passenger and passenger-mile were comparable to many other existing and new start commuter rail systems. The Advisory Committee noted that the operating costs for the commuter rail alternative reflected a proposed level of service that was more extensive and comprehensive than the typical weekday peak-period peak-direction commuter rail service and included all of the incremental costs of extending Metra service north of Kenosha. Thus, the costs reflected the operation of potentially larger sized trains to accommodate the much larger peak passenger demands in northeastern Illinois as well as the operation of completely new trains over the entire distance between Chicago and Milwaukee.

Ridership

The commuter rail alternative would attract the highest level of ridership and the commuter bus the lowest. In addition, overall ridership on the commuter rail alternative would have the highest average trip length of 27 miles while the commuter bus alternative would have the lowest average trip length of 18 miles. Because the commuter rail alternative would attract a much higher proportion of longer distance trips, the forecast amount of annual passenger miles of travel for the commuter rail alternative would be significantly greater than for the commuter bus and combination rail and bus alternatives.

Potential Land Development and Economic Development Impacts

Commuter rail was concluded to have the potential for land use development and redevelopment impacts whereby commuter bus would not. These impacts would include potential residential, office and retail development within one-quarter to one-half mile of the proposed stations. This potential development could be expected to have a positive influence extending into adjacent neighborhoods and areas beyond the one-half mile areas of potential development and redevelopment surrounding stations. This potential impact is already being recognized within the corridor such as in the Cities of Cudahy and Racine as these communities proceed with redevelopment planning efforts that include potential commuter rail stations and transit centers. These potential impacts of commuter rail would also assist in meeting regional land use development objectives through the promotion of efficient land use development and redevelopment in central city areas, including the long established communities of Kenosha, Racine, South Milwaukee, Cudahy, St. Francis, and Milwaukee. Commuter rail was also concluded to possibly have the potential to help increase economic development and growth in the entire Milwaukee-Racine-Kenosha-Chicago corridor and, in particular, in Racine County by better interconnecting all of the corridor communities to each other and to Milwaukee and Chicago. The Racine County Economic Development Corporation has advocated for commuter rail, as they envision that commuter rail will more closely link Racine County with the Milwaukee area and the Chicago area, and assist in establishing and promoting an integrated and interconnected Chicago-Kenosha-Racine-Milwaukee metropolitan area. Major employers such as S. C. Johnson & Son, Inc. have stated that commuter rail service is essential to maintaining and expanding their presence in the Kenosha-Racine-Milwaukee corridor and is essential to attracting qualified employees and adding to the quality of life in the area.

Other Considerations

The Advisory Committee also concluded that there would be other intangible impacts of commuter rail that are difficult to measure but nevertheless should be considered. First, commuter rail would be a commitment by the State, counties, and local communities to the provision of a true multi-modal transportation option on an exclusive alignment. Second, the Advisory Committee noted that the commuter rail alternative would capitalize on an already existing transportation asset in the corridor, that being the railroad line that already exists between Kenosha, Racine, and Milwaukee. Third, the Advisory Committee noted that commuter rail provides an opportunity to encourage land use development and redevelopment, as well as economic development, in older established central city areas. Fourth, the Advisory Committee concluded that in this highly developed and densely populated corridor, the ability to expand highway capacity effectively will be limited, and there will be a need to provide a high quality and high capacity complementary transit service such as commuter rail.

Organization, Management, and Funding

With regard to organization and management, the Advisory Committee recommended that the State of Wisconsin assume responsibility for implementation of the commuter rail alternative and for funding as well, together with

Federal funds. However, local governments could be responsible for the funding, construction, operation, and maintenance of station facilities for their particular communities. The Advisory Committee made this recommendation for two reasons. First, many of the trips that would use the Kenosha-Racine-Milwaukee commuter rail service would be trips between and through southeastern Wisconsin counties which would otherwise be carried on state trunk highways, especially the Interstate highway system. In fact, many commuter rail passengers would be making interstate trips between Wisconsin and Illinois. Second, the State already is the lead for, and has staff expertise with, contracting for intercity passenger rail services in this corridor, namely the Amtrak Milwaukee-Chicago Hiawatha Service.

