



GREATER MADISON
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Greater Madison Metropolitan Planning Organization

DRAFT 2025-2029

Transit Development Plan

Greater Madison Metropolitan Planning Organization

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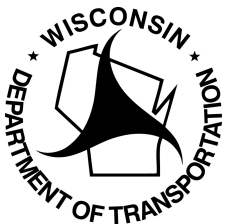
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The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation or WisDOT.

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Chapter 1: Executive Summary

Introduction

The Transit Development Plan (TDP) is a short- to medium-range strategic plan intended to identify transit needs and proposed improvements for a five-year planning horizon. The Greater Madison Metropolitan Planning Organization (MPO) is responsible for developing and maintaining the TDP. The MPO works in cooperation with the City of Madison – Metro Transit (Metro) and other transit providers, funding partners, and jurisdictions in the Madison area. The TDP is developed within the overall framework of the long-range regional transportation plan. The TDP recommendations are approved by the MPO and the City of Madison as the major transit operator. Metro did not have the staff capacity to develop recommendations in the fall of 2024 due to the demands of launching East-West Bus Rapid Transit, so this TDP does not include recommendations. Recommendations will be developed by the MPO and Metro based on this TDP and lessons learned from the launch of BRT in 2025 and adopted separately. The Three-Party Cooperative Agreement between the Wisconsin Department of Transportation (WisDOT), Metro, and the MPO requires the TDP to include:

1. Transit system policies (Chapter 3, page 56).
2. An assessment of service demands (Chapters 4 and 5).
3. Planned service improvements (Chapter 5).
4. Transit fares (Chapter 3, page 43 and Chapter 5, page 86).
5. Transit system capital facility needs (Chapter 5, page 82)

The following goals were developed to guide preparation of the 2013–2017 TDP and ongoing service planning, and are unchanged with this update:

1. Meet people’s daily mobility needs.
2. Increase transit ridership to manage congestion in constrained travel corridors.
3. Increase transit’s mode share to achieve sustainability goals and reduce climate change.
4. Provide cost efficient and effective transit service.
5. Provide reliable transit service that is convenient, comfortable, and affordable.

6. Provide for the safety and security of transit passengers, operators, and facilities.
7. Maximize connections to other transportation modes, including intercity rail and bus lines.
8. Provide transportation that is accessible to all.
9. Support land use development that maximizes the safety and efficiency of the transportation system.

Madison Metro Transit’s ridership increased an average of 4.5% per year, or 30% overall (from 11,476,000 trips to 14,924,000 trips) between 2005 and 2011, while annual service hours increased only 0.8% per year, or 5% overall, from 364,500 to 383,100. This ridership increase was a positive development; however, overloading and crowded buses became substantial problems during peak periods and occasionally at other times. Ridership peaked in 2014 with 15,224,000 total passengers served during 403,600 service hours, but by 2017, ridership had fallen to 12,817,000 passengers during 404,400 service hours. Between 2011 and 2017, ridership fell 14% while service hours increased by 5%. The two-year period from 2015 to 2017 saw ridership decline by nearly 16% while service hours held steady with an increase of 0.1%. In 2018, ridership grew to 13,231,000, a 3.2% increase over 2017 ridership. Although concerns regarding the sustainability of ridership growth were expressed in the 2013–17 TDP, it is clear that the dramatic decline in ridership experienced after 2014 was not considered a possibility when that plan was drafted and adopted. Transit ridership declined by nearly 64% in 2020 due to the COVID-19 pandemic, but notably, ridership declined much less in areas with transit-dependent populations than in areas with choice riders. Metro adjusted its service to eliminate much of the capacity that had been used to serve office workers while retaining service to areas with concentrations of lower-income and minority residents, ensuring that essential employees were able to get to work while not wasting capacity on routes whose former riders were now teleworking. Metro’s 2023 ridership was 72.6% of 2019 pre-pandemic ridership, positioning the system as one of the marginally better-recovering systems in the nation compared to the performance of other mid-sized urban area transit systems. Metro Transit’s operations, bus stor-

age, and maintenance facility is located on a centrally located 10.4-acre site in the 1100 block of East Washington Avenue (1 South Ingersoll). The facility includes a bus rehabilitation and maintenance area, storage space for buses, and space for maintenance equipment and spare parts inventory. The facility conversion from a WWI munitions factory to a bus maintenance facility was completed in two phases in the early 1980s and has had numerous interior and exterior modifications since then to address facility inadequacies. It was originally designed to accommodate 160 40-foot buses; by the early 2020s it housed as many as 219 40-foot buses and was beyond capacity. A six-year capital improvement plan to address shortcomings of the facility was initiated in 2019, and a new satellite facility on Hanson Rd is currently being remodeled to support electric bus storage, charging, and maintenance.

Another continuing challenge is the need to provide new service or faster, more effective service to growing peripheral employment centers and neighborhoods and suburban communities. Funding is a major challenge, given the lack of a dedicated funding source for transit, reduced state operating assistance, reduced federal capital funding, and tight local budgets. Many of the potential improvements discussed in this TDP will not be possible without a new funding source and/or the state covering the share of operating costs it did in the 1990s. The TDP examines these issues and other service and capital needs in order to continue to maintain, improve, and expand transit in the Madison region.

In addition to the five components required by the Cooperative Agreement, other key TDP study areas include:

- Transit Network Redesign impacts.
- Bus Rapid Transit.
- Equity.
- First- and last-mile connections.
- Emerging trends and technologies.

There are several other ongoing and recently completed studies related to public transportation. The TDP references these studies and to the extent possible incorporates their findings and recommendations. These

include the Metro Maintenance Facility study, Bus Rapid Transit (BRT) East-West (under construction) and North-South (in planning), Metro Bus Size study, and an update to the Coordinated Public Transit – Human Services Transportation Plan for Dane County. The WisDOT 2017 and 2022 Management Performance Reviews (MPR) and a variety of Metro rider surveys shed additional light on system performance.

Summary of Current Transit Services

The City of Madison acquired the transit system from the privately owned Madison Bus Company in 1970, and Metro operators and other staff are city employees. The transit system operates under the oversight of the mayor of Madison, the Common Council, and the city's Transportation Commission (TC).

Local funding is generally provided through the City of Madison budgeting process. For service that extends beyond the City of Madison's boundaries, Metro contracts with the municipalities or other entities. These funding partners include the cities of Middleton, Fitchburg, Sun Prairie, and Verona, and the Village of Shorewood Hills. The University of Wisconsin, UW Health, Madison College, and the Madison Metropolitan School District (MMSD) also contract with Metro Transit to fund service. Monona and Stoughton provide transit or shared-ride taxi service, respectively, available to the general public. Monona plans to terminate their independent transit services and become a Metro service partner in 2025.

Metro Transit Fixed-Route

In 2024, Metro operates 32 regular fixed-route bus routes – 25 full-time, three weekday peak only, and four campus circulators. In addition, it provides supplemental school service targeted towards high-school students.

The weekday service area for Metro Transit is 62.82 square miles.¹ The 2024 population within the 1/4-mile service area was approximately 263,082, with 363,017 people living within 3/4 miles of a bus stop. This includes 97% of the City of Madison's population, 90% of the Middleton population, 86% of the Sun Prairie population, 79% of the Monona population, 78% of the Fitchburg population, and 52% of the Verona population. Figure

¹ Within 1/4 mile of a bus stop. Metro Transit GTFS v.108, March 3, 2024.

its cutaway vans and transitioned away from direct provision of paratransit service during 2018, ceasing all directly operated service on August 10. All paratransit service is now provided by contractors.

Monona Transit

The City of Monona provides public transportation service within its city limits and to central Madison. The service consists of one peak period fixed route called Monona Express and one point deviation mid-day route called Monona Lift.

Monona Express operates in a counterclockwise route in the morning from Monona to Madison via Atwood Avenue and Williamson Street to the Capitol Square, UW Campus, and UW/VA Hospitals, then to Monona via Olin Avenue, John Nolen Drive, and the Beltline Highway. It makes a similar clockwise loop in the afternoon. Monona Express makes four loops each morning and each afternoon using two buses in service.² The regular cash fare for Monona Express and Monona Lift is \$3.00 with discounts for ticket books, senior/Disabled riders, students, and riders with transfers from Metro Transit. Transfers from Monona Lift and Express are not valid on Metro Transit.

The City of Monona has contracted for Metro service beginning in March of 2025, at which time Monona Express and Monona Lift services will be discontinued.

Stoughton Shared-Ride Taxi

Shared-ride taxi service is provided within the city of Stoughton under contract. The service is open to the general public from 6 a.m. to 6 p.m. Monday to Thursday, 6 a.m. to 7 p.m. on Friday and Saturday, and 9 a.m. to 2 p.m. on Sunday. Fares are a flat rate of \$4.75 and a senior/disabled rider rate of \$3.75 within the city of Stoughton. Trips are available up to three miles outside the city limits at a rate of \$1.00/mile.

Specialized Transportation Services

A variety of transportation programs are available throughout the Madison area and Dane County that

provide specialized transit service to meet the needs of persons who are low-income, seniors, veterans, refugees, workers, and/or experience a disability. Most of these services are administered by the Disability & Aging Services Division of the Dane County Department of Human Services (DCDHS) and are accessible, routed group ride and demand-response services with specific requirements for eligibility and trip purposes.³

Paratransit, specialized transportation services, and non-emergency medical transportation (NEMT) services are described in greater detail in the [2024-2028 Coordinated Public Transit – Human Services Transportation Plan for Dane County](#).

Metro Transit Costs & Revenues

In 2019, pre-pandemic, Metro collected \$14.9 million in fares and directly generated revenue, or 27% of its total operating budget of \$55.1 million. In 2021, with ridership depressed due to the pandemic, fares and directly generated revenue were only \$9.6 million, or 14% of the operating budget of \$67.9 million.

In addition to fares and directly generated revenue, Metro depends on a combination of local, state, and federal funds to cover operational and capital expenses. State and federal contributions, including Federal Transit Administration (FTA) Capital Grants Urbanized Area Formula funds, and other funding programs, made up \$27.6 million, approximately 39.7% of Metro's 2019 funding.⁴

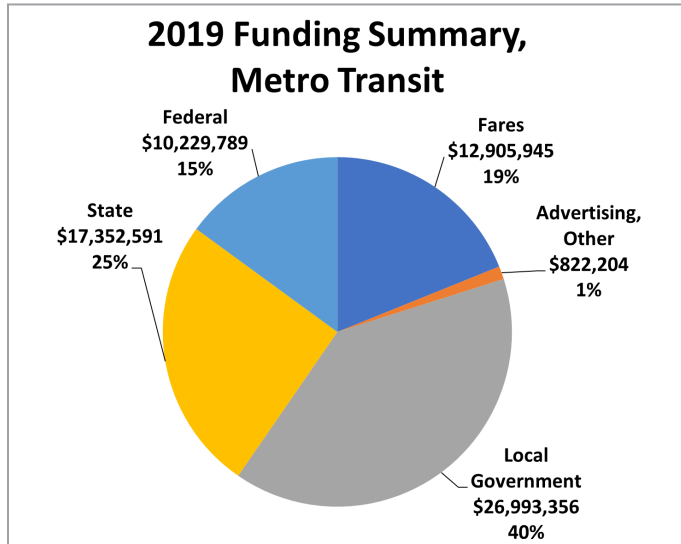
In 2019, state funding amounted to \$17.4 million, 31.5% of Metro's Operating budget and 25.0% of Metro's total budget. Capital projects do not receive any state financial support. \$16.4 million in local 2019 Capital funding was primarily allocated out of non-General Fund General Obligation borrowing, while \$10.6 million in Operating funding was provided by the General Fund. These two local funding sources amounted to \$27.0 million, or 38.9% of Metro's total annual budget.

² Due to a driver shortage, the first morning loop has been discontinued indefinitely.

³ <https://www.danecountyhumanservices.org/Disability-and-Aging/Transportation>.

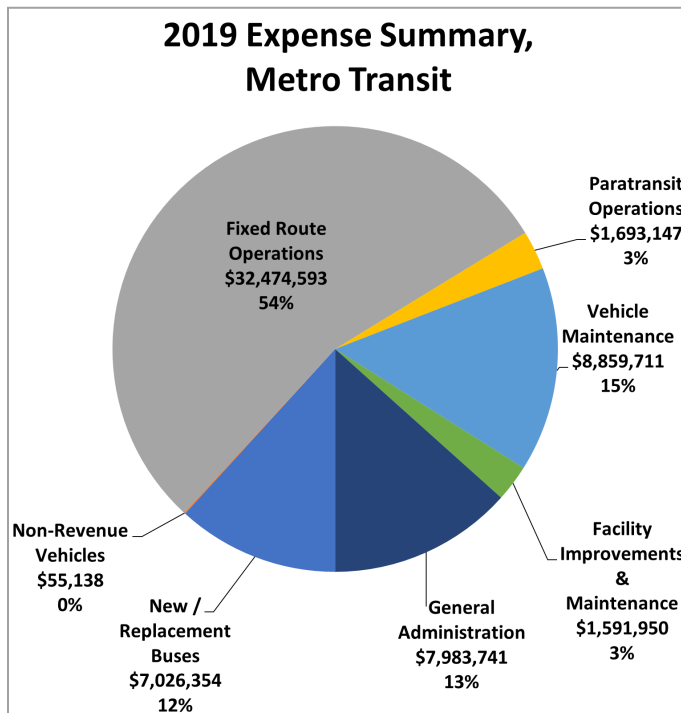
⁴ Due to the influx of one-time pandemic relief funding that was made available through various federal laws - including CRRSAA, CARES, and ARPA - in 2020 and 2021, funding for those years is not discussed here. Annual NTD Agency Profile reports for Madison Metro are available at <https://www.transit.dot.gov/ntd/transit-agency-profiles/city-madison> and include the data discussed here for 2013 and subsequent years.

Figure 3: Metro Transit Funding Summary



\$55.1 million or 79.3% of these funds were spent on operating expenses, with the remaining \$14.4 million spent on capital expenses; roughly half of that funding was used to purchase new vehicles and the other half on facility upgrades. Salaries, wages, and benefits of Metro drivers and other staff accounted for 68.8% of 2019 Operating expenses.

Figure 4: Metro Transit Expense Summary



Metro Transit System Characteristics and Performance

Historically, Metro’s route structure operated in a radial pattern, with nearly all routes connecting at the Capitol Square in downtown Madison. In July 1998, Metro underwent a major network restructure and converted to a transfer point system using timed transfers at four transfer points in outer Madison; at the same time, routes were renamed from the lettering system used previously to the numbered system used until June 2023. The transfer point system operated on a 30- to 60-minute pulse, with all buses arriving and departing the transfer points within a few minutes of each other. This system required relatively uniform route lengths and cycle times for most routes.

In 2019, prior to the COVID-19 pandemic, Metro Transit provided 1,344 daily service hours on weekdays while UW and the Madison Metropolitan School District were in session. A total 530 service hours were provided on Saturdays and 486 on Sundays. Metro fixed-route bus service provided about 460,000 revenue hours of service and 12.9 million one-way unlinked passenger trips with an operating expense of about \$55 million in 2019.

Figure 5: Metro Transit Fixed Route Service Annual Vehicle Revenue Hours and Ridership, 2003–2023

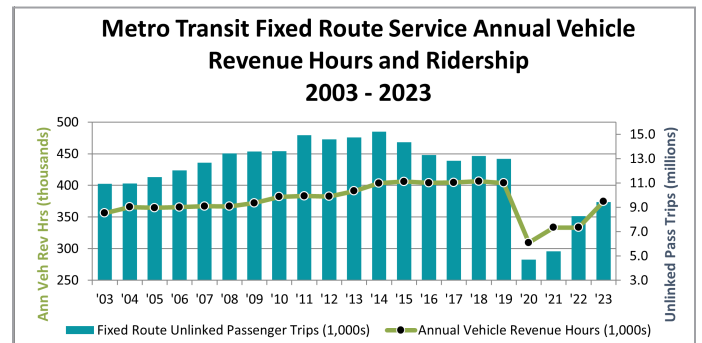
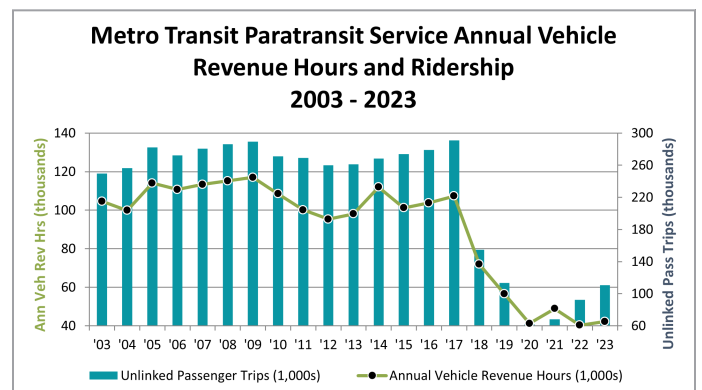


Figure 6 : Metro Transit Paratransit Service Annual Vehicle Revenue Hours and Ridership, 2003–2023



Metro’s six route categories and service levels consist of:

- Future BRT (Routes A and B) with 15-minute weekday mid-day headways.
- Frequent (Routes C and D) with 15-minute weekday mid-day headways.
- Standard (Routes A1, A2, C1, D1, D2, E, F, G, H, J, P, R, W, 28, and 38) with 30-minute weekday mid-day headways.
- Coverage (Routes C2, L, O, R1, R2, and S) with ≥60-minute weekday mid-day headways.
- Peak-only (Routes 55, 65, and 75) with no mid-day service and 30–60-minute peak hour headways.
- UW-Madison Campus (Routes 80, 81, 82, and 84) with varied headways designed for UW-Madison student use on- and near-campus, and evening/late night service only on routes 81 and 82.

As shown in Figure 7, Metro’s ridership typically peaks in the winter months when school is in session, with dips in ridership during winter and spring breaks. In 2019, October ridership (1,420,000) was roughly 600,000 higher than summer (June–August, 800,000) ridership. 2023 ridership shows a similar pattern with a high of 1,076,000 in October and summer lows around 500,000. These seasonal ridership trends are consistent across years except for during the Covid-19 pandemic, from March 2020 through August of 2021.

Figure 7 : Monthly Metro Ridership, 2019–May 2024.

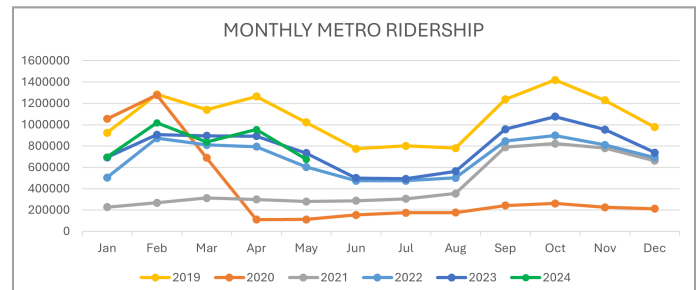


Table 1: Metro Transit System Characteristics, 2017–2022.⁵

System Characteristics	2017	2018	2019	2020	2021	2022
Transit Service Levels and Utilization						
Total Revenue Vehicle Hours	511,751	478,339	460,202	350,655	382,126	386,236
Total Revenue Vehicle Miles	6,816,058	5,882,778	5,731,573	4,417,771	4,707,689	4,722,445
Total Passenger Trips	13,108,095	13,385,628	12,969,815	4,755,375	5,458,011	8,379,362
Operating Expenses						
Total Expenses	\$54,574,725	\$52,304,998	\$52,603,142	\$51,412,935	\$50,061,816	\$51,022,930
Cost per Vehicle Revenue Hour	\$106.64	\$109.35	\$114.30	\$ 146.62	\$ 131.01	\$ 140.83
Cost per Vehicle Revenue Mile	\$8.01	\$8.89	\$9.18	\$11.64	\$ 10.63	\$11.52
Cost per Unlinked Passenger Trip	\$4.16	\$3.91	\$4.06	\$10.81	\$9.17	\$6.49
Revenue						
Total Fare Revenue*	\$13,161,533	\$15,782,860	\$14,888,395	\$8,840,925	\$9,649,554	\$10,370,530
Revenue per Unlinked Passenger Trip	\$1.00	\$1.18	\$1.15	\$1.86	\$1.77	\$1.24

* Total fare revenue includes revenue from unlimited ride passes.

⁵ National Transit Database (NTD) Transit Agency Profile: <https://www.transit.dot.gov/ntd/transit-agency-profiles/city-madison>.

Public Outreach & Engagement

The MPO held focus group meetings organized and hosted by community-based organizations (CBOs) between October 2023 and March 2024 to gather feedback from historically marginalized populations. Host CBOs included the Latino Academy of Workforce Development (LAWD), the Vera Court Neighborhood Center (VCNC), the Madison Area Chinese Community Organization (MACCO), Access to Independence (A2I), and the Wisconsin Hmong Association (WHA). MPO staff worked with CBO leadership and staff to ensure that materials such as discussion prompts and presentations were culturally and linguistically appropriate to each group and its particular needs. Focus groups were supported by interpreters as needed, with the LAWD and WHA meetings conducted entirely in Spanish and Hmong, respectively, and the VCNC meeting conducted in English and Spanish with concurrent translation. American Sign Language interpreters were available for the two A2I meetings, but no participants required this service. The MACCO focus group was conducted one-on-one and with written questions and answers at the request of MACCO leadership, who indicated that they thought this format would be the most effective in reaching their constituents. Each CBO received a stipend of \$1,000–\$1,500 for their support of this effort, and all participants received a \$50 gift card as remuneration for their time.

Due to low turnout at the A2I focus group meetings, an online survey, available in English and Spanish, was distributed and promoted through local disability rights and advocacy groups, including A2I, the Wisconsin Council for the Blind, and the City of Madison Department of Civil Rights.

Following the online survey for people with disabilities, a similar survey was released to the public, promoted through flyers on buses, emails to stakeholder organizations and elected officials, and on MPO and Metro social media channels and web pages. Roughly two weeks into the planned four-week survey period, MPO staff reviewed demographic data for respondents to date and recognized that Black/African American and

Latino populations were not completing the survey at levels representative to their population in the MPO Planning Area. Subsequent outreach to community organizations succeeded in boosting the response rate from Latinos, but even with increasing numbers of Black/African American respondents, Whites continued to be over-represented in responses. Increasing numbers of Black/African American, Latino, and White respondents eroded the representation of Asians in survey responses, so again MPO staff reached out to community organizations to promote the survey among Chinese and Hmong populations. Although these efforts were not successful in achieving representative response rates from these minority populations, they did succeed in increasing overall participation in the survey by all targeted populations.

The summaries of and responses to Focus Group discussions and both surveys can be found in Appendix E.

Chapter 2: Introduction

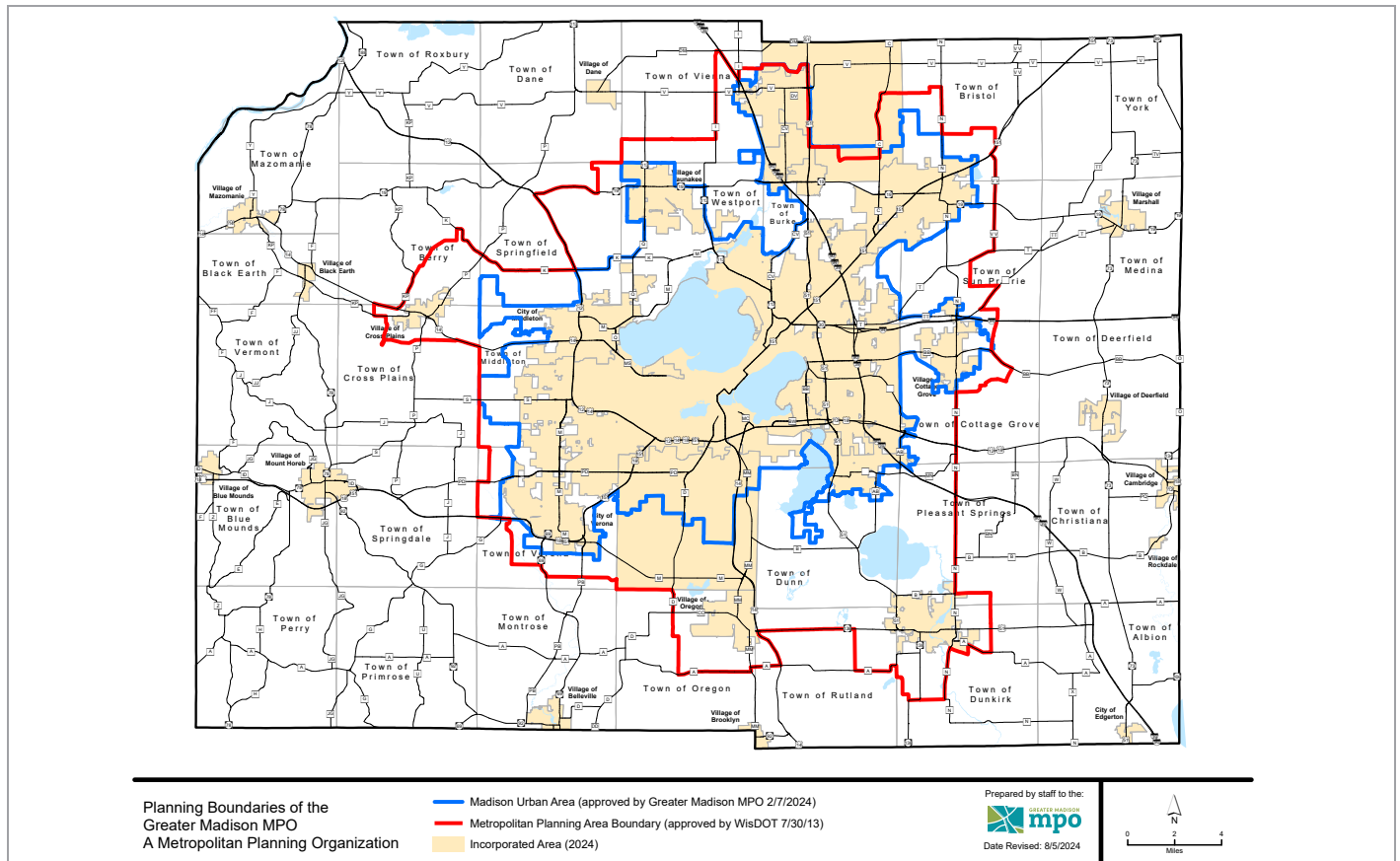
Introduction & Background

The Transit Development Plan (TDP) is a short- to medium-range plan intended to identify transit needs and proposed improvements for a five-year planning horizon. This TDP updates and replaces the last TDP, adopted in 2013 for the years 2013 to 2017. The Greater Madison Metropolitan Planning Organization (MPO) is responsible for developing and maintaining the TDP. The MPO works in cooperation with the City of Madison – Metro Transit (Metro) and other transit providers, funding partners, and jurisdictions in the Madison area. Recommendations of the TDP are approved by both the MPO Policy Board and by the City of Madison Common Council. Metro did not have the staff capacity to develop recommendations in the fall of 2024 due to the demands of launching East-West Bus Rapid Transit, so this TDP does not include recommendations. Recommendations will be developed by the MPO and Metro

based on this TDP and lessons learned from the launch of BRT in 2025 and adopted separately.

