RECOMMENDED TRANSIT SERVICES 5

Credit: Waukesha Metro Transit

5.1 INTRODUCTION

This chapter discusses transit service recommendations for each decision-making entity for the Waukesha Metro Transit System and the Waukesha County Transit System to consider implementing to improve services. These recommendations have been designed to improve the performance of each transit system based on the evaluation of the transit system's performance completed in Chapter 4 of this report, and in careful consideration of the comments and ideas received from the Advisory Committee, Waukesha County businesses, transit riders, non-profit organizations that serve clients that use transit, students and parents/guardians in the Waukesha Public School District, and the public related to this effort.

Future expenses, revenues, and ridership of the Waukesha Metro Transit System and the Waukesha County Transit System were analyzed to provide a "no-change" option that will serve as the base scenario against which potential service changes will be compared. Each section includes a description of the recommendation, a discussion of advantages or disadvantages of a particular recommendation, and where applicable, a table containing the expected operating expenses, revenues, and ridership for the duration of this short-range Transit Development Plan, and an annual average for the five-year timeframe. This chapter is organized into three elements. The first element discusses recommendations for the fixed-route transit services operated by the City of Waukesha and Waukesha County. The second element provides recommendations related to on-demand or flexible transportation services that could replace or extend existing fixed-route bus services. The third element describes recommendations to paratransit services in the City of Waukesha or Waukesha County intended to increase efficiencies or expand the individuals served. Table 5.1 summarizes each recommendation and the implementing agency to assist the City of Waukesha and Waukesha County as they consider their potential roles under each potential option.

Table 5.1
Roles with Regard to Implementing Recommendations and Options for the Waukesha Area Transit Development Plan

Recommendations and Options	City of Waukesha	Waukesha County	Both
5.2 Fixed-Route Transit Service Element			
Recommendation 5.2.1: Implement Transit Enhancements on Metro Route 1			X
Recommendation 5.2.2: Restructure Waukesha Metro Routes	X		
Service Option 5.2.2A: Route 9 Routing and Destination Options	X		
Service Option 5.2.2B: Route 15 Routing Options	X		
Recommendation 5.2.3: Combine Routes 904 and 905, with Runs Terminating at Goerke's Corners and the City of Delafield		X	
Service Option 5.2.3A: Eliminate Stops on the 904/905 West of Goerke's Corners Park-Ride Lot		X	
Recommendation 5.2.4: Reduce Frequency on Route 901		X	
Recommendation 5.2.5: Implement an Enhanced Fare Payment System			X
Recommendation 5.2.6: Consider Fare Policy Changes			X
Recommendation 5.2.7: Implement Prioritized Improvements to Waukesha Metro Bus Stops	X		
Recommendation 5.2.8: Continue Exploring Alternative Bus Propulsion Systems and Sizes for Future Purchases	X		
Recommendation 5.2.9: Pursue Coordinated Transportation Solutions with Regional Transit Operators			X
Recommendation 5.2.10: Develop an Enhanced Marketing and Travel Training Program			X
5.3 On-Demand Transportation Service Element			
Recommendation 5.3.1: Implement Employment-Related On-Demand Transportation Solutions			X
Recommendation 5.3.2: Replace Poorly Performing Waukesha Metro Segments or Times of Day with On-Demand Transportation Services	X		
Recommendation 5.3.3: Develop Supplemental On-Demand Paratransit and Non-Emergency Medical Transportation Options			X
Recommendation 5.3.4: Develop Mobility Hubs			X
5.4 Paratransit and Specialized Transportation Service Element			
Recommendation 5.4.1: Continue collaboration between the Aging and Disability Resource Center of Waukesha County, Waukesha Metro, and Waukesha County Transit on Paratransit and Specialized Transportation Services			X
Service Option 5.4.1A: Provide County-Wide Shared-Ride Taxi Service		X	

Source: SEWRPC

5.2 FIXED-ROUTE TRANSIT SERVICE ELEMENT

Recommendation 5.2.1: Implement Transit Enhancements on Metro Route 1

As part of this planning process, the City of Waukesha and the City of Brookfield requested that Commission staff develop a more in-depth analysis of potential transit enhancements from downtown Waukesha to the Milwaukee Regional Medical Center (MRMC). The purpose of the analysis was to generate discussion and provide details that help the communities determine if and how to move forward with transit enhancements or bus rapid transit (BRT) along the corridor, including the extent of improvements, the potential benefits of such improvements, potential funding sources, and next steps. Waukesha Metro Route 1 provides an important intercounty connection, linking passengers between Milwaukee and Waukesha Counties to access jobs and services along the route and with connecting services provided by Waukesha Metro and the Milwaukee County Transit System (MCTS). The following discussion summarizes the analysis conducted and next steps in the planning process.

As currently planned, the existing Waukesha Metro Route 1 will be extended to serve the MRMC beginning in 2023, to match the anticipated start of revenue service for Milwaukee County's East-West BRT (E-W BRT). At that time, Milwaukee County plans to replace the current GoldLine service with the E-W BRT service, which would result in a loss of service between the MRMC and Brookfield Square without the planned extension of Waukesha Metro Route 1. It is expected that if any of the improvements included in this document are pursued, they would be implemented after the planned extension of Route 1 in early 2023.

The analysis considered three service concepts covering the range of likely potential improvements that could be considered if an investment is made in the transit service in this corridor, although these alternatives are not the only paths forward. The three alternatives considered, not including a no build option, were (1) Enhanced Local Service, (2) Corridor BRT, and (3) Full BRT, which are summarized in Figure 5.1, Potential Transit Service Concepts.

Commission staff reviewed the features included in each alternative, the potential alignments associated with each alternative, and the people and jobs served along each alignment. The three potential alignments considered as part of this analysis are shown in Figure 5.2. The existing routing, which was included as the No Build option, would continue to serve Westbrook Shopping Center and residential areas north of East Moreland Boulevard. The alignment on Moreland Boulevard, which could accommodate the Enhanced Local Service and Corridor BRT service concepts, could provide a more direct route, removing low-ridership segments north of Moreland Boulevard. The third alignment considered routing along Main Street, which could accommodate the Corridor BRT or Fixed-Guideway/Full BRT service concepts. This alignment would provide the most direct route, further increasing potential travel time savings for passengers. The performance evaluation, which is summarized below by transit service concept, indicated that additional transit investments could result in more jobs and individuals served and create conditions that improve the development potential along the transit corridor. Through subsequent discussions with City of Waukesha staff, it has been determined that Main Street would be the most desirable alignment.

The Enhanced Local Service

Under this option, it is anticipated that additional transit supportive features, such as pedestrian improvements, station amenities, and improved frequencies, would increase the distance that individuals are willing to walk to the bus service. As a result, this option is expected to increase access to additional jobs in the corridor from approximately 54,000 jobs under the No Build option to 63,000 jobs under the Enhanced Local Service option. Similarly, the number of people considered served by this option would increase to approximately 26,000 from 19,000 under the No Build concept. This option is anticipated to utilize Moreland Boulevard in portions of the City of Waukesha.

Corridor Bus Rapid Transit

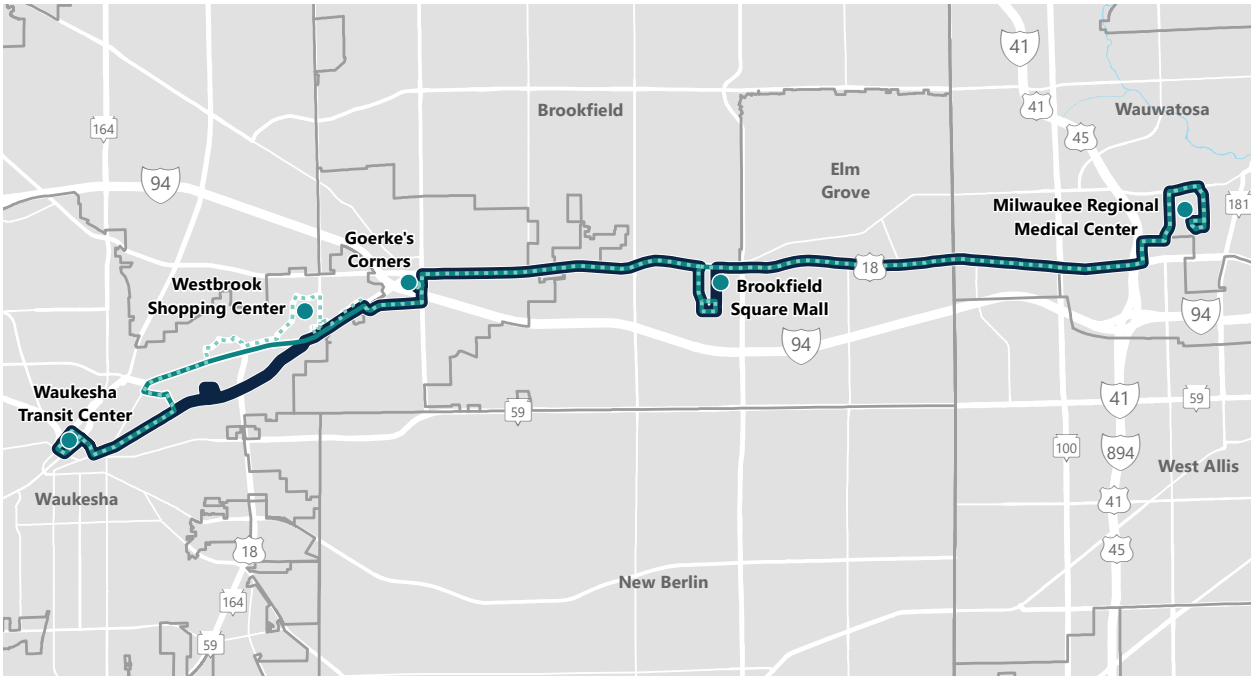
This option was analyzed under two alignments in the City of Waukesha; Moreland Boulevard, which provides similar routing as the existing alignment except for the elimination of some low-ridership segments north of Moreland Boulevard, and Main Street, which offers a more direct routing that would offer greater travel time savings for passengers. Under the Corridor BRT option, it is anticipated that bus stops would be located approximately every one-quarter to one-half mile, there would be additional dedicated transit lanes for

Figure 5.1
Potential Transit Service Concepts for the Bluemound Road Corridor

Service Concept	General Characteristics
 No Build	• Stops approximately every 0.125 mile • Minor bus stop improvements as needed • Similar operating characteristics as current route
 ***Alternative 1:*** Enhanced Local Service	• Stops approximately every 0.125 to 0.25 mile • Transit and pedestrian improvements conducted when WisDOT or local governments schedule roadwork • Potential pedestrian enhancements could include crosswalks, bulbouts at intersections, pedestrian refuge islands, and improved lighting
 ***Alternative 2:*** Corridor BRT	• Stops between every 0.25 and 0.5 mile • Greater emphasis on pedestrian improvements • Corridor BRT means defined stations, traffic signal priority for buses, robust amenities, all day transit service with headways between 15-20 minutes, and limited stop service • Could offer some dedicated lanes for buses, but less than 50 percent of route would have dedicated lanes for buses
 ***Alternative 3:*** Fixed-Guideway/Full BRT	• Stops approximately every 0.5 to 1 mile • 50 percent or more of route required to have dedicated lanes for buses • Fixed-Guideway BRT means additional improvements such as level boarding platforms, enhanced stations at key locations including real-time arrival information, off-bus fare payment, branded vehicles

Source: (Photos from top to bottom) SEWRPC, Pace Suburban Bus, Flickr User Oran Viriyincy, and The Rapid

Figure 5.2
Route 1 Alignment Options



Potential Service Concept	Potential Alignments
No Build	*Existing*
Enhanced Local Service	*Moreland Boulevard*
Corridor BRT	*Moreland Boulevard*
	Main Street
Fixed-Guideway/Full BRT	*Main Street*

Source: Waukesha Metro Transit, MCTS, and SEWRPC

faster service, and high-quality transit stations would be added along the route. The results of the analysis show that there are a similar number of jobs and people served by each alignment, with the number of jobs served estimated to be 63,000 and the number of people served estimated to be approximately 25,000.

Full Bus Rapid Transit

The Full BRT option would be expected to include additional improvements such as level boarding platforms, enhanced stations at key locations including real-time arrival information, off-bus fare payment, branded vehicles, bus stops approximately one-half to one mile apart, and additional dedicated transit lanes. Implementing a more robust transit service would expand the extent of areas considered served, thereby increasing the number of jobs served to approximately 72,000 and the number of people served to 35,000.

Based on recent discussions with all of the local governments along the corridor, a feasibility study will be conducted to study potential station locations, pedestrian amenities, and the extent of additional dedicated lanes. Waukesha County, the City of Waukesha, and other local governments in the corridor have requested or indicated their support for the Commission staff to prepare the feasibility study. In addition to the potential enhancements, the future study would estimate ridership, costs, benefits, funding sources, and timing of possible enhancements. Public involvement would occur as part of the feasibility study process.

Depending on the transit enhancements selected, there are a range of Federal funding sources available for transit improvements, including the Federal Transit Administration (FTA) Capital Investment Grant (CIG) Program, FTA Section 5337 State of Good Repair Grant Program, FTA Section 5307 Urbanized Area Formula Program, and Federal Highway Administration (FHWA) Congestion Mitigation and Air Quality (CMAQ) Program. It is anticipated that the feasibility study will also consider options for implementation and identify which funding sources would be most applicable for each of the various implementation approaches.

Recommendation 5.2.2: Restructure Waukesha Metro Routes

Chapter 4, Evaluation of the Existing Transit System, identified several Waukesha Metro Transit routes with segments that had low productivity based on passenger activity per trip and per mile. Based on the route productivity analysis, it was recommended that changes be considered for unproductive route segments, particularly if the unproductive segments include circuitous route alignments that increase travel time and make transit travel less attractive. Routes that included segments considered to be least productive per scheduled bus trips included Route 1, Route 6, and Route 8. The routes that included segments considered to be least productive per mile included Route 1, Route 5, Route 6, Route 7, Route 9, and Route 15.

The Advisory Committee recommended that Commission staff review and consider route changes based on the productivity assessment. In addition, the Advisory Committee requested staff consider the presence of individuals with high transit needs, with an emphasis on seniors, persons in low-income households, people with disabilities, and households with no vehicle available. Therefore, the intent of the proposed routing changes is to enhance the attractiveness of using transit by identifying more direct routes and reducing travel time while ensuring transit service to those areas with high transit needs.

However, due to the impact of the COVID-19 pandemic on travel behavior, particularly transit ridership, it is also a challenging time to be proposing substantial changes to a transit system. The COVID-19 pandemic has impacted all elements of daily life, including the commute to work, with Waukesha Metro ridership about 55 percent of pre-pandemic levels in 2021. As safer at home orders were issued in March 2020, many employees began working from home. In response, to protect drivers and passengers, bus capacity was limited to 10 people per bus, which reduced the number of individuals served. This shift in commuting patterns continues to impact transit system ridership nationally and regionally, as some previous riders are no longer commuting to jobs daily. Ridership is slowly returning but has not recovered to 2019 ridership levels. For example, Waukesha Metro monthly ridership between September 2020 and September 2021 increased by approximately 4 percent, from approximately 27,000 passengers to 28,000 passengers. However, this is below the monthly ridership in 2019, which was approximately 46,000.

Given this context, the system included in this recommendation focuses on smaller-scale route changes in response the performance evaluation conducted as part of this planning process, with some somewhat-larger changes associated with the already-planned improvements to Route 1. Waukesha Metro is pursuing the purchase of automatic passenger counters (APCs), which will enable Metro to ascertain the number of boardings and alightings by route and bus stop on a more-continuous basis. This more informed picture of ridership trends could be used to develop more substantial fixed-route changes in the future. This section of the chapter offers planning level suggestions for monitoring route performance over the timeframe of this plan, particularly as more refined ridership data becomes available.

Weekday Route Changes

To prepare this proposed route restructuring, Commission staff reviewed the current Waukesha Metro routes utilizing the direction provided by the Advisory Committee and coordinated closely with Waukesha Metro staff to develop route updates for consideration as shown in Table 5.2. The route updates are envisioned to occur in two phases, with the first round of potential updates occurring in coordination with revisions to the Route 1 to serve the Milwaukee Regional Medical Center (MRMC) beginning in spring 2023, to match

Table 5.2
Proposed Metro Route Changes

Route Number	Proposed Changes	Potential Implementation Year	Days of Operation	Hours of Service (Approximate)
1	Extends to Milwaukee Regional Medical Center Serve Main Street in City of Waukesha More direct service along Moreland Boulevard Removed service to Avalon Drive and Ruben Drive	2023	M-F and Saturday, Sunday	M-F 5:15 a.m. - 11:55 p.m. Saturday 6:10 a.m. - 11:44 p.m. Sunday 7:05 a.m.- 10:14 a.m.
2	Shortened route to a 30 minute round trip Includes service to Woodman's Market	2023	M-F	M-F 6:00 a.m. - 7:00 p.m.
3	Updated routing serves Westbrook Shopping area, including Target Serves areas in downtown Waukesha along Corrina Boulevard, Baxter Street, and White Rock Avenue Serves Horning Middle School	2023	M-F	M-F 6:00 a.m. - 7:00 p.m.
2/3	Saturday service to Woodman's Market, Westbrook Shopping Center, and Target	2023	Saturday	Saturday: 8:00 a.m. - 7:45 p.m.
15	Includes service to Roberta Avenue and East Avenue (north and south of Sunset Drive), which was previously served by Route 3 Removes service on Corrina Boulevard, which is now served by Route 3 Serves Navajo Lane rather than Chippewa Drive Serves South High School Could offer truncated route by not serving areas north of Sunset Drive (Tenny Avenue, Roberta Avenue, and East Avenue)	2023	M-F and Saturday	M-F 6:30 a.m. - 6:30 p.m. Saturday 8:15 a.m. - 6:45p.m.
4	Minor routing changes around the downtown Transit Center	2024	M-F and Saturday, Sunday	M-F 6:00 a.m. - 9:30 p.m. Saturday 8:00 a.m. - 9:00 p.m. Sunday 8:00 a.m. - 7:00 p.m.
5	Serves the Shoppes at Fox River Does not serve areas south of Sunset Drive	2024	M-F and Saturday, Sunday	M-F 6:30 a.m. - 6:30 p.m. Saturday 8:00 a.m. - 8:30 p.m. Sunday 8:00 a.m. - 5:00 p.m.
6	Does not serve the Shoppes at Fox River No longer serves Motor Avenue, Cambridge Avenue, or Macarthur Road Runs along North Avenue to/from the Transit Center Continues school service to West High School	2024	M-F	M-F 6:00 a.m. - 9:30 p.m. Saturday 8:00 a.m. - 8:30 p.m. Sunday 8:00 a.m. - 5:00 p.m.
7	Does not serve areas west of Grandview Boulevard due to low ridership Continues school service to Butler Middle School and North High School Adds service on Cambridge Avenue, previously served by Route 6	2024	M-F	M-F 6:30 a.m. - 7:00 p.m.
7/8	Weekday evening service to UWM-Waukesha Weekend service on Summit Avenue, Michigan Avenue, Grandview Avenue, and Memorial Hospital	2024	M-F Evenings Saturday and Sunday	M-F 7:00 p.m. - 9:00 p.m. Saturday 8:30 a.m. - 7:00 p.m. Sunday 9:30 a.m. - 7:00 p.m.
8	No significant route changes Continues school service	2024	M-F	M-F 5:30 a.m. - 9:00 p.m.
9	Removes service on Irving Place due to low ridership Will continue to serve WCTC, and GE Campus. Future stop routing to the DMV will be explored	2024	M-F	M-F 6:00 a.m. - 9:00 p.m.
9 Weekend	Serves Silvernail Road, University Avenue, and Pebble Valley Road on weekends	2024	Saturday	Saturday 9:00 a.m. - 6:00 p.m.