SUMMARY OF PUBLIC COMMENTS AND REACTION TO THE PRELIMINARY RECOMMENDATION

The study findings and the preliminary recommendation of the Advisory Committee were made available for public review and comment. The findings and preliminary recommendation were presented at a series of public informational meetings and public hearings held during April and May 2003 and were also made available through the study web site and the study newsletter. The newsletter was mailed to a list of about 2,300 individuals, officials, groups, and businesses in the corridor. The study web site allowed individuals to review technical reports from the study that were pertinent to the study findings and the preliminary recommendation. Both the study web site and the study newsletter also included announcements of the public informational meetings and hearings and information on how to provide comments and feedback.

A Commission news release concerning the study findings and preliminary recommendations was sent to about 80 daily and weekly newspapers, radio stations, and television stations serving the corridor. The news release provided the schedule for the public informational meetings and hearings and also included a copy of the most recent study newsletter.

The public reaction to the study findings and the preliminary recommendation of the Advisory Committee was published as a separate report by the Commission and was distributed to the Study Advisory Committee. The report includes oral comments made at the public informational meetings and hearings, the minutes and attendance records for the public hearings, meeting announcements, written comments received during the formal comment period, and pertinent newspaper articles and is documented in *Record of Public Comments: Kenosha-Racine-Milwaukee Corridor Transit Study: December 11, 2000—May 16, 2003*.

The remainder of this section presents a summary of the oral and written comments received concerning the Kenosha-Racine-Milwaukee Corridor Transit Study during the formal comment period on the study findings and preliminary recommendations. During the time period of December 11, 2002, through May 16, 2003, a total of 482 persons provided comments on the Kenosha-Racine-Milwaukee Corridor Transit Study and the preliminary recommended plan either orally at the public hearings or in writing via letter or comment form available on the study web site and at the public informational meetings and hearings. Twenty-nine of these 482 persons provided multiple comments on the study. A total of 480 people were in attendance at the four informational meetings and hearings.

The comments of the 482 persons providing oral and written statements on the Kenosha-Racine-Milwaukee Corridor Transit Study may be divided into three categories: comments in support of commuter rail service in the Kenosha-Racine-Milwaukee corridor, comments in support of improved public transit service in the Kenosha-Racine-Milwaukee corridor, and comments opposed to commuter rail service in the Kenosha-Racine-Milwaukee corridor.

Comments in Support of Commuter Rail Service in the Kenosha-Racine-Milwaukee Corridor

Four hundred fifty seven persons expressed support for commuter rail service in the Kenosha-Racine-Milwaukee corridor. Those persons supporting commuter rail service in the Kenosha-Racine-Milwaukee corridor cited a number of reasons for their support including that commuter rail service in this corridor will provide an attractive alternative to automobile travel, reduce automobile travel, and promote economic growth in southeastern

Wisconsin. Additional comments in support of commuter rail service in the Kenosha-Racine-Milwaukee corridor included that commuter rail service provides an attractive means of transportation for persons with limited mobility, including persons with disabilities and vision impairments; that commuter rail service is more convenient and reliable than commuter bus service; and that commuter rail service would provide a more affordable alternative than the existing Amtrak service. Those expressing support included the President and Chief Executive Officer of S.C. Johnson & Son, Incorporated, as well as a number of business groups including the Racine Area Manufacturers and Commerce, the Metropolitan Milwaukee Association of Commerce, the Kenosha Area Business Alliance, the Cudahy Chamber of Commerce, the Racine County Economic Development Corporation, and the Kenosha Area Chamber of Commerce. A few people supporting the preliminary recommendation of commuter rail urged that changes be considered to permit earlier implementation, provide more express service in Northeastern Illinois, and offer more service than the preliminary recommended medium level of service.