The TDP update was delayed due to the MPO being short-staffed and the need to focus its efforts on completing the Regional Transportation Plan update (RTP 2050) in 2017-18, as the TDP is developed within the overall framework of the RTP. Projects and initiatives with major ramifications on the future of Metro underway in 2019 justified further delay in completing the TDP, as a plan which either ignored those initiatives or which left them unresolved would be of questionable usefulness at best, and could be seriously misguided at worst. Those projects and initiatives, including the East-West Bus Rapid Transit (BRT) Planning Study, selection of a Metro satellite bus maintenance and storage facility site, and the \$40 Vehicle Registration Fee (VRF) adopted by the Madison Common Council in November 2019 all play important parts in Mayor Satya

Figure 8: The Planning Area for the Greater Madison MPO and Madison Urbanized Area



Rhodes-Conway’s MetroForward>> initiative. A Transit Network Redesign Study to evaluate and restructure the entire Metro network so as to better integrate with BRT was proposed and approved in early 2020, and at the request of the City of Madison Transportation Planning and Policy Board (TPPB), the TDP was delayed again so as to coincide with the Metro Transit Network Redesign Study.

Within just a few weeks of this request from the TPPB, COVID-19 was confirmed in the United States and Wisconsin, like many states, entered a “Safer at Home” period. This resulted in an almost immediate change in all travel patterns, including severe restrictions on transit capacity. The changes in transportation behaviors resulting from COVID-19 have, at the time of this writing, been lasting and far-reaching, including a tremendous increase in remote work (teleworking), adjustments in peak travel periods, and reductions in transit ridership, and are not expected to fully return to pre-pandemic levels for years, if ever. Increased numbers of employees telecommuting and students remote-learning at least part-time, changes in shopping behaviors, and other fundamental shifts in how many people meet their daily needs will require ongoing analysis and flexibility in response to a “new normal”. Even with the distribution of COVID-19 vaccines in 2021, epidemiologists anticipate that climate change and increasing contact between humans and wild animals will result in additional threats to public health in the form of new and emerging viruses. Accordingly, we must plan to improve system resilience in the face of what is likely to be a recurring public health crisis.

As work on the Transit Network Redesign progressed, it became clear that conducting a short-range planning effort such as the TDP concurrently with the Network Redesign would be a largely redundant effort, since the Network Redesign would be implemented in 2023, two years into what would have been a 2021–2025 Transit Development Plan. In order to maximize the benefit of the TDP process and final plan, Metro and MPO staff agreed to postpone the TDP yet again so as to build off of the final Network Redesign plan. This allows the TDP to include the community feedback and resulting policy and service changes from the Network Redesign process.

TDP Purpose, Scope, and Process

The Transit Development Program (TDP) is a five-year strategic plan designed to identify the near-term future direction of the transit system. It is intended to guide the planning activities, service and facility improvements, and budgets of Metro Transit, while also providing guidance to other area transit providers. Under the three-party cooperative agreement between the MPO, Metro, and the Wisconsin Department of Transportation (WisDOT), the TDP must include transit system policies, an assessment of service demands, planned improvements, fares, and facility needs. MPO staff prepares the TDP with assistance from Metro Transit, City of Madison Transportation Department, staff of other communities and organizations served by Metro Transit, and staff of communities that aspire to be served by Metro Transit in the future.

The TDP is developed within the overall framework of the regional long-range transportation plan (RTP). The current long-range plan is the Connect Greater Madison: 2050 Regional Transportation Plan (2022) and has a planning horizon of 2050. The long-range plan is further refined and detailed through area or corridor studies, such as the Transit Corridors (Bus Rapid Transit) Study, as well as through short-range planning, such as the TDP. These mid-range and short-range planning efforts identify specific improvements to be included in the region’s five-year Transportation Improvement Program (TIP), which is updated annually by the MPO.

The planning area for the TDP is the MPO’s metropolitan planning area. The current planning area (Figure 8) was approved in 2013 and includes the Cities of Fitchburg, Madison, Middleton, Monona, Sun Prairie, and Verona; the Villages of Cottage Grove, Cross Plains, DeForest, Maple Bluff, McFarland, Oregon, Shorewood Hills, Waunakee, and Windsor; and various Towns. Following the 2020 Census, the City of Stoughton became its own Small Urban Area and is no longer part of the Madison Urban Area.

In accordance with the requirements of [23 CFR 450.306\(b\)\(1-10\)](#), the MPO must ensure that the ten planning factors of a continuous, cooperative, and comprehensive metropolitan transportation planning process by incorporating the ten factors into planning documents, and these ten factors are incorporated into

annual Unified Planning Work Program (UPWP)⁶ activities.

The ten planning factors and how they are supported by this Transit Development Plan are:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;

The Transit Development Plan supports economic vitality through supporting workforce transportation and access to goods and services.

2. Increase the safety of the transportation system for motorized and non-motorized users;

The Transit Development Plan improves safety of the transportation system through support of the Public Transit Agency Safety Plan (PTASP, see Appendix F) and addressing the need for safe, accessible routes to and from bus stops.

3. Increase the security of the transportation system for motorized and non-motorized users;

The Transit Development Plan aims to increase the security of the transportation system by promoting the development and operation of a safe transportation mode for all users.

4. Increase accessibility and mobility of people and freight;

The Transit Development Plan service planning guidelines aim to increase accessibility and mobility for people throughout the Metro service area.

5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;

The Transit Development Plan helps to protect the environment and promote energy conservation through efficient provision of public transit services, to improve the quality of life through support of low-cost transportation options, and to promote consistency

between transit service and planned growth and economic development patterns through consideration of the strategies adopted in the Regional Development Framework⁷ and the Regional Transportation Plan.⁸

6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;

The Transit Development Plan aims to enhance connectivity throughout the transportation system through consideration of first- and last-mile connections and multi-modal integration.

7. Promote efficient system management and operation;

The Transit Development Plan promotes efficient system management and operation by pulling together best practices and recommendations from a wide variety of local, regional, national, and even international sources into a single resource that is tailored for the greater Madison region.

8. Emphasize the preservation of the existing transportation system;

Although the UPWP does not include this factor as being related to the Transit Development Plan update, it nevertheless emphasizes the preservation of the existing system through supporting Metro's Transit Asset Management Plan (TAM, see Appendix F).

9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and

The Transit Development Plan improves transit system resiliency and reliability by addressing emerging threats such as climate change and cybersecurity.

10. Enhance travel and tourism;

Although the UPWP does not include this factor as being related to the Transit Development Plan update, it nevertheless enhances travel and tourism by supporting the operation of a transit system that is convenient, economical, and safe for visitors to use to travel within the service area.

⁶ The MPO's most recent UPWP (Work Program) can be found at <https://www.greatermadisonmpo.org/planning/otherplans.cfm>.

⁷ <https://www.capitalarearpc.org/community-regional-development/regional-development-plan-update/>.

⁸ <https://www.greatermadisonmpo.org/planning/RegionalTransportationPlan2050.cfm>.

The TDP was prepared under the guidance of the TDP Core Review Group, which reviewed draft chapters and provided input on plan contents. Metro Service Partners and staff of communities not currently served by Metro but which could become Service Partners within the plan horizon were provided revised draft chapters for review and comment, after which draft chapters were released for public review and comment. During the process, MPO staff also made presentations to and received input from the City of Madison's Transportation Commission (TC), Metro Service Partners, staff of communities not currently served by Metro but which could become Service Partners within the plan horizon, and the MPO's technical committee.

MPO staff actively participated in the Metro Network Redesign Study and BRT planning and implementation; feedback gathered from members of the public and stakeholder groups during these processes informed the development of the TDP. Although less formally involved, MPO staff also participated in local planning efforts including the City of Madison's Complete and Green Streets and Vision Zero initiatives, again using information gleaned from these processes to guide the TDP's development. Finally, as this TDP update followed the MPO's Connect Greater Madison: 2050 Regional Transportation Plan (RTP) and the Capital Area Regional Planning Commission (CARPC)'s Regional Development Framework (RDF) planning processes, the public engagement for those projects also served to involve the public in the development of the TDP.

As a technical document that documents existing and past conditions but which does not make recommendations regarding particular route alignments, stops, or facilities, the TDP does not generally go through an extensive public outreach or involvement process. Changes to individual routes or proposals for new services involve community stakeholders and require extensive public involvement, including analysis of potential impacts to areas with concentrations of minority, low-income, non-English proficient, and no-auto households (Environmental Justice (EJ) areas). The TDP, on the other hand, establishes the parameters for service delivery and calls for the careful consideration of impacts to and involvement of residents of EJ areas in developing plans for new or revised services.

To ensure that populations that have historically been under-represented in transit planning public engagement efforts were considered in this plan update, the MPO worked with community organizations to host focus groups with targeted populations. These focus groups were held in cooperation with the Latino Academy of Workforce Development (in Spanish), the Madison Area Chinese Community Organization (in Chinese), the Wisconsin Hmong Association (in Hmong), the Vera Court Neighborhood Center (in English and Spanish), and Access to Independence (with American Sign Language (ASL) interpretation available) in October 2023 through March 2024. The MPO paid host organizations for convening focus groups and provided gift cards to participants in remuneration for their time. Focus groups were organized to identify barriers to use of transit, to prioritize bus stop amenities, and to identify system improvement opportunities. The City of Madison partnered with the MPO and provided food for participants, as well as collecting input on the planned North-South Bus Rapid Transit route. Due to low attendance at the Access to Independence focus groups, an online survey was developed and distributed through disability advocacy and support organizations and was available from February 27 through March 25, 2024; 42 responses were received to this survey.⁹ A general public survey was also available from May 24 to June 24, 2024.

Roughly two weeks into the planned four-week survey period, MPO staff reviewed demographic data for respondents to date and recognized that Black/African American and Latino populations were not completing the survey at levels representative to their population in the MPO Planning Area. Subsequent outreach to community organizations succeeded in boosting the response rate from Latinos, but even with increasing numbers of Black/African American respondents, Whites continued to be over-represented in responses. Increasing numbers of Black/African American, Latino, and White respondents eroded the representation of Asians in survey responses, so again MPO staff reached out to community organizations to promote the survey among Chinese and Hmong populations. Although these efforts were not successful in achieving representative response rates from these minority populations, they did succeed in increasing overall participation in

⁹ 44 surveys were completed; however, two respondents indicated that they did not experience a disability and their responses were subsequently not included in reported responses.

the survey by all targeted populations. In all, 1247 surveys were completed.¹⁰

The input collected during focus groups and surveys is documented in Appendix E. Additionally, comments from focus group participants, as well as those from other system users collected through other means, appear throughout the plan to add human experience to the data. It is considered poor planning practice to base plans on anecdotal evidence, but the stories of lived experience inform our understanding and provide context that can help guide thoughtful and context-appropriate responses and actions.

The TDP is adopted by the MPO Policy Board and by the City of Madison (Metro Transit) Common Council.

Table 2: TDP Review Group A (Core Group)

Name	Organization
Connor Mountford	Metro Transit
Tim Sobota	Metro Transit
Mick Rusch	Metro Transit
Mike Cechvala	Metro Transit
Norm Davis	Department of Civil Rights
Kristy Kumar	Department of Civil Rights
Rebecca Hoyt	Department of Civil Rights

Table 3: TDP Review Group B (Service Partners)

Name	Organization
Dar Ward	UW-Madison (Transportation Services)
Tim Voelker	City of Fitchburg
Mark Opitz	City of Middleton
Marc Houtakker	City of Monona
Brad Bruun	City of Monona
Aaron Oppenheimer	City of Sun Prairie
Alexander Brown	City of Sun Prairie
Jamie Aulik	City of Verona
Isaac Schrock	Epic Systems
Karl Frantz	Village of Shorewood Hills
Nathanael Brown	Dane County (Human Services)
Ian Ritz	Wisconsin DOT (Bureau of Transit)
Richelle Andrae	MPO Policy Board
Derek Field	MPO Policy Board

¹⁰ One completed survey was eliminated from response summaries; the respondent chose every option for every available multiple-choice question, but more tellingly responded to all open-ended questions with statements about cheese.

Dan Brown	Ho-Chunk Nation
Ann Kovich	City of Madison Transportation Commission (TC)
Julie Aulik	UW Health
Cody White	Madison College
Jackie Dahlke	Madison College
Cedric Hodo	Madison Metropolitan School District
Ken Thomas	Madison Metropolitan School District
Margaret Bergamini	Associated Students of Madison (UW Madison)

Table 4: Outer Community Review Group

Name	Organization
Rodney Scheel	City of Stoughton
Tim Swadley	City of Stoughton
Erin Ruth	Village of Cottage Grove
Elise Cruz	Village of Oregon
Judd Blau	Village of DeForest
Greg Hall	Village of DeForest
Andrew Bremer	Village of McFarland
Matt Schuenke	Village of McFarland
Brian Mooney	Village of Cross Plains
Dean Grosskopf	Town of Westport

cc: Justin Stuehrenberg, Sean Hedgpeth (Metro)

Required Components of a TDP

The MPO/Metro/WisDOT cooperative agreement establishes mandatory components of the TDP. These components can be found in the TDP chapter indicated.

- Transit system policies (Chapter 3)
- An assessment of service demands (Chapter 4)
- Planned transit service improvements (Chapter 5)
- Transit fares (Chapter 3, Policies, and Chapter 5)
- Transit system capital facility needs (Chapter 5)

Although a TDP generally includes recommendations and service planning guidelines, due to staffing shortages and large workloads at Metro during 2024 in preparation for the launch of East-West Bus Rapid Transit (BRT), Metro did not have the capacity to

evaluate and develop these details as part of this TDP. The MPO and Metro plan to develop and adopt separate recommendations and service planning guidelines based on this TDP and lessons learned from the implementation of BRT in 2025.

Goals

No new goals were established for this TDP Update. Instead, this plan addresses and supports goals established through other recent transportation- and transit-related plans and studies adopted by communities and agencies within the Metro service area. These plans and studies include:

- Regional Development Framework 2050 (Capital Area Regional Planning Commission (CARPC))
- A Greater Madison Vision (CARPC)
- Connect Greater Madison 2050 Regional Transportation Plan (MPO)
- Bus Stop Amenities Study (MPO)
- Coordinated Public Transit – Human Services Transportation Plan for Dane County (MPO)
- Dane County Climate Action Plan
- Dane County Comprehensive Plan
- City of Madison Comprehensive Plan
- Madison in Motion (City of Madison)
- City of Madison Complete Green Streets
- City of Madison Vision Zero Action Plan
- Comprehensive Plans of Metro Service Partner Communities
- Comprehensive Plans of Cities and Villages within the MPO Planning Area not served by Metro
- UW – Madison Campus Bus Program Evaluation

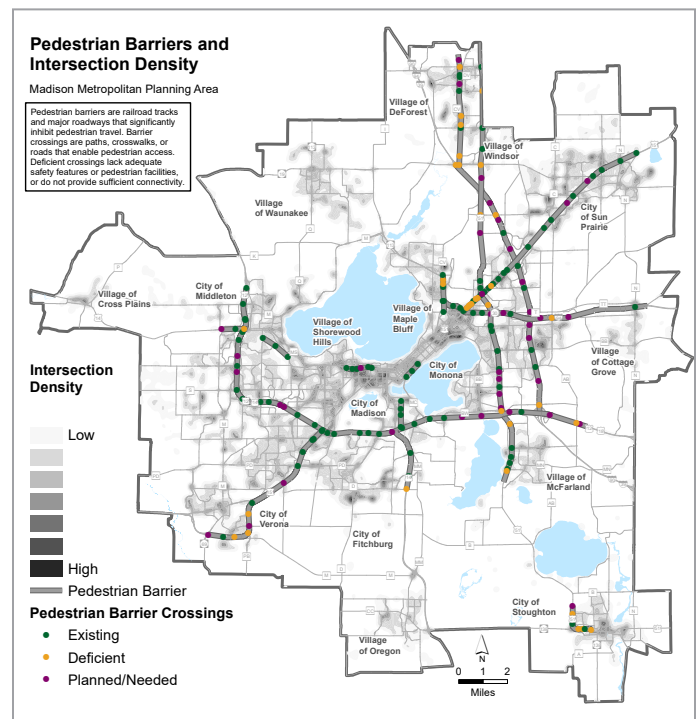
Transit-related goals from these plans and studies are included in Appendix C.

The Madison Area: Land Use and Socioeconomic Characteristics & Trends

Geography

Madison, with a 2020 population of 269,840, is Wisconsin's second largest city behind Milwaukee. The population of the Madison Urbanized Area, which includes the Cities of Fitchburg, Madison, Middleton, Monona, Stoughton, Sun Prairie, and Verona, the Villages of Cottage Grove, Cross Plains, DeForest, Maple Bluff, McFarland, Oregon, Shorewood Hills, Waunakee, and Windsor, and unincorporated towns, was 505,954 in the 2020 Census.

Figure 9: Pedestrian Barriers and Intersection Density¹¹



The Madison central business district (CBD) lies geographically in the center of Dane County and the Madison Urbanized Area, with the Capitol Square situated between Lakes Mendota and Monona. The University of Wisconsin–Madison campus, with a total enrollment of 48,557 (Spring 2024), is situated about one mile west of the Capitol Square. The city was built out with several overlapping grid systems to a distance of about two miles to the west, south and northeast. Beyond this distance, the city followed typical auto-dependent subur-

¹¹ For discussion of the importance of intersection density and pedestrian barriers, see Connect Greater Madison 2050 Regional Transportation Plan, <https://www.greatermadisonmpo.org/planning/documents/Ch-03-ConnectRTP-web.pdf>, page 3-31.

ban development patterns. The central Madison area, defined loosely as the area east of Farley Avenue, north of Olin Avenue, and southwest of First Street, is heavily constrained geographically by lakes Mendota, Monona, and Wingra. Seven Low Density freight rail lines converge in Madison, as well as one railroad right-of-way that is in interim trail use¹²; these railroads further constrain the roadway and non-motorized transportation networks. Grade-separated major arterial roads pose additional barriers to local trips, with limited low-stress non-motorized and local street connections across the Beltline (USH 12/18), and no low-stress non-motorized connections across the I-39/90/94 corridor in the Madison area. These barriers are shown in Figure 9, with local street intersection density.

According to the National Transit Database as reported by the American Public Transportation Association,¹³ Metro Transit ranked 55th nationally among transit operators in unlinked passenger trips on scheduled ser-

vice in 2017, and had dropped to 66th in 2018, with a total of about 13 million trips taken in both years. In 2022, Metro Transit improved its rank to 54th nationally with 8.29 million trips. With an average of 23.8 trips per capita in the Metro service area, Madison Metro had the 34th highest ridership per capita in the nation in 2022. The Madison UZA population was around 450,000 in 2020, making it the 89th-largest UZA in the nation.

Population and Demographics

From 2000 to 2010, the population of the Madison metropolitan area increased from about 350,200 to 401,800. In 2013, the Metropolitan Planning Area was expanded geographically to include the Villages of Cross Plains, DeForest, and Windsor, which added 18,000 to the metro area’s population. By 2020, the urban area’s population had grown to over 462,700. This trend in population growth is expected to continue in the future.

Table 5: 2010, 2020, and Projected 2050 Population Distribution in Select Madison Metropolitan Communities

Municipality	2010 Census		2020 Census		2050 Forecast		2020-2050 Change	
	Population	% of County	Population	% of County	Population	% of County	Number	Percent
Central Urbanized Area Total (CUSA)*	298,080	61%	346,619	62%	470,960	62%	124,341	36%
City of Madison	233,209	48%	269,840	48%	362,513	48%	92,673	34%
City of Fitchburg	25,260	5%	29,609	5%	46,551	6%	16,942	57%
City of Middleton	17,442	4%	21,827	4%	29,057	4%	7,230	33%
Village of McFarland	7,808	2%	8,991	2%	13,264	2%	4,273	48%
City of Sun Prairie	29,364	6%	35,967	6%	54,028	7%	18,061	50%
City of Stoughton	12,611	3%	13,173	2%	19,621	3%	6,448	49%
City of Verona	10,619	2%	14,030	2%	20,965	3%	6,935	49%
Village of Cottage Grove	6,192	1%	7,303	1%	11,427	2%	4,124	56%
Village of Waunakee	12,097	2%	14,879	3%	23,228	3%	8,349	56%
Village of DeForest	8,936	2%	10,811	2%	16,796	2%	5,985	55%
Village of Windsor	6,345	1%	8,754	2%	11,720	2%	2,966	34%
Village of Oregon	9,231	2%	11,179	2%	16,383	2%	5,204	47%
Rural Total	68,587	14%	70,484	13%	70,077	9%	-407	-1%
County Total	488,073	-	561,504	-	755,718	-	194,214	35%

* The Central Urbanized Area Total (CUSA) does not correspond to the MPO's adopted Urban Area boundaries, but is a distinction used by the Capital Area Regional Planning Commission (CARPC)

12 Wisconsin Rail Plan 2050, Figure 2-2 https://drive.google.com/file/d/1_jgrX0Ea8vd5TED3wdhAhAhZZgjLATNE/view.

13 2019 Public Transportation Fact Book, American Public Transportation Association (70th ed.), Washington, DC https://www.apta.com/wp-content/uploads/APTA_Fact-Book-2019_FINAL.pdf.

Figure 10 illustrates the 2020 population density by Census Block within the Madison metropolitan planning area. The map shows the dense core of population in the Madison CBD and the relatively high densities in central Madison, including the Isthmus, near west, and near south sides. Other population concentrations can be seen in and around the Madison area. Many of these concentrations feature multi-family apartment and condominium buildings with densities that are supportive of transit service.

Figure 10: 2020 Population Density, Madison Metropolitan Planning Area

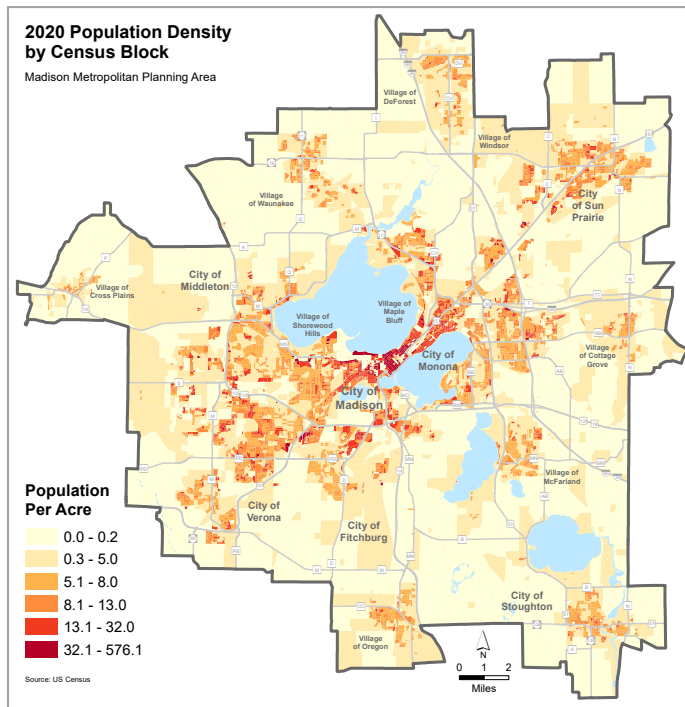


Figure 11: Age distribution of population: 2000–2021, Madison metropolitan communities (including Cross Plains, DeForest, and Windsor, which were not in the MPO planning area in 2000).

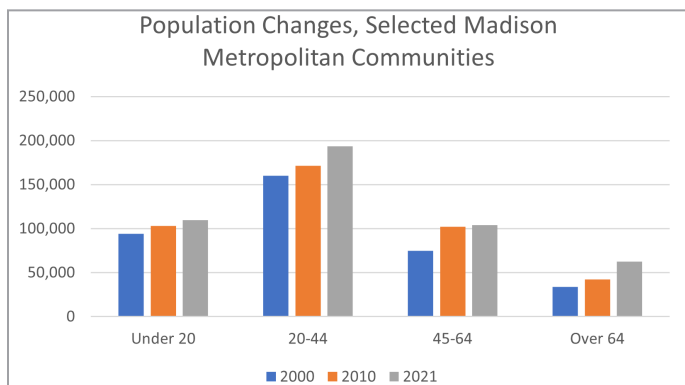
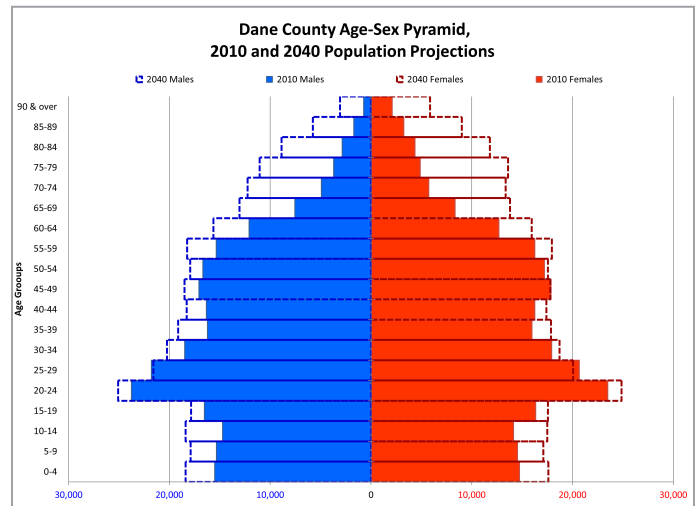


Figure 11 shows the population distribution in selected Madison metropolitan communities by age.