Source: SEWRPC

the anticipated start of revenue service for Milwaukee County's E-W BRT. At that time, Milwaukee County plans to replace the current GoldLine service with the E-W BRT service. To accommodate these changes, the Waukesha Metro Route 1 is anticipated to increase service frequency, hours of service, and length of the route to connect to the E-W BRT. The proposed Route 1 alignment will serve Main Street in the City of Waukesha and continue east on Moreland Boulevard. This Route 1 alignment will trim service to the destinations north and west of the Westbrook Shopping Center. However, in response to the proposed changes to Route 1, nearby routes (Route 2, Route 3, and Route 15) are proposed to be updated concurrently to provide coverage to these neighborhoods, businesses, and important destinations. It is anticipated that the remaining Waukesha Metro routes (4, 5, 6, 7, 8, and 9) will be updated in subsequent years, potentially as soon as 2024, pending public input. Given the increased service planned for Route 1, Table 5.3 includes significantly higher revenue miles and service hours in 2023 and 2027. The recommended weekday route changes are illustrated on Map 5.1.

Based on the input received from the Advisory Committee, the populations served under the proposed weekday route changes were analyzed to ensure that individuals with high transit needs continued to be served, which includes the following categories: school-age children (ages 10 through 17), seniors (ages 75 and older), persons in low-income households, people with disabilities, and households with no vehicle available. The results indicate that all seven of the Census block groups with high transit needs within the City of Waukesha continue to be served with the proposed weekday route changes, while 28 of the 35 block groups with moderate transit needs within the City would be served, a reduction of four block groups. The block groups no longer considered served are primarily a result of proposed changes to Route 7 and Route 5, which would shorten the extent of the routes. Specifically, the proposed changes to Route 7 would eliminate weekday transit service west of Grandview Boulevard and the proposed changes to Route 5 would eliminate weekday transit service south of Sunset Drive. Given these potential impacts to individuals with moderate transit needs, it is anticipated that Waukesha Metro continue to monitor recent ridership levels in these locations prior to implementing the route changes. Transit service to Census blocks with high concentrations of minority residents was also analyzed and the results indicate that the proposed changes to Waukesha Metro would not impact those areas comprised of the highest concentrations of minority people, which includes Census blocks that comprise 200 or more minority people.

Weekend Route Changes

The changes to weekend routes would continue service between downtown Waukesha and major trip generators such as Brookfield Square, Woodman's Market, Westbrook Shopping Center, the Shoppes at Fox River, and retail establishments along Grandview Boulevard and Silvernail Road. As shown in Table 5.2, Saturday service would be provided on Routes 1, 2/3, 4, 5, 7/8, 9, and 15 and Sunday service would be provided on Routes 1, 4, 5, and 7/8. Similar to the weekday route changes, the weekend changes could be implemented in a phased approach, with Routes 1, 2/3, and 15 proposed to occur in 2023 and Routes 4, 5, 7/8, and 9 proposed to occur in 2024. The recommended weekend routing would combine Routes 2 and 3 into one route that serves destinations such as Woodman's Market, Westbrook Shopping Center, and Target. The recommended changes would also continue to operate Route 7/8, with service on weekday evenings, Saturday, and Sunday to serve residential areas on the western side of the City and Waukesha Memorial Hospital. The recommended weekend route changes are illustrated on Map 5.2.

Service Option 5.2.2A: Route 9 Routing and Destination Options

Within the proposed system change described previously, service options for Route 9 and Route 15 are shown on Map 5.3. Specifically, Route 9 currently serves the Waukesha County Technical College (WCTC), GE Healthcare, and the Ingleside Hotel. The recommended routing considers removing service to Ingleside Hotel due to low ridership, and includes routing options that would serve the Department of Motor Vehicles (DMV), GE Healthcare, and WCTC (shown as options 1, 2, and 3). Based on public input, which requested that participants rank their preference for these destination options, service to the DMV and WCTC was identified as most preferred, with GE Healthcare also receiving some preference. Future discussions with WisDOT will be needed to identify the potential routing and an accessible bus stop location near the DMV. Therefore, Map 5.1 shows service to WCTC and GE Healthcare, but specific routing to the DMV is not currently shown pending future discussions.

Table 5.3
Projected Changes in Annual Operating Expenses, Revenues, and Ridership Resulting from Route Updates for the Waukesha Metro Transit Service: 2023-2027

	Actual	Projected		
Charateristics	2019	2023	2027	Average
Services Provided				
Revenue Vehicle Miles	641,200	871,800	834,000	852,900
Revenue Vehicle Hours	54,500	57,300	49,300	53,300
Passenger Trips				
Revenue Passengers	498,092	390,000	396,200	393,100
Boarding Passengers	577,696	452,300	459,500	455,900
Boarding Passengers per Revenue Vehicle Mile	0.90	0.45	0.48	0.46
Boarding Passengers per Revenue Vehicle Hour	10.60	6.81	8.04	7.42
Expenses and Revenues				
Operating Expenses[a]	$4,906,125	$6,088,795	$5,775,081	$5,931,938
Farebox Revenues[a]	$751,243	$842,700	$849,600	$846,150
Percent of Expenses				
Recovered Through Revenues	15.31	13.84	14.71	14.28
Operating Assistance				
Federal[a]	$741,396	$1,503,200	$1,865,600	$1,684,400
State[a]	$2,286,269	$1,195,200	$1,483,200	$1,339,200
Local[a]	$1,127,217	$2,547,695	$1,576,681	$2,062,188
Total[a]	$4,154,882	$5,246,095	$4,925,481	$5,085,788
Per Boarding Passenger				
Operating Expenses[a]	$8.49	$13.46	$12.57	$13.02
Farebox Revenue[a]	$1.30	$1.86	$1.85	$1.86
Total Operating Assistance[a]	$7.19	$11.60	$10.72	$11.16

Note: The estimated operating assistance levels are anticipated to change based on future State biennial budgets and Federal infrastructure bills.

[a] *Expenses and revenues are expressed in estimated year-of-expenditure dollars.*

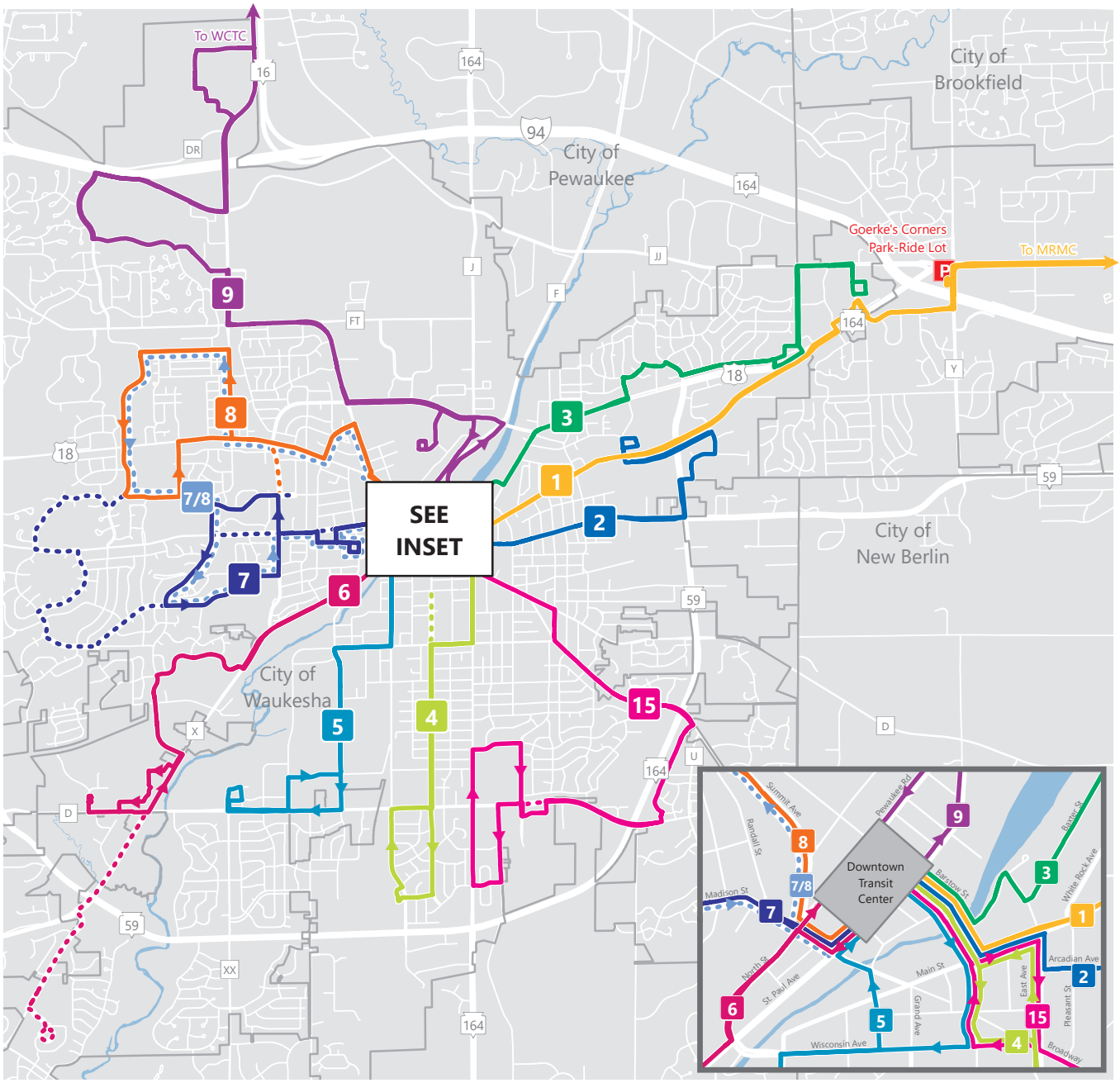
Source: SEWRPC

Service Option 5.2.2B: Route 15 Routing Options

The options associated with the draft Route 15 included whether to serve destinations along Roberta Avenue and Tenny Avenue, north of Sunset Drive as part of the regular service (shown as option 1 on Map 5.3), or only locations south of Sunset Avenue (shown as option 2). Under option 2, it is anticipated that there would continue to be limited transit service to Waukesha South High School during the school year. Based on public input, where participants were asked to identify which locations should have regular transit service, there was preference indicated for locations north of Sunset Drive (Roberta Avenue and Tenny Avenue), with additional interest in serving locations south of Sunset Drive (Big Bend Road, E. Rivera Drive, and S. East Avenue). Therefore, Route 15 is recommended to serve locations both north and south of Sunset Drive, as shown on Maps 5.1 and 5.2.

Potential cost and ridership estimates resulting from these route changes are summarized in Table 5.3. These estimates assume that operating expenses per service hour will grow at a rate of 2.5 percent each year, and that the percentage of operating expenses covered by a combination of Federal and State funds will remain at approximately 55 percent. The State and Federal funding levels are anticipated to change in the next State biennial budget (2023-2025) and future Federal infrastructure bills. The State has initiated the 2023-2025 biennial budget process in June 2022, with a signed budget anticipated by July 2023. The Infrastructure Investment and Jobs Act authorized funding increases for public transit over five years through Federal Fiscal Year 2026. The route changes would result in a reduction in revenue hours over the no-change projections due to some routes shortening their trips, or revised routing. Since the changes could be implemented in stages, the result of the complete route update is shown under the year 2027. It was assumed that ridership would increase by about 1.5 percent over the no-change projections in the years that route changes are implemented based on experiences from other route changes nationally. However, given the current context of pandemic-related impacts on travel patterns, any forecasts of ridership within this TDP are tentative and have a high degree of uncertainty. Operating expenses are projected to decrease in 2027 due to reductions in revenue hours.

Map 5.1
Draft Recommended Waukesha Metro Transit Weekday Routes



RECOMMENDED WEEKDAY ROUTES*

- REGULAR SERVICE
- LIMITED SERVICE
- 1 WAUKESHA/BROOKFIELD
- 2 ARCADIAN
- 3 HARTWELL
- 4 GRAND
- 5 PRAIRIE
- 6 ST. PAUL
- 7 MADISON
- 7/8 MADISON/SUMMIT
- 8 SUMMIT
- 9 NORTHVIEW
- 15 RACINE AVENUE

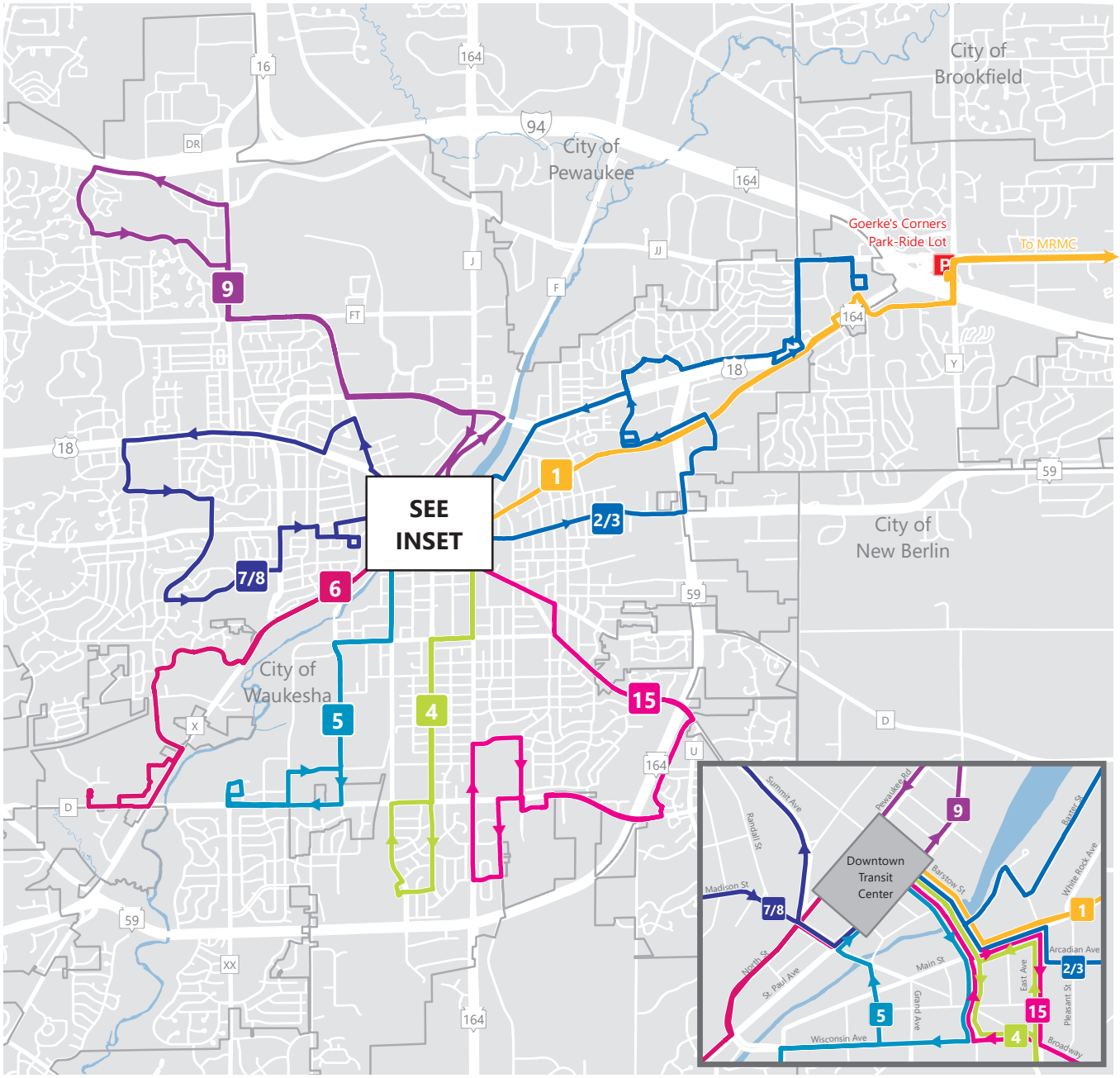
N

0 0.25 0.5 0.75 1 Miles

Source: Waukesha Metro Transit and SEWRPC

Note: All routes listed above, except for Route 7/8, provide service on weekday mornings.

Map 5.2
Draft Recommended Waukesha Metro Transit Weekend Routes



RECOMMENDED WEEKEND ROUTES

- REGULAR SERVICE
- 1 WAUKESHA/BROOKFIELD*
- 2/3 ARCADIAN/HARTWELL
- 4 GRAND*
- 5 PRAIRIE*
- 6 ST. PAUL*
- 7/8 MADISON/SUMMIT*
- 9 NORTHVIEW
- 15 RACINE AVENUE

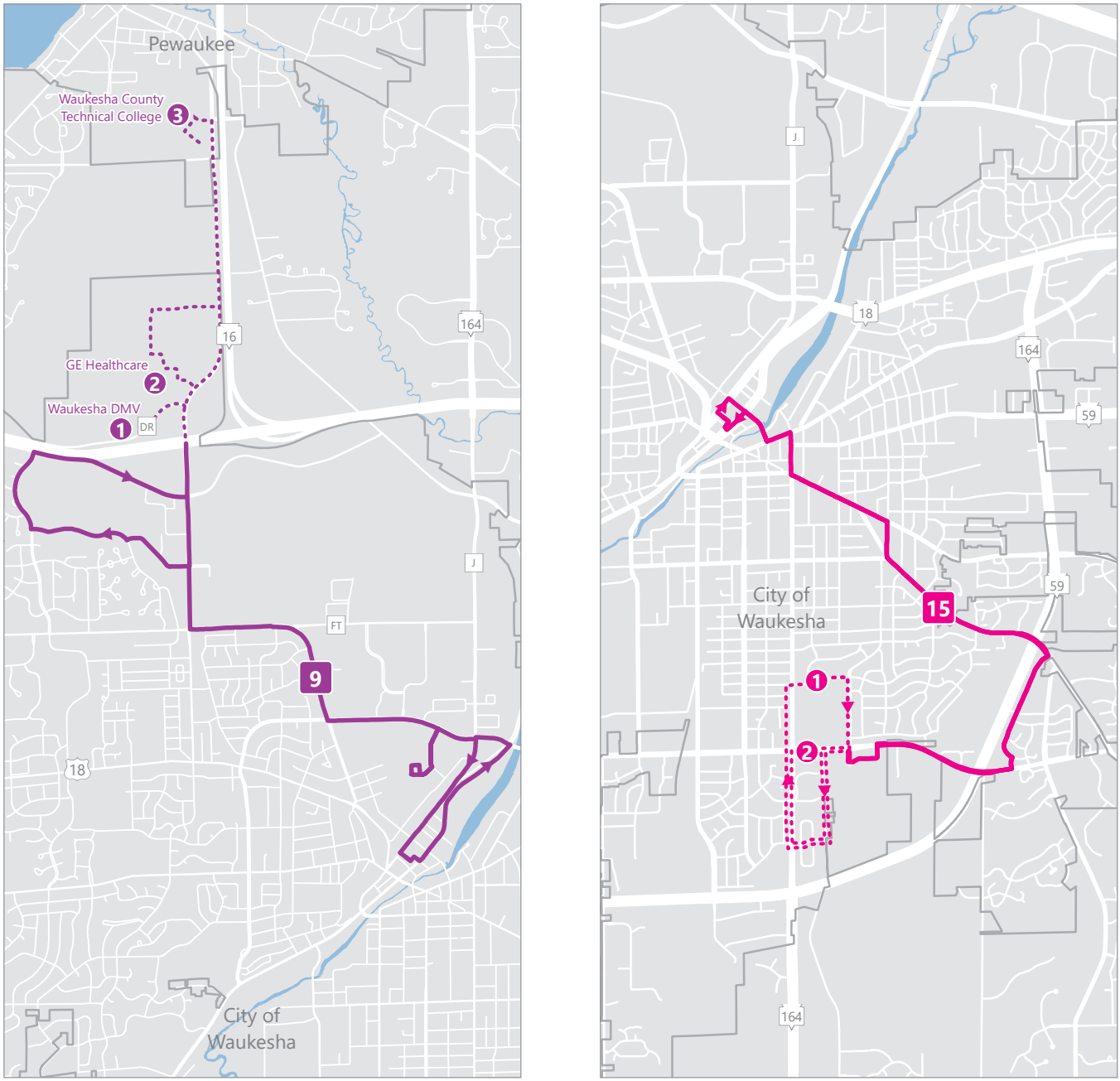
N

0 0.25 0.5 0.75 1 Miles

Source: Waukesha Metro Transit and SEWRPC

Note: All routes listed above provide service on Saturday.
Routes with an asterisk (*) also provide service on Sunday.