Also, the Commission received a total of 832 postcards pre-printed by the Sierra Club stating support for commuter rail service in the Kenosha-Racine-Milwaukee corridor. Of the total 832 postcards, about 95 percent were from residents of southeastern Wisconsin, and about one percent were duplicates, with multiple postcards being returned by the same person. The Commission also received a total of 33 form letters stating support for commuter rail service in the Kenosha-Racine-Milwaukee corridor. These form letters were all sent from the same facsimile number.

Comments in Support of Improved Public Transit Service in the Kenosha-Racine-Milwaukee Corridor
Five persons expressed support for improving public transit service in the Kenosha-Racine-Milwaukee corridor. These persons supporting improved public transit service in the Kenosha-Racine-Milwaukee corridor did not specify whether they preferred commuter rail, commuter bus, or a combination of commuter rail and commuter bus service in the corridor.

Comments Opposed to Commuter Rail Service in the Kenosha-Racine-Milwaukee Corridor
Twenty persons expressed opposition to commuter rail service in the Kenosha-Racine-Milwaukee corridor. Those persons opposing commuter rail service in the Kenosha-Racine-Milwaukee corridor questioned whether the benefits of providing commuter rail service would outweigh its costs, and questioned the projected ridership. They also cited the current fiscal problems of the State of Wisconsin. Additional comments opposing commuter rail service in the Kenosha-Racine-Milwaukee corridor suggested that the funds necessary to implement commuter rail should be redirected to other transportation improvements, including further subsidy and lower fares of the existing Amtrak service between the cities of Milwaukee and Chicago; to the reconstruction, upgrading, and improvement of the southeastern Wisconsin freeway system; and to the existing transit services within the corridor, including existing Amtrak, Greyhound Lines, and Wisconsin Coach Lines service between Kenosha and Milwaukee, in addition to the local transit service provided by the Kenosha Transit System, the Racine Belle Urban System, and the Milwaukee County Transit System.

FINAL RECOMMENDATION OF ADVISORY COMMITTEE

Members of the Advisory Committee for the Kenosha-Racine-Milwaukee Corridor Transit Study met on August 7, 2003 to deliberate on the public reaction to, and public comment on, the preliminary recommendation and to formulate a final recommendation. The Advisory Committee carefully considered all of the public comments and feedback, noting the widespread support for the preliminary recommended plan proposing the extension of commuter rail service from Kenosha to Racine and Milwaukee evident in the attendance and comments made at the public informational meetings and public hearings. Based on that response, the Advisory Committee determined to reaffirm their preliminary recommendation to implement the extension of commuter rail from Kenosha to Racine and Milwaukee at a medium level of service as their final recommendation.

With respect to the proposed organization, management, and funding of commuter rail, the Advisory Committee received a letter from the Secretary of the Wisconsin Department of Transportation subsequent to the public informational meetings and hearings. The Secretary noted the Department's support for the preliminary

recommendation of the extension of commuter rail, and for the next step in implementation, which is preliminary engineering. However, the Secretary expressed some concerns, noting that the Department believes that local government rather than the State should be responsible for the implementation of commuter rail, and that the funding of commuter rail implementation and operation should include both State and local funds, as well as Federal funds. The Secretary suggested that the preliminary engineering work effort include a determination of the sponsor for the commuter rail extension, and the roles and contributions of State and local government in funding implementation and operation. In addition, the Wisconsin Department of Transportation subsequently informed the Advisory Committee that statutory language in the 2003-2005 State budget bill will not permit WisDOT to lead the implementation of commuter rail or lead the next step of preliminary engineering of commuter rail in the Kenosha-Racine-Milwaukee corridor.