Although it is based on 2010 Census data, the State of Wisconsin has published population projections by age for each county through 2040; the age-sex pyramid for Dane County is shown in Figure 12. This age-sex pyramid shows that population brackets over age 65 will experience much more growth than younger age brackets in the next twenty years. This “silver tsunami” is already underway as Baby Boomers age and birth rates decline. As aging typically results in increasing health and mobility issues, this aging population will require special attention to ensure that they are able to complete trips for social, employment, recreational, health care, and other purposes.

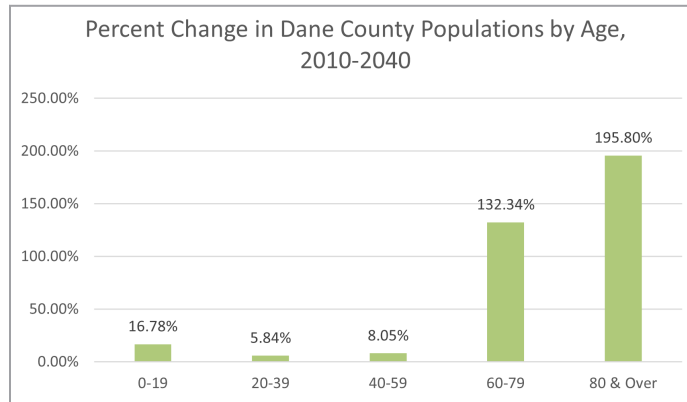
Figure 12: Dane County Age-Sex Pyramid, 2010 and 2040 Population Projections¹⁴



As shown in Figure 13, population age cohorts between 0 and 59 years of age are projected to grow by approximately 6–17% between 2010 and 2040. The 60–79 age bracket is expected to grow by over 132%, and the population aged 80 and over is expected to grow by nearly 196%

¹⁴ Population and Household Projections, Produced in 2013, based from 2010 Census. <https://doa.wi.gov/DIR/2010-2040CoPyramids.xlsx>.

Figure 13: Percent Change in Dane County Populations by Age, 2010–2040¹⁵



The aging population of Dane County and the Metro service area will require that transit, paratransit, and specialized transportation services are carefully planned and coordinated in order to provide transportation options for residents who experience increasing mobility limitations. This topic is discussed in detail in the [2024–2028 Coordinated Public Transit – Human Services Transportation Plan for Dane County](#).

Future Land Development

Typically, projections of population and employment growth included in TDPs consist of numerical forecasts of growth: the number of residents and jobs projected at the historical rate of growth, and perhaps additional “low” and “high” growth rate projections as well. This information is important, but of little use in planning how, when, or where additional transit service will be needed.

To develop the Regional Development Framework’s (RDF) land use projections, CARPC consulted with area communities and based future land use and development projections on their adopted Comprehensive Plans; the MPO then used this future land use model to test various transportation scenarios for the Regional Transportation Plan (RTP). A central tenet of the growth projections used by both CARPC and the MPO is that growth, both through infill and redevelopment, will be largely clustered in Centers and Corridors throughout

the region. Focusing development in discrete areas in this way will improve the viability of transit as a mode choice as destinations gain proximity to one another and walkability is improved.

Some communities with highly integrated land use and transportation planning go so far as to explore scenarios where growth is focused in particular corridors, around particular nodes, or otherwise constrained geographically. This is most effective when land use and transportation plans are being developed concurrently, and when land use regulation will follow the adopted plan. For a multi-jurisdictional area such as Metro’s service area, with neighboring communities where there is no mandate for cross-jurisdictional coordination of development regulations, this approach relies on individual communities’ willingness to adopt regulations to guide development toward identified centers and corridors.

Transportation is a function of land use: In a hypothetical mixed-use building providing all of the needs of life, transportation would be walking¹⁶ or taking an elevator. In a sprawling city with uses spread far and wide, or in a rural area with uses far from one another, faster transportation modes such as automobiles, buses, or bicycles are required to connect those uses in a reasonable amount of time.

Parking facilities, and especially parking lots, take up valuable land and separate uses from one another, making walking or biking between adjacent uses inconvenient at best and dangerous at worst. This in turn discourages walking and biking, and encourages driving, creating a positive-feedback loop where more and more parking is required to serve the ever-increasing demand. In order to combat this cycle, the City of Madison and other communities across the country have eliminated or drastically reduced minimum parking requirements for new developments, and even adopted parking maximums in some cases.¹⁷ When coupled with zoning that allows or even requires a mixture of uses within close proximity of one another and served by a

¹⁵ Wisconsin Department of Administration. https://doa.wi.gov/DIR/Proj_cofinal_2010_2040Web.xlsx.

¹⁶ For transportation planning purposes, “walking” and “pedestrian” include the use of wheelchairs and other mobility devices that are appropriate for use on sidewalks, but not micro-mobility devices such as e-scooters and other higher-speed devices that are appropriate for use in bicycle facilities. The term “active transportation” includes all of these modes.

¹⁷ While it is critical to not provide over-abundant parking, it is also important to provide adequate accessible parking. With only rare exceptions are developers and financiers comfortable with projects with no parking whatsoever, and will strive to provide enough parking capacity to meet market demand.

complete street network, this allows more trips to be made by walking, biking, and transit.

Relatively dense, mixed-use centers and corridors support active transportation and have enough potential riders for efficient transit service to be provided. Projects that include residential and commercial uses and are designed to be transit-supportive should be encouraged along existing and planned transit routes. The City of Madison adopted a Transit-Oriented Development (TOD) overlay zone¹⁸ in early 2023, which allows residential dwelling unit bonuses, building height bonuses, and establishes site standards for buildings and automobile infrastructure. Policies and ordinances such as this help ensure that development is focused on centers and corridors, as envisioned in the 2050 Regional Development Framework¹⁹ and Regional Transportation Plan.²⁰

Transit-Adjacent Development, such as a single-use office park or residential development near transit service, should not be confused with TOD. These single-use campuses may be served by high-quality, frequent transit service, but they lack the mixture of uses – and often the complete street network – that is critical to TOD. Park and ride lots may be appropriate for Transit-Adjacent Development but should not be incorporated into TOD.

Metro has used a service guideline that routes should provide coverage to at least 5,000 people, 5,000 jobs, and average 15 mid-day weekday boardings per hour for many years. This guideline is retained in this TDP.²¹

Although the City of Madison is intentionally supporting TOD through careful alignment of land use plans and development requirements, other communities that have not taken steps to promote or require transit-supportive land use patterns will find that it is extremely difficult to provide cost-effective transit service to single-use, low-density developments. As Metro ser-

vices can only be provided in these communities under contract, with financial support from the communities served, these communities will bear increased costs per rider unless steps are taken to ensure that future development is transit-supportive and to promote infill and redevelopment in corridors and centers that can efficiently be served by transit.

For discussion of the impact of land use development patterns on transit ridership, see the Housing + Transportation Costs section of Chapter 4. For recommendations for promoting efficient, safe, equitable, and sustainable transit-supportive and transit-oriented development, see The Transportation/Land Use Connection & Transit-Oriented Development section in Chapter 5.²²

Employment and Education

As the state's capitol and the seat of Dane County, Madison has a substantial government employment base centered in the office buildings on the south-east side of the Capitol Square. Founded in 1837, the incorporation of the City of Madison was approved by the state legislature in 1846. The city also houses the University of Wisconsin-Madison (UW-Madison), founded in 1848 and located about one mile west of Capitol Square. UW-Madison is one of the nation's largest universities, with a total enrollment (graduate and undergraduate) of almost 50,000, along with over 24,000 faculty and staff (2024). This has shaped a commute pattern that remains focused in large part on the central Madison area, particularly for transit trips. Almost all of the employment growth over the last 25 years or so has been in peripheral employment centers such as the American Center, UW Research Park, Old Sauk Trails, Middleton business parks, and the Epic campus in Verona. These areas also draw large numbers of commuters, but relatively few transit trips due to their locations, sprawling campus designs, and plentiful, generally free parking.

18 <https://cityofmadison.maps.arcgis.com/apps/webappviewer/index.html?id=89737c066cda41eea5d986dd71291576>.

19 https://carpc.sharepoint.com/Document_Library/Document%20Share/Regional%20Development%20Framework/RDF_Final-Report_July-2022.pdf.

20 <https://www.greatermadisonmpo.org/planning/documents/Appendix-A-ConnectRTP-web.pdf> Land Use and Transportation Integration Recommendation 1, Supporting Actions D and E (Page A-13)

21 As this TDP does not include new recommendations or updated service planning guidelines, the recommendations from the 2013–2017 TDP Appendix A, Service Coverage/Route Justification will stand until updated recommendations and service planning guidelines are adopted, which is anticipated in 2025.

22 See also the November 16, 2023 joint MPO/CARPC Webinar 7: [Housing Costs and the Transportation-Land Use Connection](#).

Figure 14: Employment concentrations in the Madison Area (2016)²³

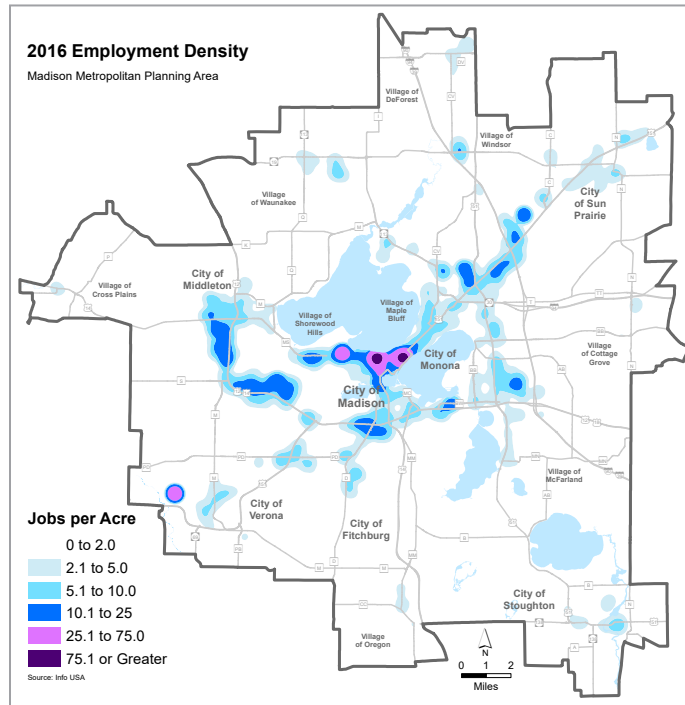


Figure 14 shows the employment density within the Madison metro/Dane County area (2016). Besides the Madison CBD and the UW campus, notable employment centers are located in the Hill Farms area, the West Towne area in southwest Madison, western areas of Madison and Middleton, Epic in Verona, south Madison along the Beltline Highway, east Madison along the USH 51 corridor, and the East Towne and American Center areas in northeast Madison. There were a total of nearly 328,000 jobs in Dane County in 2021²⁴ with the vast majority of those located in the Madison metropolitan area.

In addition to the University of Wisconsin, post-secondary education is provided by Madison College and Edgewood College. Madison College operates three main campuses: Truax in north Madison (11,500 enrolled 2021-22); Goodman South Campus at Badger Road and Park Street (2,000 enrolled 2021-22); and the Commercial Avenue Education Center (1,350 enrolled 2021-22). There are several other Madison College

locations throughout south-central Wisconsin. Madison College had a 2021-22 total enrollment of 24,600 students throughout its system. Edgewood College, located to the southeast of UW Madison, has a total enrollment of 1,894 students (2023).

In recent years, several plans, studies, and initiatives have drawn attention to disparities in access to jobs from predominantly low-income and minority population neighborhoods (environmental justice (EJ) neighborhoods). A recent summary of Wisconsin transit service, *Arrive Together: Transportation Access and Equity in Wisconsin*, makes the following statement:

“This economic inequality is not only demographic; it is also geographic, with the majority of Madison’s low income population living in peripheral neighborhoods, especially in the south and northeast sides of the city. These areas of the city receive less frequent transit service. In many cases, the transit routes in these parts of the city travel to transfer points, rather than to popular destinations [such as job centers]”²⁵.

Addressing this barrier to EJ populations reaching jobs was a key goal of the Transit Network Redesign. The Equity Analysis conducted for the adopted service plan found that:

- Low-income residents will experience a smaller increase in service quantity (people-trips) than the average resident, but they will be far more likely to experience more useful service (improved destination access). The amount of service near low-income populations will increase by 20%, compared to a 32% increase for non low-income populations. This is primarily because service near the transfer points is duplicative and double counted by the methodology.
- Nonetheless, low-income residents are far more likely to benefit from increased frequency and directness of service in the redesigned network. 67% of low-income residents would experience a significant increase in access to destinations (+10,000 jobs or better), compared to 40% of non-low-income residents.

²³ Due to “noise” in employment location data resulting from employees of large institutions all being associated with a single office location instead of across multiple buildings, facilities, or campuses and the large amount of effort required to clean up that data, 2016 is the most recent year that this information is available.

²⁴ Dane County 2021 Workforce Profile, State of Wisconsin Department of Workforce Development and WisConomy https://www.jobcenterofwisconsin.com/wisconomy/wits_info/downloads/CP/dane_profile.pdf.

²⁵ <https://1kfriends.org/wp-content/uploads/2014/09/ArriveTogetherReport.pdf>.

- Conversely, only 2% of low-income residents will experience a reduction in access to destinations (-1,000 jobs or worse) by transit within 45 minutes, compared to about 3% of non-low-income residents²⁶.

The Equity Analysis also found that both senior (36%) and disabled (41%) population access in the new network would not be improved as much as for the population in general (47%), and that a slightly higher percentage of these populations (4%) would experience a decrease in access than the general population (3%).

The report notes that:

- Compared to the overall population, seniors are more likely to live in lower density areas (see the senior density map below) and own single-family homes.
- As a result, seniors are more likely to live far from arterial streets where it makes sense to concentrate frequent transit service in a redesigned network focused more on ridership goals and less on coverage goals.

These results should be interpreted with caution, for the following reasons:

- “People with Disabilities” is a broad category that includes people who experience a wide variety of physical and mental impairments. It is not clear from the data available whether people with disabilities who experience mobility challenges experience less benefit (or more adverse effect) from the Transit Network Redesign compared with people with disabilities with mild to no mobility challenges. Furthermore, the access analysis methodology assumes that it is possible to walk a long distance to service. The impacts of longer walks vary widely according to the type and severity of disability that a person may experience.
- No paratransit service area will be lost. All areas currently within the paratransit boundary will be maintained, and some new areas will be eligible for paratransit. While paratransit does not offer the spontaneous freedom of fixed-route transit, it is likely that:
 - People currently using paratransit will remain eligible for paratransit.

- Some individuals who currently use fixed-route for routine trips who can no longer access fixed-route with the proposed system will be able to use paratransit.

- Some people with disabilities in the Madison area who are currently outside the paratransit boundary will be newly eligible to use paratransit.

- The Census provides data on people with disabilities only at the larger Census tract level. It is less clear exactly where people with disabilities live within the Census tract, and it is less appropriate to assume that people are uniformly distributed within Census tracts compared to the smaller Census block group.

The Madison Area: Transportation System Overview

Non-Transit Transportation

Interstate Highways 39, 90, and 94 serve Madison on the east side, while limited access highways USH 12, 151, and 14 serve Madison’s west, southwest, and south sides. The Beltline highway (USH 12, 14, 18, and 151) connects these regional roadways to the south; however, no limited access highways penetrate central Madison. The urbanized Madison area is primarily served with a network of arterial streets. Many of these roadways are congested or very congested during the weekday peak period as shown in Figure 15 and discussed in the section below.

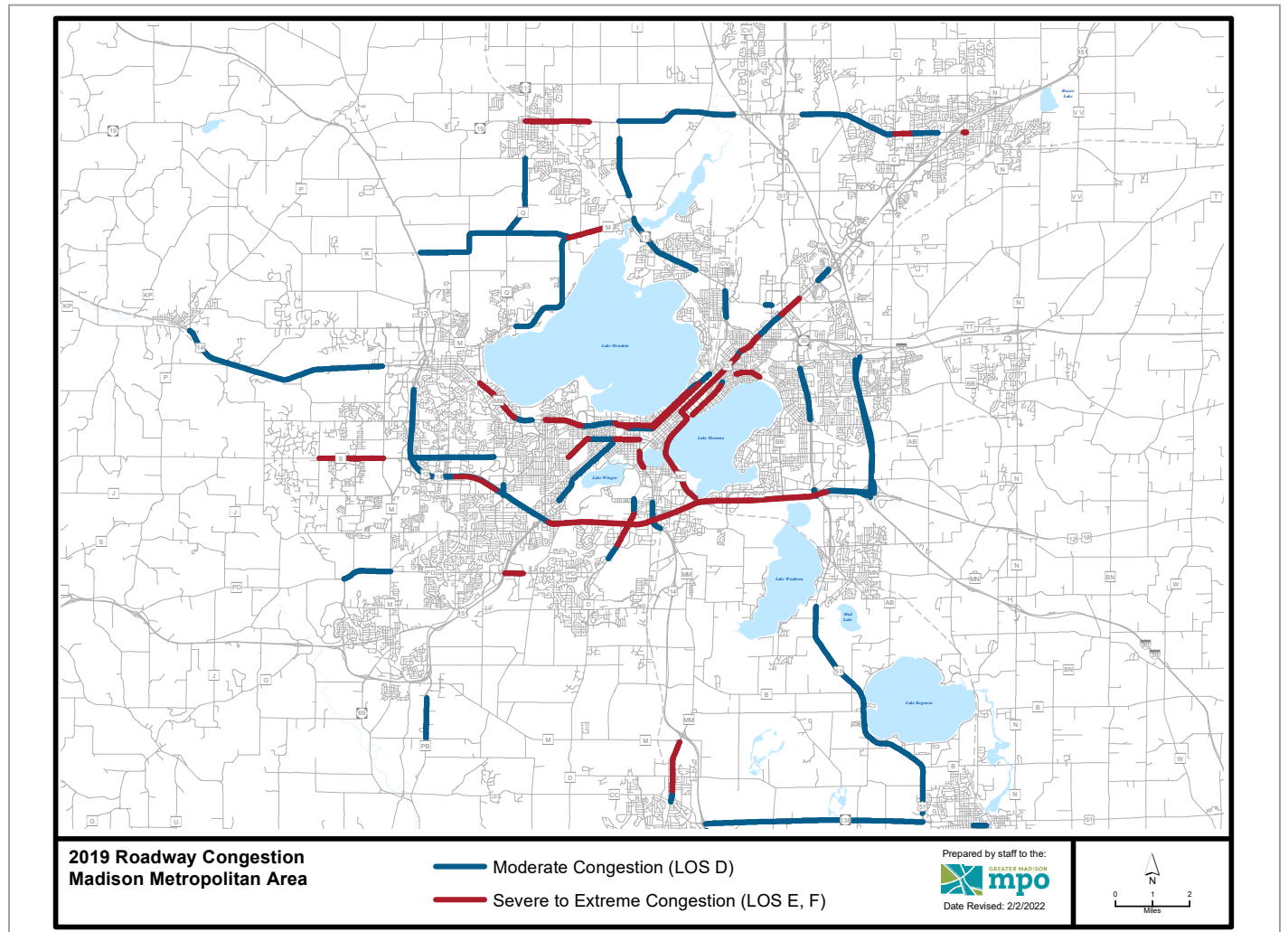
Traffic Congestion

As an MPO for a Metropolitan Planning Area with a population over 200,000, the Greater Madison MPO is required to maintain a congestion management process (CMP) as part of its ongoing transportation planning process. The last CMP was adopted in 2022 as Appendix F of the *Connect Greater Madison: 2050 Regional Transportation Plan*.²⁷ Strategies that manage travel demand, reduce single occupant vehicle (SOV) travel, and improve transportation system management and operations are all considered, as well as those that explicitly address active transportation modes. The 2022 CMP accepts a Level of Service (LOS) D for roadway intersections, and calls for the use of Transportation Demand Management (TDM) and Transportation System Management (TSM) strategies first in reducing

²⁶ https://www.cityofmadison.com/metro/documents/november-publichearing/TitleVI_ServiceEquityAnalysis.pdf.

²⁷ <https://www.greatermadisonmpo.org/planning/documents/Appendix-F-RTP-CMP.pdf>.

Figure 15: 2019 Roadway Congestion, Madison Metropolitan Area



congestion. Figure 15 illustrates the existing arterial roadways that are operating at moderately congested or severely to extremely congested conditions based on roadway segment volume to capacity ratios, as well as identifying existing problem intersections for traffic and transit operation due to high levels of congestion and/or modal conflicts.

A critical component of Bus Rapid Transit is the use of transit priority treatments to enable transit vehicles to operate efficiently in congested corridors. The East-West BRT route currently under construction will include treatments such as:

- [Transit Signal Priority \(TSP\)](#)
- [Queue jump lanes](#)
- [Bus Bike and Turn lanes](#)
- [Center running lanes](#)

Transit priority treatments are planned for the North-South BRT corridor in 2027-28. Travel Demand Management (TDM) Policies

Travel Demand Management (TDM) Policies

The MPO employs a full-time Transportation Options Program Manager, who works with area businesses and other employers to develop travel demand management programs for workplaces. Additionally, in conjunction with the Wisconsin Department of Transportation (WisDOT), this position operates the roundtripgreatermadison.org website, and supports commuters who are seeking to start or join carpools, vanpools, or to be connected with a bicycle buddy to help orient them to commuting by bicycle. Through the RoundTrip program the MPO also administers the Dane County Emergency Ride Home program, with Dane County funding up to six \$75 eligible taxi rides for each enrolled commuter per calendar year.

Parking Policies

A number of studies have shown a strong correlation between access to free parking and rates of commuters driving alone, as well as between charging for parking and commuters finding alternative modes of transport to and from work. Accordingly, one of the most basic ways for a city to reduce the number of single-occupant vehicles travelling during peak commute periods and thereby reduce congestion is to charge for parking. Both the City of Madison and UW-Madison have adopted parking fees to this end. On-street parking in the Madison CBD is generally metered at \$2 per hour. Surface and structured lots range from \$0.80 to \$1.80 per hour, and monthly passes for a variety of time periods (e.g. day only, night only, 24/7, etc.) are available for \$42 to \$250. Prior to the COVID-19 pandemic, monthly passes were in high demand, and most facilities did not have spaces available. Currently, City parking garages are operating well under capacity. The City of Madison offered priority and discounted rates through a carpool program prior to the COVID-19 pandemic; this program was terminated in early 2023 due to low usage. UW-Madison offers a variety of parking permits for faculty and staff, with annual prices²⁸ ranging from \$46-\$133 for night-only lot- or garage-specific permits, to \$142 for motorcycle and moped permits, and to lot-specific daytime permits for \$934-\$1336. The UW-Madison Transportation Services Division web site states that “The best advice to students regarding parking on campus is **don’t bring a car**. Most students walk, bike, or take the bus.”²⁹

Transit Pass Subsidies

Many area employers take advantage of Metro’s Commute Card program and offer either a free or discounted bus pass to their employees. In 2019, 115 area employers participated in this program and provided 4,032 bus passes to employees. The number of employers participating in the program declined during the COVID-19 pandemic, and only 92 employers were participating in 2022; however, the number of employee passes purchased grew to 5,060 that year. Many of the participating employers purchase 10 or fewer commute cards, while the six employers with the largest participation purchase 4,300 commute cards between them

²⁸ 2022-23 rates; rates change annually.

²⁹ transportation.wisc.edu/permits/student-parking.

³⁰ UW Health employees system-wide, which includes facilities outside the metro area.

– 3,000 of those are purchased by Epic alone (2022). Additionally, employees of the City of Madison, Dane County, UW-Madison, and UW Health are eligible to receive free Metro bus passes through their employer.

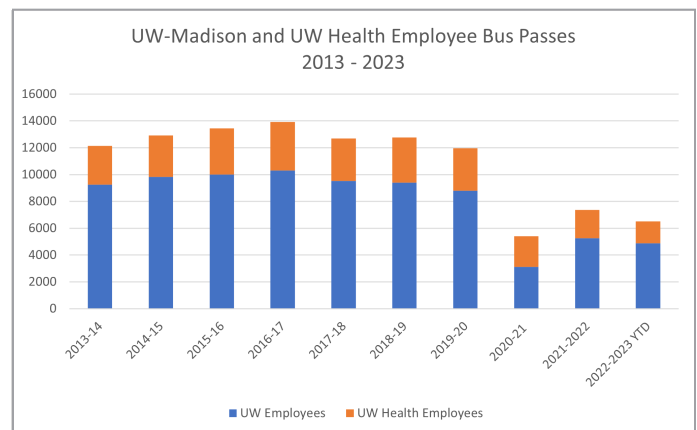
As Table 6 shows, these employee bus pass programs are widely utilized, even during a period of reduced ridership resulting from the COVID-19 pandemic.

Table 6: Employee Bus Pass Program Utilization for Selected Employers (2022)

	Employees	Employee Bus Passes	Employees w/ Bus Passes
City of Madison	2,790*	1,500*	54%
Dane County	3,100*	288	9%
UW-Madison & UW Health	24,200* +23,000 ^{30*}	5,200* + 2,100*	15%
*Approximate, estimated margin of error +/- 100			

As would be expected, pre-pandemic participation in the employee bus pass programs was much stronger, as is shown in Figure 16 for UW-Madison and UW Health employee bus pass use over time.