Map 5.3
Potential Waukesha Metro Transit Route 9 and Route 15 Service Options



ALTERNATIVE ROUTE 9 - NORTHVIEW

- 9 REGULAR SERVICE
- 1 ROUTING OPTIONS

ALTERNATIVE ROUTE 15 - RACINE AVENUE

- 15 REGULAR SERVICE
- 1 ROUTING OPTIONS

N

0 0.2 0.4 0.6 0.8 Miles

Source: Waukesha Metro Transit and SEWRPC

The consideration of these proposed changes to Waukesha Metro routes is assisted by providing similar estimates of continuing to operate the existing system as-is for the timeframe covered under this plan. In addition, the City of Waukesha may choose to not make any changes to Waukesha Metro routes during that time. Estimates for the no change scenario are shown in Table 5.4. As with the estimates for the proposed changes scenario, these estimates assume that operating expenses per service hour will grow at a rate of 2.5 percent each year, and that the percentage of operating expenses covered by a combination of Federal and State funds will remain at approximately 55 percent.

Options for Future Waukesha Metro Route Changes

Given the uncertainty surrounding transit ridership going forward, changes to Waukesha Metro routes in years 2024 through 2027 could be grouped into two options based on ridership scenarios. Waukesha Metro plans to purchase new automatic passenger counters in 2023, which will provide more accurate boarding and alighting data to inform future route changes. The first option could be considered under a low ridership scenario where ridership does not return to 2019 levels. As envisioned, this option would straighten and remove routes or segments of routes based on analyses of productivity using either the per mile or per scheduled trip performance measures. Given that this scenario assumes that ridership does not rebound within the timeframe of this plan, it focuses investments on those segments and locations that generate the most ridership to emphasize frequency of service over geographic coverage. Under the low ridership scenario, more significant route changes, such as removal of fixed-route service and replacement with on-demand service, could be considered along segments located in areas with the following characteristics as identified in the performance evaluation of this plan:

- Areas that are below the minimum threshold for transit supportive land uses based on population density. Based on national guidance, this threshold is 1,195 people per quarter section or four units per gross acre.

- Areas that are below the minimum threshold for transit supportive land uses based on job density. National guidance indicates the job density threshold is 640 jobs per quarter section or four jobs per acre.

- Areas that have low performing segments. Based on the route productivity analysis conducted as part of this plan, low performing segments are considered to have under four weekday boardings and alightings per scheduled bus trip per segment or under 25 weekday boardings and alightings per mile.

The second option assumes that ridership returns to 2019 levels within the timeframe of this plan, and proposes more moderate route changes, emphasizing coverage over frequency. Under this scenario, the segments that were considered moderately productive in either the per mile or per scheduled trip analyses would continue to be served by fixed-route transit to provide coverage within the City of Waukesha. It is recommended that any proposed route revisions include a review of how changes would impact areas with high transit needs, access to major activity centers, pedestrian access to and from the bus stop, and steep terrain that can reduce access. Under this option, Waukesha Metro may consider continuing fixed-route service in areas that have lower population and job densities. The route changes under the higher ridership scenario would place an even greater emphasis on service coverage regardless of population and employment densities. However, Waukesha Metro may determine that route changes are needed due to segment performance as additional boarding and alighting data become available. Therefore, under this higher ridership scenario Waukesha Metro could consider route updates along segments located in areas with the following characteristics:

- Areas that have low performing segments. Based on the route productivity analysis conducted as part of this plan, low performing segments are considered to have under four weekday boardings and alightings per scheduled bus trip per segment or under 25 weekday boardings and alightings per mile.

Should Waukesha Metro consider additional changes beyond the route changes detailed in this plan, Commission staff are available to assist with an analysis of the route revisions in the future using recent demographic and ridership data.

Table 5.4
Projected Annual Operating Expenses, Revenues, and Ridership for the Waukesha Metro Transit Service: 2023-2027

	Actual	Projected		
Charateristics	2019	2023	2027	Average
Services Provided				
Revenue Vehicle Miles	641,200	641,200	641,200	641,200
Revenue Vehicle Hours	54,500	54,500	54,500	54,500
Passenger Trips				
Revenue Passengers	498,100	383,900	464,500	439,900
Boarding Passengers	577,700	445,200	538,700	510,200
Boarding Passengers per Revenue Vehicle Mile	0.90	0.69	0.84	0.80
Boarding Passengers per Revenue Vehicle Hour	10.60	8.17	9.88	9.36
Expenses and Revenues				
Operating Expenses[a]	$4,906,100	$5,791,300	$6,384,200	$6,084,100
Farebox Revenues[a]	$751,200	$829,500	$1,011,900	$953,900
Percent of Expenses				
Recovered Through Revenues	15.31	14.32	15.85	15.66
Operating Assistance				
Federal[a]	$741,400	$805,000	$887,400	$845,700
State[a]	$2,286,300	$885,900	$976,600	$930,700
Local[a]	$1,127,200	$3,270,900	$3,508,200	$3,353,800
Total[a]	$4,154,900	$4,961,800	$5,372,300	$5,130,200
Per Boarding Passenger				
Operating Expenses[a]	$8.49	$13.01	$11.85	$11.92
Farebox Revenue[a]	$1.30	$1.86	$1.88	$1.87
Total Operating Assistance[a]	$7.19	$11.15	$9.97	$10.06

Note: The estimated operating assistance levels are anticipated to change based on future State biennial budgets and Federal infrastructure bills.

[a] *Expenses and revenues are expressed in estimated year-of-expenditure dollars.*

Source: SEWRPC

Recommendation 5.2.3: Combine Route 904 and 905, with Runs Terminating at Goerke's Corners and the City of Delafield

This section includes commuter service recommendations and service options for consideration, which were developed in the context of declining ridership trends, which existed even prior to the COVID-19 pandemic. Prior to the pandemic, commuter bus ridership was declining due to retirements among the historical ridership base, changing commuting patterns, and relatively low fuel prices. Commuter bus ridership then significantly declined even further due to the pandemic as many office-based employees worked from home. This resulted in year 2021 ridership levels on the 900 series routes being about 80 percent below pre-pandemic levels. Throughout the pandemic, return to work plans shifted as cases surged at various points, resulting in further uncertainty around future travel patterns and transit ridership. Nationally, the pandemic has shifted the long-term outlook for in-person work as many employers consider permanent remote work and hybrid work options, further impacting demand for traditional commuter bus services.

With these trends in mind, the following commuter bus recommendations and service options consider a lower level of fixed-route service, combining certain routes, considering partnerships with other transportation providers to serve key areas, and potential on-demand transportation services to offer first/last-mile transportation in Waukesha County. The projections of ridership, operating costs, and operating assistance were based on the Waukesha County Commuter route schedules operating in August 2021. For comparison, if the County should choose to continue the current commuter services, the projected annual operating expenses, revenues, and ridership are shown in Table 5.5. For purposes of this table, 2021 ridership levels were assumed to remain the same in future years and operating expenses were increased three percent each year based on current contracts. It should be noted that while service reductions are considered for the 900-series services in Waukesha County, portions of this plan consider enhancements to Waukesha County services provided along the Bluemound Corridor (Route 1 Extension, GoldLine Extension) to provide a greater service frequency in a corridor that is the best performing route, serving as the main connector to Milwaukee County.

Table 5.5
Projected Annual Operating Expenses, Revenues, and Ridership for the Waukesha County Transit Service: 2023-2027

Charateristics	Actual	Projected		
	2019	2023	2027	Average
Services Provided				
Revenue Vehicle Miles	464,800	276,400	276,400	276,400
Revenue Vehicle Hours	26,200	13,100	13,100	13,100
Revenue Passengers				
Total	426,600	158,800	158,800	158,800
Passengers per Revenue Vehicle Mile	0.92	0.57	0.57	0.57
Passengers per Revenue Vehicle Hour	16.27	12.11	12.11	12.11
Expenses and Revenues				
Operating Expenses[a]	$3,948,000	$2,334,700	$2,627,800	$2,481,300
Farebox Revenues[a]	$644,600	$177,400	$177,400	$177,400
Percent of Expenses				
Recovered Through Revenues	6.12	7.60	6.75	7.18
Operating Assistance				
Federal[a]	$818,700	$715,400	$805,100	$760,300
State[a]	$1,453,800	$568,700	$640,200	$604,500
Local[a]	$1,031,000	$873,200	$1,005,000	$939,100
Total[a]	$3,303,400	$2,157,300	$2,450,300	$2,303,800
Per Trip Data				
Operating Expenses[a]	$9.25	$14.70	$16.55	$15.62
Farebox Revenue[a]	$1.51	$1.12	$1.12	$1.12
Total Operating Assistance[a]	$7.74	$13.58	$15.43	$14.51

Note: The estimated operating assistance levels are anticipated to change based on future State biennial budgets and Federal infrastructure bills.

[a] *Expenses and revenues are expressed in estimated year-of-expenditure dollars.*

Source: SEWRPC

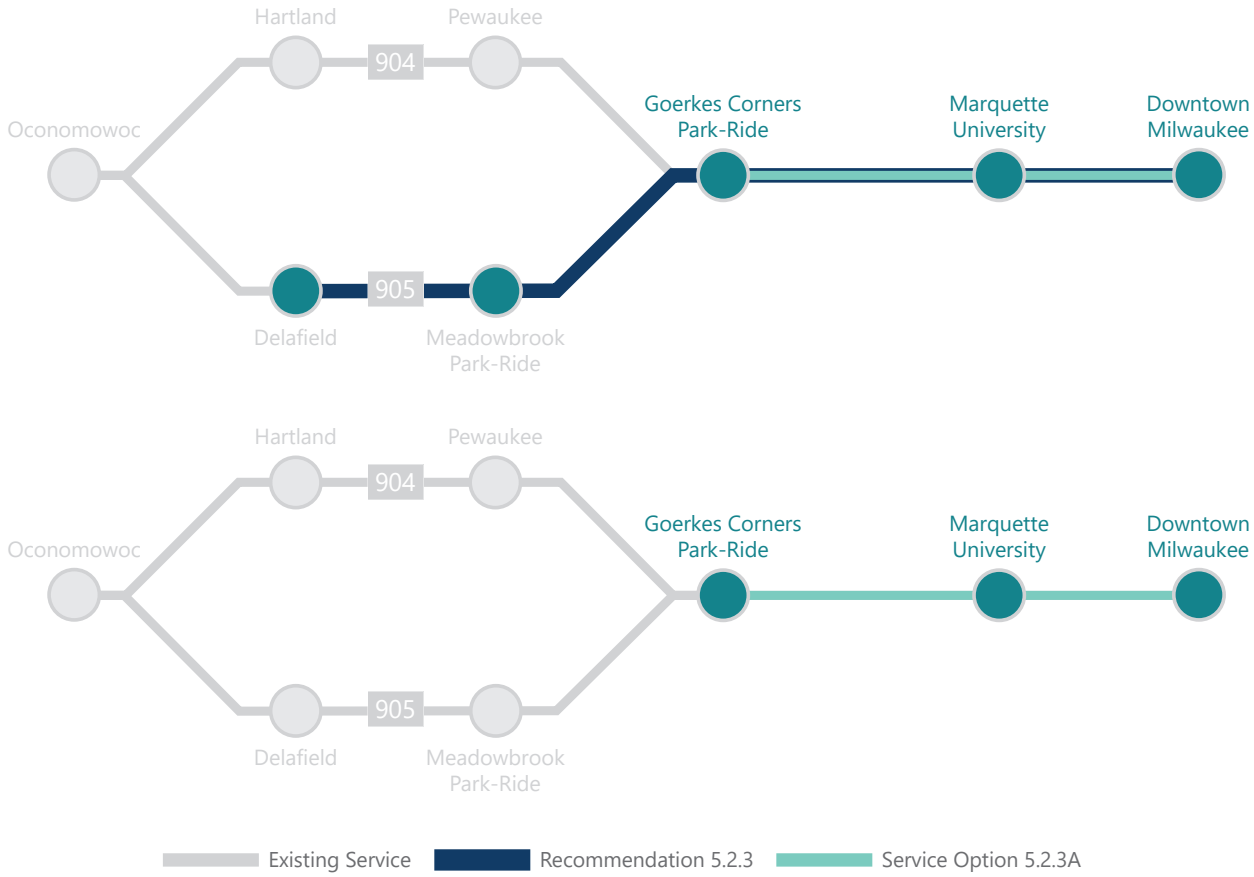
Should the County seek to retain commuter bus service to portions of western Waukesha County, this recommendation envisions that four runs would continue to serve the Nagawaukee Park-Ride Lot in the City of Delafield. This recommendation is illustrated in Figure 5.3. For those runs serving the Nagawaukee Park-Ride Lot, two would operate during the peak morning commute and two would operate during the peak evening commute. Under this recommendation, the Route 904 would no longer be in service, with the runs to and from Delafield becoming Route 905. These changes would reduce the total operating expenses by approximately $160,000 per year in 2027 and reduce total operating assistance by approximately $150,000 per year in 2027, as shown in Table 5.6. It is estimated that about 9,500 fewer passengers (based on pre-pandemic trends) would utilize the services.

Service Option 5.2.3A: Eliminate Stops on Routes 904 and 905 West of Goerke's Corners Park-Ride Lot

If ridership declines significantly, Waukesha County could consider eliminating stops west of the Goerke's Corners Park-Ride Lot for Routes 904 and 905. Based on reviews of boardings and alightings, Commission staff determined that the majority of passengers on Routes 904 and 905 access the service at Goerke's Corners (82 percent and 63 percent of route ridership, respectively). Therefore, this option would allow the majority of passengers to continue similar travel patterns while reducing operating expenses. This proposed change is illustrated in Figure 5.3.

Under this scenario, Route 901 would continue operating to the downtown Waukesha Transit Center. As shown in Table 5.6, this option would reduce operating expenses by approximately $218,000 per year in 2027 and reduce total operating assistance by approximately $203,000 per year in 2027. However, it is estimated that this option would reduce total passengers by approximately 13,200 per year (based on pre-pandemic trends) as it offers less service to the western portions of the County. Based on public input, there was support to continue commuter service west of Goerke's Corners Park-Ride Lot. Therefore, this service option is provided should ridership decline significantly in the future.

Figure 5.3
Potential Service Changes for Routes 904 and 905



Source: SEWRPC

Table 5.6
Comparison of Projected Decreases in Annual Operating Expenses, Revenues, and Ridership for Each Commuter Route Reduction: 2027

Charateristics	Recommendation 5.2.3: Combine Routes 904 and 905 to Goerke's Corners and City of Delafield	Service option 5.2.3A: Eliminate All Stops West of Goerke's Corners on Routes 904 and 905	Recommendation 5.2.4: Reduce 901 Frequency
Services Provided			
Revenue Vehicle Hours	-800	-1,100	-800
Revenue Passengers			
Total Passengers	-9,500	-13,200	-9,800
Passengers per Revenue Vehicle Hour	11.88	12.00	12.25
Expenses and Revenues			
Operating Expenses[a]	-$156,700	-$218,000	-$161,700
Farebox Revenues[a]	-$10,600	-$14,700	-$10,900
Operating Assistance			
Local[a]	-$59,900	-$83,400	-$61,900
Total[a]	-$146,100	-$203,300	-$150,800
Per Trip Data			
Total Operating Assistance[a]	15.38	15.40	15.39

[a] *Expenses and revenues are expressed in estimated year-of-expenditure dollars.*

Source: SEWRPC

Recommendation 5.2.4: Reduce Frequency on Route 901

This recommendation would reduce service on the Route 901 by eliminating two eastbound and two westbound runs as illustrated in Figure 5.4. The two eastbound runs that would be eliminated provide morning service, which would result in a total of four eastbound routes remaining. The two westbound routes include one morning route from downtown Milwaukee to Waukesha and one afternoon route from UW-Milwaukee to Waukesha. These changes to westbound service would result in one remaining run serving as a "reverse commute" run from downtown Milwaukee to Waukesha and no mid-afternoon service between UW-Milwaukee and Waukesha. However, the East-West BRT and the Waukesha Metro Route 1 will provide frequent, all-day service that will assist passengers requiring this trip and therefore, the impacts to access will be somewhat limited. As shown in Table 5.6, it is estimated that this recommendation would reduce total operating expenses by approximately $162,000 per year in 2027 and reduce total operating assistance by approximately $151,000 per year in 2027. It is estimated that annual ridership would decrease by approximately 9,800 passengers (based on pre-pandemic trends) due to the reduction in service to downtown Waukesha. Waukesha County could also consider continuing service on the two eastbound and two westbound runs, but end the trips at Goerke's Corners Park-Ride Lot, as illustrated as service option 5.2.4A in Figure 5.4. However, the increase span of service and frequency on the Waukesha Metro Route 1 would allow passengers to continue westbound to downtown Waukesha, which could mitigate this estimated loss of ridership.

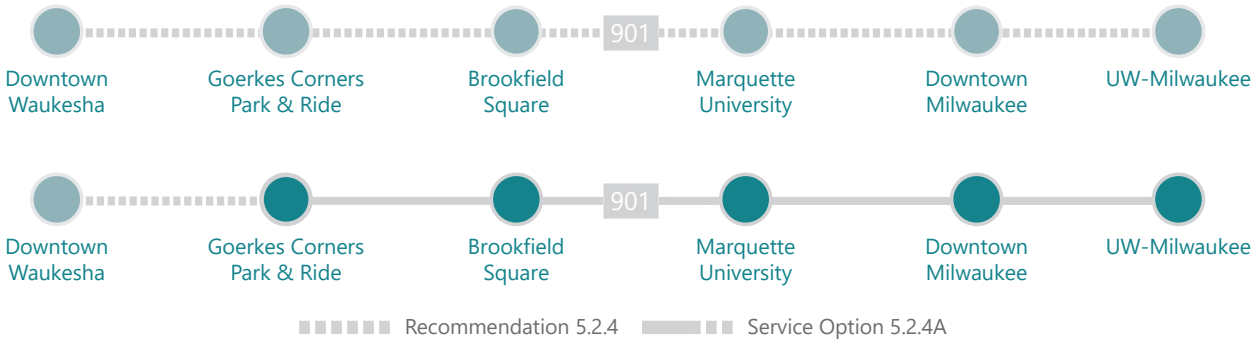
Potential impacts to County paratransit services and passengers should be considered when making changes to Waukesha County Transit service. Based on FTA guidance in FTA Circular 4710.1, commuter bus service is not required to provide complementary paratransit service. Under this guidance, commuter bus service is defined as transit service limited to predominantly one direction during peak periods with limited stops along extended lengths. Therefore, eliminating the bi-directional transit service along the Route 901 between UW-Milwaukee and the City of Waukesha would likely reduce the need to offer complementary paratransit service along the Route 901, further reducing the cost to Waukesha County by approximately $150,000 per year, which was the annual operating expenses for County paratransit services in 2019. If complementary paratransit service is no longer operated along Roue 901, current County paratransit passengers would no longer have direct transportation between the City of Waukesha and destinations in Milwaukee County. Rather, County paratransit passengers would be required to transfer to another wheelchair accessible vehicle operated by MCTS or request a ride through the RideLine program if the trip is for medical purposes. Based on the most recent ridership information provided by Waukesha County Transit, there are less than ten passengers that utilize Waukesha County paratransit services to access destinations in Milwaukee County.

These potential service changes could be considered separately or in combination with each other. In addition, Waukesha County could explore partnerships to leverage transportation services with regional transit operators, as described in a following recommendation.