While taking note of the Secretary's concern and the position taken by the State as expressed through the 2003-2005 budget bill, the Advisory Committee reaffirmed their position that the State should sponsor the commuter rail service, and should also provide the necessary non-Federal funding of that service. The Advisory Committee noted again that many of the trips on the commuter rail extension would be interstate trips between Wisconsin and Illinois, and many of the other commuter rail trips would be trips between and through the counties of southeastern Wisconsin, thus making the State the logical party to sponsor the commuter rail services. The Advisory Committee did recommend that local government be responsible for the commuter rail stations and appurtenant facilities in their communities, including all costs of construction, operation, and maintenance. Consistent with the foregoing, the Advisory Committee recommended that the preliminary engineering study be undertaken by the Wisconsin Department of Transportation as the proposed sponsor of the service. The Advisory Committee further recommended that the chief elected officials of the sponsoring counties and local units of government of the study—the Counties and Cities of Kenosha, Racine, and Milwaukee—caucus and come to a collective determination as to how to best proceed to initiate and conduct the preliminary engineering work that is required to move this matter along. The chief elected officials could consider development of a strategy to persuade the Governor and the State Legislature to change the current State legislation to permit the State to proceed with preliminary engineering of the proposed commuter rail line and with implementation of the proposed commuter rail service. The chief elected officials at their caucus could also consider as an option initiating the preliminary engineering as a consortium of local units of government as they work to change State legislation to permit, ultimately, State implementation of the commuter rail line.

The following are an identification of the next steps which should be taken to pursue implementation of the Advisory Committee's final recommendations:

- The study findings and final recommendations should be transmitted by the Regional Planning Commission to Kenosha, Milwaukee, and Racine Counties and the Wisconsin Department of Transportation for their formal consideration and endorsement. Those findings and recommendations should also be transmitted to the three cities that sponsored this study—Kenosha, Milwaukee, and Racine—as well as to the other communities in the corridor: the Cities of Cudahy, Oak Creek, St. Francis, and South Milwaukee and the Towns of Caledonia, Mt. Pleasant, and Somers. These communities should also be requested to consider and endorse the final recommendations.

- The chief elected officials of the sponsoring counties and municipalities of the study—the Counties and Cities of Kenosha, Milwaukee, and Racine should caucus and come to a collective determination as to how best to proceed to initiate and conduct the preliminary engineering that is required. Following their identification of a strategy to permit the initiation and conduct of preliminary engineering, and the implementation of that strategy, the preliminary engineering should be undertaken concurrently with addressing the important issue of what agency or unit of government ultimately is to assume responsibility for sponsorship of the commuter rail service. Attendant to the sponsorship issue is the need to consider and seek to resolve any disagreements that may exist as to the extent to which local funds may be required for implementation and operation of the service. It is desirable that these issues be addressed and resolved before significant funds are expended on preliminary engineering work. That work will necessarily involve decision-making on facility and service design, operations, and costs. Good public policy dictates that those decisions be made with

input and direction from the ultimate sponsoring public agency—the body that takes responsibility to implement and operate the service. Spending significant amounts of public funds to complete engineering work without first addressing key issues attendant to sponsorship and funding could result in wasteful expenditures. Moreover, as a practical matter, the FTA requirements effectively presume that a project sponsor has been identified at the initiation of preliminary engineering.

- Following determination of what agency will be the commuter rail extension sponsor and determination of funding responsibilities, the sponsor should complete the preliminary engineering work. The estimated cost of the preliminary engineering is $4.0 million, with 80 percent, or $3.2 million, to be met with Federal funds. To meet Federal requirements, the sponsor should request the Commission to amend the regional transportation plan to formally include the commuter rail extension and further to amend the regional transportation improvement program to include preliminary engineering for that extension.