Figure 16: UW-Madison and UW Health Employee Bus Passes 2013-2023 (2022-2023 YTD is through March 15, 2023)



Active Transportation

The Madison area is also well served by a largely continuous network of sidewalks, crosswalks, and bicycle lanes and paths. The City of Madison is one of only five Platinum-certified Bicycle Friendly Communities (BFC)

in the United States,³¹ a testament to the emphasis that the City of Madison has placed on developing infrastructure and programming to promote and enhance bicycling in the city. In 2015, Madison-area communities submitted the first-ever coordinated regional applications for Bicycle Friendly Community certification, an effort that was repeated in 2019. For a variety of reasons, communities did not coordinate applications in 2023, and several communities submitted applications in the spring of 2024. Other communities in the Madison Urban Area that have been awarded BFC status include the City of Fitchburg (Silver, 2019 and 2023), the Cities of Sun Prairie and Verona (Bronze, 2019 and 2024), and Dane County and the Cities of Middleton and Monona (Bronze, 2015)³². The UW-Madison’s certification was upgraded from Gold to Platinum in 2019, making it one of only eight Platinum Bicycle Friendly Universities in the nation. The Madison area is also home to four Platinum Bicycle Friendly Businesses, and 26 additional Bicycle Friendly Businesses of varying award levels, including the Greater Madison MPO (Silver, 2023).³³

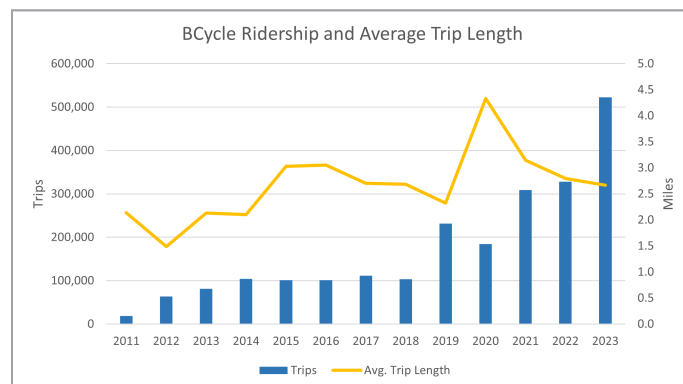
The regional network of bicycle facilities, especially the [low-stress bicycle network](#), facilitates the use of active transportation modes and helps to reduce the number of motorized vehicles entering the downtown and UW campus areas.

The Madison-area bicycle sharing (bikeshare) system—BCycle—is available with 490 bicycles located at 93 stations in Madison, Fitchburg, Monona, McFarland, and Shorewood Hills with 12 more stations in the permitting and planning processes. Stations are located throughout central Madison, along University Ave. to the west as far as Whitney Way, as far east as the Pinney Library on Cottage Grove Road and Woodman’s on Milwaukee Street, at Warner Park and Madison College Truax Campus to the north, at McDaniel Park in McFarland to the southeast, and McGaw Park in Fitchburg to the south.³⁴

In 2019 Madison was equipped with BCycle’s first all-electric bike share fleet. The transition to an electric-assist fleet resulted in profound growth in use of the system: the week of June 16, 2019, the first week after

going electric, weekly use doubled from 2,200 to 4,400 trips. Compared to the same week in 2018, use nearly doubled from 2,500 trips. During subsequent weeks in the summer of 2019 use continued to grow, with the system seeing a record 9,300 trips the week of July 21, 2019. This record was surpassed rapidly, with five record-setting days during the week of Labor Day, and a system high of 2,442 trips on Labor Day alone. Although the COVID-19 pandemic resulted in a 20% reduction in the number of trips in 2020, average trip length nearly doubled from 2.32 miles in 2019 to 4.33 miles in 2020. In 2021, ridership increased by 67%, breaking all previous records with nearly 310,000 trips made; ridership continued to increase in 2022, although it only grew by 6% to nearly 330,000 trips made. 2023 saw another huge increase in ridership, with over 522,000 trips made, up 59% from 2022. A user survey conducted by BCycle indicates that 37% of users are replacing motor vehicle trips with BCycle trips, and BCycle estimates that 2023’s ridership resulted in 1.3 million pounds of carbon offset.

Figure 17: BCycle Ridership and Average Trip Length, 2011 - 2023)



The Cities of Madison and Fitchburg were awarded Transportation Alternatives Program (TAP) funding for 25 additional stations and 45 additional e-bikes in 2022; 13 of these were installed in late 2023, with 12 remaining to be installed in spring/summer 2024. These TAP-funded stations are located where they improve transportation access for MPO-identified Environmental Justice populations in both communities. Through a partnership with the Madison Public Library Foundation, BCycle offers passes and bike helmets for check-out at

31 2015, 2019, and 2024 certifications by the League of American Bicyclists.

32 <https://www.bikeleague.org/bfa/awards#community>.

33 <https://www.bikeleague.org/bfa/awards#business>.

34 <https://madison.bcycle.com/nav/map>.

all Madison Public Libraries,³⁵ improving transportation access for low-income and unbanked individuals who would otherwise not be able to use the system. In addition to the 45 TAP-funded e-bikes, BCycle added 55 additional e-bikes to the system in 2023.

In order to be functional, active transportation facilities such as sidewalks, crosswalks, separated paths, and connecting facilities must be maintained in a state of good repair. Buckled sidewalks can pose no less of a barrier to wheelchair access than a missing curb cut, and proper and timely snow and ice removal is critical to ensure access for all during winter months. Responsibility for removing snow and ice falls to various parties based on facility type and ownership:

- City and private sidewalks adjacent to any shelter or stop is the responsibility of property owner.³⁶
- Metro-owned shelters are subcontracted to a snow removal vendor, they clear in/around shelters.
- The majority of bus stops are subcontracted to a snow removal vendor, some school type stops are not cleared (“Red Flag” stops).
- Private & other municipalities shelters are the responsibility of the property owner or municipality (UW-Madison, Fitchburg, Middleton, Sun Prairie, Verona).
- Sun Prairie park & ride is cleared by Sun Prairie Public Works.

- South Transfer Point sidewalks & boarding pad are Metro’s responsibility, the driveway is subcontracted to a snow removal vendor.

Commute Mode Share

Table 7 shows the commute mode share for public transportation (excluding taxis), walking, bicycling, and working from home for the United States, the City of Madison, and the Madison Urbanized Area (2010³⁷). As shown by this table, prior to the COVID-19 pandemic (2017 data), the Madison Urbanized Area had a somewhat higher percentage of commuters who rode public transportation than the U.S. as a whole, and much higher rates of walking and biking to work; within the City of Madison, the share of commuters who used public transportation or walked or biked to work was much higher than in the urbanized area, and exponentially higher than the average national rates. With the abrupt and long-lasting transition to remote work for many employees that marked the COVID-19 pandemic, working from home more than doubled in the United States, and increased nearly three-fold in the City of Madison and the Madison Urban Area. The mode shift to remote work reduced the use of public transportation by approximately 2.4% in the City of Madison and the Madison Urban Area, with smaller impacts on the number of employees walking or bicycling to work in all three geographies.

Table 7: 2017 and 2021 ACS 5-Year Estimates Subject Tables, Table ID: S0801, Commuting Characteristics by Sex

	2017 ACS 5-Year Estimates				2021 ACS 5-Year Estimates			
	Public Transportation	Walked	Bicycled	Worked from Home	Public Transportation	Walked	Bicycled	Worked from Home
United States	5.1%	2.7%	0.6%	4.7%	4.2%	2.5%	0.5%	9.7%
City of Madison	9.5%	9.6%	4.8%	4.2%	7.1%	8.9%	3.6%	12.1%
Madison Urbanized Area (2010)	6.6%	6.4%	3.2%	4.4%	4.8%	6.2%	2.5%	12.1%

35 <https://madison.bcycle.com/nav/in-the-community/community-pass-program>.
 36 For community snow removal requirements, see the MPO’s Pedestrian/Bicycle Facilities, Policies, and Street Standards report at https://www.greatermadisonmpo.org/planning/documents/PedestrianFacilityRequirementsandPoliciesandStreetStandards_FINAL_5_25_21.pdf.
 37 The Madison Urban Area boundary was amended in 2013.

Recently Completed Transit Plans & Studies

Several transit-planning efforts have been undertaken before or since the adoption of the 2013–2017 TDP. These include Bus Rapid Transit studies, Regional Transit Authority Plan for Transit, the Wisconsin Department of Transportation (WisDOT) 2017 and 2022 Transit System Management Performance Reviews, Metro Transit Passenger Surveys, the Bus Size Study, the Bus Stop Amenities Study, Madison in Motion: Sustainable Madison Transportation Master Plan, A Greater Madison Vision, and Institutions and Information Technology to Support Multimodal Integration in Employment Transportation. See Appendix D of this TDP for the status of 2013–2017 TDP Recommendations.

Bus Rapid Transit (BRT) Studies

The MPO, in cooperation with CARPC and SRF Consulting, used part of a federal Sustainable Communities grant to study the viability of bus rapid transit in the Madison area (2013 Transit Corridor Study). The study examined four primary corridors: north along Packers Avenue, east along East Washington Avenue, south along Park Street and Fish Hatchery Road, and west along University Avenue and Mineral Point Road to West Towne.

In 2017, the City of Madison and Metro staff performed a comparative analysis of the four corridors and identified an east-west corridor running through the UW Campus and Madison's Central Business District as a Locally-Preferred Alternative for initial development.

The East-West BRT Planning Study (madisonbrt.com) resulted in a Locally-Preferred Alternative that was selected for federal Small Starts funding. Construction of infrastructure has begun and will continue into 2024, with buses beginning to follow the BRT alignment and schedule in June of 2023 and full implementation of East-West BRT scheduled for 2024.

The City of Madison was awarded an Areas of Persistent Poverty grant to finalize plans and designs for the North-South BRT alignment and has budgeted construction funding for this project beginning in 2026. See the Ongoing Transit Planning Studies section below for more information on this project.

Regional Transit Authority (RTA)

In June 2009, the Wisconsin State Legislature enacted Assembly Bill 75 (Act 28) authorizing the creation of the Dane County Regional Transit Authority. The Dane County Regional Transit Authority (DCRTA) was formed but did not have funding for staff.

The DCRTA, with assistance from the MPO, Metro Transit, and City of Madison staff, developed a draft short-term plan for improved transit service that would be funded by a potential new ¼-percent sales tax. The draft Plan for Transit included the following conceptual improvements:

- New regional express service to Sun Prairie, Cottage Grove, Waunakee, Westport, Verona, McFarland, Stoughton, and the Dane County Regional Airport;
- Expanded bus service between Madison and the cities of Monona, Middleton, and Fitchburg;
- Improved bus service within Madison;
- A network of park-and-ride lots;
- Expanded paratransit and other demand-response service;
- Improved specialized transportation services for seniors and persons with disabilities;
- A modernization of the transit system, including smart fare cards, on-board Wi-Fi, and new hybrid buses;
- Planning for a new intermodal transit center; and
- Improved bus stop amenities such as sidewalks, concrete pads, benches, shelters, and trash containers.

The DCRTA decided not to move forward with a referendum on the new sales tax in the spring of 2011. Assembly Bill 40 (Act 32) was passed in 2011, eliminating the RTA authorizing legislation and thereby dissolving the DCRTA.

The state's adoption of RTA-enabling legislation will be necessary in order to fund the planned future transit network in the MPO's Connect Greater Madison: 2050 RTP.³⁸

³⁸ <https://www.greatermadisonmpo.org/planning/documents/Ch-05-ConnectRTP-web.pdf> (pg. 5-19)

Wisconsin Department of Transportation (WisDOT) 2017 Transit System Management Performance Review

The Transit System Management Performance Review (MPR) of the Madison Metro Transit System is a study that is required at least every five years for Metro to remain eligible for state funding aid. Key findings from the 2017 review included favorable statistics for Metro in terms of service provided and system efficiency, with only one performance objective not scoring satisfactorily/adequately or better: Metro's market penetration, measured by passenger trips per capita, was ranked as being outside the satisfactory range.

Recommendations made in the 2017 MPR are either ongoing or are essentially complete. The two exceptions are:

- Continue to pursue regional governance and local, dedicated funding for transit through enabling legislation and coalition building, with a strong role to also be taken by the new Transportation Department Head.
 - *Lacking enabling legislation to create a regional transportation authority, the City of Madison adopted a \$40 Vehicle Registration Fee starting in 2020, with a portion of the proceeds funding transit improvements.*
- Conduct optimum staffing analysis.
 - This has not been completed.

The 2022 MPR found “that Metro Transit conducts exemplary transit operations, maintenance, and financial control functions, with planning and marketing that are much improved from previous years. Particularly in the areas of operations and maintenance, Metro Transit has implemented best practices that should serve as blueprints for other systems around Wisconsin. The agency's current management staff are knowledgeable, proactive, and motivated to keep Metro Transit moving as major public-facing projects are taking place. These strong fundamentals and key investments will help Metro Transit continue to meet the needs of the City of Madison and surrounding communities.”

The 2022 MPR did not have any recommendations in the Policy- and Decision-Making Processes, Transpor-

tation Operations, Finance, or Marketing functional areas.

For Vehicle and Facility Maintenance, the 2022 MPR recommends:

- Pursue the addition of 1-2 maintenance supervisors to minimize overtime or disruption due to absences. (Medium priority)
- Develop curriculum for new mechanics' training that addresses proficiency, standard repair times, and productivity. (Low priority)
- Pursue the use of TransitFleet software for predictive maintenance to reduce the incidence of road calls. (Low priority)
- For Planning and Scheduling, the 2022 MPR recommends:
 - Establish targets for key performance indicators, including on-time performance. (High priority)
 - Complete a Zero-Emissions Vehicle Transition Plan to outline strategies, infrastructure, and staffing needs required to meet Metro Transit's sustainability goals. (Medium priority)

Metro Transit Passenger Surveys

The Greater Madison MPO, in cooperation with Metro Transit, Cambridge Systematics, and others, conducted an on-board transit passenger survey in winter/spring 2015 ([Executive Summary](#)). The survey was conducted on weekdays, generally Monday through Thursday on Routes 1 through 75. UW circulator routes, supplemental school day service, and paratransit service were not included in the survey. Approximately 7,800 surveys were collected, of which 5,914 were deemed “complete and valid”. These surveys represent about 800 bus trips out of the approximately 1,850 scheduled bus trips on a typical weekday.

Metro also conducted a passenger survey in late 2018 and early 2019 on-line and in person at a limited number of events. 1,150 surveys were completed on-line and 80 were completed in paper format.

Results from these surveys have been used to inform the Transit Network Redesign and this Transit Development Plan.

An on-board passenger survey was conducted in April of 2024 following the implementation of the Transit Network Redesign.

A public survey of riders and non-riders was available online in English, Spanish, Hmong, and Chinese from May 24 to June 24, 2024. Paper surveys could be requested by calling Metro or emailing the MPO. This survey was publicized through flyers on buses, on the MPO and Metro web pages and social media channels, and through a press release that was picked up and re-broadcast by multiple media outlets and community organizations. 1,247 surveys were completed, and the results are included in Appendix E.

Bus Size Study

The 2008 Long-Range Metro Transit Planning Ad Hoc Committee report identified the need for “an outside group to review...whether smaller, larger, or a mix of buses should be used to serve the Metro area.” Metro Transit, in cooperation with the MPO and a consultant team, analyzed the applicability of diversifying the fleet with smaller and larger buses. Smaller buses may a) improve Metro’s image by matching smaller, more neighborhood-scale vehicles with low-ridership peripheral routes, b) reduce Metro’s operating costs by reducing fuel consumption, and c) reduce Metro’s need for parking space at its maintenance facility.

It found that larger buses could alleviate some of the passenger overloading problems and reduce Metro’s operating cost by reducing the number of extra buses used during peak commute times. Unfortunately, as Metro’s facility on East Washington Avenue has been over-capacity, there was no space for new buses, large or small. Metro’s new Hanson Road facility will alleviate storage and maintenance congestion and enable fleet diversification and growth in 2024 with the addition of 60-foot articulated buses.

Bus Stop Amenities Study

A 2018 University of Utah study, the [Impact of Bus Stop Improvements](#), found statistically significant increases in overall stop-level ridership as well as reduced para-transit demand at improved stops. Based on this study, the MPO’s 2018 Bus Stop Amenities Study developed a framework for identifying and prioritizing Metro bus stop improvements. Notably, recommendations includ-

ed replacing the Bus Stop Amenities Guidelines in the 2013-17 TDP, which were based entirely on the number of daily boardings at stops, with amenities guidelines based on both daily boardings and the type of development around the bus stop. This TDP builds on the 2018 Bus Stop Amenities Study with revised Amenities Guidelines (see Appendix A) that incorporate service frequency and proximity to an MPO-identified Environmental Justice area as considerations.

Madison in Motion: Sustainable Madison Transportation Master Plan

The plan takes a comprehensive look at the City’s transportation system and recommends short and long-term strategies for enhancing pedestrian and bike infrastructure, improving transit service and improving roadway efficiency and safety. Madison in Motion contains eight primary goals, addressing major considerations such as transportation options, equity, sustainability and economic development. These goals are listed in Appendix C of this TDP.

A Greater Madison Vision (AGMV)

Although AGMV is not a transit- or even transportation-specific study, its results relate directly to transportation and especially the transportation/land use connection in the Madison metropolitan area. Addressing environmental challenges including climate change and increased risk of flooding, and the construction of green infrastructure to mitigate those impacts, ranked as the two most important priorities among survey respondents. As the transportation sector is a major contributor to greenhouse gas (GHG) emissions, transit has an important role to play in achieving these goals. All of the remaining top six priorities relate directly to transit and improving access between jobs, housing, and other destinations via transit and non-motorized transportation. Support for expanded transit service was widespread among respondents, although it ranked higher with residents of the central Madison urban area (including Fitchburg and Monona) and was favored by those with higher incomes and education, as well as by young adults.

Institutions and Information Technology to Support Multimodal Integration in Employment Transportation³⁹

investigates the Mobilize Dane pilot project and how transportation disadvantage is perpetuated and could be alleviated through policy changes and consideration at a regional planning scale. The report recommends the creation of a regional organization such as a Transportation Management Association (TMA) “to address transportation disadvantage through private sector and philanthropic support, information technology, and multimodal transportation.”

Ongoing Transit Planning Studies

Several planning studies are taking place concurrently with the TDP update. Many of these studies overlap and interact with each other. Besides these specific studies and planning efforts, other peripherally related transportation planning and coordination efforts related to land use, parking, and other subjects are also taking place but are not shown in the list below.

North-South Bus Rapid Transit

Planning is currently underway for the North-South Bus Rapid Transit (BRT) route. The City of Madison was awarded an Areas of Persistent Poverty grant to finalize plans and designs for the North-South BRT alignment, and has budgeted construction funding for this project beginning in 2026. The City of Madison applied for federal Small Starts funding for the project in August of 2023, and anticipates a grant award in 2025⁴⁰. Although the Locally-Preferred Alignment (LPA) has not been finalized, it is presumed that the LPA will follow Route B in the Network Redesign, with some minor modifications.

Intercity Bus Terminal

Following the closing of the Badger Bus depot on Bedford Street in 2009, Badger Bus, Van Galder, Megabus, and other intercity bus lines used the Langdon Street bus stop near the Memorial Union as their primary Madison stop. Badger Bus, Jefferson, and Lamers started using a new stop on North Lake Street between West Dayton and West Johnson Streets in November 2019,

with Van Galder and Megabus transitioning to the new stop in January 2020. This location was identified as the “second alternate recommendation” for intercity bus loading in the City of Madison Department of Transportation’s 2019 Short-term Intercity Bus Access Area report.⁴¹

The City of Madison is redeveloping the State Street Campus Garage into a mixed-use building with a new intercity bus terminal on the ground floor. Construction began in 2024 and is anticipated to be completed in 2026.



Lake Street Intercity Bus Stop Location (between Dayton and Johnson Streets) (November 13, 2019)

Metro Maintenance Facility

Metro’s storage and maintenance facility at 1 South Ingersoll Street (formerly 1101 East Washington Avenue) was designed to accommodate 160 buses in 1981 as an addition to a WWI-era munitions factory, and has housed as many as 218 buses. A multi-year capital improvement program began in 2019:

- 2019 Construction: Phase 1 is the addition of a new service lane addition, totaling ~\$6.5M
- 2020 Construction: Phase 2 is replacement of HVAC, totaling ~\$6.5M
- 2021-2022 Construction: Phase 3A is remodeling of maintenance bays, including lift replacements, totaling ~\$9.9M
- 2023: Percent for Art Installation⁴²

³⁹ Carolyn McAndrews, Alexander Allon, University of Wisconsin – Madison.

⁴⁰ <https://www.transit.dot.gov/sites/fta.dot.gov/files/2023-07/WI-Madison-North-South-BRT-PD-Profile.pdf>.

⁴¹ <https://madison.legistar.com/View.ashx?M=F&ID=7587505&GUID=6F575E5E-8724-4FA9-BACA-53ECEAAEB3E7>.

⁴² https://www.cityofmadison.com/dpced/planning/documents/Arts_Jenie%20Gao%20Metro%20Art%20Proposal%20midres.pdf.



1101 East Washington Ave. Phase 1 – Service Lane Addition,
City of Madison Flickr (September 19, 2019)

UW Transit Studies

Since the adoption of the 2013-17 TDP, the University of Wisconsin - Madison (UW) has completed two Campus Bus and Accessible Transportation Studies (2013 with Nelson/Nygaard, and 2018 with KA Associates), which documented mobility and accessibility issues and concerns related to transit service on campus. Major issues identified by the 2018 study included: overcrowding on route 80; the lack of accurate boarding/alighting data; the need for improved access to real-time arrival information at major stops; and on-time performance being negatively impacted by high numbers of pedestrians, bicyclists, and other intersection and roadway users.

The UW Transportation Services (TS) Department web site notes that “no changes to accessible transportation or campus bus services are planned at this time, but [TS] will continue to reference the [study’s] recommendations and may use [those recommendations] for future implementation, as appropriate.”⁴³

⁴³ <https://transportation.wisc.edu/bus/> (June 14, 2019)

Chapter 3: Today's Transit System

Overview of Metro Transit Fixed Route Service

In 2019, prior to the COVID-19 pandemic, Metro Transit provided 1,344 daily service hours on weekdays while UW and the Madison Metropolitan School District were in session. A total 530 service hours were provided on Saturdays and 486 on Sundays. Metro fixed-route bus service provided about 460,000 revenue hours of service and 12.9 million one-way unlinked passenger trips with an operating expense of about \$55 million in 2019.

In 2022, following service cuts due to the COVID-19 pandemic, Metro Transit provided 1,095 daily service hours on weekdays while UW and the Madison Metropolitan School District were in session. Most of the suspended service was commute-oriented service. A total 608 service hours were provided on Saturdays and 592 on Sundays. Metro Fixed-Route operations provided a total of 345,899 total revenue service hours and approximately 8 million one-way unlinked passenger trips with an operating expense of about \$56 million in 2022.

Historically, Metro's route structure operated in a radial pattern, with nearly all routes connecting at the Capitol Square in downtown Madison. In July 1998, Metro underwent a major network restructure and converted to a transfer point system using timed transfers at four transfer points in outer Madison; at the same time, routes were renamed from the lettering system used previously to the numbered system used until June 2023. The transfer point system operated on a 30- to 60-minute pulse, with all buses arriving and departing the transfer points within a few minutes of each other. This system required relatively uniform route lengths and cycle times for most routes.

The transfer point system was designed to better serve employment and shopping centers and residential neighborhoods in the outer Madison area, and to reduce travel times for cross-town service by eliminating many transfers at the Capitol Square. As is discussed in great detail in the 2022 Metro Transit Network Redesign reports, however, this system resulted in the need for multiple transfers for many trips between peripheral

areas and downtown Madison. Additionally, the transfer point system had the unintended consequence of providing much lower levels of access for residents and jobs beyond the transfer points than for those "inside" them; as many minority and low-income residents are clustered in areas outside the transfer points, this resulted in much lower levels of service and accessibility for those populations of concern. An operational benefit of the transfer point system was that it accommodated most of Metro's layovers, reducing the need for on-street space for buses to wait between outbound and inbound trips.

As the Transit Network Redesign documented the deficiencies of the prior transit network, this plan will largely focus on how the lessons learned and input received on the Transit Network Redesign can be applied to future service revisions and expansions instead of examining the historical system in great detail.



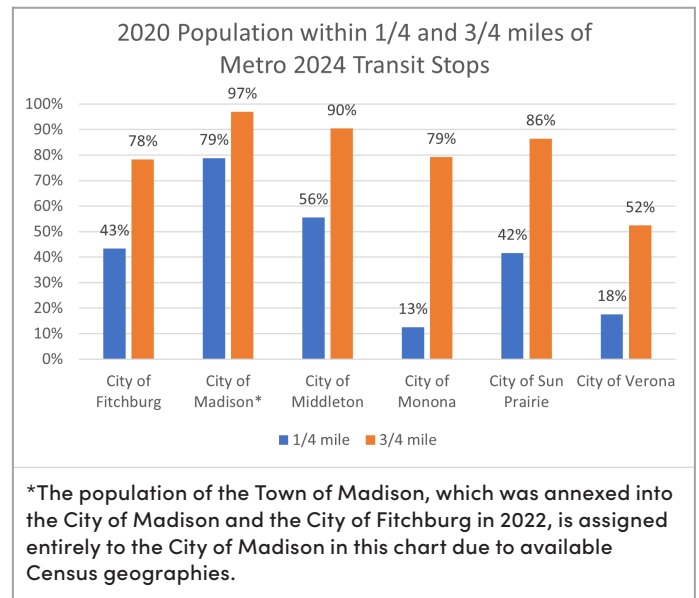
Many bus routes take advantage of the direct pathway through the UW campus via University Avenue (westbound). A separate bicycle lane and a bus and right-turn only lane provide relief from most traffic congestion. Johnson Street provides the paired eastbound alignment one block south of University Ave; a protected contra-flow lane on the south side of University Avenue provides the eastbound bicycle route in this corridor.