Recommendation 5.2.5: Implement an Enhanced Fare Payment System

An enhanced fare payment system could offer the opportunity to support seamless regional connectivity for commuters traveling between Waukesha County and Milwaukee County. For example, in early 2022, MCTS announced that it will implement a new fare collection system. The new system includes multiple payment options, including cash and smartcards, but is built around a smartphone app named WisGO, which is intended to provide a comprehensive mobility platform for Milwaukee County, and the region. Such smartphone apps for transit can make accessing information about the transit system substantially easier for those using or relying on mobile devices. In addition, many transit systems have integrated services like trip planning, real-time bus arrival information, and fare payment into their smartphone apps. Extending these conveniences to Waukesha Metro riders would provide an enhanced rider experience. Should Waukesha Metro pursue integrating with MCTS's fare payment system, items such as aligning fare policies and prices among transit agencies; ensuring connectivity with Waukesha Metro's automatic vehicle location system; considering how fares are divided among operators for cross-county trips; and identifying hardware needs such as fare purchasing equipment would all need to be considered and addressed. MCTS is providing Waukesha Metro with fare validators on all buses, which will allow for more opportunities for intercounty travel.

Figure 5.4
Potential Service Changes for Route 901



Source: SEWRPC

The integration of various transportation services and payment (e.g., transit, bikeshare, rideshare, etc.) into a single mobility service accessible on demand is called Mobility as a Service (MaaS). The intent of a MaaS program is to offer users the best value proposition by helping them meet their mobility needs. MaaS has been implemented internationally and at some U.S. transit agencies. Specifically, the Dallas Area Rapid Transit system and Portland's TriMet are developing apps for trip planning that are moving them toward a more robust MaaS program. The feasibility of implementing Maas in Wisconsin was studied in 2020, and the case study identified potential limitations related to limited smartphone availability, funding limitations, and an aging population. However, continued collaboration between stakeholders and tailored services that meet the needs of passengers could help address these challenges.[11] These innovations will evolve and provide opportunities to enhance the passenger experience and encourage ridership.[12] As these technologies continue to be implemented in the region, Waukesha Metro should continue to discuss options with MCTS to provide seamless transfers to their services, starting with the Route 1 extension between MRMC and the downtown Waukesha Transit Center.

Recommendation 5.2.6: Consider Fare Policy Changes

Fare Capping

Fare increases may be considered by Waukesha Metro once funds provided through the Department of Transportation's COVID-19 relief programs are depleted. However, the potential need for fare increases to keep pace with inflation should be balanced with opportunities to promote ridership. One opportunity that Waukesha Metro could explore is fare capping, which establishes a fare threshold for frequent transit riders by upgrading their transit pass to a higher-level, such as a daily, weekly, monthly, or annual pass, once a certain fare limit is met. Fare capping is implemented concurrently with the adoption of advanced fare-payment technologies that can count how many times a rider uses the system within specific time spans. Fare capping has been shown to benefit riders that may not be able to afford a weekly or monthly pass while incentivizing riders to use the mobile or card payment options, which reduce the cost associated with handling cash. Early indicators show that fare capping can result in a loss of revenue and therefore Waukesha Metro would need to consider how the potential loss of revenue would be covered. If transitioning to a mobile app or card system, Waukesha Metro should also consider how those who do not have a bank account could pay their fare. In some locations, this is remedied by offering kiosks in which they can pay with cash to reload a transit card. Fare capping as a practice is continuing to evolve, with MCTS implementing fare capping measures in 2023, more information will be available including the impacts to ridership, administrative costs, and how to best communicate the changes to passengers.[13]

[11] *Liu, Yu, Trisha, and Beimborn. Exploring the Feasibility of Mobility as a Service in Small and Rural Communities: Lessons from a Case Study. Journal of Urban Planning and Development, Volume 146 Issue 3, September 2020.*

[12] *National Academies of Sciences, Engineering, and Medicine 2021. The Role of Transit, Shared Modes, and Public Policy in the New Mobility Landscape. Washington DC: The National Academies Press. doi.org/10.17226/26053.*

[13] *National Academies of Sciences, Engineering, and Medicine 2022. Fare Capping: Balancing Revenue and Equity Impacts. Washington, DC: The National Academies Press. doi.org/10.17226/26510.*

Fare-Free Transit System

In response to the COVID-19 pandemic, many transit systems, including Waukesha Metro, eliminated fare collection for a temporary period. Waukesha Metro didn't collect fares between the spring of 2020 and August 29, 2020, to address safety concerns associated with driver and passenger interactions. Like Waukesha Metro, most agencies resumed fare collection once some initial precautionary measures were lifted and safety measures, such as shields for drivers, were implemented. Other agencies, such as RideKC in Kansas City, Missouri, expanded their free fare program for veterans, students, and some clients of social services to all passengers on an ongoing basis. In certain cases, transit operators viewed the suspension of fares as a potential opportunity to enhance social equity, improve operations, and boost ridership. Within this context, the Advisory Committee indicated that this planning effort should include an analysis of eliminating fares on Waukesha Metro.

When considering the potential financial impact of eliminating fares, two factors to review are the farebox recovery ratio, or the percentage of farebox revenue compared to operating expenses, and the costs associated with collecting fares. Since collecting fares requires infrastructure and staff time, in cases where the farebox ratio is low, it may be advantageous to consider eliminating fares. For purposes of comparison, the median farebox ratio for bus systems considered in the peer review as part of the cost effectiveness performance standard in Chapter 4 was 12 percent, which is lower than Waukesha Metro's 2018 farebox recovery ratio of 17 percent. However, due to COVID-related ridership decreases and the temporary suspension of fares during a portion of 2020, the farebox recovery ratio has declined to 8.5 percent and 11.0 percent in 2020 and 2021, respectively.

Waukesha Metro staff indicated that the operational costs associated with processing cash payments is relatively low, given that about 30 to 40 percent of fares are paid with cash and the process can be done efficiently. It is estimated that processing the cash payments requires approximately 100 staff hours per year, which is approximately $2,000 based on the average hourly rate of $19.00/hour for accounting staff. Waukesha Metro pays about $1,000 per year for maintenance of the farebox system. Therefore, the annual costs associated with fare collection are approximately 0.5 percent of the operating expenses for Waukesha Metro, which is slightly less than national averages, which are between one and three percent. Due to the high cost of replacing farebox systems, it is undertaken approximately every 15 years. The last farebox replacement process occurred in 2013, and therefore it is likely that the next farebox replacement process would occur beyond the timeframe of this transit development plan. However, for purposes of this analysis, it is estimated that the cost of replacing fareboxes on Waukesha Metro's fleet would be $550,000, with an additional cost of approximately $70,000 for ticket vending machines.

Although the current costs for maintaining and processing fare payments is relatively low for Waukesha Metro, there are numerous benefits that transit agencies have experienced when implementing a fare-free service. For example, fare-free public transit service has resulted in increases in ridership, such as a 43 percent increase in Corvallis, Oregon; 58 percent increase in Asheville, North Carolina; and 86 percent increase in Topeka, Kansas. Some less tangible benefits of a fare-free transit program that have been observed include creating a sense of community pride, recognition by state and local organizations as a great place to live, and introducing young people to transit.[14]

Transit systems that have proposed fare-free systems have encountered additional needs related to maintenance and security, potentially adding to the expense of operating the system. These challenges may include homeless individuals remaining on vehicles, which is a concern among transit operators nationally and not a challenge that transit agencies can solve alone. Potential actions include partnering with social service agencies, training staff in conflict resolution, and ongoing community outreach about homelessness.[15] In addition, to fulfill requirements under the American with Disabilities Act, which requires that fares for complementary paratransit cannot exceed twice the base adult fare, Waukesha Metro would be required to provide fare-free paratransit service, which would put additional pressure on the transit system budget.

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[14] *National Academies of Sciences, Engineering, and Medicine 2012. Implementation and Outcomes of Fare-Free Transit Systems. Washington, DC: The National Academies Press. doi.org/10.17226/22753.*

[15] *National Academy of Sciences, 2016, Transit Agency Practices in Interacting with People Who Are Homeless, A Synthesis of Practice 121.*

Reports documenting past fare-free experiments indicate that between 5 to 30 percent of the additional trips were made by people switching from other motorized modes. Most new trips were made by people who would have otherwise walked or used a bicycle or would not have made the trip if there was a fare to pay. Based on research conducted by the Transit Cooperative Research Program (TCRP), a disproportionate number of new trips were made by existing riders, and seniors who were much more sensitive to transit pricing than automobile users. However, more recent implementation of fare-free public transit indicate that choice riders are more likely to use the service and take advantage of the free fares.

Alternative Fare-Free Programs

Other transit agencies have tested pilot programs by initially focusing on one demographic or region. In Washington, D.C., the Washington Metropolitan Area Transit Authority's pilot program focused on eliminating transfer fees between rail and buses for low-income residents and will be implemented for the entire population if successful.[16]

Some public transit agencies such as King County Metro Transit in Seattle, Washington, offer a fare-free zone in portions of their downtown districts, although they are reconsidering its continuation owing to budget pressures. In the case of King County, anyone may have unlimited rides on bus or train services without paying a fare within certain geographic boundaries, but they must pay a fare if they intend to stay on the vehicle after it leaves the boundaries of the fare-free zone.

In the case of RideKC, the City of Kansas City, Missouri passed a resolution in December 2019 which allowed the agency to offer free fare for veterans, students, and some clients of social services, such as domestic shelters. They continued their fare-free service into the pandemic and never saw ridership fall below 60 percent of the pre-pandemic level. The free fares are planned to continue through 2023, with Kansas City budgeting $4.8 million specifically for the transit authority to cover revenue lost.

Possible Sources of Revenue

Typical sources of replacement revenue if fares are eliminated include local sales tax, payroll tax, real estate transfer taxes, parking fees, fees paid by university students as part of their tuition, a contract with a public school or other public or private employer, federal or state grants, nonprofit organizations, or other sources including donations. A number of these revenue sources, such as fees, financial aids, or contributions by a private provider, are not available to transit operators in Wisconsin due to limitations in *State Statutes*. Revenues from such sources take the place of the revenue a public transit system would otherwise collect from passengers.

Should the transit system move towards a no-fare system, a pilot program targeting small groups or service zones is recommended to analyze the stability of the program and ensure its success. For example, a fare free program could be piloted with certain rider groups such as seniors or youth to study how the change impacts ridership, customer satisfaction, and system performance. In addition, certain areas, such as the core downtown area, could be fare free to promote mobility between downtown businesses and services.

Recommendation 5.2.7: Implement Prioritized Improvements to Waukesha Metro Bus Stops

At the request of Waukesha Area Transit Development Plan Advisory Committee, Commission staff collected and analyzed bus stop data for 589 stop locations served by Waukesha Metro and Waukesha County Transit, during June through September 2020. Data collected included the presence of pedestrian accommodations, bus pads, curb ramps, bus shelters, and amenities. Recent studies have indicated that better bus stop amenities expand transit ridership, with shelters having the most significant positive effect on ridership.[17] For example, bus stop improvements made by the Utah Transit Authority were associated with an increase in overall bus ridership and a decrease in ADA paratransit demand (Kim, Bartholomew, and Ewing, 2018).[18]

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[16] *Bergal, J. (2021, October 1). Can Zero-fare transit work? American Planning Association. www.planning.org/planning/2021/fall/can-zero-fare-transit-work.*

[17] *Talbott, M. R. (2011). Bus Stop Amenities and their Relationship with Ridership: A Transportation Equity Approach. University of North Carolina at Greensboro.*

[18] *Kim, J. Y.; Bartholomew, K.; and Ewing, R. (2018). Impacts of bus stop improvements (Report No. UT-18.04).Utah Department of Transportation Research Division, Salt Lake City, UT. rosap.ntl.bts.gov/view/dot/35670.*

The information gathered identified locations in need of bus stop improvements, indicating that some Waukesha Metro Transit bus stops are missing amenities or are not located near accessible paths, as recommended in the bus stop design standard. There are currently 5 stops without signs, 78 stops without a bus pad, 92 stops without a curb ramp, and 50 stops without nearby sidewalk.

Table 5.7 includes a list of amenities that are recommended for improvement, with the first tier representing the highest priority. The first tier of improvements includes bus stops that require a sign or bus pad, which is estimated to cost approximately $17,000. The second tier of bus stop improvements include amenities to improve pedestrian access such as connecting sidewalk, curb ramps, and detectable warning surfaces, which total approximately $724,000. Prioritizing the first two tiers will assist Waukesha Metro in meeting a recommendation from the Wisconsin Department of Transportation to "establish a yearly budget allocation for continued accessibility improvements until all bus stops are ADA-compliant."[19] Tiers three and four include providing lighting, benches, and shelters as needed. Waukesha Metro will continue to provide lighting, benches, and shelters in appropriate locations based on industry design standards outlined in TCRP Report 19, Guidance for the Location and Design of Bus Stops[20] and the National Association of City Transportation Officials Urban Street Design Guide[21] for bus stops, where appropriate. These resources identify when each bus stop amenity should be considered based on existing conditions such as traffic counts, speed, bus volume, and curb and lane measurements. Bus stop locations where benches could be added include stops that are frequently used by seniors or people with disabilities, bus stops that have evidence of patrons sitting or standing on nearby structures or property, and locations that have adequate width and compatible amenities including a concrete pad, landscaping, and lighting. Shelters may be advisable for locations that have significant passenger boardings or transfers, and usage by seniors or people with disabilities.

Waukesha Metro may consider additional prioritization strategies in the future as outlined in the TCRP Report, "Transit Agency Relationships and Initiatives to Improve Bus Stops and Pedestrian Access," which identified two transit agencies with innovative prioritization methods.[22] The first method, implemented by Via Metropolitan Transit in San Antonio, Texas, based the prioritization of bus stop improvements on categories such as average daily boardings, number of routes served by the bus stop, presence of any of the following facilities within 800 feet: medical facility, educational facility, senior housing or social gathering location, grocery store, or large multi-family housing. The second prioritization method implemented by the Utah Transit Authority included considering bus stop improvements based on the total annual bus ramp deployments, safety elements such as lack of a sidewalk or lighting, and proximity to an educational facility or library. As boarding and alighting data become more available, factors from both methods could be integrated into Waukesha Metro's future prioritization methods. In addition, Commission staff are available to assist with future updates to the bus stop inventory and a more expansive review of ADA compliance in the City of Waukesha, such as measuring connecting sidewalk and curb ramp slopes, and reviewing any needed updates to detectable warning surfaces.

Recommendation 5.2.8: Continue Exploring Alternative Bus Propulsion Systems and Sizes for Future Purchases

Commission staff identified and compared several bus types, sizes, and fuel types for potential use by Waukesha Metro Transit to inform this recommendation. Table 5.8 compares the standard 35-foot long diesel buses and 25-27-foot medium duty diesel cutaways used by Waukesha Metro Transit to three different propulsion systems: diesel-electric hybrid, electric, and hydrogen fuel cell. A summary of each propulsion system is provided below.

[19] *2018 Transit System Management Performance Review for Waukesha Metro Transit, Wisconsin Department of Transportation, May 2019.*

[20] *Transit Cooperative Research Program, Report 19, Guidelines for the Location and Design of Bus Stops, 1996.*

[21] *National Association of City Transportation Officials 2013. Urban Street Design Guide. nacto.org/publication/urban-street-design-guide.*

[22] *National Academies of Sciences, Engineering, and Medicine 2021. Transit Agency Relationships and Initiatives to Improve Bus Stops and Pedestrian Access. Washington, DC: doi.org/10.17226/26166.*

Table 5.7
Prioritized Improvements and Estimated Costs for Bus Stops Served by Waukesha Metro Transit

Type of Improvement	Number of Locations	Cost ($)[a]	Total Estimated Cost ($)
Tier 1			
Bus sign installation	5 signs and poles	Sign (60), pole (40)	800
Bus pad	78 pads	210	16,380
		Subtotal	17,180
Tier 2			
Sidewalk[b]	3,534 linear feet	35	123,690
Curb ramps	92 ramps	4,400[c]	404,800
Detectable Warning Surface	245 curbs	800	196,000
		Subtotal	724,490
Tier 3			
Light poles	134 light poles	1,500[d]	201,000
Tier 4			
Shelters	Provided based on demand and nearby demographics	10,000[e]	N/A
Benches	Provided based on demand and nearby demographics	1,000	N/A

[a] *Estimated improvement costs used to calculate total costs were provided by the City of Waukesha and Waukesha Metro Transit.*

[b] *The installation of sidewalk where it has not previously existed is completed at the expense of the adjoining property owners. The City of Waukesha Community Development and Public Works Department created a sidewalk plan that prioritizes installation of new sidewalk. Proximity to transit was included in the prioritization.*

[c] *Commission staff estimated two curb ramps at each location. These are conservative cost estimates which could be refined with further analyses.*

[d] *A range of likely light pole costs were provided by City of Waukesha staff. Commission staff used the highest likely cost for these estimates, which assumes no existing nearby utilities.*

[e] *A range of likely bus shelter costs were provided by City of Waukesha staff. Commission staff used the highest likely cost for installing a shelter.*

Source: Citv of Waukesha and SEWRPC

Vehicle Fuel Type Options

Diesel

Waukesha Metro currently operates diesel buses that comply with U.S. Environmental Protection Agency rules for emissions. Waukesha Metro staff are familiar with the performance, maintenance needs, and costs of diesel buses. As of June 29, 2022, the fuel cost per mile was approximately $1.35, which varies depending on the cost of diesel fuel. Fuel efficiency for Waukesha Metro's current flee is approximately 5.1 miles per gallon.

Approximately 43 percent of public transit buses in revenue service in the United States are powered by diesel, 20 percent are hybrids, and 30 percent are powered by compressed natural gas. Diesel fleet vehicles are readily available and are well established in the transit industry.[23] The minimum life of a diesel bus is 12 years at which time transit agencies are eligible to receive replacement bus funding from the Federal Transit Administration. Waukesha Metro plans to replace buses when they reach the 12-year benchmark, with consideration of vehicle condition and available funding. Bus purchases have typically occurred in groups of two to five buses at a time. Waukesha Metro has completed needed fleet replacements in 2022 and no new replacements are planned until 2027. Therefore, it is unlikely that major changes to the fleet's propulsion systems will occur before the next replacement cycle begins. The alternative vehicle propulsion systems described below are intended to offer Waukesha Metro Transit options for consideration when new fleet vehicles are purchased and identify some performance issues to track as other transit operators utilize these various fleet options.

[23] *American Public Transportation Association, 2020 Public Transportation Vehicle Database, www.apta.com/research-technical-resources/transit-statistics/vehicle-database.*

Table 5.8
Comparison of Alternative Bus Types and Sizes for Waukesha Metro Transit

	Diesel (Existing Fleet)		Potential Propulsion System		
	Large, Heavy-Duty	Medium-Duty	Diesel-Electric Hybrid	Battery Electric	Hydrogen Fuel Cell
					
Vehicle Characteristics			*Gillig Hybrid Electric*	*Nova Bus LFSe+*	*New Flyer XHE40*
Typical Vehicle Size	35 or 40 feet	25-27 feet	40 feet	30-40 feet	40 feet
Number of Seats	30-40	19-22	43	30-40	30-40
Minimum Useful Life[a]	12 years	4 years	12 years	12 years	12 years
Total Capital Cost[b]	$470,000 – $650,000	$157,000	$800,000	$620,000 – $1,500,000	$1,000,000
Local Share of Capital Cost	$94,000 – $130,000	$31,400	$160,000	$124,000 – $300,000	$200,000
Fuel/Energy Efficiency	5.1 MPDGE[c]	5.5 – 6.5 mpg	5.5 MPDGE[c]	15.5 MPDGE[c]	8.8 MPDGE[c]
Fuel Cost	$5.52/diesel gallon[d]	$4.68/gasoline gallon[d]	$5.52/diesel gallon[d]	$0.14kWh[e]	$4.00 - $9.00/kg[f]
Special Considerations	• Environmental Protection Agency rules that took effect in 2007 require all heavy-duty diesel-engine vehicles to comply with strict standards that reduce emissions by 90 percent. Subsequent EPA rules starting with the 2014 model year for transit buses, will continue to reduce emissions and fuel consumption.		• Uses approximately 7 to 44 percent less fuel than diesel buses[g] • Batteries typically must be replaced at least once during the 12-year life of a hybrid bus • Hybrid buses tend to have lower noise levels than diesel buses	• Bus performance can be greatly affected by extreme hot and cold. In cold weather, cabin heating can utilize a significant amount of battery energy. • Mid-life battery replacements are approximately $56,000-$170,000 • Variability of electricity costs will vary based on time of day • Range of 130-150 miles per charge, indefinite range with in-route charging[h]	• Lack of sufficient hydrogen delivery infrastructure currently limits its viability • Range of 200-300 miles per charge • Fuel efficiency varies depending on climate, route topography, and passenger load.