- The project sponsor would submit a formal request to enter preliminary engineering to the U.S. Department of Transportation, Federal Transit Administration (FTA). The request would include supporting information and data required by the FTA, including a New Starts Submittal report and two supplemental reports, a Project Management Plan and a Financial Plan. The New Starts Submittal report and the Project Management and Financial Plan reports are considered by FTA as "work-in-progress" reports to be periodically revised and updated with more complete and detailed information as the project proceeds through preliminary engineering and final engineering. The New Starts Submittal Report provides a description of the proposed project, a summary of the project history, a description of the purpose and need for transportation improvement in the corridor, an outline of the current project status, and measurement of the project's attainment of the FTA New Starts evaluation criteria—which is used by FTA to evaluate and rate proposed projects. The Financial Plan documents project costs and revenues, local funding commitments, financial history and current financial condition of the sponsoring agency, evaluation of existing and possible new funding sources, and 20-year cash flow projections for the entire transit system and the proposed improvement. The Project Management Plan establishes the approach, policies, and procedures for undertaking preliminary engineering, and ultimately project implementation. It includes the identification of the roles and responsibilities of key participants; quality control and assurance; design management; real estate and other property acquisition; risk management; safety and security; construction and procurement management; testing and preparation for revenue start-up; human resources, labor relations, and dispute resolution; and legal requirements, assurances, and agreements. The formal request to FTA to enter Preliminary Engineering will also need to include documentation of the completed alternatives analysis corridor study, adoption of a locally preferred alternative, inclusion of the locally preferred alternative in the regional long range transportation plan, inclusion of the proposed preliminary engineering project in the regional transportation improvement program, and assurance of the technical, legal, and financial ability of the project sponsor to conduct implementation of the proposed project. Using this submittal package, FTA will review the request to enter Preliminary Engineering and evaluate the New Starts criteria information and other information that has been submitted and determine a project rating. If the proposed project receives a "recommended" or higher rating, the project will be approved and will move forward. If the proposed project receives a lower rating, the project will not be approved and FTA may ask the project sponsor to review certain areas of the submittal for improvement.

The preliminary engineering for the commuter rail extension would be intended to:

- Refine the design of the locally preferred commuter rail alternative, and complete the National Environmental Policy Act (NEPA) process, including preparation and completion of a Draft Environmental Impact Statement (DEIS) and a Final Environmental Impact Statement (FEIS). In preliminary engineering, the specific design of, and operating plan for, the proposed transit improvement will be determined, including stations and park-ride lots, storage and maintenance facilities, track improvements, and signal improvements. Also, the New Starts Criteria report,

Financial Plan report, and Project Management Plan report are further refined and detailed. Preliminary engineering for a major capital investment project is considered complete when FTA declares in the Environmental Record of Decision (ROD) or Finding of No Significant Impact (FONSI) that the NEPA process has been completed; when the project scope, capital costs estimates, and financial plan are finalized; and when the project sponsor has adequately demonstrated to FTA its technical capability to advance the project into final design and construction.

- Address technical issues in the design of the commuter rail extension, some of which have been resolved during this alternatives analysis corridor study, including route alignment, integration with Metra commuter train operations between Chicago and Kenosha, and the number and location of potential stations. Other issues remain to be considered and resolved during preliminary engineering. These issues involve railway double track and signal requirements which Metra may place on the extension of commuter rail, and issues of cost allocation and express service which southeastern Wisconsin may want Metra to consider:

  - Double Track—Preliminary engineering may be expected to assess the desirability of reinstating a double track main line over most or the entire commuter rail route. This will need to be carefully evaluated from operational, capacity, and engineering perspectives to ensure schedule performance and schedule reliability as a result of peak-period trains operating in both directions at the same time and because of the relatively long total length of the extended route. Metra's Union Pacific North Line between Chicago and Kenosha is a double track main line.

  - Signal Requirements—Preliminary engineering may be expected to further assess the signal requirements necessary to protect and control train movements.

  - Express Service—Preliminary engineering may be expected to assess the feasibility and benefits of providing express service along the entire Milwaukee-Racine-Kenosha-Chicago route. This assessment would consider the feasibility and advantages and disadvantages of providing express service with the goal of providing higher average speeds and shorter travel times for passengers in both southeastern Wisconsin and northeastern Illinois.

  - Allocation of Costs—Preliminary engineering may be expected to assess the allocation of operation and maintenance costs between Wisconsin and Illinois for the additional commuter train services that would be operating within northeastern Illinois. The need to provide additional train service in northeastern Illinois as part of the Kenosha-Racine-Milwaukee service extension may provide level of service, mobility, equipment, and other operating benefits to Metra and northeastern Illinois. As part of this assessment, the allocation of costs for that portion of the existing Metra service already operating between Kenosha and the Wisconsin-Illinois state line may need to be addressed as well.