Following implementation of the Network Redesign in June 2023, Metro collected feedback on the new system and routes, and made service adjustments in August 2023 to address capacity and destination issues. However, when college and high school students began using the new service, there were immediate overcrowding issues on some routes. With August 2023 ridership up 12% year-over-year from 2022, routes experienced overcrowding and resulting delays due to the longer amount of time required for boarding and alighting. To the extent possible, Metro used extra buses to provide short versions of routes in corridors experiencing overcrowding, but with fewer trained drivers available than are required to provide scheduled service, overcrowding and delayed buses negatively impacted both real and perceived system performance.⁴⁴ Metro was able to on-board new drivers and returned to full operational capacity in 2024. The use of 60-foot articulated buses on BRT routes will also increase capacity without requiring additional drivers.

The weekday service area for Metro Transit is 62.82 square miles.⁴⁵ The 2024 population within the 1/4-mile service area was approximately 263,082, with 363,017 people living within 3/4 miles of a bus stop. This includes 97% of the City of Madison’s population, 90% of the Mid-

dleton population, 86% of the Sun Prairie population, 79% of the Monona population, 78% of the Fitchburg population, and 52% of the Verona population. Figure 1 shows the percent of 2020 population of living within 1/4 and 3/4 miles of Metro Transit stops in the 2024 transit network for partner cities.

Figure 18: 2020 Population within 1/4 and 3/4 miles of Metro 2024 Transit Stops



44 https://www.channel3000.com/news/commuters-deal-with-overcrowded-delayed-metro-transit-buses-as-fall-hits/article_4501bb5c-58f9-11ee-a60e-e3d9479f1351.html.

45 Within 1/4 mile of a bus stop. Metro Transit GTFS v.108, March 3, 2024.

Fixed Route Categories and Service Levels

Table 8: Metro Route Categories

Future BRT	Weekday Mid-Day Headway	Description
A: W Madison-E. Madison BRT B: N. Madison-S. Madison BRT	15 Minutes	Planned or functioning BRT service
Frequent		
C: Cottage Grove/Buckeye-UW Hospital D: MSN/Milwaukee-Watts/McKee	15 Minutes	Branching frequent routes with peak 15m combined trunk service. Seasonal Short-turns
Standard		
A1: E. Madison BRT branch to Sun Prairie via High Crossing A2: E. Madison BRT branch to Hanson Road via American Center C1: Branch to Cottage Grove Rd D1: Branch to Milwaukee St D2: Branch to Sherman Ave & Dane County Regional Airport E: McKee/Capitol Square F: Middleton/Capitol Square G: East Towne/S. Madison H: West Towne/S. Madison J: West Towne/UW Hospital P: East Towne-Portage Loop R: Old Sauk/Capitol Square W: Sun Prairie Small Loop 28: Johnson/Gorham Commuter 38: Jenifer Commuter	30 Minutes	Branched or stand-alone routes with consistent service. No evening or weekend service on 28 and 38.
Coverage		
C2: Branch to Buckeye Rd L. N. Madison-Owl Creek O: UW Campus/S. Madison R1: Branch to Junction P&R/Old Sauk R2: Branch to S. Ridge/Old Sauk S: Sun Prairie Large Loop	About 60 Minutes	Less frequent service to lower ridership areas
Peak-only (Non-Mid-Day)		
55: Verona-Junction 65: Lacy/UW via Downtown 75: Capitol Square/Verona	30-60 Minutes	Typically only weekday morning and afternoon peak periods
UW-Madison Campus		
80: Memorial Union/Eagle Heights 81: Park/Broom/Johnson/Gorham Loop 82: Observatory/Breese Loop 84: Eagle Heights Loop	Varies – 2-7 Minutes (80); 30 Minutes (81 & 82); 15 Minutes (84)	Circulators designed for UW-Madison student use on- and near-campus. Evening/late-night service only on 81 and 82.

Existing and Future BRT

The Existing and Future Bus Rapid Transit (BRT) Routes are comprised of Metro Transit’s Rapid Route A and Route B. Rapid Route A runs East-West with two western branches that connect to the Sun Prairie Park and Ride and the Hanson Road Maintenance Facility. Rapid Route A operates at a 15-minute headway Monday-Saturday between 6 AM and 7 PM. The frequency of this route is decreased to 30-minute headways before 6 AM, after 7 PM, and on the branched or “split” portions of the route. Sunday service operates at a 30-minute headway all day on the trunk portion of the route and 60-minute headways all day on the branched or “split” portions of the route.

Route B currently runs North-South with a southern terminus loop at Caddis Bend, Royal Wulff Terrace, and Cahill Main. Metro plans to extend the BRT route’s southern terminus to south of McKee Road at Nesbitt Road and Fitchrona Road, and Fitchburg leadership has expressed interest in extending it as far south as Lacy Road to service Fitchburg City Hall and Senior Center. The northern terminus of the route is a loop running

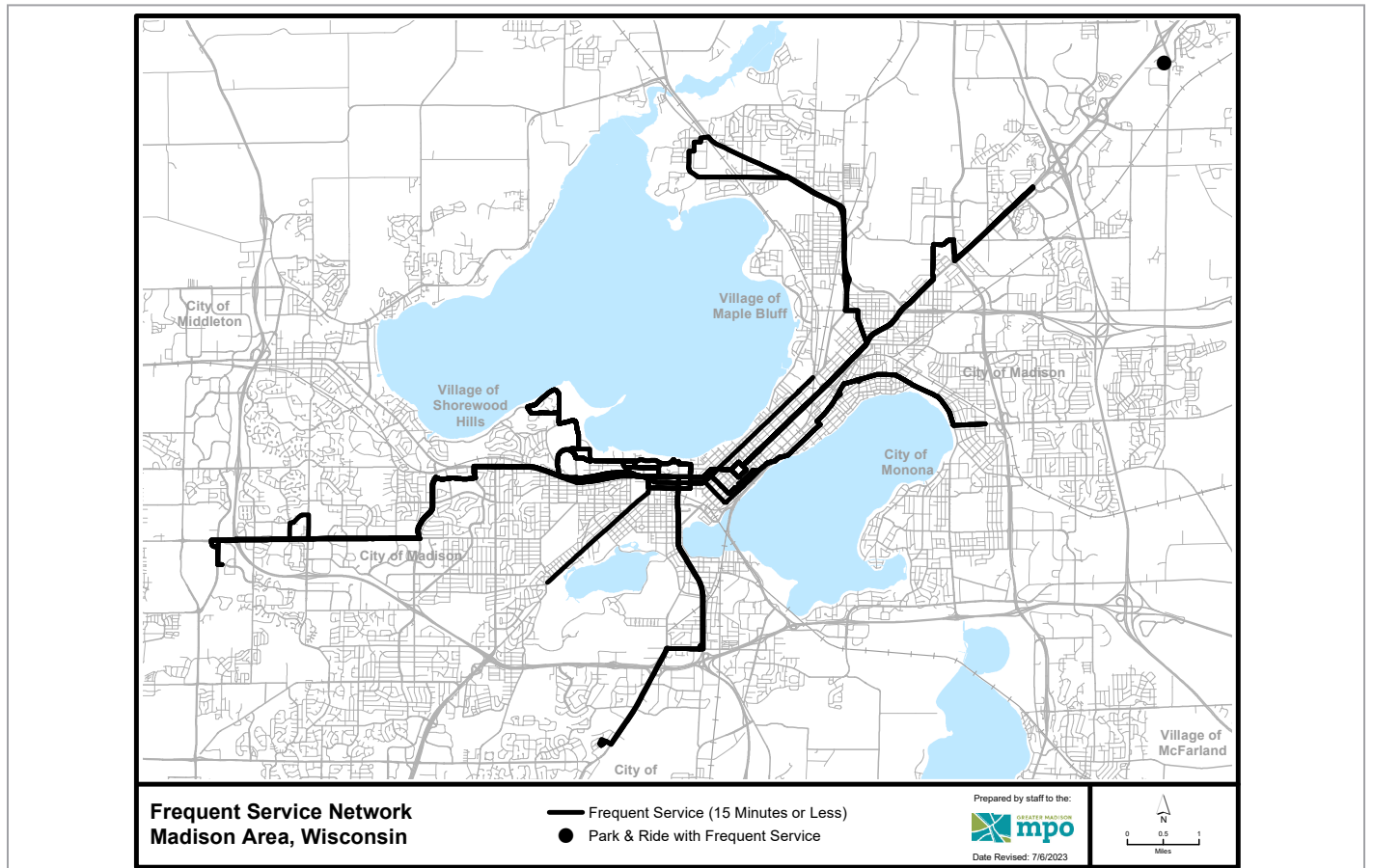
along Troy Drive and Northport Drive. Detailed planning of BRT route B alignment and station locations are currently underway. Route B operates at a 15-minute headway Monday – Saturday from 7 AM – 7 PM with no branching. The frequency of this route is decreased on Sundays to a 30-minute headway all day.

Both routes operate along planned fixed-guideway BRT corridors which will feature BRT platforms, transit priority treatments, and improved signalization that will decrease travel times along the corridors. The BRT improvements on Route A were completed in 2024 and the Route B BRT improvements are tentatively planned to be completed in 2027-28.

Frequent

Routes C and D operate with core trunks and route branching. The core trunks of these routes operate at a 15-minute headway on weekdays from 7 AM – 7 PM. The frequency on the core trunks decreases to a 30-minute headway before 7 AM and after 7 PM. On weekends, the frequency of the core trunks decreases to every 30 minutes all day. The branches on

Figure 19: Frequent Service Network (2023)



these routes operate at different frequencies from the core trunk, with both Route D branches operating at a 30-minute headway on weekdays and 60-minute headways on weekends. The branches on Route C operate at variable frequencies on weekdays with Branch C1 operating at a 30-minute headway and Branch C2 operating at a 60-minute headway. On weekends, both the C1 and C2 branches operate at 60-minute headways.

Standard

These routes operate as local routes with 30-minute headways Monday–Sunday.

Coverage

Neighborhood local routes generally have a 60-minute base headway operating Monday–Sunday. There are exceptions in this category as Route L operates at a 75-minute base headway and Route R operates two branches that operate 60-minute headways and a trunk that operates at a 30-minute headway. Route O operates a base 60-minute headway Monday – Sunday with a short turn that providing 15-minute frequencies between the Park & Erin time point and the Brooks & Johnson time point on weekdays.

Peak Only

Routes 28 and 38 are categorized as University of Wisconsin (UW) Commuter Routes that terminate at the UW Hospital loop. Routes 28 and 38 operate at a 30-minute headway from 7 AM–6 PM. As commuter focused routes, Routes 28 and 38 only operate during weekdays.

Frequent Service Network

The group of corridors in the transit system that have consistent 15-minute or better service throughout the mid-day on weekdays in both directions. This service standard allows transit riders to use the system without a schedule, which is attractive for occasional transit users making a variety of transit trips. The 15-minute headways may be provided by one route or a group of two or three routes, but the service must not contain any service gaps that are longer than 15 minutes. The frequent service network, which was expanded from 13.5 miles to 67.1 miles with the 2023 Network Redesign, is shown in Figure 19.

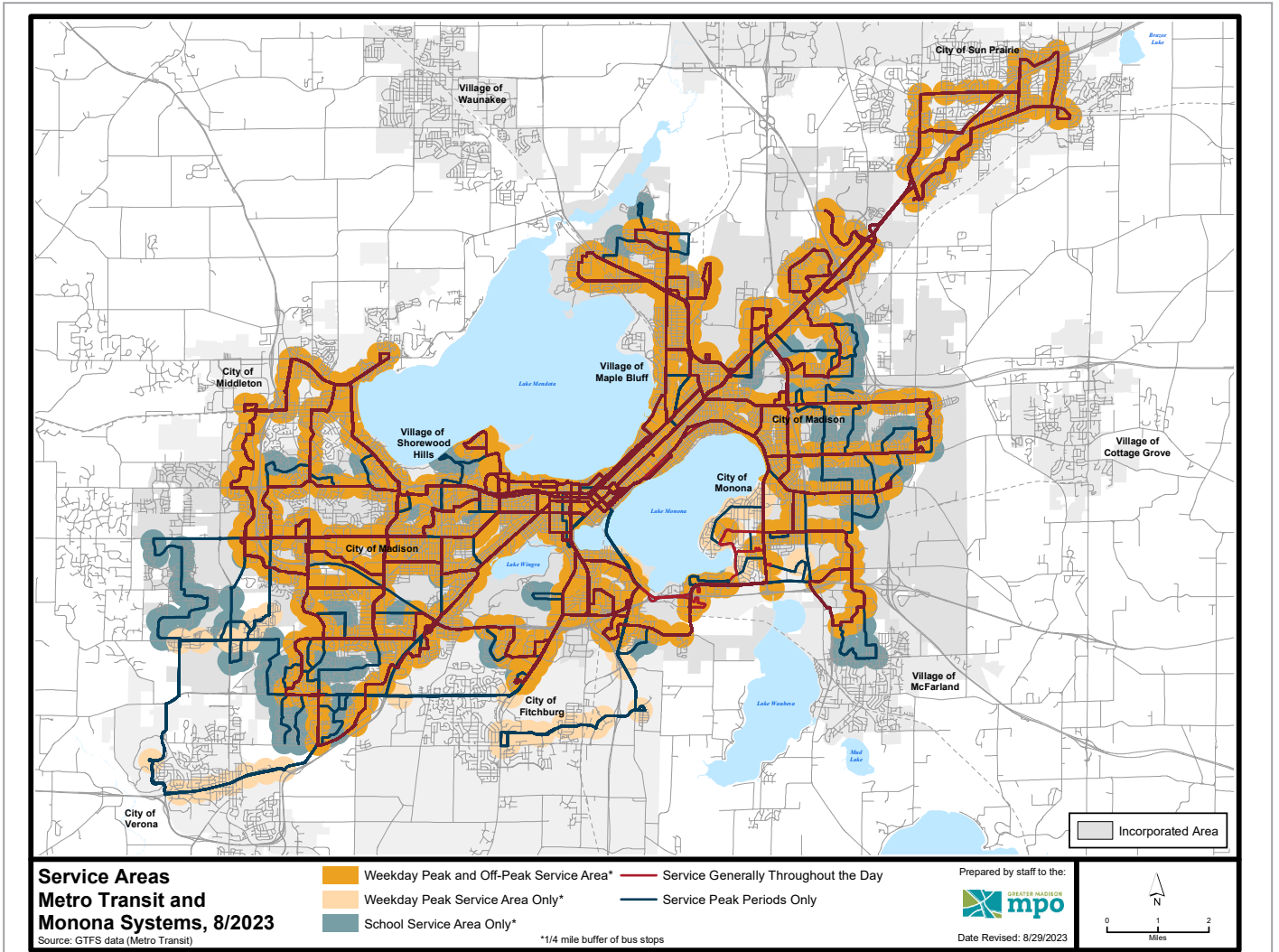
Metro Paratransit

Paratransit service is provided by Metro on a demand-responsive basis within $\frac{3}{4}$ mile of fixed-route all-day transit service (excluding peak-only commuter routes), as required by the Americans with Disabilities Act (ADA). The door-to-door service is available during the same span as the fixed-route service that it supplements. However, service is limited to the area within the boundaries of the communities that contract with Metro for fixed-route service. The Village of Shorewood Hills is an exception to this, where Metro has a contract to provide paratransit service only.

Riders must apply to Metro and be certified as eligible to use paratransit in accordance with ADA guidelines and its implementing regulations. Some individuals are only qualified during certain events such as winter weather. The definition of persons eligible to use paratransit includes three categories of riders: (1) those unable to ride without assistance; (2) those able to ride fixed-route with the assistance of a wheelchair lift; and (3) those unable to access fixed-route stops. Because Metro’s buses are all ADA-compliant, category 2 persons must use the fixed-route system except when winter weather prevents them from accessing the system. For more information on rider eligibility and other paratransit standards and policies (e.g., ride cancellations, travel times), see Metro Transit’s paratransit website. Because Metro’s buses are all ADA-compliant, category 2 persons must use the fixed-route system except when winter weather prevents them from accessing the system. For more information on rider eligibility and other paratransit standards and policies (e.g., ride cancellations, travel times), see Metro Transit’s [paratransit website](#).

Paratransit trips must be scheduled at least one day in advance; however, subscription service is available for persons who make regularly scheduled trips. The majority of paratransit trips are subscription trips. Paratransit trips may begin within a 20-minute window of the requested departure time, so riders have little certainty of when their ride will arrive. The requirement that trips be scheduled in advance severely limits the transportation options of riders, who must use much more expensive transportation services (e.g. accessible taxi, specialized transportation service, or non-emergency medical transportation (NEMT)) in order make

Figure 20: Weekday Metro Coverage Area



impromptu or short-notice trips, or they are simply unable to make these short-notice trips.

Service was provided via a combination of Metro’s fleet of cutaway vans and contracted service from Abby Vans, Badger Bus Lines, and Transit Solutions until mid-2018. Due to the statewide implementation of Family Care and the expectation that many fewer paratransit rides would be requested, Metro divested itself of its cutaway vans and transitioned away from direct provision of paratransit service during 2018, ceasing all directly-operated service on August 10. All paratransit service is now provided by contractors.

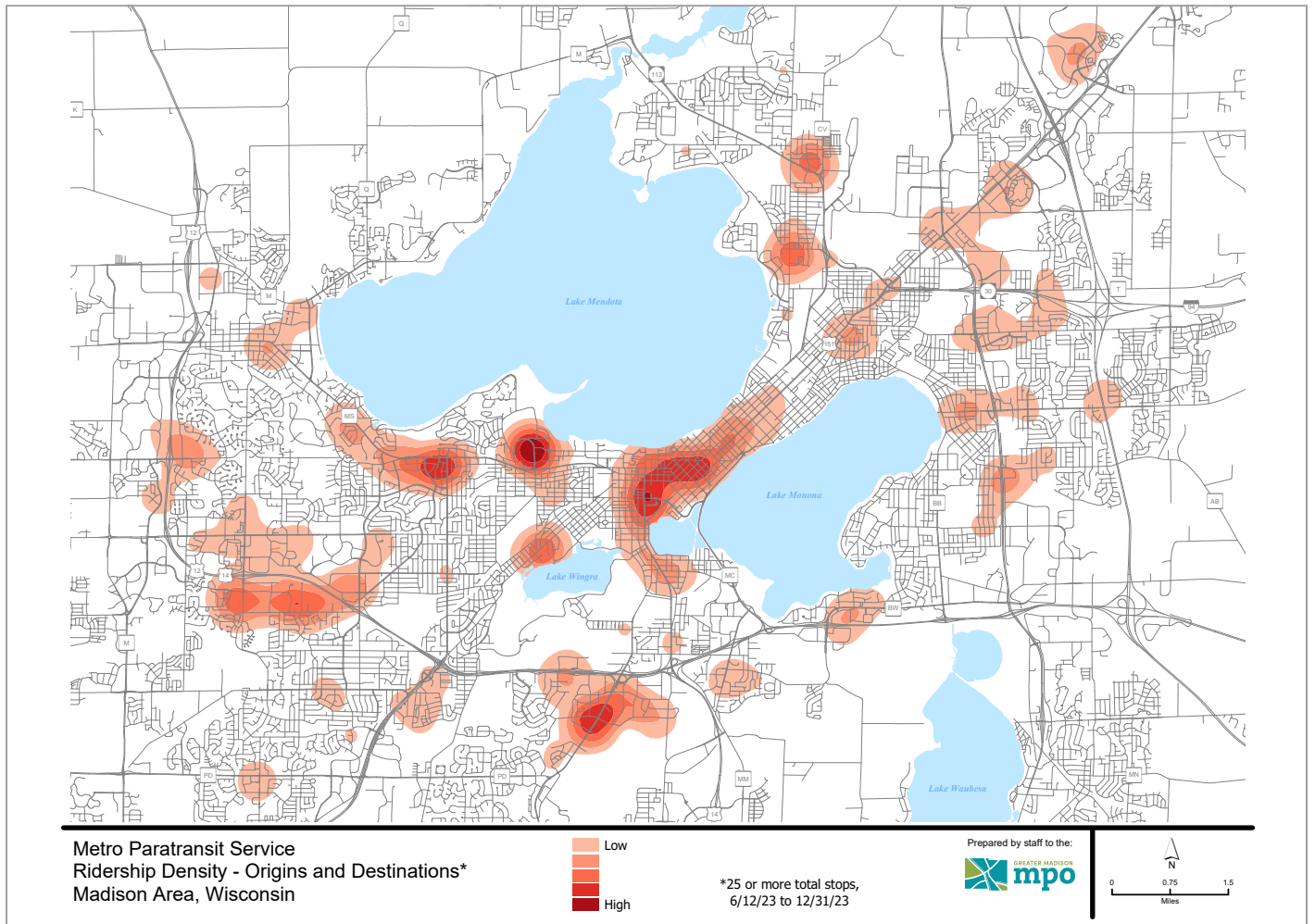
Figure 21 shows a heat map of Metro paratransit trip origins and destinations with 25 or more total stops in the period from June 12 to December 31, 2023.⁴⁶ Most of the clusters of trip origins and destinations occur

at health care facilities, housing facilities with large proportions of disabled residents, downtown Madison, UW-Madison, and shopping destinations; however, the reasons for trips creating many smaller clusters are not readily identifiable. Although Sun Prairie began being served by Metro paratransit with this time period, no origins or destinations in Sun Prairie had 25 or more paratransit trips during this period.

Paratransit, specialized transportation services, and non-emergency medical transportation (NEMT) services are described in greater detail in the [2024-2028 Coordinated Public Transit – Human Services Transportation Plan for Dane County](#).

46 Post Transit Network Redesign

Figure 21: Metro Paratransit Ridership Density - Origins & Destinations



Metro Transit Supplemental School Service

Metro has historically provided supplemental service to middle- and high school students through a contract with the Madison Metropolitan School District (MMSD). The supplemental school service is provided where overloading of buses on regular routes would otherwise occur. While these routes are primarily used by students, they are open to the public, published on Metro’s website, and are available via trip planning apps.

In 2019, prior to the COVID-19 pandemic, Metro Transit’s supplemental school service provided a total of 986,380 rides. Metro Transit’s ridership on Metro’s supplemental school service is still recovering from the pandemic, with 611,078 rides in 2022. Some school supplemental trips are combined with extra bus trips to maximize the utility of each bus in operation and to reduce deadhead and other non-productive time. In 2023, Metro ended its operation of supplemental school service to middle

schools within the MMSD and are currently only operating supplemental school service to high schools.

Extra Buses

Metro has historically (pre-COVID) scheduled about 88 “Extra Bus” trips throughout the day to accommodate passenger loads on busy routes, particularly during the morning and afternoon peak periods. These trips are not published in the Ride Guide and are generally scheduled a few minutes before the published trip that they supplement and usually only cover a portion of the route. Extra buses are highly dynamic and are modified frequently to meet the changing demands on the system.

With August 2023 ridership up 12% year-over-year, Extra buses have been required to accommodate demand on numerous routes in the fall of 2023. Metro will continue to use this tool on an as-needed basis to accommodate changing ridership demands. The implementation of

BRT and the use of larger 60-foot buses are expected to reduce the need for extra buses.

Metro Transit Bus Fleet Inventory

As of December 2023, Metro Transit had an active fixed-route fleet of 192 40-foot buses. Thirteen buses are hybrid diesel-electric, three are battery-electric, and the remaining 176 are diesel powered. The majority of the active fleet is comprised of Gillig coaches, although the newest vehicles are New Flyers and Proterras. The oldest coach in the active fleet is from model year 2006. The average age of vehicles in the fleet is just over nine years old. Approximately 149 buses are needed in peak service currently, with a total fleet of 199, resulting in a spare ratio of 32%. However, the introduction of electric buses increased the peak service need to 160 buses. As of September 2024, the fleet consists of 132 40-foot buses and 62 60-foot buses; retirement of older vehicles will begin in late 2024. These combined changes will reduce the spare ratio to 20%.

The limited capacity of Metro’s single bus storage and maintenance facility on East Washington Avenue has limited the possibility of expansion of the fleet for many years, but with the new Hanson Road facility coming

on-line in 2024, Metro gained the capacity to add 60-foot articulated buses for use in the BRT system.

Notwithstanding the historic inability to grow the fleet, as buses are replaced at the end of their useful life, there is opportunity to upgrade vehicles. In 2016, Mayor Soglin directed Metro to focus on introducing electric buses into the fleet, with the goal of transitioning 50% of the fleet to zero-emission by 2035. In 2020, Metro purchased its first three electric vehicles from bus manufacturer Proterra. These first three electric buses provide Metro staff the opportunity to become familiar with new technology and to begin to transition maintenance facilities to accommodate additional electric vehicles in the future. The purchase of the Proterra buses was financed in part by a \$1.3 million Federal Transit Administration Low or No-Emission grant. Sixty-two New Flyer electric hybrid buses were added to the fleet in 2024.

Metro Transit Facilities

Bus Stops

In 2018, the MPO conducted a [Bus Stop Amenities Study](#) for the Metro System. At that time, Metro served more than 2,100 stops, most of which were in the City of Madison.

Table 9 : Summary of Metro’s 2023 Fixed-Route Bus Fleet

Year	Manufacturer	Model	Fuel	Length	# of Vehicles
2006	Gillig	Low Floor	Diesel	40'	4
2009	Gillig	Low Floor	Diesel	40'	23
2010	Gillig	Low Floor Hybrid	Hybrid	40'	8
2011	Gillig	Low Floor	Diesel	40'	14
2012	Gillig	Low Floor	Diesel	40'	14
2013	Gillig	Low Floor	Diesel	40'	18
2014	Gillig	Low Floor Hybrid	Hybrid	40'	2
2015	Gillig	Low Floor	Diesel	40'	15
2016	Gillig	Low Floor	Diesel	40'	15
2017	Gillig	Low Floor	Diesel	40'	15
2018	Gillig	Low Floor	Diesel	40'	14
2019	New Flyer	XD40	Diesel	40'	15
2020	New Flyer	XD40	Diesel	40'	12
2020	Proterra	Catalyst 40 E2 RR	Electric	40'	3
2022	New Flyer	XD40	Diesel	40'	15
2024	New Flyer	XE60	Electric	60'	59
Total	-	-	-	-	246

With the Transit Network Redesign, there are currently 1,032 far side bus stops (that is, the bus stops after crossing an intersection), 642 near side stops (buses stop before crossing an intersection), and 136 stops with other configurations (mid-block, within an intersection, or other), for a total of 1,810 stops system-wide. Fixed route buses only stop to serve passengers at bus stops; however, Supplemental School routes serve some stops that are unsigned.