[a] *FTA Circular 5010.1E, Award Management Requirements, revised July 16, 2018.*

[b] *Capital cost estimates were based on average actual bus purchases in the "2020 Public Transportation Vehicle Database" published by the American Public Transportation Association. For all bus types, much of the variation in bus purchase price can be attributed to equipment included in the bus build (e.g., fareboxes, passenger counters, message signs, and radios), with the size of the bus generally having a minimal effect on bus purchase price.*

[c] *AC Transit, Zero Emission Transit Bus Technology Analysis, December 2021.*

[d] *Diesel and regular gasoline fuel cost estimates were derived from the average Wisconsin gas prices on June 29, 2022 prepared by the American Automobile Association (AAA).*

[e] *U.S. Department of Energy, Alternative Fuels Data Center, afdc.energy.gov/fuels/prices.html, national average price between October 1 and October 15, 2021.*

[f] *TCRP Research Report 219, Guidebook for Deploying Zero-Emission Transit Buses, 2021*

[g] *M.J. Bradley & Associates Comparison of Modern CNG, Diesel and Diesel Hybrid-Electric Transit Buses.*

[h] *Information derived from "Battery Electric Bus and Bus Facilities Analysis" prepared by M.J. Bradley & Associates for the Milwaukee County Transit System, January 2020.*

Source: SEWRPC

Diesel-Electric Hybrid

Hybrid electric vehicles are powered by an internal combustion engine and an electric drive motor, which uses energy stored in batteries. Diesel-electric hybrids generate electricity for the electric motor, and in some cases can also power the vehicle directly. By utilizing an electric motor to deliver partial or complete power during acceleration, hybrid electric vehicles are typically equipped with a small, more efficient combustion engine. These vehicles also utilize regenerative braking, capturing the energy normally lost during braking by using the electric motor as a generator and storing the recaptured energy in the battery.[24]

Hybrid buses have comparable performance to their non-hybrid counterparts, with lower maintenance costs and increased fuel efficiency. Transit agencies have reported that acceleration in hybrid-electric buses is smoother and faster due to the increased low-end torque characteristics of electric motors. There are also reductions in noise, with hybrid buses offering a quieter ride when compared to conventional diesel buses. Currently, hybrid buses are more expensive than conventional diesel buses. According to the APTA vehicle database, hybrid buses are more expensive than conventional diesel buses, with 35-foot diesel buses currently priced between $500,000 and $600,000 and diesel hybrid buses ranging from $600,000 to $700,000. The majority of diesel hybrid buses in the database were 40-foot buses. The price variation in hybrids is likely due to the order volumes and individual specifications of transit agencies.

Battery Electric Buses

Battery electric buses (BEBs) replace the combustion engine and transmission with an electric motor and battery. BEBs are in operation at approximately 50 U.S. transit agencies as of 2019, with additional BEBs on order. It is anticipated that approximately six percent of U.S. transit agencies will be operating BEBs in the next three years. Nearly all bus manufacturers produce a BEB option and the market for electric buses will likely remain fluid with additional charging options from manufacturers. Since BEBs use electricity, there could be a cost savings associated with the use of electricity instead of diesel fuel. In addition, there are no tailpipe emissions, benefiting residents near bus routes and the environment. The cost of BEBs varies by manufacturer and features, ranging between $620,000 and $1,500,000, compared to the cost of diesel buses, which range from $500,000 to $600,000. BEBs are being deployed by MCTS and the City of Racine/RYDE transit system. Milwaukee County is deploying 15 BEBs as part of the E-W BRT project, scheduled to begin revenue service in 2023. Milwaukee County plans to study the performance of the initial 15 BEBs prior to expanding the electric fleet. In 2018, the City of Racine received approximately $6.2 million from the Volkswagen Transit Capital Assistance Grant program to purchase six BEBs and the related charging and maintenance infrastructure. In 2020, the City of Racine was awarded approximately $3.2 million through the Federal Transit Administration's Low or No Emission Vehicle Program and purchased three battery electric vehicles, which entered revenue service in spring 2022. The vehicles will assist the City with meeting their goals to lower their carbon footprint and reduce the amount of funds needed to operate the system.

Battery electric buses can be charged at a depot or in-route. Depot charging uses a direct current charger, with the bus plugging in via an electrical cord. Depot charging is typically done overnight, as a full charge on a level 2 (240 volt) charger requires approximately six to eight hours. Wireless charging is also becoming available, which involves transmitting energy via magnetic fields through a device embedded in or installed on the floor of the depot. Buses that are only depot charged have lower range in miles and service hours compared to hybrid or diesel buses due to limitations on the size of batteries that can be installed on the bus.[25] Based on a report developed for MCTS, the reliable range at mid-life for a bus designed to only depot charge is estimated to be 100 to 130 miles per charge. The distance each charge provides varies based on traffic, passenger loading, driver behavior, and weather conditions. Some manufacturers offer the option of a diesel-powered heater to supplement the electric heating system, which is necessary in colder climates like Wisconsin.

Alternatively, battery electric buses that are designed for in-route charging typically have slightly smaller battery packs and rely on adding power periodically while the buses are in service throughout the day, rather than buses charging only overnight. The chargers, which are typically overhead conductive chargers using level 3 (720 volt) charging, could be installed at the termini of a route. Given that Waukesha Metro

[24] *U.S. Department of Energy, Alternative Fuels Data Center, Hybrid Electric Vehicles. afdc.energy.gov/vehicles/electric_basics_hev.html.*

[25] *National Academies of Sciences, Engineering, and Medicine 2018. Battery Electric Buses State of the Practice. Washington, DC: The National Academies Press. doi.org/10.17226/25061.*

operates on a pulse system, it may be most efficient to install the in-route chargers at the Transit Center. The time required for each in-route charging stop varies between 5 to 15 minutes, which could occur each time the bus reaches a charger. Waukesha Metro would need to ensure adequate charging time is allocated for those runs on longer distance routes, such as Route 1 and Route 9. Current layover times could accommodate some charging, although some additional layover time or more frequent charging may be needed particularly in the winter when the bus is heated with battery energy.

Given the known challenges of utilizing BEBs in cold climates and the capital investment needed to purchase the vehicles and charging equipment, Waukesha Metro may choose to delay purchasing electric vehicles at this time. However, Waukesha Metro should continue to monitor regional and national performance of BEBs over the next five years to determine if the investment is advisable. Waukesha Metro is scheduled to begin the next cycle of replacing transit vehicles in 2027. At that time, more information will be available from peer transit agencies operating BEB in our region's climate and the technology is anticipated to evolve significantly such that BEBs may be included in future fleet purchases beyond the timeframe of this plan.

Hydrogen Fuel Cell Buses

Fuel cell electric buses utilize onboard hydrogen storage, a fuel cell system, and batteries. The fuel cell uses hydrogen to produce electricity, with waste products of heat and water. The electricity charges the batteries, which power the bus. To further improve efficiency, the waste heat can be used to heat the cabin. Hydrogen fueling infrastructure operates similarly to diesel and CNG fueling stations. At a minimum, hydrogen fueling requires compressors, cooling, and a dispenser, which can consume a considerable amount of energy. If producing hydrogen on site, energy consumption becomes more significant.[26] The average range for transit service is between 200 and 320 miles, with fuel consumption varying depending on climate, route topography, and passenger loads.

Hydrogen fuel cell buses are currently produced by two manufacturers, limiting their production volumes and increasing capital costs for buses. The fueling infrastructure is expensive and fuel costs can be high and inconsistent. Six transit operators in the U.S. currently have hydrogen fuel cell buses in their fleet. In 2021, the Champaign-Urbana Mass Transit District deployed two 60-foot fuel cell buses and refueling infrastructure that utilizes a solar array to produce hydrogen.[27] As the technology continues to evolve and more transit operators deploy new propulsion systems, hydrogen fuel cell buses could be an option to consider in the future as they offer sufficient range and can require fewer impacts to existing operating facilities to enable them to operate.

In summary, Commission staff reviewed literature and surveyed implementation of alternative fuels regionally and nationally. Based on this research, Commission staff identified the following conclusions:

- As more transit systems make the transition to alternative fuels including battery electric buses, new information about costs, local operations in cold weather, maintenance protocols, vehicle range, and infrastructure needs will become more readily available

- Waukesha Metro will need to consider the costs of vehicles, maintenance, training, infrastructure needs, and performance of any new propulsion system as the next fleet replacement cycle begins prior to 2027

Vehicle Size Options

The Advisory Committee also discussed exploring the use of different-sized vehicles for Waukesha Metro services, including those available for fixed-route, paratransit, and potential on-demand services. Waukesha Metro currently uses heavy-duty 35-foot transit buses for fixed-route services and medium duty vehicles for paratransit services. Thirty-five-foot buses are the shortest buses typically available in the United States that meet Metro's needs for longevity. Generally speaking, there has not been productive movement within the industry to make a reliable and long-lasting 30-foot vehicle available. There are times of day when ridership requires the higher capacity, particularly on Routes 1, 4, 9, and for group/school trips. In addition, the cost

[26] *National Academies of Sciences, Engineering, and Medicine 2021. Guidebook for Deploying Zero-Emission Transit Buses. Washington, DC: The National Academies Press. doi.org/10.17226/25842.*

[27] *MTD, Zero Emission Technology, mtd.org/inside/projects/zero-emission-technology.*

difference between a 30-foot bus and 35-foot bus is approximately $5,500, with minimal differences in fuel efficiency. Therefore, it is recommended that Waukesha Metro continue to use buses similar to the existing size for fixed-route services.

On-demand services in other parts of the Nation often use minivans, passenger vans, or cutaway vans, which are generally smaller than transit buses but larger than the passenger vehicles commonly used by ride-sourcing services, such as Uber or Lyft. Waukesha Metro currently uses medium duty vehicles with a passenger capacity of 22 individuals for their paratransit services. In addition, Waukesha Metro two Ford Transit vehicles (E-350) that are currently utilized as a paratransit and Supervisor vehicle, which could provide on-demand services. Examples of vehicles and their approximate passenger capacities are included in Table 5.9. The current paratransit vehicle fleet includes six vehicles, which were purchased within the last two years. As these vehicles are replaced, Waukesha Metro could consider a range of vehicles that may have greater fuel efficiency and are smaller to accommodate potential on-demand transportation services while continuing to provide paratransit services.

Recommendation 5.2.9: Pursue Coordinated Transportation Solutions with Regional Transit Operators

Coordination with Regional Transit Operators

At the time of writing this chapter, service on the Route 79, which includes commuter service from the Village of Menomonee Falls, was suspended by MCTS. It is likely that the Route 79 will not continue due to the low ridership experienced during service in 2021 and continued driver shortages. As part of the reconfiguration of commuter bus services, Waukesha County has an opportunity to collaborate with transit operators in Washington County and Milwaukee County to provide coverage for Waukesha County residents to major destinations and employers while leveraging each operators' services. This coordination may also include connections at the Watertown Plank Park-Ride Lot or on the campus of the Milwaukee Regional Medical Center, which would allow passengers to access locations in Waukesha County along the Route 1, connect to the East-West BRT to access downtown Milwaukee, and to access destinations served by the Washington County Commuter Express.

Recommendation 5.2.10: Develop an Enhanced Marketing and Travel Training Program

Enhanced Marketing and Travel Training

As part of the focused outreach conducted between February and April 2020, Commission staff, in close coordination with the Waukesha Public School District, administered an online survey to approximately 12,000 families and students to gather feedback on transit use, challenges, and ideas for improvement.

Responses to the survey of Waukesha Public Schools parents, guardians, and students indicated that there is an opportunity to develop materials that summarize the practices in place to ensure the safety of all riders, including those students that utilize Waukesha Metro. The service was perceived by some respondents to be unsafe or that there was a lack of awareness about safety protocols in place. As a result of survey responses and due to a general need to highlight safety measures in place due to the COVID-19 pandemic, Waukesha Metro staff and Waukesha Public Schools staff coordinated to develop outreach materials provided prior to the start of the 2021-2022 school year. In addition to providing general information about Metro routes that provide service to each school, these materials indicated the measures in place to ensure safety on the bus including that security cameras with audio are on all Metro buses, security cameras at the Waukesha Metro Transit Center are actively monitored, a Metro security guard patrols the Transit Center, and a supervisor is always on staff to assist drivers throughout the day. Waukesha Metro has a travel trainer on staff to provide training and assistance planning a trip for those who may need additional information about riding Waukesha Metro, for both the Waukesha Public School District and the general public.

Similar marketing materials and outreach could be expanded to senior housing and affordable housing, such as Saratoga Heights, in coordination with Waukesha Metro Transit, Eras, and the Aging and Disability Resource Center of Waukesha County. The assistance could include individual or group travel training and materials describing the range of transportation services available. The outreach could leverage on-going travel training conducted by Eras Senior Network's Bus Buddy Program for potential users of the fixed-route transit services and provide complementary training to seniors and adults with disabilities who are interested in learning how to navigate public transit. A recent report conducted by the TCRP highlighted several key features of successful travel training programs that may be relevant including: creating strong program

Table 5.9
Comparison of Alternative Paratransit or On-Demand Vehicle Types and Sizes for Waukesha Metro Transit

Vehicle Characteristics	Existing Fleet	Potential Vehicle Size		
	Cutaway Van (Medium-Duty)	Cutaway Van (Light-Duty)	Minivan	Passenger Van
				
Description	Waukesha Metro currently has medium-duty buses in their fleet that could be utilized for future on-demand transportation service.	Cutaway vans are light to medium-duty vehicles comprised of an incomplete van cab and chassis. The remainder of the body is modified for shuttle use; these vans typically carry 8-30 passengers. These vans can be modified to include lifts for wheelchair-using passengers.	Minivans typically carry 4-7 passengers. Minivans can be modified to allow for wheelchair-using passengers, which decreases total passenger capacity.	Passenger vans typically carry 8-15 passengers and can be configured with a high roof. These vans can be modified to include lifts for wheelchair-using passengers.
Typical Vehicle Size	25-27 feet	16-28 feet	16-28 feet	16-28 feet
Number of Seats	19-22	8-30	4-7	8-15
Minimum Useful Life[a]	7 years	7 years	7 years	7 years
Total Capital Cost[b]	$157,000	$52,000	$41,000	$52,000
Local Share of Capital Cost	$31,400	$10,400	$8,200	$10,400
Fuel/Energy Efficiency	5.5 – 6.5 mpg	7.0 mpg	22 mpg[c]	12 mpg
Fuel Cost[d]	$5.52/diesel gallon	$4.68/regular gallon	$4.68/regular gallon	$4.68/regular gallon

[a] *FTA Circular 5010.1E, Award Management Requirements, revised July 16, 2018.*

[b] *The replacement cost of buses based on the most recent purchase prices; minivans and automobiles that are not wheelchair accessible were also based on the most recent purchase prices; and wheelchair accessible cutaway and minivan costs were based on the 2021 Wisconsin Department of Transportation's Section 5310 Application Guidelines for Vehicle Capital, Appendix C: Anticipated Vehicle Description and Costs.*

[c] *U.S. Department of Energy, Fuel Economy for a 2022 Minivan 2WD, www.fueleconomy.gov/feg/byclass/Minivan_2WD2022.shtml.*

[d] *Diesel and regular fuel cost estimates were derived from the average Wisconsin gas prices on June 29, 2022, prepared by the American Automobile Association (AAA).*

Source: SEWRPC

partners that include public transit systems, monitoring the results of travel training, and integrating travel training into community outreach and education efforts.[28] A local example is the Senior Smart Ride Seminars hosted by MCTS in October 2021 at Senior Centers, with presentations from Transit Plus, Milwaukee County Department on Aging, and the Milwaukee Police Department. The seminars described who qualifies for paratransit door-to-door van service, how to ride fixed-route buses, how to pay, bus etiquette, and safety while traveling. Additional national examples include King County Metro that includes a range of training services such as destination-specific guides, lift ramp instruction, and group offerings. The current Waukesha Metro transit website could be further enhanced to include fare payment and information on regional transit connections. The current and planned improvements to MCTS's WisGO app will provide real-time bus arrival information and fare payment through the app.

In response to ridership challenges exacerbated by COVID-19, the Federal Transit Administration gathered examples of strategies implemented by transit agencies and community groups to renew ridership, address safety concerns, and strengthen community partnerships. The effort culminated with a summit and report that highlights best practices.[29] Examples of effective campaigns included incorporating local music and artists in messaging to enhance ridership, expanding communications about enhanced cleaning to restore confidence in transit safety, and developing promotional programs such as a limited number of free trips or subsidized transit rides for essential workers or youth. Figure 5.5 includes two images from selected marketing campaigns. The Choose Transit campaign highlights the benefits of taking transit from the San Diego Metropolitan Transit System and the We're Ready campaign summarizes the cleaning and safety protocols implemented by the Chicago Transit Authority.[30]

5.3 ON-DEMAND TRANSPORTATION SERVICE ELEMENT

This section describes potential on-demand transportation services that could be implemented by the City of Waukesha, Waukesha County, or through public-private partnerships. On-demand transportation is a particular kind of the traditional "dial-a-ride" services that are available in many parts of Southeastern Wisconsin, with the differentiation being that on-demand services aim to fulfill requests for transportation in real time, rather than requiring an advance reservation. These types of services can be implemented with varying purposes, partnerships, and vehicles, and more recently often utilize technology similar to the smartphone applications developed by privately operated Transportation Network Companies (e.g., Uber or Lyft). Within this planning effort, on-demand transportation services are being considered for three main applications: (1) workforce transportation to locations with high employment density but limited or no fixed-route transit options; (2) flexibly-scheduled transportation serving locations with unproductive Waukesha Metro bus route segments or during the evenings and weekends when fixed-route transit is less abundant; and (3) incorporating on-demand transportation options into paratransit services for Waukesha Metro Transit and Waukesha County Transit. The following sections describe options for each type of application in greater detail.

Recommendation 5.3.1: Implement Employment-Related On-Demand Transportation Solutions

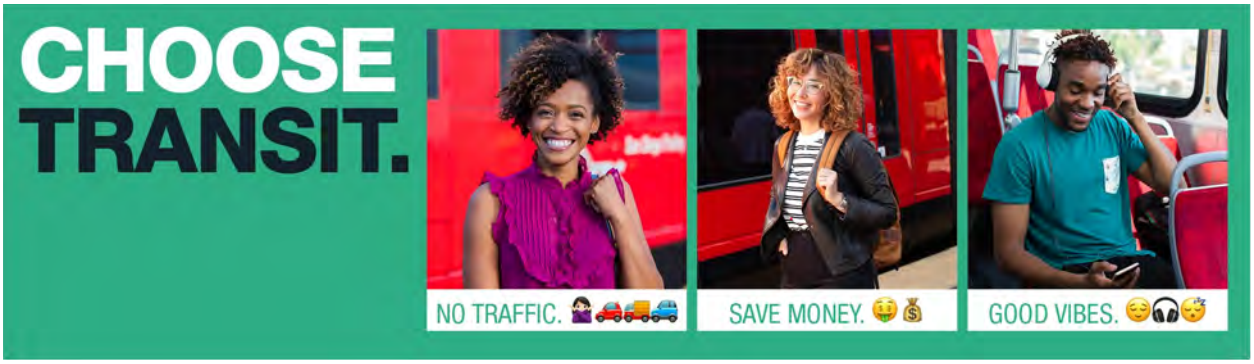
On-demand transportation has the potential to connect population centers and transportation hubs to areas comprised of relatively high employment densities that lack fixed-route public transportation services. As part of exploring how these services could assist individuals seeking employment in Waukesha County, a travel time analysis was conducted to determine which locations in the County could be most efficiently served by on-demand employment transportation. This analysis assessed the total travel time to reach higher density employment destinations outside of existing transit service areas (including walking to transit stop(s), on-bus travel time, and transfer time) assuming that potential employees begin their journey to work from a high population density location in the Cities of Waukesha (downtown) or Milwaukee (north and south sides). Map 5.4 and Map 5.5 show the total travel time between locations in the City of Milwaukee's north and south side and business parks in Waukesha County with high employment density. The analysis selected those potential origins in the City of Milwaukee based on demographic characteristics

[28] *National Academies of Sciences, Engineering, and Medicine 2014. Travel Training for Older Adults Part II: Research Report and Case Studies. Washington, DC: The National Academies Press. doi.org/10.17226/22298.*

[29] *Federal Transit Administration, America's Open and Transit's Open, August 2021. www.transit.dot.gov/sites/fta.dot.gov/files/2021-08/Transit-Ridership-Renewal-Best-Practices-Final-Report-08-26-2021.pdf.*

[30] *San Diego Metropolitan Transit System, Choose Transit, www.sdmts.com/choose-transit and Chicago Transit Authority, When You're Ready, We're Ready, www.transitchicago.com/ready.*

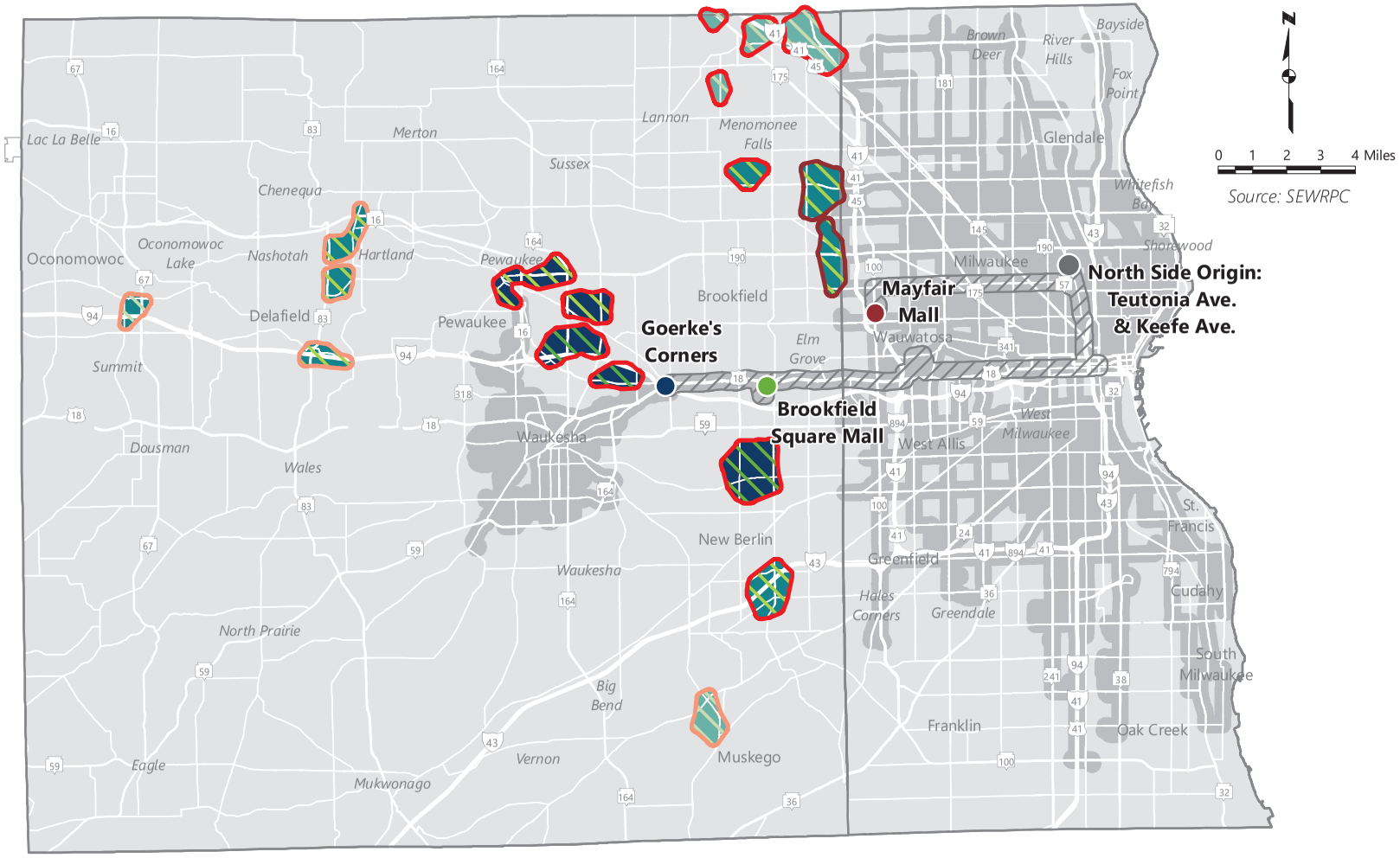
Figure 5.5
Transit Marketing Examples



Source: San Diego Metropolitan Transit System and Chicago Transit Authority

that may indicate that residents have high transit needs, including a high percentage of individuals without a car and individuals below the poverty threshold. The analysis considered three potential locations where passengers traveling by MCTS bus from the north or south sides of Milwaukee could transfer to an on-demand transportation service: Goerke's Corners, Brookfield Square, and Mayfair Mall. These transfer locations are served with frequent, all-day fixed-route transit service that operates seven days a week. For the purposes of this analysis, it was assumed that the on-demand transportation service would offer shared rides and be operated in such a manner that trips can be dynamically scheduled to group passengers based on demand. Since these on-demand trips could be shared, travel times could be slightly greater than in an automobile based on the experience of similar shared-ride taxi services in the region. As shown on Map 5.4 and Map 5.5, travel times could vary between 60 to 140 minutes depending on both the distance between the origin and the jobs, and which transfer point is being used. Job clusters located in the eastern portions of Waukesha County that are closer to potential transfer points would require one-way travel time between 60 to 90 minutes. Conversely, those jobs located in areas such as the Cities of Delafield and Oconomowoc could require up to 140 minutes for a one-way trip, particularly if transferring to an on-demand vehicle at Goerke's Corners. Although a one-way trip between the City of Milwaukee and job clusters in Oconomowoc could be reached in under 90 minutes using Mayfair Mall as a transfer point, the vehicle providing the on-demand trip would be unable to pick up other passengers until the driver returns. Given the long travel times required to access locations in western Waukesha County, other transportation services such as scheduled long-distance shuttles that coincide with specific shift times could be more cost effective. Therefore, it is recommended that on-demand transportation services be focused on job clusters within eastern Waukesha County where total travel times are between 60 and 80 minutes, such as those jobs located in the Villages of Butler, Menomonee Falls, and Pewaukee and the Cities of New Berlin and Pewaukee.

Map 5.4
Transit Connections from Milwaukee's North Side



POTENTIAL ON-DEMAND TRANSIT SERVICE LOCATIONS

TRAVEL TIME THROUGH GOERKE'S CORNERS	TRAVEL TIME THROUGH BROOKFIELD SQUARE	TRAVEL TIME THROUGH MAYFAIR MALL
110-120 MINUTES	80-90 MINUTES	60-70 MINUTES
120-130 MINUTES	90-100 MINUTES	70-80 MINUTES
130-140 MINUTES	100-110 MINUTES	80-90 MINUTES

TRANSIT SERVICE

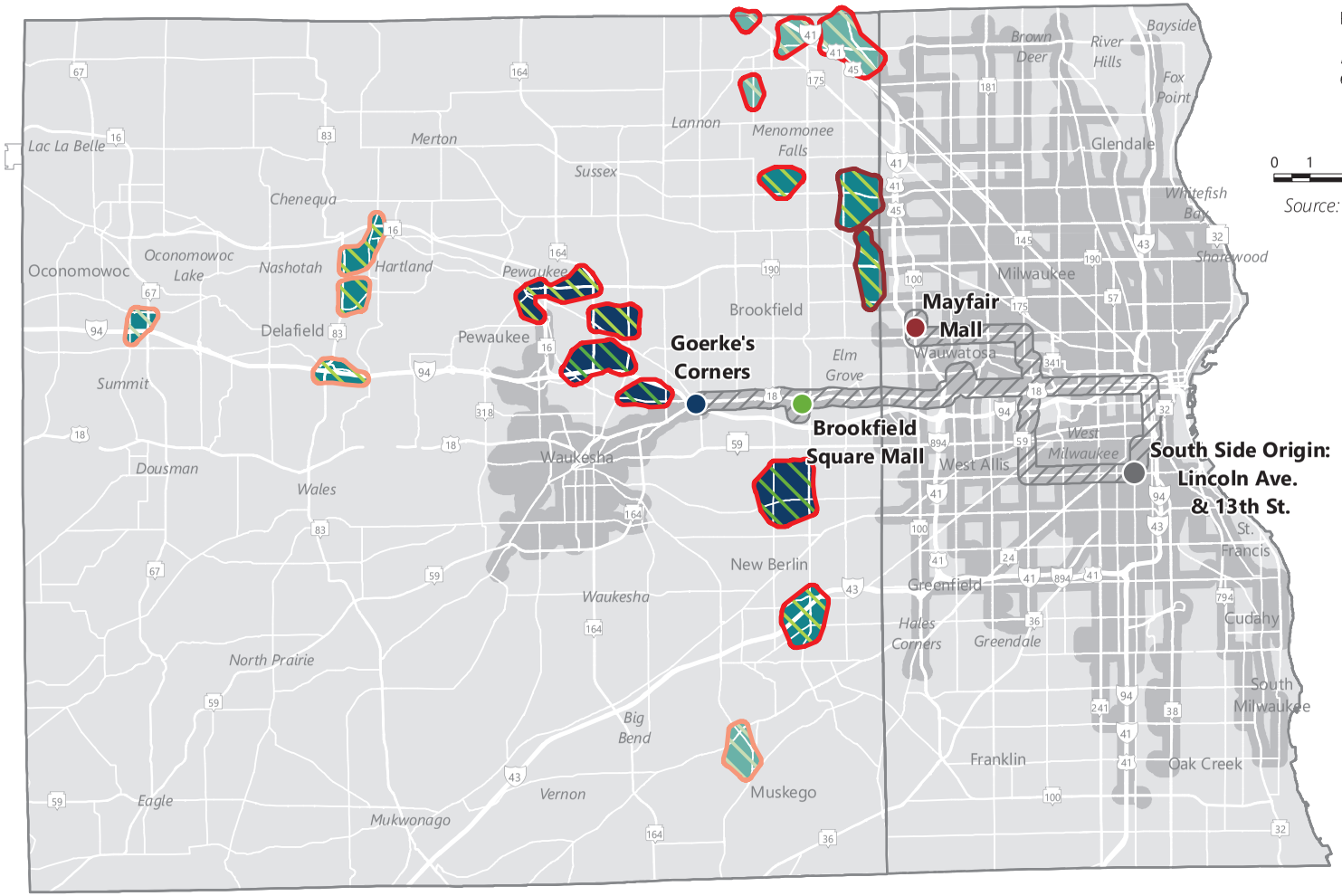
CONNECTING ROUTE SERVICE AREA

LOCAL TRANSIT SERVICE AREA

Notes: The connecting route service area represents a one-quarter mile distance from connecting routes between the trip origin in Milwaukee County to Goerke's Corners, Brookfield Square, or Mayfair Mall. The local transit service area represents one-quarter mile distance from all current local transit service.

Travel times to potential on-demand transit service locations are approximate and include walk, transit, and transfer times from the origin.

Map 5.5
Transit Connections from Milwaukee's South Side



POTENTIAL ON-DEMAND TRANSIT SERVICE LOCATIONS

TRAVEL TIME THROUGH GOERKE'S CORNERS	TRAVEL TIME THROUGH BROOKFIELD SQUARE	TRAVEL TIME THROUGH MAYFAIR MALL
100-110 MINUTES	80-90 MINUTES	70-80 MINUTES
110-120 MINUTES	90-100 MINUTES	80-90 MINUTES
120-130 MINUTES	100-110 MINUTES	90-100 MINUTES

TRANSIT SERVICE

CONNECTING ROUTE SERVICE AREA

LOCAL TRANSIT SERVICE AREA

Notes: The connecting route service area represents a one-quarter mile distance from connecting routes between the trip origin in Milwaukee County to Goerke's Corners, Brookfield Square, or Mayfair Mall. The local transit service area represents one-quarter mile distance from all current local transit service.

Travel times to potential on-demand transit service locations are approximate and include walk, transit, and transfer times from the origin.

Map 5.6 illustrates the total travel time between Waukesha County employment clusters and on-demand transfer locations at Goerke's Corners and the downtown Waukesha Transit Center. For this analysis it is assumed that most passengers would travel within Waukesha County, utilizing the Waukesha Metro Transit system to access on-demand transportation services. In addition, Map 5.6 only estimates potential travel time for trips on an on-demand shuttle between the transfer locations and each job cluster and does not include walking to transit stop(s), on-bus travel time, or transfer time. This analysis shows that travel times between the transfer locations and locations with high employment density would be under 30 minutes. On-demand transportation services would most effectively serve those job clusters that could be accessed in 0 to 20 additional minutes. Those areas that require a longer trip would likely result in long return trips without passengers and an unacceptably high cost per trip. Therefore, jobs clusters in the majority of Waukesha County could be efficiently served by on-demand shuttles originating from downtown Waukesha or Goerke's Corners, except for locations in the City of Muskego and Village of Menomonee Falls, which would likely be served by transit originating from Milwaukee County. It is likely that a service focusing on those job clusters less than 10 minutes from either location would have the best chance of success.

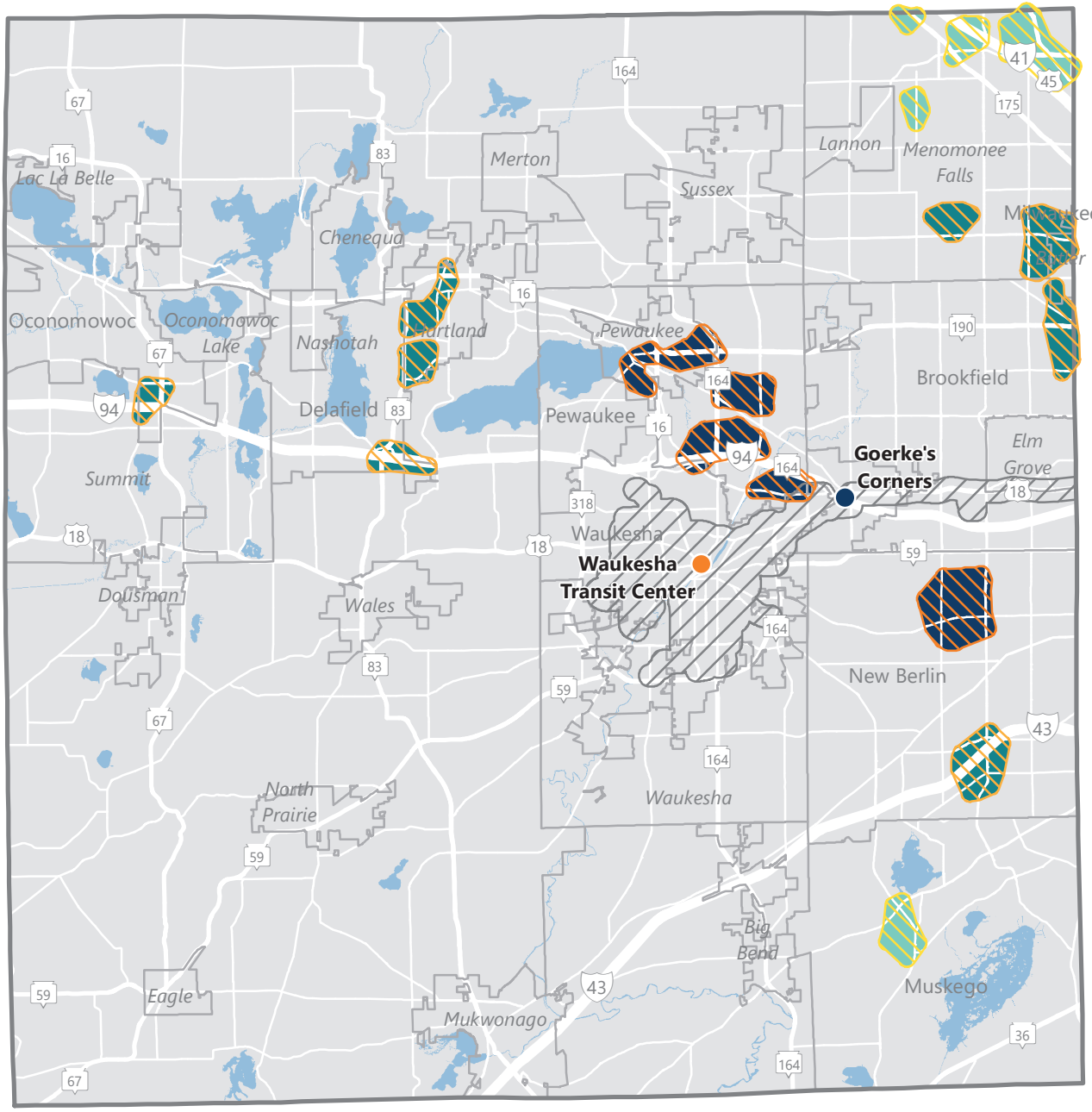
On-demand transportation services could be provided through a partnership between businesses, Waukesha Metro, Waukesha County Transit, and companies that provide dynamic scheduling and ride-matching software. These services offer flexibly scheduled rides, typically to or from higher-frequency transit stops on an as-needed basis. They also typically utilize a ride-matching and routing software to enable efficient on-demand, shared rides that can be arranged through a smartphone app, web-based booking software, and/or phone-based booking system. It is anticipated that an on-demand transportation service would have the following characteristics:

- Allow users to request trips on demand
- Allow for electronic payment and cash payment
- Allow users to manage personal information, payment method, and ride history
- Provide users real-time vehicle location before and during trip

The range of on-demand service providers is continually evolving. Table 5.10 provides summaries of four on-demand microtransit providers including Spare, Via, TransLoc, and Moovit. These services offer dynamic scheduling software and have resulted in successful transportation services in multiple locations throughout the United States. The costs vary depending on the type of service, the geography, and technical specifications. Vehicles could be provided under a service contract, through Waukesha Metro's fleet, a private employer fleet, or a combination. The number of vehicles needed will vary depending on the area served, distance traveled, and number of anticipated riders. At least two wheelchair accessible vehicles are recommended to ensure access for people with disabilities.

Within the Region, the FlexRide Milwaukee service provides one example of the utilization of on-demand service to expand access to employment opportunities. FlexRide is a research pilot funded with a $1 million grant from the National Science Foundation and led by the University of Wisconsin-Milwaukee. The research study's goal is to connect workers in Milwaukee with jobs in the Menomonee Falls area using an on-demand shared shuttle service provided through a contract with Via Transportation, Inc. The pilot program is funded for nine months of service (February – November 2022) with the goal of securing future long-term transportation investments to continue or expand the on-demand service. On-demand rides are provided on weekdays between 4:30 a.m. and 11:30 p.m. and the vehicle operators are independent contractors largely utilizing their own vehicles. The service model initially included five pick up points on the north and northwest sides of Milwaukee where passengers could transfer to a FlexRide vehicle. In April 2022, the service model was updated to allow for transfers in two larger Milwaukee neighborhood zones to expand access and increase the ease of use. Figure 5.6 illustrates the current FlexRide Milwaukee service model where passengers can request a ride from two zones, with one paid zone and one free fare zone. The paid zone requires a fare, as it likely to be closer to a passenger's home and more convenient. The free zone would likely require a trip on a MCTS bus, and therefore, the connecting FlexRide trip is free. The costs for a similar service connecting different parts of the Region would vary depending on the operator, locations served, days and hours operated, and vehicle ownership model. FlexRide's current service costs are approximately $80,000 per month.