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Transit riders identify bus stops by their recognizable blue signs with the Metro logo and route numbers. The current design is a one-sided sign that is generally mounted at a 45-degree angle to the curb. This design is necessary because of the no-parking emblem on the sign. Some signs have been retrofitted with decals on the back of the sign that read “BUS STOP” so that riders can identify them more easily. Signs at near-side bus stops have traditionally been located 60–80 feet before the actual bus stop location with a separate sign that reads “BOARD BUS AT CORNER.” This practice was also used because of the no-parking emblem on the sign. Some near-side bus stops have been changed to a new design, with the bus stop sign located at the bus stop and a separate no-parking sign located 60–80 feet from the bus stop. In the city of Madison, bus stop signs are installed and maintained by the City of Madison Traffic Engineering Division; service partner communities are responsible for installing and maintaining bus stops and facilities within their jurisdictions. Supplemental School route numbers are not listed on bus stop signs.

Currently, Metro maintains a limited database with the features associated with each bus stop, including location, presence of a shelter, and stop times. Additional features such as the presence of a bench or boarding platform are not currently included in this database. This TDP includes recommendations to add these features to a geodatabase of stop amenities.

Boarding Platforms

The Public Right of Way Accessibility Guidelines (PROWAG),⁴⁷ which establish guidelines for compliance with the Americans with Disabilities Act (ADA)⁴⁸ for bus boarding and alighting areas, provide both the guidelines and advisory information to further clarify their application. In summary, the guidelines call for:

- Surface – Bus stop boarding and alighting areas shall have a firm, stable surface
- Dimensions – Bus stop boarding and alighting areas shall provide a clear length of eight feet/96 inches minimum, measured perpendicular to the curb or vehicle roadway edge, and a clear width of five feet/60 inches minimum, measured parallel to the vehicle roadway
- Slope – Boarding platforms shall not exceed a 2% slope in any direction, except that for stops on existing roadways, the slope of the bus stop boarding and alighting area shall be the same as the roadway.
- Connection – Bus stop boarding and alighting areas shall be connected to streets, sidewalks, or pedestrian paths by an accessible route
- Transit Shelters – Minimum clear space, seating, and environmental control specifications are provided

Many Metro bus stops are equipped with a concrete boarding platform or other hard, flat surface that meets the requirements of the ADA for that criteria. Some stops throughout the system have turf or other surfaces, and/do not meet the dimensional, connection, or slope requirements of the ADA as interpreted in the PROWAG.⁴⁹ Metro is undertaking to upgrade all stops to meet ADA requirements in 2024. As most stops, and

⁴⁷ <https://www.access-board.gov/prowag/chapter-r3-technical-requirements/#r308-transit-stops-and-transit-shelters>.

⁴⁸ The ADA is a civil rights law prohibiting discrimination or exclusion from programs based on disability. Title VI is a civil rights law prohibiting discrimination based on race, color, or national origin in programs and activities receiving federal financial assistance.

⁴⁹ PROWAG was approved by the US Access Board in 2023. Subsequent adoption by the US Department of Justice and USDOT will likely occur in 2024 or 2025; at that time, compliance with PROWAG will be required and following the ADA Accessibility Guidelines (ADAAG) will no longer be an acceptable option.

all sidewalks and routes to access stops, are owned and maintained by an entity other than Metro, such as those under the jurisdiction of Fitchburg (95), Madison (1,488), Middleton (69), Sun Prairie (51), or UW-Madison (51), Metro does not have any control over the accessibility of those stops or routes. However, barriers to access to fixed-route transit stops exist within all of these jurisdictions, and are experienced by riders who must navigate around them to use transit, or are unable to access transit service because of them.

One such rider, Madison-area artist Rachel Litchman, has started drawing inaccessible bus stops that she encounters in the Metro system. Although many of the problems she documents are beyond Metro's ability to address, and others are matters of comfort or functional accessibility and are not subject to the ADA, her experiences are informative of the types of experiences riders with disabilities encounter. Litchman writes:

As a person with a physical disability, I have relied on public transportation my entire life in order to access work, school, groceries, healthcare, and social activities. I am not able to walk extended distances between stops, stand on a bus without seating, or wait outside for prolonged periods of time in heat or cold without consequences to my health. These issues, along with a lack of bus stops that are wheelchair-accessible, are just some of the issues that people with disabilities face in obtaining equitable transportation access.⁵⁰

Litchman's drawings highlight stops without level, concrete boarding platforms; stops with no bench or provision for riders who cannot stand – especially important after what may have been a longer walk to more geographically dispersed routes following the Transit Network Redesign; stops exposed to direct sunlight with no nearby shade; maintenance issues such as piles of garbage blocking loading platforms; and barriers to the accessible route to the stop. As is noted above, many of these issues are not subject to the ADA. If particular facilities were only present in areas with low numbers of individuals experiencing disabilities, that pattern of improvements would potentially be a civil rights issue and subject to the ADA.⁵¹ See the Shelters, Benches, and

Other Amenities section, below, for discussion of placement of these types of amenities at stops.



South Whitney at Tokay northbound, routes D, E, and J. (Stop 2549) Image credit: Rachel Litchman, used with permission⁵²

Litchman describes the South Whitney at Tokay northbound, routes D, E, and J stop:

I had to sit at this stop after a healthcare appointment a little under a mile away. It is the closest stop to many healthcare resources in the area, one of them being a clinic that services people with orthopedic injuries. The stop has a hole in the sidewalk in front of the bus stop, making it inaccessible to wheelchair users. It is also exposed to direct sunlight and there is also no seating.

Even with accessible pads at bus stops, bus stops are only truly accessible if they are on the accessible pedestrian network, which is the responsibility of the municipality in which the stop is located. Metro frequently receives complaints about construction projects blocking sidewalks and accessible routes to bus stops but has no control over these situations. As some communities served by Metro have limited or incomplete sidewalk networks, and other sidewalk networks are interrupted by inaccessible barriers such as stairs

50 <https://tonemadison.com/articles/drawing-the-inaccessible-bus-stops-of-metro-transit/>.

51 Such as if benches were less likely to be installed at stops near residential facilities with high numbers of disabled residents.

52 Note that use of caution tape as a barrier in the right-of-way is prohibited under the ADA, as it is not detectable for a vision-impaired person using a white cane.

or curbs without curb cuts, completion and extension of accessible networks should be prioritized where they serve bus stops. The MPO's [Pedestrian Facilities web map](#) can be used by area communities to identify gaps in the accessible network, and by Metro planners when designing new routes or stop locations. Under the provisions of the ADA, municipalities must have a Transition Plan which lays out a program for addressing barriers. Improvements may be prioritized based on complaints but cannot only be made in response to complaints.



Bus stops with boarding platforms



Bus stops without boarding platforms

Shelters, Benches & Other Amenities

Of Metro's 1,810 bus stops, 234 have shelters. Only 121 (52%) of the shelters at Metro stops are owned by Metro; the remainder are owned by the University of Wisconsin – Madison (UW), a municipality, or the owner of the property where they are located.

Most shelters contain built-in benches and have transit system maps posted. Three shelters on the Capitol Square (Main and Carroll, Mifflin and Pinckney, and Pinckney and Main) have electronic message boards that display real-time bus arrival times. Metro adopted the 2013 TDP's recommended Bus Stop Amenities Guidelines and incorporated them in the 2017 Metro Title VI Plan. The 2018 Bus Stop Amenities Study made new recommendations regarding criteria for the placement of shelters as well as other amenities based on a combination of the density or type of development in the neighborhood of the stop and the number of daily boardings at the stop.

It will be appropriate to build on the recommendations in the Bus Stop Amenities Study by adding subcategories for the Single Use & Suburban land use type to consider if the area is considered an Environmental Justice (EJ) area, as well as the service frequency. For some amenity types, the threshold could be lowered for EJ areas and areas served by infrequent transit (greater than 30 minutes between buses), as lower-income riders may not have appropriate clothing to safely wait for a bus in inclement/winter weather, urban heat island effects pose greater threats to residents of lower-income neighborhoods,⁵³ and long waits negatively impact the safety of anyone waiting in extreme weather. The Madison area is projected to experience more heat waves and more dangerously hot days in 30 years than it experiences currently,⁵⁴ so the importance of providing shaded bus stops will only increase over time.

Some of the transit riders interviewed by artist Jenie Gao for her Percent for Art mural at Metro's S. Ingersoll facility shared experiences of waiting at unsheltered stops:

"It's really important to have a shelter. One time while waiting, I was crying because the wind was so cold and there was no shelter at that stop...also, one of

⁵³ www.epa.gov/heatislands/heat-island-impacts.

⁵⁴ www.riskfactor.com/city/madison-wi/5548000_fsid/heat.

my closest friends I met at a bus shelter...We're really close now and all because of the time we spent waiting and in transit at the shelter.”

“There are shelters downtown but elsewhere it can get difficult if it's really hot or cold.”⁵⁵

Participants in the Vera Court Neighborhood Center Focus Group held for this plan update indicated that shelters often feel unsafe to use, especially for women, as they can easily be trapped by a single individual in a shelter with only one narrow doorway. Participants suggested using shelters with only a single side/wind screen wall to eliminate the possibility of being trapped in a shelter, or to require the use of a metro fare card for access to a shelter to restrict shelter use by non-riders.

Stand-alone benches are less expensive and easier to install and maintain than shelters, as well as fitting into more constrained spaces. As they provide relief for a wide range of riders, the provision of benches is prioritized over the provision of shelters. Where possible, benches should be located where shade or shelter is provided by adjacent trees or structures.

Garbage receptacles are provided at some stops with high use; participants in focus groups held for this plan update suggested that garbage receptacles should be provided at more stops, as stops without receptacles are often littered.

Stops located at intersections are often illuminated by streetlights, but this level of lighting may not be sufficient for drivers to see waiting riders. LED streetlight conversions may help address this, and un-illuminated stops should be provided with lighting as street and utility projects permit.

The *Role of Bus Stop Features in Facilitating Accessibility*⁵⁶ found that bus stop accessibility improvements are “associated with significant increases in stop-level boardings and decreases in ADA paratransit demand, and that these phenomena are linked (i.e., that some of the increase in scheduled-service boardings is coming from patrons who are switching from ADA paratransit).” Actively pursuing bus stop amenity improvements will

help boost ridership as well as improving system accessibility for riders.

Park & Ride Lots

Metro currently provides service to three officially designated park & ride lots, and a fourth park & ride lot is less than one-quarter of a mile from a Metro stop. The City of Sun Prairie’s park & ride at Reiner Road is the east terminus of Route A’s local extension to Sun Prairie. The Wisconsin Department of Transportation (WisDOT) owns two park & rides with direct service by Metro: the Dutch Mill Park & Ride, located in southeast Madison near the intersection of USH 51 (Stoughton Road) and USH 12/18 (the Beltline Highway); and the Verona Park & Ride, located near the intersection of US 18/151 and Old PB on the east side of the City of Verona. The Dutch Mill Park & Ride is also utilized by intercity bus service. WisDOT owns another park and ride at the American Center which is not directly served by Metro; the nearest Metro stop is approximately 0.2 miles from this park and ride. The only park & ride lot operated by the City of Madison is at the Junction Road (west) terminus of East-West BRT Rapid Route A.

Besides Metro buses, park & ride lots serve other programs that encourage higher-occupancy vehicles, most notably by providing convenient meeting points for carpools and vanpools. The Dutch Mill lot, in particular, is heavily used by car/vanpool users and by intercity bus companies.

The 2018 Passenger Survey did not include questions regarding how riders accessed the bus system, but according to Metro’s 2008 On-Board Survey, 3% of Metro passengers used a park & ride lot to access the bus while another 3% reported parking on the street to access the bus. The addition of more facilities and express-type service could significantly increase the number of park-and-ride passengers.

Transfer Points

Until implementation of the Transit Network Redesign in June of 2023, Metro had four major transfer points, which were opened in July 1998 to help implement Metro’s route restructuring that decentralized the system. The transfer points were located on the east,

⁵⁵ www.cityofmadison.com/dpced/planning/documents/Arts_Jenie%20Gao%20Metro%20Art%20Proposal%20midres.pdf.

⁵⁶ Bartholomew, K., Kim, J., Chandrasekhar, D., Ewing, R., Adkins, A. & Jensen, S. NITC-RR-1214. Portland, OR: Transportation Research and Education Center (TREC), 2020. <https://rosap.nrl.bts.gov/view/dot/54742>.

north, south, and west sides of Madison and were named based on their location (e.g., East Transfer Point). The four original transfer points were located in sites intended to achieve uniform route lengths and cycle times between the transfer points necessary for the timed-transfer system, to minimize the travel time to Central Madison without introducing excessive new circuitous routing, to minimize bus volumes and impacts on residential streets, and to provide high levels of transit service to activity centers such as shopping malls. Amenities at each transfer point included a covered canopy, wind screens, benches, real-time electronic bus schedule information, lighting, CCTV cameras, and other security measures. Although there were no heated areas at transfer points, during cold weather drivers commonly allowed passengers to wait for their bus on buses present at the transfer point for layovers.

With the implementation of the Transit Network Re-design, all four transfer points were eliminated, as the route system no longer relies on timed transfers. The South Transfer Point location will continue to be an important opportunity for riders to transfer between the future North-South BRT (Route B), Routes G and H, and O. Planning for new BRT stations and bus stop locations near the South Transfer Point are underway as part of North-South BRT planning.

Metro Transit Administration, Operations, Bus Storage, and Maintenance Facilities

Metro Transit's operations, bus storage, and maintenance facility is located on a centrally located 10.4-acre site in the 1100 block of East Washington Avenue (1 South Ingersoll). The facility includes a bus rehabilitation and maintenance area, storage space for buses, and space for maintenance equipment and spare parts inventory. Bus access to the facility is from Ingersoll Street. The facility conversion from a WWI munitions factory to a bus maintenance facility was completed in two phases in the early 1980s and has had numerous interior and exterior modifications since then to address facility inadequacies. It was originally designed to accommodate 160 40-foot buses; by the early 2020s it housed as many as 219 40-foot buses and was beyond capacity.

Metro's administrative offices are located in a building on the same block as the bus storage, maintenance,

and operations facility at 1245 East Washington Avenue, just west of Baldwin Street. This building houses the offices of the Administrative Unit, Finance Unit, Planning & Scheduling Unit, and Marketing and Customer Services Unit, including the Customer Services Center. The Center handles all paratransit ride confirmations and administers Metro's customer feedback program. A public-facing customer service office at this location provides transit information and sells passes and 10-Ride Cards.

Beginning in August of 2023, paratransit eligibility assessments are conducted off-site at the Madison Fleet building at 4151 Nakoosa Trail.

Maps, schedules, and the Ride Guide can be downloaded, trips planned, and buses tracked online at cityofmadison.com/metro.

A space needs study for Metro's operations, bus storage, and maintenance facility was completed in November 2005 that included a site concept plan for the redevelopment and expansion of Metro's facilities, a phasing plan, an implementation plan, and a funding strategy.

A [planning effort](#) was conducted in 2017-18 to study the spatial needs of Metro Transit's operations at the 1 S. Ingersoll location. This study resulted in a six-year capital improvement plan to address the shortcomings of the existing facility, with [the first phase of construction](#) begun in 2019.

The City of Madison Department of Transportation conducted a Metro Facility Analysis (February 2019) of eight potential facility scenarios, ranging from upgrades to the existing 1101 East Washington facility and construction of a satellite facility to relocating to entirely new facilities and closing the 1101 East Washington facility. A site on Hanson Road was selected for this use. The Hanson Road facility will be used primarily to house and maintain the 60-foot articulated electric buses that will operate the BRT routes.

Metro Transit Organization

The City of Madison acquired the transit system from the privately owned Madison Bus Company in 1970, and Metro operators and other staff are city employees. The transit system operates under the oversight of the

mayor of Madison, the Common Council, and the city's Transportation Commission (TC).

Local funding is generally provided through the City of Madison budgeting process. For service that extends beyond the City of Madison's boundaries, Metro contracts with the municipalities or other entities.⁵⁷ These funding partners include the cities of Middleton, Fitchburg, Sun Prairie, and Verona, and the Village of Shorewood Hills. The University of Wisconsin, UW Health, Madison College, and the Madison Metropolitan School District (MMSD) also contract with Metro Transit to fund service. Between 2003 and 2018, the Transportation Commission had a Contracted Service Oversight Subcommittee (CSOS) to consider and provide recommendations on policy matters pertaining to the operation of contracted transit service. The CSOS helped to improve communications between Metro staff and staff and officials of contracting municipalities and agencies. Although it was officially disbanded in June of 2018, CSOS member representatives continue to meet roughly quarterly on an ad-hoc basis in order to maintain communications between Metro and contracting municipalities and agencies. Between meetings, Metro staff provide service partner representatives month-

ly ridership reports and timely information regarding service adjustments and detours.

Metro Transit has seven different units—Administration, Finance, Marketing and Customer Services, Planning & Scheduling, Maintenance, and Operations, and Capital Projects. The Transit General Manager is responsible for general management and oversight of the agency and serves as liaison to the TC, the mayor's office, and other City of Madison department heads. In 2022, Metro Transit added four chief positions to oversee the implementation of the Transit Network Redesign. These include a Chief Administrative Officer who oversees the finance, human resources, and Information Services Departments; a Chief Operating Officer who oversees the Metro's drivers and supervisory staff; a Chief Maintenance Officer who oversees maintenance and building and grounds functions, and a Chief Development Officer who oversees Metro's Marketing and Planning & Scheduling Departments.

57 State law requires that transit service provided outside the jurisdiction of the community operating the service be provided under contract with financial support from a public or private organization:

66.1021(10) (a) Any city, village, town or federally recognized Indian tribe or band may by contract under s. 66.0301 establish a joint municipal transit commission with the powers and duties of city, village or town transit commissions under this section. Membership on the joint transit commission shall be as provided in the contract established under s. 66.0301.

(b) Notwithstanding any other provision of this section, no joint municipal transit commission under par. (a) may provide service outside the corporate limits of the parties to the contract under s. 66.0301 which establish the joint municipal transit commission unless the joint municipal transit commission receives financial support for the service under a contract with a public or private organization for the service. This paragraph does not apply to service provided by a joint municipal transit commission outside the corporate limits of the parties to the contract under s. 66.0301 which establish the joint municipal transit commission if the joint municipal transit commission is providing the service on April 28, 1994, without receiving financial support from a public or private organization for the service, and elects to continue the service.

(11) (a) In lieu of providing transportation services, a city, village or town may contract with a private organization for the services. (b) Notwithstanding any other provision of this section, no municipality may contract with a private organization to provide service outside the corporate limits of the municipality unless the municipality receives financial support for the service under a contract with a public or other private organization for the service. This paragraph does not apply to service provided under par. (a) outside the corporate limits of a municipality if a private organization is providing the service on April 28, 1994, without receiving financial support from a public or private organization for the service, and the municipality elects to continue the service.

(12) Notwithstanding any other provision of this section, no transit commission may provide service outside the corporate limits of the city which establishes the transit commission unless the transit commission receives financial support for the service under a contract with a public or private organization for the service. This subsection does not apply to service provided by a transit commission outside the corporate limits of the city which establishes the transit commission if the transit commission is providing the service on April 28, 1994, without receiving financial support from a public or private organization for the service, and elects to continue the service.

Table 10 : Metro Transit System Characteristics, 2017-2022.

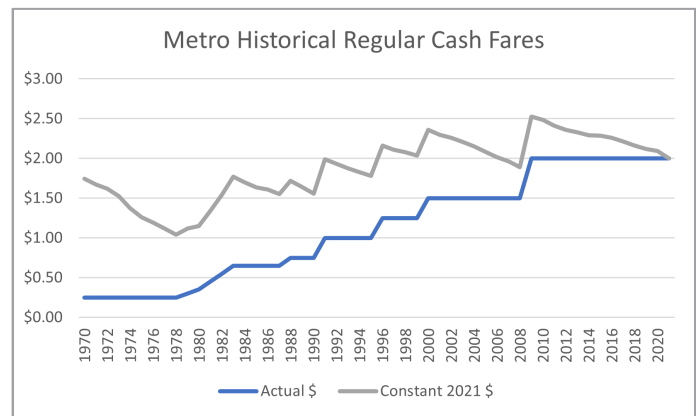
System Characteristics	2017	2018	2019	2020	2021	2022
Transit Service Levels and Utilization						
Total Revenue Vehicle Hours	511,751	478,339	460,202	350,655	382,126	386,236
Total Revenue Vehicle Miles	6,816,058	5,882,778	5,731,573	4,417,771	4,707,689	4,722,445
Total Passenger Trips	13,108,095	13,385,628	12,969,815	4,755,375	5,458,011	8,379,362
Operating Expenses						
Total Expenses	\$54,574,725	\$52,304,998	\$52,603,142	\$51,412,935	\$50,061,816	\$51,022,930
Cost per Vehicle Revenue Hour	\$106.64	\$109.35	\$114.30	\$ 146.62	\$ 131.01	\$ 140.83
Cost per Vehicle Revenue Mile	\$8.01	\$8.89	\$9.18	\$11.64	\$ 10.63	\$11.52
Cost per Unlinked Passenger Trip	\$4.16	\$3.91	\$4.06	\$10.81	\$9.17	\$6.49
Revenue						
Total Fare Revenue	\$13,161,533	\$15,782,860	\$14,888,395	\$8,840,925	\$9,649,554	\$10,370,530
Revenue per Unlinked Passenger Trip	\$1.00	\$1.18	\$1.15	\$1.86	\$1.77	\$1.24

Metro Transit Costs and Revenue

In 2019, pre-pandemic, Metro collected \$14.9 million in fares and directly generated revenue, or 27% of its total operating budget of \$55.1 million. In 2021, with ridership depressed due to the pandemic, fares and directly generated revenue were only \$9.6 million, or 14% of the operating budget of \$67.9 million. Table 10 shows various system characteristics and associated metrics for 2017-2022.

Metro charges a flat fare for fixed route trips, regardless of distance or time of day. Metro implemented fare capping in 2024, but riders must use a Fast Fare card to enjoy the benefits of fare capping. Cash fares and fares for a single ride are \$2.00, and are capped at \$5.00/day, \$16.25/week, and \$65.00/month. Discounts are available to youths (ages 5-17 or enrolled in high school), people with disabilities, people with low incomes, and seniors. Children under five years of age ride free. Transfers are valid for two hours. No fares are collected on campus routes 80, 81, 82, and 84. Fast Fare cards can have funds added to them [online](#), at BRT station kiosks, and at many retailers throughout the service area. Paratransit fares are \$3.25/ride, and unlimited-ride pass provided by an employer or institution are accepted for paratransit; however, riders must register their pass number with Metro for it to be valid for paratransit fares.

Figure 22: Metro’s historical regular cash fares in actual and constant 2021 dollars. The consumer price index is from the Bureau of Labor Statistics, CPI for All Urban Consumers, 1982-84=100 (unadjusted)



Many schools and employers offer unlimited ride bus passes to their students or employees in the form of a magnetic strip card. These schools and employers are generally billed \$1.35 for each swipe. This fare is intended to take transfers into account, since transit riders using the cards are not issued conventional transfers. Instead, users swipe their card twice (or more) if they use two (or more) routes on their trip.

Entities and schools currently using unlimited ride cards include:

- City of Madison employees (no billing takes place).

- Dane County employees, including employees of the Alliant Energy Center and UW Extension – Dane County, as well as Americorps volunteers.
- UW-Madison students and employees.
- Edgewood College students.
- Madison College students.
- Meriter Hospital employees.
- St. Mary’s Hospital employees.
- UW Health employees.

In addition, Metro offers the Commute Card. This program is an annual unlimited ride pass similar to what is currently in place with the larger Madison-area entities discussed above, but it is available to most businesses, non-profit organizations, schools, colleges, and technical campuses.

In addition to fares and directly-generated revenue, Metro depends on a combination of local, state, and federal funds to cover operational and capital expenses. State and federal contributions, including Federal

Table 11: Metro Transit Projected Expenses and Revenues, 2025-2029 (TIP Table B-5)

	2025	2026	2027	2028	2029
	Budgeted	Projected	Projected	Projected	Projected
Expenses					
Capital Costs ²	\$19,568,921	\$14,935,000	\$15,370,000	\$15,860,000	\$16,345,000
Operating Costs ³	\$77,425,165	\$79,360,794	\$81,344,814	\$83,378,434	\$85,462,895
Total Costs	\$96,994,086	\$94,295,794	\$96,714,814	\$99,238,434	\$101,807,895
Revenues					
FTA Sec 5307 ⁴ , 5337 ⁵ , 5339 ⁵ Capital	\$23,938,748	\$19,394,260	\$19,921,054	\$20,495,331	\$21,072,214
FTA CARES, CRRSA & ARPA Funds	\$0	\$0	\$0	\$0	\$0
FTA Areas of Persistent Poverty Grant	\$0	\$0	\$0	\$0	\$0
FTA Small Starts	\$0	\$0	\$0	\$0	\$0
FTA 5339c Low or No Emission Capital Grant	\$0	\$0	\$0	\$0	\$0
State Sec. 85.20 ⁶	\$18,513,404	\$18,976,239	\$19,450,645	\$19,936,911	\$20,435,334
Farebox & Other Revenue	\$19,628,376	\$20,119,085	\$20,622,062	\$21,137,614	\$21,666,054
Local Funds - Madison ⁷	\$21,849,737	\$22,415,793	\$22,995,876	\$23,600,273	\$24,214,279
Other Local Funds	\$13,063,821	\$13,390,417	\$13,725,177	\$14,068,306	\$14,420,014
Total Revenues	\$96,994,086	\$94,295,794	\$96,714,814	\$99,238,434	\$101,807,895

1 Costs and revenues for 2024 are based upon City Executive budget. All figures are preliminary estimates, subject to final state and federal authorization budgets. Figures differ from TIP Project Listings due to City budgeting FTA funding in prior year CIP.

2 Includes all fixed asset and operating costs projected to be funded by FTA Section 5307, 5337, 5339 and other discretionary grants. Includes cost of BRT project.

3 Operating costs net of those costs funded by FTA Section 5307 grants. Operating costs projected to decline or hold steady through 2025 due to senior staff retirement, reductions in fuel costs as fleet is electrified, and other factors. Costs include debt principal and interest, but not depreciation.

4 Includes operating expenses related to preventive maintenance, tire leasing, planning, etc. eligible for and projected to be funded through Section 5307 capital grants.

5 Section 5337 (State of Good Repair) and Section 5339 (Bus and Bus Capital) are formula programs under the IJA/BIL. Funding levels are based on authorized funding.

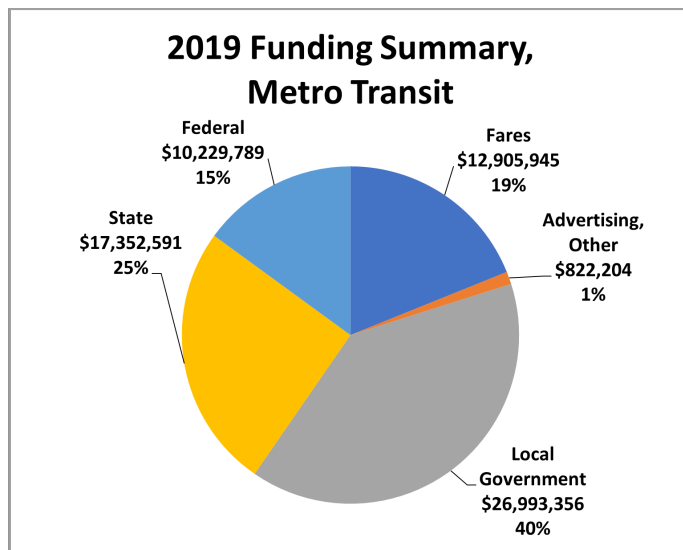
6 Assumes a zero increase each year state s. 85.20 funding.

7 General obligation (G.O.) debt funds are used for large capital expenses. Smaller capital expenses are assumed to be funded by current year taxes and are included under "Local - Madison."

Transit Administration (FTA) Capital Grants Urbanized Area Formula funds, and other funding programs, made up \$27.6 million, approximately 39.7% of Metro’s 2019 funding.⁵⁸

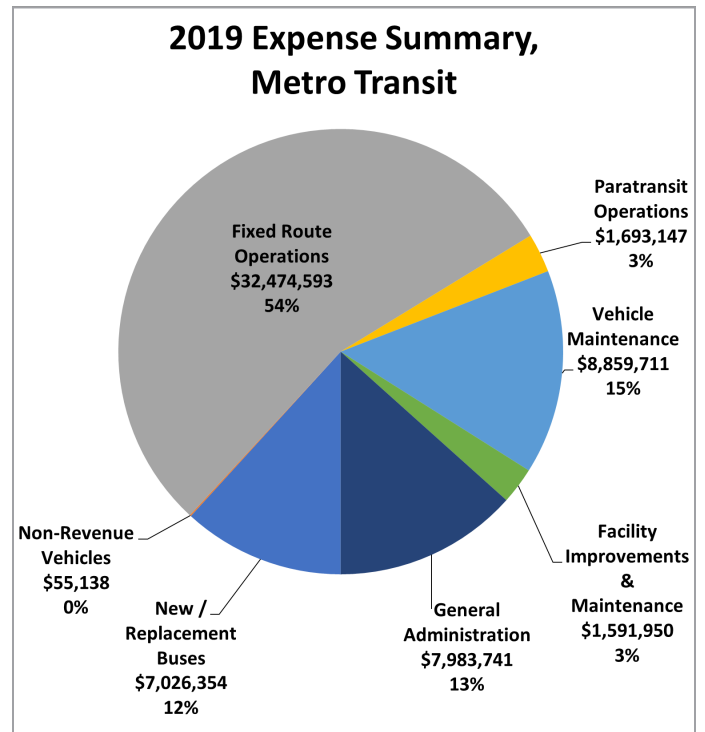
In 2019, state funding amounted to \$17.4 million, 31.5% of Metro’s Operating budget and 25.0% of Metro’s total budget. Capital projects do not receive any state financial support. \$16.4 million in local 2019 Capital funding was primarily allocated out of non-General Fund General Obligation borrowing, while \$10.6 million in Operating funding was provided by the General Fund. These two local funding sources amounted to \$27.0 million, or 38.9% of Metro’s total annual budget.

Figure 23: Metro Transit Funding Summary



\$55.1 million or 79.3% of these funds were spent on operating expenses, with the remaining \$14.4 million spent on capital expenses; roughly half of that funding was used to purchase new vehicles and the other half on facility upgrades. Salaries, wages, and benefits of Metro drivers and other staff accounted for 68.8% of 2019 Operating expenses.

Figure 24: Metro Transit Expense Summary

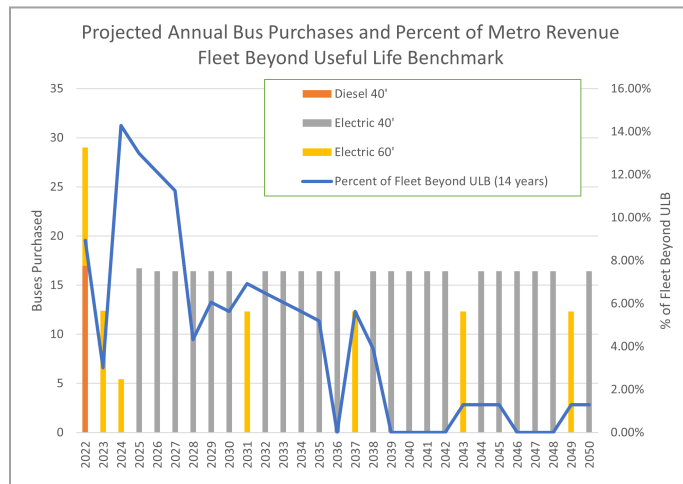


Capital Projects

The largest regular capital expense for Metro Transit is purchasing new buses. Metro plans to purchase an average of 15 replacement service vehicles (buses) each year; the number of new buses purchased each year will vary based on bus type and expense, generally with fewer articulated 60’ buses purchased at a time than 40’ buses. Figure 18, Projected Annual Bus Purchases and Percent of Metro Revenue Fleet Beyond Useful Life Benchmark, shows planned bus purchases by bus type for the 2022-2050 period. The planned bus replacement cycle will not meet the Transit Asset Management Plan (TAMP) Useful Life Benchmark (ULB) performance measure target of no more than 11% of the revenue fleet being beyond the ULB of 14 years in 2024-2027; however, the percentage of the fleet past the ULB generally declines in following years and is not projected to exceed the adopted performance measure after 2027.

⁵⁸ Due to the influx of one-time pandemic relief funding that was made available through various federal laws - including CRRSAA, CARES, and ARPA - in 2020 and 2021, funding for those years is not discussed here. Annual NTD Agency Profile reports for Madison Metro are available at <https://www.transit.dot.gov/ntd/transit-agency-profiles/city-madison> and include the data discussed here for 2013 and subsequent years.

Figure 25: Projected Annual Bus Purchases and Percent of Metro Revenue Fleet Beyond Useful Life Benchmark⁵⁹



Other major capital projects include: completion of the Hanson Road facility renovations; the 1 S. Ingersoll Street renovations; planning and construction of North-South BRT; installing vulnerable road user protective technologies on some buses; modifying all needed bus stops to be accessible during 2024; and transit speed and reliability projects, such as in-lane stops, pedestrian improvements, and other stop improvements.

Federal Funding

Federal funding for transit through the Federal Transit Administration (FTA) was previously authorized under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU expired in 2012 and was replaced with a new two-year transportation authorization bill, entitled Moving Ahead for Progress in the 21st Century (MAP-21). MAP-21 made changes in the transit programs, creating some new ones and consolidating some of the former programs. The 2015 Fixing America’s Surface Transportation (FAST) Act provided certainty in funding levels and programs through 2020. The 2021 Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL), retained programs established under MAP-21 and added a State of Good Repair program for fixed-guideway rolling stock, as well as providing the largest increase in transit funding in history.

Urbanized Area Formula Grants (Section 5307) is the largest of FTA’s grant programs and provides grants to support public transportation in populated areas

with 50,000 people or more. Funding is distributed by formula based on population, level of transit service provided, and other factors. Since the Madison urbanized area has more than 200,000 people and Metro Transit has more than 100 buses in service during peak periods, Metro’s 5307 grants may only be used for capital expenses, with some exceptions. The most significant exception is that operating costs under the category of “preventive maintenance” are eligible. This includes all direct costs, including labor costs, associated with maintaining vehicles and facilities. Other exceptions include equipment leases and the provision of paratransit services (but only for an amount not exceeding 10% of the total grant). Also, MAP-21 repealed the former Job Access and Reverse Commute (JARC) program in SAFETEA-LU, but made those activities (providing job access to low-income individuals) eligible under the Section 5307 program. The Madison-area IIJA apportionment was \$10.2 million in 2023.

The State of Good Repair Grants (Section 5337) replaces the Fixed Guideway Modernization program in SAFETEA-LU. These formula grants fund capital projects to maintain rail and high-intensity bus systems using bus-only and high occupancy vehicle (HOV) lanes. Projects are limited to replacement and rehabilitation, or capital projects required to maintain public transportation systems in a state of good repair. Eligible projects will now need to be included in a transit asset management plan. Metro Transit receives State of Good Repair grants based on the bus lane mileage and service, and \$1.3 million was apportioned to the Madison area in 2023.

The Bus and Bus Facilities Program (Section 5339) is a formula grant program that replaces the discretionary Bus and Bus Facilities Program (Section 5309) in SAFETEA-LU. Grants are available to replace, rehabilitate, and purchase buses and related equipment, and to construct bus-related facilities. Funding is distributed by formula based on population, vehicle revenue miles, and passenger miles. The IIJA apportionment for the Madison area in 2023 was \$827,000.

The Enhanced Mobility of Seniors and Individuals with Disabilities program (Section 5310) funds projects that increase the mobility of seniors and people with disabilities. Funds are apportioned based on each

⁵⁹ https://www.greatermadisonmpo.org/planning/documents/appendixb_systemperformancereport.pdf figure B-Q.

State's share of the targeted populations and under MAP-21 became apportioned to both states and large urbanized areas with populations over 200,000 such as Madison. The former New Freedom program was consolidated into this program. The New Freedom program provided grants for services for individuals that were beyond what is required in the Americans with Disabilities Act. Former New Freedom program funds allocated to the Madison area were primarily used for mobility management services by Dane County. The IJA apportionment for the Madison area was \$480,000 in 2023.

Fixed Guideway Capital Investment Grants (Section 5309), also known as "New Starts" and "Small Starts," are used to fund major rail and bus rapid transit projects. Section 5309 funds are competitively awarded. In the early 2000s, they were used for planning purposes for the Transport 2020 commuter rail project and could potentially provide funding for other high capacity transit systems, such as the bus rapid transit system currently under construction. Several changes to the New Starts/Small Starts program were enacted with MAP-21 to streamline project selection and development that are relevant for the Madison area. The "Alternatives Analysis" phase is replaced with "Project Development" and the "Preliminary Engineering" and "Final Engineering" phases are consolidated into one phase. The project evaluation process by the FTA has been streamlined to allow a more expedient approval of lower cost projects. The City of Madison was awarded 7.6 million in Section 5309 funding for the east-west BRT project in 2023 and is seeking Section 5309 funding for the north-south BRT project.

State Funding

The Wisconsin Department of Transportation funds local public transit systems (both fixed-route and shared-ride taxi) through the State Urban Mass Transit Operating Assistance Program (Wisconsin State Statutes 85.20). Eligible project costs are limited to the operating expenses of the transit system. Funds are distributed in four categories based on population and the location of the transit system. Metro Transit, a Tier A-2⁶⁰ system, expects to receive \$18.1 million in 2024. The cities of Fitchburg, Monona, Stoughton, Sun Prairie, and Verona have received Tier B funding, which is proportioned

in uniform percentages of operating expenses (with a 60% maximum) to transit systems with populations higher than 50,000, excluding Madison and Milwaukee. The aforementioned Madison area communities have been included in Tier B because of their location in the Madison urbanized area. The City of Stoughton's shared-ride-taxi will become a Tier C system in 2024, as it is becoming a standalone small urban area outside of the Madison urban area in 2024.⁶¹ Tier B cities in the Madison area are expected to receive a total of \$4.37 million in 2024.

The Paratransit aids program (Wisconsin State Statutes 85.201) provides funding to eligible applicants that receive state aid payments under s. 85.20 (4m) and that are served by an urban mass transit system that provides paratransit service to assist those eligible applicants in providing paratransit service.

Additional state funding is available through the Specialized Transportation Assistance Program for Counties (Wisconsin State Statutes 85.21), which provides funding to counties for specialized transportation programs serving the elderly and persons with disabilities. Funding under the program is appropriated based on the proportion of the state's senior and Disabled population in each county with a certain minimum appropriation. Section 85.21 funds may not be used to support fixed route service in the Madison area but may be used to fund paratransit or other service to the elderly and persons with disabilities.

The state does not currently have a transit capital assistance program.

Local Funding

Local funding is provided primarily by the City of Madison and other local jurisdictions primarily through property taxes, and in Madison through a portion of the funds raised through a \$40 Vehicle Registration Fee. The local share of deficits for service provided outside the City of Madison, or not primarily serving City of Madison residents, is funded through partner agreements. The local funding shares are distributed among these partner communities and entities based on the service hours in those communities or serving those en-

60 For more information about state transit funding tiers, see https://docs.legis.wisconsin.gov/misc/lfb/informational_papers/january_2023/0042_transit_assistance_informational_paper_42.pdf.

61 Based on changing definitions of "Urban Areas" by the US Census.

ties and fares collected. The estimated share for each partner based on the 2024 budget is shown in Table 12. The City of Monona began contract negotiations for new Metro service in December 2023, so their 2024 contribution – should there be Metro service in Monona in 2024 – is not included in this table. At the time of the writing of this plan, the Village of McFarland was considering potential Metro fixed-route service expansion as early as 2025; as this service has not been designed or approved by the Village, their potential future contribution is similarly not included in this table.

Table 12: 2024 Estimated Local Funding Distribution

Service Partner	Contribution Amount	Percent of Local Share
City of Middleton	\$1,284,102	5.2%
City of Fitchburg	\$1,433,446	5.8%
UW-Madison	\$2,292,209	9.2%
Madison College	\$33,412	0.1%
Madison Metropolitan School District	\$638,165	2.6%
UW Health	\$406,030	1.6%
Village of Shorewood Hills**	\$30,600	-
City of Verona*	\$761,864	3.1%
City of Sun Prairie	\$625,284	2.5%
City of Madison	\$17,316,474	69.8%
Totals	\$24,821,586	=
*The City of Verona contracts for peak-period fixed-route service only.		
**The Village of Shorewood Hills contracts for paratransit service only.		

Other Public Transit Services

Monona Transit

The City of Monona provides public transportation service within its city limits and to central Madison. The service consists of one peak period fixed route called Monona Express and one point deviation mid-day route called Monona Lift.

Monona Express operates in a counter-clockwise route in the morning from Monona to Madison via Atwood Avenue and Williamson Street to the Capitol Square, UW Campus, and UW/VA Hospitals, then to Monona via Olin Avenue, John Nolen Drive, and the Beltline High-

way. It makes a similar clockwise loop in the afternoon. Monona Express makes four loops each morning and each afternoon using two buses in service.⁶²

Monona Express makes four weekday AM and PM trips from Monona to Madison and returning to Monona, and Monona Lift makes six loops throughout the mid-day period, four of which also serve Madison and two of which circulate within Monona. Senior and riders with a disability may call and arrange for the driver to make deviations to the route and be picked up or dropped off within one-half mile. Although a timetable is published for Monona Lift, all riders are encouraged to call the dispatcher to make sure they are not missed because of the point-deviation nature of the service.

The regular cash fare for Monona Express and Monona Lift is \$3.00 with discounts for ticket books, senior/Disabled riders, students, and riders with transfers from Metro Transit. Transfers from Monona Lift and Express are not valid on Metro Transit. A schedule is published listing the intersections served by Monona Transit in both Monona and Madison, and some bus stop signs are present in Monona; however, the bus may also be flagged by passengers along the route. Monona Transit only serves passengers who start or end their trip within the City of Monona. The City of Monona currently contracts with First Transit to provide the service using accessible minibuses.

Table 13: Operating statistics for Monona Transit, 2019.

Monona Transit 2019	Express	Lift
Ridership	12,729	5,889
Drive Hours	2,340	2,230
Passenger Revenues	\$23,727	\$5,620

Monona Transit has received operating assistance from the State of Wisconsin that covered about 55% of its operating expenses; this was increased to 57% in 2023.

The City of Monona has contracted with Metro for a new Metro route serving Monona in December of 2023, with Metro service anticipated to replace Monona Lift and Express in March 2025.

⁶² Due to a driver shortage, the first morning loop has been discontinued indefinitely.

Sun Prairie Shuttle and Shared-Ride Taxi Service

The City of Sun Prairie contracted for a shared-ride taxi for many years but terminated this service in the fall of 2023 after local Metro routes S and W had been operated for several months and riders had adapted to the new system.

Pre-pandemic, shared-ride taxi service was open to the general public from 6 a.m. to 11 p.m. Monday to Thursday, 6 a.m. to 2:45 a.m. Friday and Saturday, and 6 a.m. to 8 p.m. on Sunday. Due to staffing shortages and other impacts of the COVID-19 pandemic, service hours were reduced to 7 a.m. to 4 p.m. Monday to Friday, 11 a.m. to midnight Saturday, and 7 a.m. to 3 p.m. Sunday. General fares are a flat rate of \$4.00 within the city of Sun Prairie. In addition to the in-town shared-ride taxi service, Sun Prairie’s contractor provided a shuttle to and from the East Towne Mall in Madison’s east side; this service did not have a fixed route in Sun Prairie and deviated to accommodate ride requests. East Towne Mall shuttles arrived at the mall on the half-hour, and in Sun Prairie on the hour; the fare for this shuttle was \$5.00 each way. Trips were also available within three miles of the city limits east of I-39/90/94 at a charge of \$2.25 per mile.

Table 14: Operating statistics for Sun Prairie Shuttle and Taxi Service

Sun Prairie Shuttle and Taxi Service 2019	
Ridership	70,155
East Towne Mall Shuttle Rides	3,521 (2018)
Service Hours	31,500
Passenger Revenues	\$268,243

The Sun Prairie Shuttle and Shared-Ride Taxi have received operating assistance from the State of Wisconsin that covered about 55% of its operating expenses; this was increased to 57% in 2023. The City of Sun Prairie contributed approximately 21% of the funding for this program in 2019.

Stoughton Shared-Ride Taxi Service

Shared-ride taxi service is provided within the city of Stoughton under contract. The service is open to the general public from 6 a.m. to 6 p.m. Monday to Thursday, 6 a.m. to 7 p.m. on Friday and Saturday, and 9 a.m. to 2 p.m. on Sunday. Fares are a flat rate of \$4.75 and a senior/disabled rider rate of \$3.75 within the city of Stoughton. Trips are available up to three miles outside the city limits at a rate of \$1.00/mile.

Table 15: Operating statistics for Stoughton Shared-Ride Taxi Service

Stoughton Taxi Service 2019	
Ridership	19,409
Service Hours	11,180
Passenger Revenues	\$77,441

Stoughton Cab has received operating assistance from the State of Wisconsin that covered about 55% of its operating expenses; this was increased to 57% in 2023. Stoughton has historically been a Tier B system due to its location within the Madison urban area; however, due to changes in how the US Census defines urban areas, Stoughton will become its own “small urban area” in 2024, and its transit system become a Tier C system.⁶³

Specialized Transportation Services

A variety of transportation programs are available throughout the Madison area and Dane County that provide specialized transit service to meet the needs of persons who are low-income, seniors, veterans, refugees, workers, and/or experience a disability. Most of these services are administered by the Disability & Aging Services Division of the Dane County Department of Human Services (DCDHS) and are accessible, routed group ride and demand-response services with specific requirements for eligibility and trip purposes.⁶⁴ The Dane County Specialized Transportation Commission oversees the operation of these programs.

Group Access Service (GAS) provides regularly scheduled weekday group trips for seniors (defined as age 60 and older) and for people with disabilities living in their own home or apartment within the Madison and Monona areas. Service is provided within the New-

⁶³ For more information on how system tiers are organized and funding allocated, see https://docs.legis.wisconsin.gov/misc/lfb/informational_papers/january_2023/0042_transit_assistance_informational_paper_42.pdf.

⁶⁴ <https://www.danecountyhumanservices.org/Disability-and-Aging/Transportation>.

Dane County Transportation Services		
Program Name	Eligibility	Service Tyoe
Group Access Service (GAS)	Age 60+ or has a disability, must live in own home or apartment in Madison and Monona; those enrolled in particular long-term care programs are not eligible	Routed door-to-door group service with advance reservation
Rural Senior Group Trips (RSG)	Age 60+ or has a disability, must live in own home or apartment in Dane County but outside Madison and Monona; those enrolled in particular long-term care programs are not eligible	Routed door-to-door group service with advance reservation
Specialized Transportation Services (STS) for Older Adults and People with Disabilities	Frail elderly or has a disability, enrolled in particular long-term support programs	Door-to-door group service with advance reservation
Retired Senior and Volunteer Program (RSVP)	Age 60+ or has a disability, must live in own home or apartment, those enrolled in particular medical assistance and long-term care programs are not eligible	Door-through-door service with volunteer drivers
Other Various Transportation Services	Age 60+ or has a disability	Demand response, voucher

Bridge Senior Focal Point area (see Figure 19). Trips do not generally cross coalition area boundaries.

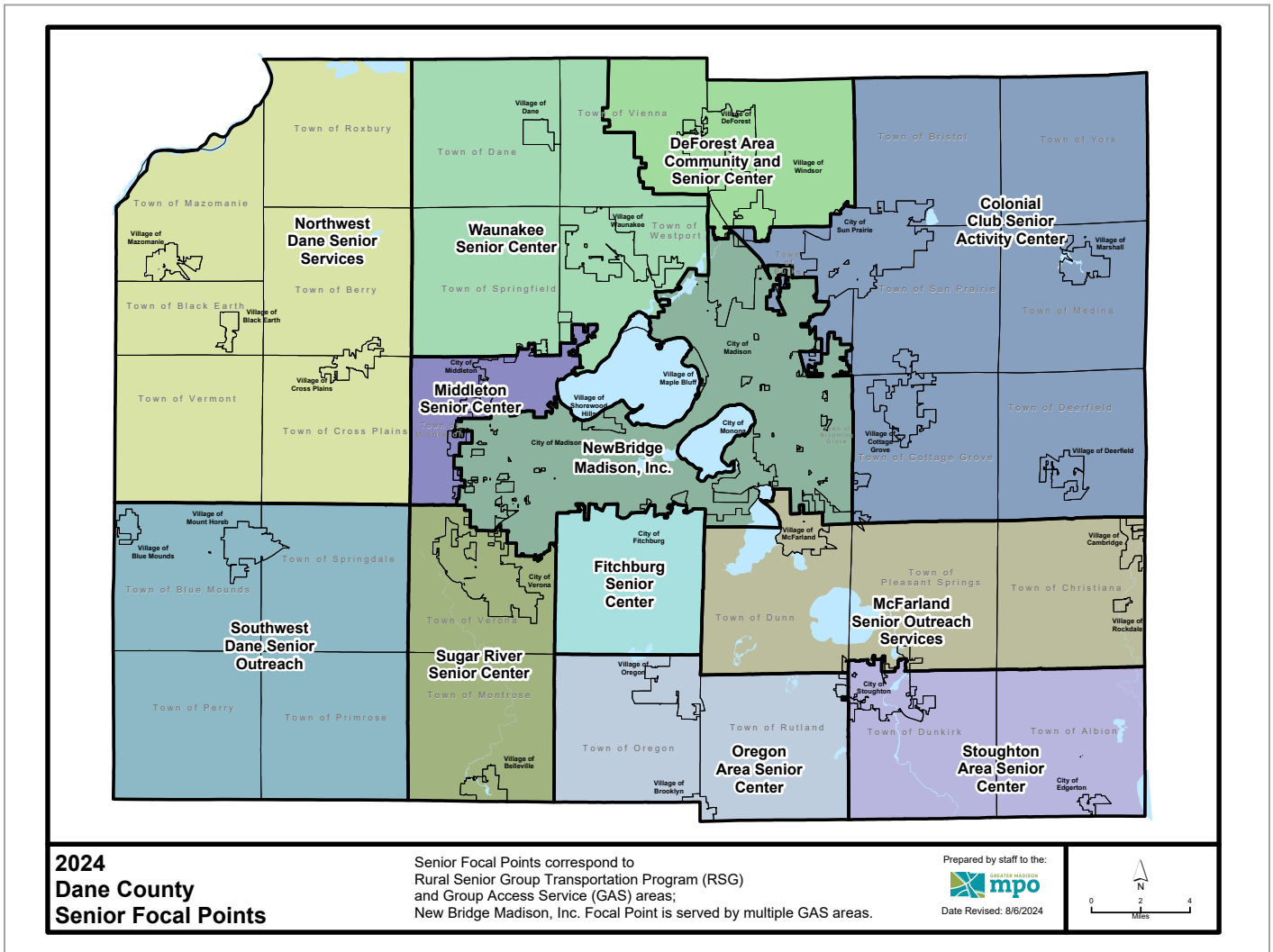
Within each coalition area, rides are provided each weekday to and from adult day services in the early morning and late afternoon and to/from nutrition sites during the midday. Shopping trips are scheduled in the mid-morning and mid-afternoon. Currently, each area is provided with two grocery store trips, two pharmacy/discount store/public library trips, and one shopping mall trip per week. Door-to-door service is provided as well as assistance with packages. Accessible vehicles are used. The current cash fare for GAS service is per one-way trip, with distinct fares set by trip purpose: \$0.50 for nutrition (grocery store or food pantry) trips, \$1.00 for in-town shopping trips, and \$1.50 for out-of-town shopping trips. No one is denied service due to inability to pay.