Map 5.6
Waukesha County Transit Connections



POTENTIAL ON-DEMAND TRANSIT SERVICE LOCATIONS

TRAVEL TIME FROM GOERKE'S CORNERS

- 0-10 MINUTES
- 10-20 MINUTES
- 20-30 MINUTES

TRAVEL TIME FROM TRANSIT CENTER

- 0-10 MINUTES
- 10-20 MINUTES
- 20-30 MINUTES

LOCAL TRANSIT SERVICE

- CONNECTING ROUTE SERVICE AREA

N

0 1 2 3 4 Miles

Note: The connecting route service area represents a one-quarter mile distance from connecting routes to/from the Waukesha Transit Center and Goerke's Corners.

Travel times to potential on-demand transit service locations are approximate.

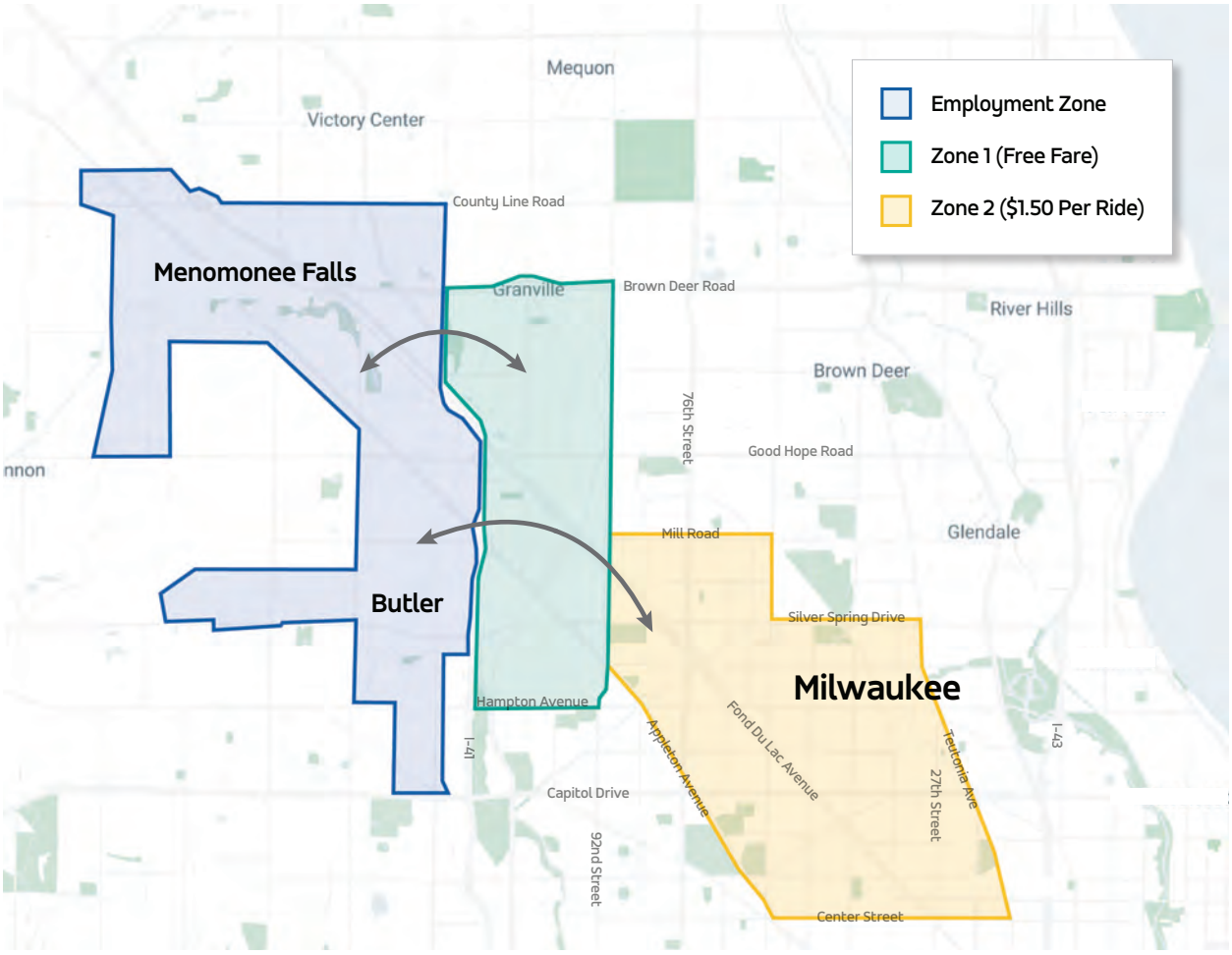
Source: SEWRPC

Table 5.10
Microtransit Service Providers

Service Provider	Service Highlights	Service Examples	Estimated Cost/Pricing	Website
Spare	Platform that schedules and manages on-demand trips. Vehicles not provided at this time.	Spare piloted and launched Dallas Area Rapid Transit's Golink microtransit service, decreasing costs by 26 percent and increasing riders per revenue hour 14 percent.	$10,500 platform fee plus $625 per vehicle per vehicle per month or $1.50 - $2.00 per trip	sparelabs.com/developers
Via	On-demand transportation provider that dynamically schedules rides and can provide vehicles	Birmingham On-Demand is a partnership between the Community Foundation of Greater Birmingham, the City of Birmingham, and Via to develop and operate a shared on-demand service that complements and extends the public transportation network throughout the City.	Variable but on average $15,000 to $25,000 per vehicle per month of service	ridewithvia.com/solutions
TransLoc	On-demand scheduling software for dispatch and routing of vehicles. At time of this writing, vehicles are not provided.	Mass General Brigham provides complimentary scheduled shuttle rides to sites across the health system and the Greater Boston area through the TransLoc app.	$5,000 base fee and $1,000 per year per subscription for dynamic services	transloc.com/solutions/on-demand-microtransit
Moovit	Shared mobility planning and operations providing flexible demand responsive transportation. At time of this writing, vehicles are not provided.	In November of 2020, Farmington Hills, MI implemented a microtransit program in which resident are able to use Moovit's app to plan their journey and book their trip through SMART Quick Connect On-Demand service.	On average charges between $5,000 - $12,000 per vehicle	moovit.com/on-demand

Source: MobiliSE and SEWRPC

Figure 5.6
FlexRide Milwaukee Neighborhood and Employment Zones



Source: Via and SEWRPC

Importantly, ridership on the FlexRide service has been somewhat limited thus far. Likely causes of this limited ridership include the low unemployment rate and limited awareness of the service due to its relatively recent launch. For example, the majority of individuals that sign up for the service do not initially have a job. Therefore, a primary challenge has been connecting potential riders with jobs in the employment zone. However, as more potential passengers become employed, the expanded service model is advertised, and passengers become more familiar with the FlexRide service, ridership is anticipated to increase. Future service statistics, including ridership, will continue to be tracked and shared with the City of Waukesha and Waukesha County. If Waukesha County or the City of Waukesha would be interested in a future extension or expansion of FlexRide Milwaukee, future coordination should continue between UW-Milwaukee, SEWRPC, businesses in the service areas, Employ Milwaukee Inc., Milwaukee County Transit System, Waukesha County Business Alliance, and others to coordinate a cost sharing plan and identify roles and responsibilities. Future funding opportunities are being explored including State and Federal grants, local philanthropic organizations, and private employer contributions. In June 2022, MobiliSE and partners including the Waukesha-Ozaukee-Washington Workforce Development Board, received a $4.2 million Workforce Innovation Grant to sustain and expand FlexRide Milwaukee. At the time of writing, specific locations to be served with future on-demand services are being determined. Waukesha County and the City of Waukesha will continue to be involved in project planning and updates.[31]

[31] *Press Release, MobiliSE Receives More Than $4 Million State of Wisconsin Grant to Expand Workforce Mobility Options, Increase Access to Jobs for Working Milwaukee Parents, static1.squarespace.com/static/6182b45bd4ff3038bd61594c/t/62bcc5a48dc02f7605586db3/1656538532762/MobiliSE+grant+press+release+final.pdf?utm_source=Website&utm_campaign=Wisconsin+Innovation+Grant.*

An option to provide and fund employment transportation includes public-private partnerships similar to the Shuttle Bug program in the Chicago area, with a group of employers determining the service characteristics and sharing the cost of services. Prior to the COVID-19 pandemic, the Shuttle Bug program was implemented by a Transportation Management Association (TMA) in partnership with employers, Metra commuter rail, and PACE transit and provided last-mile shuttle services to 30 companies on 13 transit routes. TMAs are generally defined as an organized group applying carefully selected approaches to facilitating the movement of people and goods within an area. They allow businesses and organizations to pool their resources to support commuter transportation strategies, including last-mile shuttle services. TMAs in the United States have typically formed as a non-profit corporation, providing services to both private and public employers and their employees. TMAs may take on various institutional forms based on the existing decision-making structures and the anticipated transportation solutions to be developed.

Another example includes the City of Dublin, Ohio and their partnership with SHARE and the Central Ohio Transit Authority (COTA) to offer employees free rides from bus stops to any employer within the city limits. The SHARE app is coordinated with the COTA bus schedule to ensure a timely pick-up and drop-off for employees. The specific routing (if applicable) and service type would be determined by the employers served and their business hours. For example, if a group of employers have similar shift times, the service could include a fixed route and schedule to those locations.

Recommendation 5.3.2: Replace Poorly Performing Waukesha Metro Segments or Times of Day with On-Demand Transportation Services

As described in Chapter 4, "Evaluation of the Existing Transit System" there are certain areas in the City of Waukesha and Waukesha County that could be served with transportation options that can be deployed flexibly to serve first and last mile needs, rather than utilizing a fixed-route transit service. This recommendation considers how such microtransit services could serve as an extension of fixed-route segments that are determined to be unproductive or an extension of the span of service to serve late night or weekend trips.

If ridership does not rebound to pre-pandemic levels, it is expected that existing transit service could be reduced or eliminated along certain segments or during times of the day or week that experience lower ridership such as evenings and weekends. Based on the performance evaluation conducted as part of the plan, routes that performed below the 10 passengers per revenue vehicle hour and had segments that performed poorly based on ridership data included:

- Route 7/8 evening service
- Route 3/15 Saturday service
- Route 5/6 Sunday service
- Route 9 north of Silvernail Road
- Route 8 west of Grandview Boulevard
- Route 7 south of Madison Street
- Route 6 south of Sunset Drive

One option to continue service in the areas and during the times served by the routes listed above would be to provide these areas with transportation options that can be deployed flexibly. Under this recommendation, it is envisioned that on-demand services could be provided using Waukesha Metro's current paratransit scheduling software, Ecolane, or other platforms that are able to dynamically schedule rides through an app or over the phone. The on-demand scheduling platform available through Ecolane is currently cost prohibitive given the number of paratransit rides scheduled. However, if the service parameters are expanded to include on-demand trips for the general public, the cost per ride for this service may be more cost effective.

At the time of writing this chapter, an example of this type of service is in operation in the City of Green Bay where Green Bay Metro launched GBM On Demand in August 2020 and expanded the service area in August 2021, to complement and extend the City's existing transit infrastructure. This service was an outcome of a Microtransit Feasibility Report, completed in July 2020, which analyzed the current state of the existing fixed-route bus routes and identified opportunities to pilot a new microtransit service. Green Bay Metro identified three routes where the population density, land use, and pedestrian environment were less conducive to fixed-route service and consistently fell short of the agency's performance standards. The performance standards compared annual route-level analyses including revenue per hour, passengers per hour, and operating ratio to the systemwide median minus 20 percent. Based on this analysis, three routes were identified for improvement, including potential conversion to on-demand service.

Green Bay Metro contracted with Via Transportation to pilot microtransit services in the approximate footprint of the three routes that were discontinued due to low performance. Via also provides Green Bay Metro's paratransit service, which is a door-to-door demand responsive service offered within 0.75 miles of the fixed-route service. Since transitioning from a fixed-route to on-demand microtransit, the pilot program resulted in 2.5 times increase in ridership in the last quarter of 2020, and a 20 percent reduction in costs. Due to the pilot's success, Green Bay Metro expanded the service in August 2021 to the four zones shown in Figure 5.7, including weekday services in zones 1 through 4 between 5:45 a.m. and 8:45 p.m. and extended weeknight service during the evening hours of 8:45 p.m. to 10:45 p.m. The on-demand service is also offered in zones 1 through 4 on Saturdays between 7:45 a.m. and 3:45 p.m. The ride matching software and vehicles, including wheelchair accessible vehicles, are provided by Via. The cost of the microtransit service is the same price as a traditional Green Bay Metro bus ticket ($2.00 cash fare) and riders can pay directly through the app with a credit card, use a Green Bay Metro ticket, or provide a weekly or monthly pass. There is a telephone number for residents without access to a smartphone to request rides.

Figure 5.7
Green Bay On-Demand Service Zones

Source: Green Bay Metro

If Waukesha Metro pursues on-demand transportation services, FTA guidance requires that providers of demand-responsive service to a new service area ensure that wheelchair accessible vehicles are available and fares for riders using wheelchair accessible vehicles be the same as a rider using a vehicle that is not wheelchair accessible for a similar trip, and that wait times for wheelchair accessible and non-wheelchair accessible vehicles be the same.[32]

Recommendation 5.3.3: Develop Supplemental On-Demand Paratransit and Non-Emergency Medical Transportation Options

Waukesha Metro could consider partnering with ride-sourcing companies such as Uber and Lyft to provide on-demand paratransit and nonemergency health care transportation rides as a supplement to existing paratransit and specialized transportation services. This section summarizes national examples of shared mobility transportation services that utilize technology to help overcome barriers to accessing transportation to healthcare, daily needs, and social activities. There are three main types of emerging ride-sourcing transportation services serving paratransit and nonemergency medical trips.

The first type includes health care providers directly utilizing ride-sourcing technology to book trips. These partnerships allow health care providers to schedule rides on behalf of patients even if they do not have a smartphone. An example of this type of service is the Uber Health platform that launched in March 2018, which includes a dashboard for healthcare providers to schedule on-demand rides for patients. Another example of a healthcare provider booking on-demand tips is a partnership between Lyft and Epic to allow patients to book rides to and from appointments directly from the Epic healthcare platform, without the need to open a separate app.

[32] *Federal Transit Administration, Shared Mobility FAQs: American with Disabilities Act, 2016.*

The second type of transportation service includes health insurance companies proactively expanding benefits to include transportation to and from medical appointments. Examples include Lyft's partnerships with Blue Cross/Blue Shield to add the ride-sourcing service to and from medical appointments to some insurance plans.

The third type of emerging service includes paratransit providers partnering with ride-sourcing companies to complement existing paratransit services by offering an option for on-demand trips. An example of this type of collaboration is a pilot program offered by the Massachusetts Bay Transportation Authority (MBTA) in the Boston area, in partnership with Uber, Lyft, and Curb (a local taxi service). The pilot program, launched in September 2016, offers on-demand transit service for eligible paratransit customers. The pilot program subsidizes the trips over the first $2.00 up to $42.00 and each rider is allotted a limited number of rides per month. Customers that utilize the on-demand service option must be able to board the vehicle without assistance from the driver. Passengers can request a vehicle that can accommodate wheelchairs. Another example is the partnership between the Regional Transportation District (RTD Denver) and Uber Transit. This on-demand pilot, announced in April 2021, will be offered to their Access-a-Ride customers in four select zip codes. This pilot program sets several restrictions such as only being able to utilize this service during peak service hours and limiting the number of trips allowed per eligible customer. Customers are charged $2 and anything beyond the additional $20 RTD subsidizes.

These three models could be considered within the timeframe of this plan to supplement the traditional paratransit services to provide additional options for passengers requiring transportation to medical trips. A partnership with a TNC, similar to the examples provided, could be implemented within the timeframe of the plan to supplement the traditional paratransit services.

Recommendation 5.3.4: Develop Mobility Hubs

Mobility hubs are places of multimodal connectivity that provide a range of transportation options and amenities for safe, convenient, and efficient travel. A key component of mobility hubs is the successful integration and implementation of placemaking strategies for amenities and services. Mobility hubs' most common elements include, but are not limited to, bus infrastructure, vehicle connections, bicycle connections, signage and information, active use space, and safety features. This plan includes recommended mobility hub locations, amenities, and their potential costs.

Two potential locations in Waukesha County were identified by the Advisory Committee for locating a mobility hub, including the Goerke's Corners Park-Ride Lot in the Town of Brookfield and potential locations near Brookfield Square Mall in the City of Brookfield.

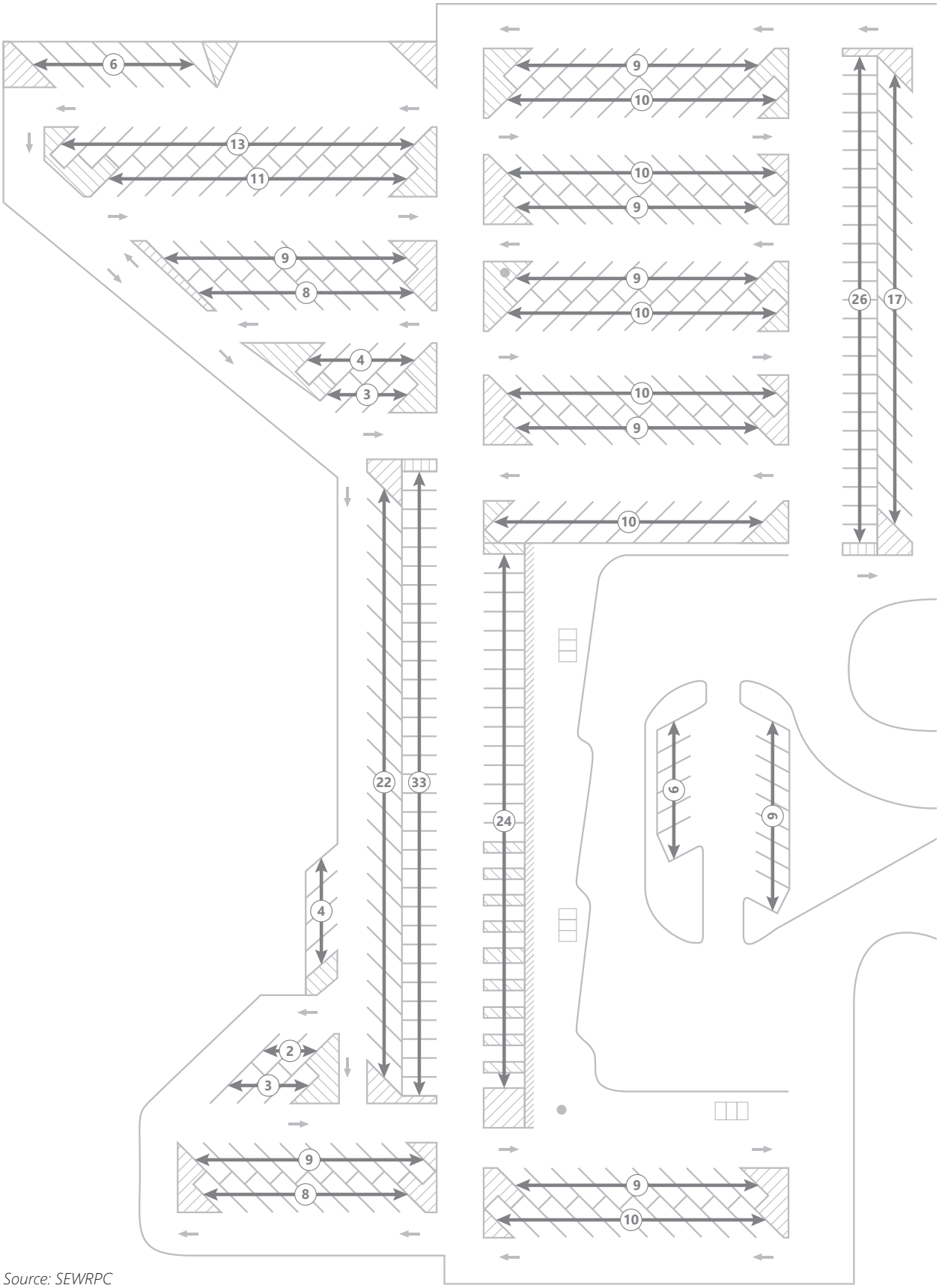
Goerke's Corners Park-Ride Lot

This location could be redesigned with additional amenities to enhance transportation connections between Milwaukee County and Waukesha County. The Goerke's Corners Park-Ride Lot currently includes 315 parking spaces, with a utilization rate of approximately 90 percent. Current amenities include a bus waiting area with three bus shelters, as shown in Figure 5.8.

Commission staff recommends enhancing the Goerke's Corners Park-Ride Lot with amenities that provide greater access to transportation connections, including first-and last-mile transportation options. Given the high demand for parking at this location, it is recommended that all the daily and long-term parking be retained. However, as shown in Figure 5.9, the short-term parking located at the entrance of the lot could be removed to allow more space for the mobility hub boarding platform and to ensure adequate space for bus turning movements. The amenities recommended are shown in greater detail in Figure 5.10 and include near-level boarding with a larger, raised platform height between 8 and 11 inches that would be compatible with the region's existing bus fleet and future transit fleet; four bus shelters to serve connections to fixed-route transit and on-demand services; heated restrooms; signage that includes real-time arrival information; space for mobile food or coffee kiosk; and additional amenities to encourage multi-modal connections and enhance safety.

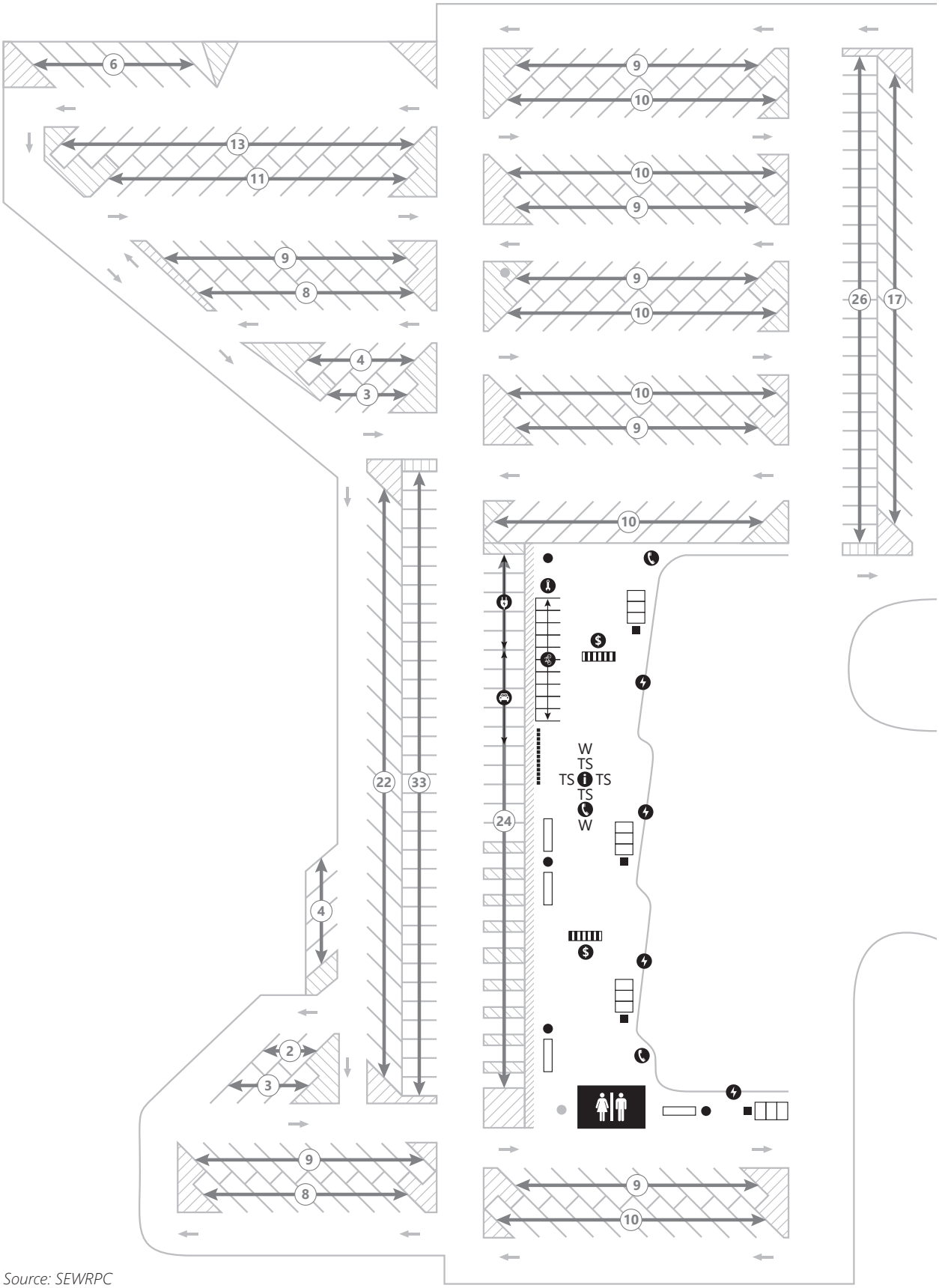
The Goerke's Corners Park & Ride Lot is owned by the Wisconsin Department of Transportation and maintained by Waukesha County. If the new amenities are included, the two parties will require a revised maintenance agreement. It is recommended that Waukesha County coordinate with WisDOT to identify expectations for future maintenance expectations such as frequency of trash removal, bathroom cleaning, restriping, and scheduled roadway maintenance.

Figure 5.8
Existing Parking and Layout at Goerke's Corners Park-Ride Lot



Source: SEWRPC

Figure 5.9
Proposed Parking and Layout of Mobility Hub at Goerke's Corners Park-Ride Lot



Source: SEWRPC

Figure 5.10
Proposed Amenities and Layout of Mobility Hub at Goerke's Corners Park-Ride Lot

Source: SEWRPC

Brookfield Square Mall

The Brookfield Square Mall area presents multiple locations for a potential mobility hub. For example, the parcel west of Brookfield Square Mall, as shown in Figure 5.11, is undeveloped and is currently identified for repurposing in the Brookfield Square Area Redevelopment Strategy. The Redevelopment Strategy envisions this parcel as a small park with infill nearby to complement the retail and commercial development and a walkable environment.[33] Due to its advantageous location point as a potential mobility hub, the Advisory Committee noted that this is one location that could be considered for a mobility hub. Specifically, this location could provide a convenient connection point for mobility on demand services to employers in the City of New Berlin. If a mobility hub is considered for this parcel, it is recommended that at a minimum it include a small number of parking spaces and a sheltered waiting area. The property is currently wooded and has environmental constraints that would require additional discussions and surveys prior to pursuing development. Additional locations near Brookfield Square Mall could be considered, including potential parking spaces provided for a nearby office building just south of the current bus stop and a small corner parcel across the street from the Hilton Garden Inn hotel. There may also be opportunities to include mobility hub amenities in the future redevelopment of the former Boston Store on the north end of Brookfield Square Mall, pending the final designs approved by the City of Brookfield. Each of these options would require coordination with the existing property owner and/or developer to obtain permission and identify acceptable mobility hub locations and amenities. In addition, maintenance roles and costs, such as landscaping, pavement improvements, signage, and trash collection should be considered as part of future implementation discussions.

Potential Funding Sources for Mobility Hubs

The following section summarizes potential sources that could help fund future mobility hub amenities.

FTA Section 5337 Funds—State of Good Repair Grant Program

The State of Good Repair grants help fund the maintenance, replacement, and rehabilitation of capital assets. Specifically, the FTA 5337 grant could fund rolling stock, signals and communications, power equipment, passenger stations, security equipment, maintenance facilities and equipment, and operational support equipment, including computer hardware. The FTA Section 5337 funds allocated to the Milwaukee urbanized area are attributable to the bus service operated by the Waukesha County Transit System in the reserved bus lane on W. Bluemound Road. In the past three years, the annual Section 5337 funding provided to Waukesha County has averaged approximately $500,000.

FTA Section 5339 Funds—Buses and Bus Facilities Program

The Buses and Bus Facilities Program provides formula allocations and competitive grants to replace, rehabilitate, and purchase buses, vans, and related equipment and to construct bus-related facilities. The FTA Section 5339 program could potentially help fund mobility hub components such as transfer facilities, intermodal terminals, bus stations, shelters, signage, and equipment such as fareboxes.

FHWA Congestion Management and Air Quality Improvement Program (CMAQ) Funding

The CMAQ program provides funding to help meet the requirements of the Clean Air Act, with funding available to help reduce congestion and improve air quality. The CMAQ program could fund transit capital projects, transit improvement operating projects, bicycle/pedestrian projects, projects involving alternative energy sources, and traffic flow projects, such as coordinating traffic signals and the construction of intersection turn lanes and traffic signals. WisDOT typically solicits projects biennially for FHWA CMAQ funding.

FHWA Surface Transportation Block Grant Program – Milwaukee Urbanized Area (STP-M) Funding

The STP-M program funds projects that preserve or improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals. Specific mobility hub enhancements that could be funded through the STP-M program include transit, bicycle, and pedestrian accommodations proposed to be provided along the length of a project (including at mobility hub locations).

[33] *Brookfield Square Area Redevelopment Strategy, Implementation of the Calhoun Road South Neighborhood Plan, Brookfield Square Area, City of Brookfield, Wisconsin. August 13, 2002.*

Figure 5.11
Potential Mobility Hubs Adjacent to Brookfield Square Mall

Source: Waukesha Metro Transit and SEWRPC

FHWA STP Transportation Alternatives Program (TAP) Funding

The TAP program funds transportation enhancement projects, recreational trail projects, safe routes to school projects, and projects involving the construction of roadways within former Interstate System routes or other divided highways. TAP funding is allocated directly to the Milwaukee urbanized area and projects are selected using a process developed by the Advisory Committee on Transportation System Planning and Programming for the Milwaukee Urbanized Area. Eligible mobility hub enhancements that could be funded with TAP generally include the construction, planning, and design of bicycle and pedestrian accommodations.

Grants for Electric Vehicle Infrastructure

The U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy's Clean Cities program funds alternative fuel infrastructure. The program provides annual open and competitive funding opportunities for projects accelerating alternative fuel adoption through numerous funding sources, including the Innovative Vehicle Technology Projects solicitation. Potential eligible mobility hub enhancements that could be funded through the U.S. Department of Energy include the construction, planning, and design of electric vehicle charging infrastructure and electric bus charging infrastructure. The Infrastructure Investment and Jobs Act (IIJA) expands funding opportunities to build out the electric vehicle charging system. More information on the new and expanded programs is included below.

Potential Additional Funding Sources from the Infrastructure Investment and Jobs Act

In November 2021, the U.S. Congress and the President enacted the IIJA consisting of a $1.2 trillion investment in the Nation's transportation system, water infrastructure, power-grid system, and broadband network. The IIJA reauthorizes and funds the Federal core surface transportation programs for another five years, increasing funding levels $560 billion beyond its predecessor—the Fixing America's Surface Transportation Act (FAST Act). About half of this new funding is designated for the transportation system (roads, bridges, public transportation, airports, and ports) and the rest for various other infrastructure systems. The following new funding programs were included in the IIJA and may be a resource for future planning and implementation of mobility hubs and related amenities. Information continues to evolve regarding these new funding programs and Commission staff will provide updates as appropriate.

The **Carbon Reduction Program (CRP)** provides funds for projects designed to reduce carbon dioxide (CO2) emissions from transportation. The IIJA provides over $6.4 Billion in funding over five years, which will be apportioned to the State. The Wisconsin Department of Transportation (WisDOT) anticipates that CRP funding will be available for local use on eligible projects after approval by the Joint Committee on Finance in the fall of 2022. Eligible activities such as strategies that reduce the demand for roads; the acquisition, installation, or operation of publicly accessible electric vehicle charging infrastructure; and projects that provide transit options that increase safety, equity, accessibility, and connectivity.[34]

The **National Electric Vehicle Infrastructure (NEVI) Formula Program** is intended to build out the electric vehicle charging system along designated Alternative Fuel Corridors (AFCs).[35] Southeast Wisconsin's current AFC system includes I-94, I-43, and I-41. The IIJA includes $5 Billion in funding over five years, which will be apportioned to States on a formula basis. Wisconsin's apportionment will be available once Wisconsin's Electric Vehicle Infrastructure Deployment Plan is approved, which is anticipated no later than September 30, 2022.[36] The NEVI program requires that electric vehicle charging infrastructure projects be located along a designated alternative fuel corridor unless the State determines that the designated corridors are fully built out. Given the location of the potential mobility hubs identified in this memorandum, the NEVI program could assist with electric vehicle infrastructure in the in the Brookfield Square Mall area and the Goerke's Corners Park-Ride Lot, which are approximately 0.75 miles and 500 feet from I-94, respectively, although it is likely that the State will need to prioritize other locations initially.

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[34] *Federal Highway Administration, Carbon Reduction Program Fact Sheet, www.fhwa.dot.gov/bipartisan-infrastructure-law/crp_fact_sheet.cfm.*

[35] *Federal Highway Administration, National Electric Vehicle Infrastructure Formula Program Fact Sheet, www.fhwa.dot.gov/bipartisan-infrastructure-law/nevi_formula_program.cfm.*

[36] *Wisconsin Department of Transportation, Wisconsin Electrification Initiative, wisconsindot.gov/Pages/projects/multimodal/electrification.aspx.*

The **Reconnecting Communities Pilot (RCP) Discretionary Program** accepted applications in Fall 2022, for projects that reconnect communities by removing, retrofitting, or mitigating highways or other transportation facilities that create barriers to community connectivity, including mobility, access, or economic development.[37] The RCP Program will fund up to 80 percent of total costs for either planning or capital projects that reduce inequities in the transportation system while engaging economically disadvantaged communities. Specifically, planning grants would fund the study of removing, retrofitting, or mitigating an existing facility to restore community connectivity; conduct public engagement; and other transportation planning activities. Capital construction grants would carry out a project to remove, retrofit, mitigate, or replace an existing eligible facility with a new facility that reconnects communities. Eligible applicants for planning grants include States, local governments, MPOs, or non-profit organizations. For capital grants, eligible applicants must be the owner of the eligible facility. Such applicants may submit jointly with a State, local government, MPO, or non-profit organization. The current funding available for fiscal year 2022 is up to $195 million, with up to $50 million available for planning grants and $145 million for capital construction grants. Eligible facilities include transit lines and transportation facilities that create a barrier to community connectivity. Mobility hub development may be eligible under the RCP program as it improves transportation mobility by increasing safety and multimodal connectivity depending on how well the proposed project meets the evaluation criteria described in the notice of funding opportunity. For example, if funding is pursued through the RCP program, focused attention to engaging economically disadvantaged communities will be required. Commission staff can assist with the identification and outreach to community partners as needed.

5.4 PARATRANSIT AND SPECIALIZED TRANSPORTATION SERVICE ELEMENT

Recommendation 5.4.1: Continue Collaboration Between the Aging and Disability Resource Center of Waukesha County, Waukesha Metro, and Waukesha County Transit on Paratransit and Specialized Transportation Services

The Waukesha County Aging and Disability Resource Center finalized The Waukesha County Specialized Transportation Program Review Study on August 2, 2022, which included program alternatives to improve efficiency, effectiveness, and awareness of the services. This proposed recommendation incorporates several strategies identified in the program review, which focused on changing processes within the control of Waukesha County to improve the delivery of service and prepare for any future service changes. In the short-term, strategies may include resuming quarterly transportation coordination meetings with taxi providers, the RideLine contractor, Waukesha Metro, Waukesha County Transit, and Milwaukee County Transit System to identify opportunities for training and joint procurement. In the medium-term, this on-going collaboration may identify strategies that can improve the delivery of services, such as options to pursue a technology pilot program and establish service standards.

One scenario that may be pursued includes combining complementary paratransit services provided by Waukesha Metro Transit, Waukesha County Transit, and the RideLine service provided by the Aging and Disability Resource Center (ADRC) of Waukesha County. This partnership would allow the three entities to combine the request for proposal process, to create a single coordinated paratransit service for seniors and people with disabilities. The combination of services could make it easier for both seniors and people with disabilities to travel in Waukesha County because they would only have to work with a single service provider. Joint paratransit services utilize operating funding from the State Section 85.21 specialized transportation assistance allocation to the County as part of the local match for Federal and State urban transit operating assistance funds awarded to public transit systems. For example, Kenosha County and the City of Kenosha coordinate to provide paratransit service east of IH 94, with the County contributing part of its State Section 85.21 allocation, the City contributing part of its Federal and State urban transit operating assistance funds, and both contributing County or City funds.

Combining these paratransit services would be a complex undertaking. For example, the process to combine paratransit services provided by the Aging and Disability Resource Center of Portage County and the Point Plus Paratransit operated by the City of Stevens Point took approximately six years. The process included discussions with the Wisconsin Department of Transportation, elected officials, the City Transportation

[37] *Notice of Funding for the Reconnecting Communities Pilot Discretionary Grant Program, www.transportation.gov/sites/dot.gov/files/2022-06/RCP_NOFO_FY22.pdf.*

Commission, the Portage County Transportation Coordinating Commission, and the Aging and Disability Resource Center. The discussions sought to gain trust and develop agreement that the coordination of services could be beneficial to both the City and the County. A Joint Powers Agreement was developed between Portage County and the City of Stevens Point to identify how the combined program would operate including how to transition staff from County employees to City employees, services, and payment. Based on the details included in the Joint Powers Agreement, the following points should be discussed and determined, should the City of Waukesha and Waukesha County wish to pursue joint paratransit services:

- Confirm if the transportation responsibilities will be vested to one entity
- Confirm which decision-making body has authority to oversee the program and assign responsibilities
- Verify how assets, including vehicles, are transferred
- Indicate how the budget will be developed and how the local share will be paid for capital expenses. For example, Portage County and the City of Stevens Point agreed to each contribute to the local share for capital expenditures and future development not covered by State and Federal funds.
- Determine which entity will apply for State and Federal funds and contributes to the local share of operating expenses (including FTA Section 5310, Wisconsin 85.20, and Wisconsin 85.21). The City of Stevens Point applies for FTA funding under Section 5310, Section 5311, and the Wisconsin 85.20 funding. The City also contributes to the local shares for these funds while the County applies for Wisconsin 85.21 funds, contributes the local share, and transfers the funds to the City. In addition, the County transfers other transportation revenues, subsidies, or contributions to the City.

Service Option 5.4.1A: Provide County-Wide Shared-Ride Taxi Service

The Waukesha County Specialized Transportation Program Review Study noted a consideration for a long-term strategy to move toward a single contractor to operate a curb-to-curb or corner-to-corner public transit service. While out of scope for the Waukesha County Specialized Transportation Program Review Study, this service option would address an unmet need in Waukesha County for transportation for those who cannot or would prefer to not drive outside of existing transit service areas by providing a county-wide public shared-ride taxi program. Given that this service option would require extensive coordination with Waukesha County Transit, Waukesha Metro, the ADRC, and current senior taxi providers, this option is likely outside the planning horizon for this plan. The entities involved would need to consider several operating characteristics that would influence the future costs including:

- Service administration
- Vendor(s)
- Service area(s)
- Eligibility
- Service days and hours
- Vehicle ownership and maintenance
- Passenger fares
- Funding source(s)[38]

Commission staff can assist with researching potential service characteristics, costs, and funding options should the entities request assistance to pursue this option.

[38] *Any service enhancements would require a reprioritization of local funding.*

5.5 CONCLUSIONS

This chapter has presented transit recommendations and service options for the City of Waukesha and Waukesha County to make informed decisions in the face of future uncertainties. The recommendations represent the culmination of the study of existing transit services, the evaluation of existing and potential transit service recommendations, and the consideration of input from businesses, transit riders, educational institutions, and non-profit organizations about the future of transit in the City and County of Waukesha. Further discussion with Waukesha County businesses may provide opportunities for public-private partnerships, particularly for employment-related transportation services, including on-demand services, shuttles, or partnering with a Transportation Network Company, such as Lyft or Uber. As the City and County consider the recommended transit service plan, they will need to balance all service objectives outlined in Chapter 3, Public Transit Service Objectives and Standards, while minimizing costs.