The Disability and Aging Services Division of DCHS manages the service, and contracts with a private provider on a per-hour basis. The current provider is Transit Solutions. Funding for GAS is provided by Madison Metro using pass-through State Urban Mass Transit Operating Assistance Program (Section 85.20) funding for service provided within Metro’s service area. In addition, Dane County uses county levy and highway department funds to pay for the service. In 2022, the program provided about 8,530 one-way trips.

The **Rural Senior Group Trips (RSG)** provides routed group transportation service to rural adults aged 60 and over and to people with disabilities who reside outside the area where GAS operates. Rural Senior Group Trips service is generally modeled after the Madison area’s GAS service, but it is organized differently in each of ten geographic areas based upon a local determination of needs. Geographic service areas of the county are: Northwest Dane Senior Services, Waunakee Senior Center, DeForest Area Community and Senior Center, Colonial Club Senior Activity Center, Middleton Senior Center, McFarland Senior Outreach Services, Stoughton Area Senior Center, Oregon Area Senior Center, Fitchburg Senior Center, Sugar River Senior Center, and Southwest Dane Senior Outreach (see Figure 19). Dane County contracts for service through a competitive bid process for all areas except the Northeast area, where service is directly provided by the Colonial Club for the seniors and people with disabilities.

Trip days and times are arranged by area senior centers or senior service organizations, which work with DCHS staff and are responsible for receiving passenger reservations and cancelations. The senior center or organization then notifies the contracted provider of the passengers’ schedules and requests for accessible vehicles. Door-to-door service with driver assistance is provided.

Figure 26: Dane County Senior Focal Points: Group Access Services (GAS) and Rural Senior Group Trips (RSG) Service Areas



Rides are provided to nutrition sites, to senior center activities, and for shopping and selected social activities. The social and recreational trips are organized by the local senior center or organization and are not paid for with County funds. Medical trips are not provided. The fares are: \$0.50 per one-way trip for nutrition trips, \$1.00 for in-town shopping trips, and \$1.50 for out-of-town shopping trips.

In 2022, the program provided about 24,090 one-way trips. The program is funded through state Specialized Transportation Assistance Program for Counties (Section 85.21) funding and county levy funds. Passenger fare revenues cover the remaining costs.

The **Retired Senior Volunteer Driver Escort Program (RSVP)** and **Veterans Helping Veterans Program (Vets Helping Vets)** both rely on volunteer drivers in private

automobiles to provide a transportation alternative for riders.

RSVP serves people aged 60 and over and people with disabilities who do not use a wheelchair. RSVP provides door-to-door individual, and in some cases, small group rides when other options are not available. RSVP drivers also deliver meals to people who are unable to leave their home. The RSVP service has become an integral part of the transportation services provided to the elderly within Dane County. In the Madison area, seniors who are not eligible for Metro paratransit service especially benefit from the program. Vets Helping Vets provides rides to veterans of all ages and their family members with a service model which parallels that of RSVP.

Medical trips are prioritized for both programs, but other trip purposes such as nutrition and social ser-

vices are also served. Service is generally available throughout Dane County and is largely dependent on the availability of volunteer drivers. Rides must be arranged prior to the day a ride is needed. Like many volunteer demand-response systems, this service relies on a three-day to one-week response time, but tries to accommodate individual short-notice calls depending on origin, destination, and driver availability.

The volunteer drivers are reimbursed at a rate of \$0.655 per mile (2023), and this rate is adjusted annually by the IRS. Dane County funds the program, using federal funds (Older Americans Act) state Section 85.20 operating assistance passed through from Madison Metro, state Section 85.21 funding, and additional local county levy funds. As a condition of federal funding through the Older Americans Act, donations are sought to offset the cost of service, but rides are not refused because of an individual's inability to pay. In 2018, the combined RSVP and Vets Helping Vets programs provided about 105,000 one-way trips. Although use of these services declined during the pandemic, the programs pivoted to delivering groceries and meals instead of providing rides, and over 90,000 rides/deliveries were provided in 2020. By 2022, ridership had rebounded to record-high levels, with over 118,700 rides provided.

DCDHS administers several other transportation services to meet the various needs of persons who have low incomes, are elderly, and/or experience disabilities. These programs include:

- **Older Adult Transportation Assistance Program:** Serves adults aged 60 and over and persons with disabilities who live in their own homes or apartments and who are not enrolled in particular long-term care programs; individuals who receive Medical Assistance rides through Common Carrier Medical Assistance Transportation are not eligible for medical rides through this program.
- **Rideline Service:** Scheduled, individual rides to work, job interviews, or training for persons who live in areas not served by public transit or with very limited public transit service; riders must live in their own homes or apartments, and those enrolled in particular long-term care programs are not eligible.
- **Employment Transportation Assistance:** Low-income people receive bus passes for employment searches. ETA is a transit-based fare-assistance program. The

service area is the Metro Transit service boundaries. The number of bus passes an individual can receive is limited.

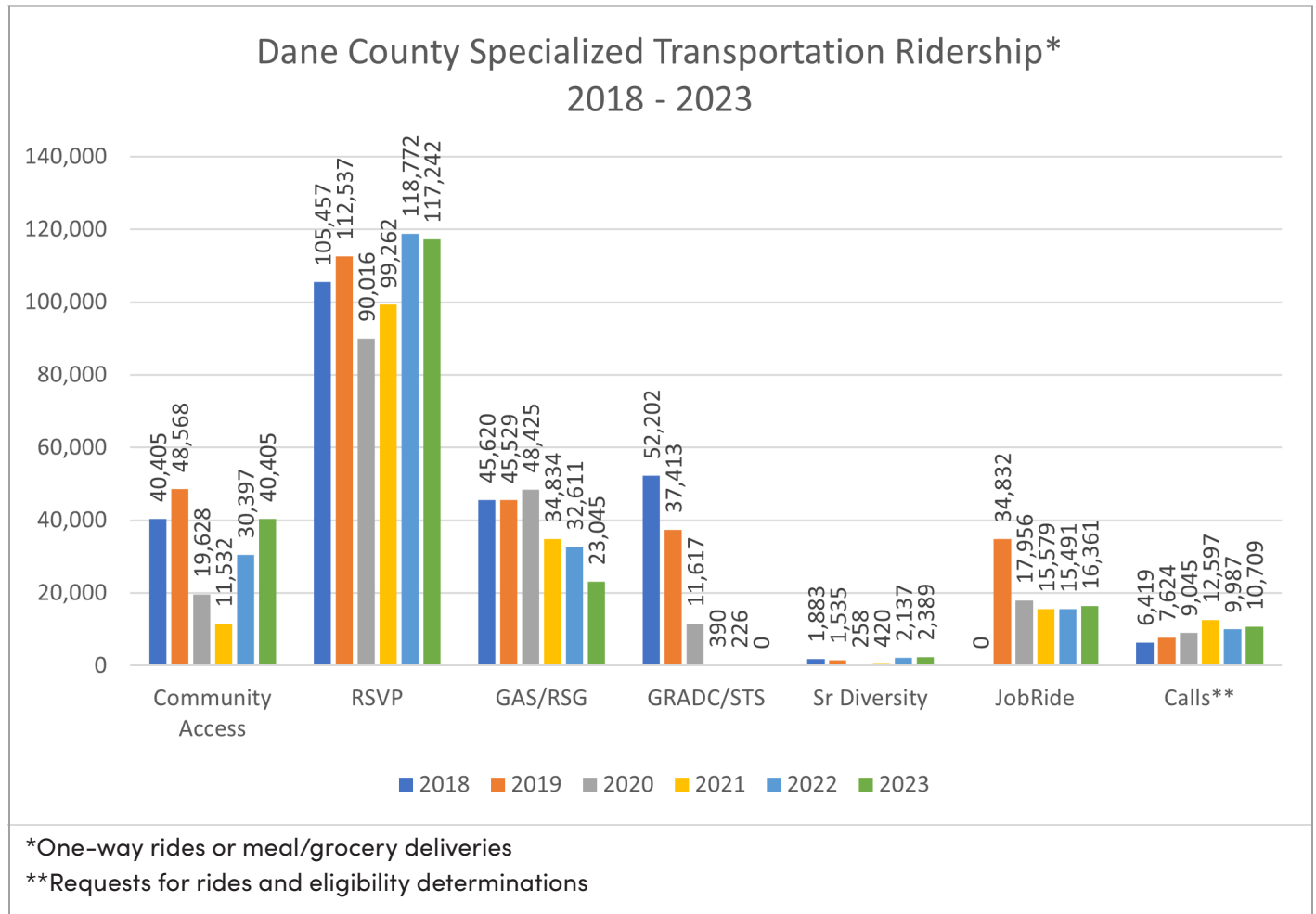
- **Work-N-Wheels Program:** 0% interest car loans and family financial planning courses for low-income workers who reside in rural areas of Dane County. Recipients are required to ride-share where possible. This is a revolving loan fund. Loan applications are approved by DCDHS and Southwest Community Action Work-N-Wheels Program. Service area is rural Dane County.
- **DryHootch:** DryHootch provides transportation to needed appointments and services for Veterans. The group ride service schedules stops at the Veterans Service Office, VA Hospital, food pantries, and other destinations. The group ride service is door-to-door. Individual rides are provided as needed. The individualized ride service is door-through-door, and passengers are assisted with curbs and up to three steps. Drivers will assist passengers in getting to the correct location within the clinic or hospital. Vehicles are accessible. The service area is all of Dane County. The drivers are also veterans.

In 2022, these programs combined provided approximately 30,400 one-way trips. The programs are funded through state Section 85.21 funding and county levy funds.

In addition to City of Madison and Dane County transportation services, additional transportation services exist through non-profit organizations and other program-specific transportation services. Most are targeted at specific low-income people, seniors, and people seeking medical treatment. Examples of other transportation service providers include the YWCA (YW Transit and JobRide) and the American Cancer Society (Road to Recovery), which are discussed further below.

[YW Transit/JobRide](#) are specialized transportation services provided by the YWCA. JobRide operates 24 hours per day and provides rides for low-income people to and from work where other transit options are not available. Although JobRide uses vans and attempts to organize group rides, many individual trips are made. JobRide is partially funded through the Wisconsin Department of Transportation's Wisconsin Employment Transportation Assistance Program (WETAP), which is supported by a combination of state (WisDOT and

Figure 27: Dane County Specialized Transportation Ridership, 2018-2023



DWD) and federal Section 5307 and 5311 funds. In 2019, JobRide provided about 35,000 one-way trips. Historically, YWCA also offered sexual assault prevention rides between 8 p.m. and 1 a.m. This service was discontinued during the pandemic due to lack of use; with the diverted resources, YWCA is now offering Senior Rides for essential errands during the day. Senior Rides are available for free for anyone 55 or older, and are available from 8:30 a.m. to 4 p.m.

Road to Recovery is a specialized transportation service coordinated by the American Cancer Society, with volunteer drivers providing transportation to cancer-related medical appointments. Other eligibility requirements may apply, and ride requests must be made several days prior to appointment dates.

Equity

As part of the MPO’s continuing efforts to comply with Title VI of the 1964 Civil Rights Act (42 U.S.C. 2000d-1) and address equity and environmental justice, the MPO conducts analyses throughout planning processes to evaluate the impacts of plan elements on minority populations, low-income households, and households without access to an automobile. Efforts are also made to ensure that minority and low-income populations are provided with dedicated opportunities to participate in planning processes. See the MPO’s 2021 Public Participation Plan⁶⁵ for more information on how the MPO engages with these demographic groups in various planning processes.

Title VI states that “No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program

⁶⁵ https://www.greatermadisonmpo.org/planning/documents/PPP2021_forWeb.pdf.

or activity receiving Federal financial assistance.” To amplify the Title VI law, President Clinton issued Executive Order 12898 in 1994, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. The purpose of the order is to make the achievement of environmental justice part of each Federal agency’s mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of government programs, policies, and investments, such as transportation facilities, on minority and low-income populations. The goal is to ensure that the benefits and burdens of government actions and investments are fairly distributed, and that minority and low-income populations are not disproportionately affected in an adverse way. In 1997, the U.S. Department of Transportation (USDOT) issued an order to summarize and expand upon the requirements of Executive Order 12898 on Environmental Justice. The Order generally describes the process for incorporating environmental justice principles into all DOT existing programs, policies, and activities.

President Biden’s Justice40 Initiative, the product of 2021 Executive Order 14008, requires covered programs to engage in stakeholder consultation and ensure that community stakeholders are meaningfully involved in determining program benefits. Covered programs are also required to report data on the benefits directed to disadvantaged communities. For USDOT, “Justice40 is an opportunity to address gaps in transportation infrastructure and public services by working toward the goal that at least 40% of the benefits from many of our grants, programs, and initiatives flow to disadvantaged communities.”⁶⁶

Title VI, Executive Orders 12898 and 14008, the USDOT order, and other USDOT guidance do not contain specific requirements for evaluating the impacts of transportation plans and programs on environmental justice populations. Justice40 uses a nationwide data set and methodology to determine Historically Disadvantaged Communities where 40% of funding should be directed.⁶⁷

During the development of the Connect Greater Madison 2050 Regional Transportation Plan (RTP), the

MPO held focus groups with low-income and minority individuals to learn about their experiences with the transportation landscape in the Madison area. The inconvenience of the Metro transit network was a major issue for focus group participants, who expressed a strong desire to use public transportation more often if it was more frequent, accessible, and convenient. For transit-dependent participants, accessing essential destinations in a timely manner is often very difficult. Other transit-related comments by focus group participants include:

- “Using my car is faster than using public transportation. Previously when I used public transportation, it did not allow me to do many things during the day. I used to spend up to three hours if I wanted to go to the mall. It is better for me to drive my car.” (Latino Academy)
- “The bus is not much available at night and during the weekends. Our community does not work from 9 am to 5 pm. Our community works from 4 am to 1 pm, 1 pm to 8 pm, 8 pm to 3 am and there is no public transportation to meet those different schedules.” (Latino Academy)
- “The main reason I use my car is to save time. It is more convenient.” (Latino Academy)
- “Time and efficiency is really important to me. My workplace [Freedom, Inc.], does not have easy access to bus lines. When I drive my car, it is a lot faster. Because of my kids, I don’t have a lot of extra time to wait for the bus. I also worry about safety from COVID on the bus.” (Bayview)
- “I believe that Metro System makes it easier for people to get around but many people decide not to use public transportation because it is a very lengthy and slow system. There is also a lack of knowledge about bus routes.” (Latino Academy)
- “I’m not sure if my scooter [power wheelchair] can fit on the bus. I’ve also heard that a bus ride is expensive now, and I’ve wanted to call Metro to ask, but haven’t done that. It would be great to have a smaller bus option that can take residents to places like Woodman’s to get culturally specific foods. That would feel safer. I was overwhelmed by the idea of needing to transfer on the south side to get to Woodman’s.” (Bayview)

⁶⁶ <https://www.transportation.gov/equity-Justice40>.

⁶⁷ <https://experience.arcgis.com/experience/0920984aa80a4362b8778d779b090723/page/Homepage/>.

- “If there were programs that could help people learn how to use public transportation, it would be great for us to enroll so we can learn to use public transportation, since that is very beneficial to the community.” (Latino Academy)
- “The bus is often hard with too many transfers and unreliable timing. My kids want to go to sporting events and want me to participate in their activities, and I often make excuses that I have a headache because it’s too hard to get there by bus.” (Bayview)
- “I would like to be a part of the community and go to farmers markets, make trips to Madison and go to other events, but I cannot due to limited bus service.” (Sun Prairie)

The Transit Network Redesign and future BRT services intentionally address the majority of these comments by improving travel time reliability and speed, increasing frequency, reducing system complexity, eliminating forced transfers at transfer points, adding all-day local Sun Prairie service, and designing routes that match more trips that people are already making.

As part of the 2050 RTP update, the MPO offered an online mapping comment application⁶⁸ that was used to document 125 individual transit-related comments, 18% of which were located in or adjacent to an MPO-identified Environmental Justice Area. 48% of these were in regard to a particular route or stop, and 26% were in regard to inter-city bus or rail service. Based on the Ridership/Coverage tradeoff investigated in the Metro Transit Network Redesign, 13% of EJ-area transit comments support transit service modifications that would improve ridership, such as increasing bus frequency, while no EJ-area comments supported service modifications that would improve coverage – although 4% supported provision of commuter/peak-period service.

All transit agencies are required by the FTA to comply with the Title VI requirements set forth in [FTA Circular 4702.1B](#). This includes establishing a Title VI Program with policies to assess Major Service Changes, Disproportionate Impacts to minority populations, and Disproportionate Burdens for low-income individuals. All service changes that meet the Major Service Change threshold are required to undergo a Title VI Equity Analysis that tests how the proposed changes will impact

minority and low-income populations. Additionally, this program includes a monitoring report comparing the service levels of minority and non-minority routes. The Title VI Program is submitted to the FTA on a three-year schedule with the most recent update approved in 2023.

The Metro Transit Network Redesign set out to address many of the long-standing inequities of the existing system, which included longer travel times and more transfers for lower-income and minority riders than for more affluent and white riders. The *Title VI Service Equity Analysis*⁶⁹ for the Network Redesign found that:

- There is no disproportionate impact on minority populations. People of color will benefit at similar or higher rates as White non-Hispanic people.
 - The amount of service within 1/4-mile (people-trips) of minority populations will increase by 30%, compared to a 26% increase for non-minority populations.
 - 56% of Asian residents, 52% of Hispanic residents, and 45% of Black residents will experience a significant increase in access to destinations (+10,000 jobs or better) by transit within 45 minutes, compared to 45% of White non-Hispanic residents.
 - 2% of Asian, 2% of Hispanic, and 2% of Black residents will experience a reduction in access to destinations (-1,000 jobs or worse) by transit within 45 minutes, compared to about 3% for White non-Hispanic residents.
- There is no disproportionate burden on low-income populations. Low-income residents will experience a smaller increase in service quantity (people-trips) than the average resident, but they will be far more likely to experience more useful service (improved destination access).
 - The amount of service near low-income populations will increase by 20%, compared to a 32% increase for non-low-income populations. This is primarily because service near the transfer points is duplicative and double counted by the methodology.
 - Nonetheless, low-income residents are far more likely to benefit from increased frequency and directness of service in the redesigned network.

68 www.cityofmadison.maps.arcgis.com/apps/webappviewer/index.html?id=ac962ec7e11a4e9b9aa518ffb50bcf79.

69 www.cityofmadison.com/metro/documents/november-publichearing/TitleVI_ServiceEquityAnalysis.pdf.

67% of low-income residents would experience a significant increase in access to destinations (+10,000 jobs or better), compared to 40% of non-low-income residents.

- Conversely, only 2% of low-income residents will experience a reduction in access to destinations (-1,000 jobs or worse) by transit within 45 minutes, compared to about 3% of non-low-income residents.

As part of the development of this TDP, the MPO partnered with community organizations to host focus groups with identified historically disadvantaged populations. Focus groups were hosted by: Access to Independence; Latino Academy of Workforce Development; Madison Area Chinese Community Organization; Vera Court Neighborhood Center; and the Wisconsin Hmong Association.

Focus group discussion summaries and survey results tabulated by race, ethnicity, and household income are included in Appendix E.

The MPO will continue to develop analysis tools to better quantitatively assess the benefits and impacts of recommended transportation projects on EJ populations as part of future planning efforts.

Policies

ADA Comments & Complaints⁷⁰

“Metro Transit is committed to complying with the requirements of the Americans with Disabilities Act (ADA) in all of its programs and services. All buses are wheelchair-accessible, and Metro works with the City of Madison Traffic Engineering Department and Service Partners to identify, address, and remove barriers to accessing the transit system. See Paratransit Policies, below, for more information.”

Civil Rights and Title VI⁷¹

“The City of Madison and Metro Transit assure that no person shall on the grounds of race, color, or national origin, as provided by Title VI of the Civil Rights Act of

1964, and the Civil Rights Restoration Act of 1987 (P.L. 100-259) be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity.

“Furthermore, Madison General Ordinance (M.G.O.) Sec. 39.02(8) mandates the execution of this operational requirement. The City of Madison and Metro Transit further assure every effort will be made to ensure nondiscrimination in all of its federally funded program activities. Metro’s most recent Title VI Plan was adopted in 2023.”

Code of Conduct/Transit Exclusion Policy⁷²

Purpose:

“It is the mission of Metro Transit (Metro), a division of the City of Madison, through the efforts of dedicated, well-trained employees, to provide safe, reliable, convenient, and efficient public transportation to the citizens and visitors of the Metro service area. Metro has established this Behavior Policy to promote the safety and comfort of its riders, to facilitate the proper use of transit facilities and services, to protect transit facilities and employees, to assure the payment of fares and to ensure that Metro vehicles and facilities are safe, welcoming and provide equitable access for Metro passengers. Responses to inappropriate and/or illegal conduct are outlined here.”

The policy is organized into the following sections:

10. Purpose (text above)
11. Overview and Definitions
12. Level I Inappropriate Conduct on Buses
13. Level II Inappropriate Conduct on Buses or in Other Facilities
14. Level III Inappropriate Conduct/Emergency Situations
15. Transit Exclusion Procedure
16. Appeal Procedure
17. Non-Compliance with Exclusion Order: Trespassing

The National Academies Transit Cooperative Research Program Synthesis 173⁷³, Transit Exclusion Policies in

⁷⁰ <https://www.cityofmadison.com/metro/contact/ada-comments-complaints>.

⁷¹ <https://www.cityofmadison.com/metro/contact/civil-rights-title-vi>.

⁷² <https://www.cityofmadison.com/metro/how-to-ride/code-of-conduct-transit-exclusion-policy>.

⁷³ National Academies of Sciences, Engineering, and Medicine. 2024. Transit Exclusion Policies in Public Transportation Systems. Washington, DC: The National Academies Press. <https://doi.org/10.17226/27474>.

Public Transportation Systems (2024), finds that “approaches to measure the effectiveness of exclusion policies are advisable,” and that “approaches to analyze impacts of the policies on crime are needed.” Furthermore, the synthesis notes that “issues of homelessness, people with mental health challenges, and cultural and demographic differences...may lead to disparities and inequity in outcomes, particularly for younger adult males of color.”

Recommendation:

The City of Madison Department of Civil Rights recommends that the word “citizens” be replaced with the word “residents” in this policy.

Disadvantaged Business Program⁷⁴

“Metro has established a Disadvantaged Business Enterprise (DBE) program in accordance with regulations of the U.S. Department of Transportation (DOT), 49 CFR Part 26. Metro has received Federal financial assistance from the Department of Transportation, and as a condition of receiving this assistance, Metro has signed an assurance that it will comply with 49 CFR Part 26. It is the policy of Metro to ensure that DBEs, as defined in part 26, have an equal opportunity to receive and participate in DOT-assisted contracts.”

Metro Transit Data Terms of Use⁷⁵

“The City of Madison owns and maintains certain electronic data, including but not limited to, Metro Transit Tracker live tracking data and scheduled transit service data. The City of Madison grants non-exclusive, non-transferable, limited and revocable rights to use, reproduce, and redistribute that data subject to terms and conditions in this policy.”

Paratransit Policies⁷⁶

“Metro paratransit is a shared-ride service that uses a variety of companies and vehicles to respond to individual ride requests. Paratransit vehicles can be identified by a blue Metro Transit sticker near the entrance.

“This Americans with Disabilities Act (ADA) paratransit service is for individuals with disabilities who cannot use Metro’s accessible fixed-route bus service. The paratransit [service area, hours, and days of service](#) closely match fixed-route schedules.” Metro operates accessible buses on all city bus fixed routes.

[Accessibility features](#) include:

- Low floor buses with a boarding ramp that can be deployed.
- A kneeling feature that lowers the bus closer to the curb.
- Wheelchair securement locations.
- Priority seating at the front of the bus.
- [Bus stop announcements](#) that are both audible and visual.”

Recommendation:

The City of Madison Department of Civil Rights recommends that the word “accessible” be replaced with “ADA compliant” in this policy.

Reduced Fare Pass Eligibility⁷⁷

Youth, seniors, those with disabilities, and those with low-incomes are eligible for Metro's new half-price fare through [Fast Fare](#).

Riding Rules⁷⁸

“To promote the safety and comfort of riders and employees, Metro has established a list of rules. Repeated or serious incidents of inappropriate conduct may lead to exclusion from transit service, see the *Code of Conduct/Transit Exclusion Policy* section for more information. Metro utilizes video surveillance to document events that occur on buses and at transfer points, see the *Security Camera Surveillance Policy* section for more information.”

⁷⁴ <https://www.cityofmadison.com/metro/business/disadvantaged-business-program>.

⁷⁵ <http://transitdata.cityofmadison.com/MetroTransitDataTermsOfUse.pdf>.

⁷⁶ <https://www.cityofmadison.com/metro/paratransit>.

⁷⁷ <https://www.cityofmadison.com/metro/fares/reduced-fare-pass>.

⁷⁸ <https://www.cityofmadison.com/metro/how-to-ride/riding-rules>.

Security Camera Surveillance Policy⁷⁹

“The primary objective of having video surveillance is to document what transpires when events occur that threaten the safety of customers and/or employees of the transit system. The installation of cameras, with signage alerting customers and employees, has also been a deterrent to disruptive behavior and provides a sense of security to riders and employees. In the case of personal injury accidents, a video record validates the facts.”

Senior/Disabled Fare Eligibility⁸⁰

“A reduced fare is available for senior citizens 65 years and older, and people with disabilities. Proof of Senior eligibility may be requested by drivers. Senior riders are encouraged to apply for a Metro reduced fare permit for eligibility. To qualify for a disabled reduced fare permit, riders must complete a [Metro eligibility application](#). Applications must be completed by a physician or a registered nurse, or riders must supply a copy of their Medicare card. Forward Health cards are not an acceptable form of proof.”

79 <https://www.cityofmadison.com/metro/documents/securitycamerapolicy.pdf>.

80 <https://www.cityofmadison.com/metro/fares/senior-disabled-fare-eligibility>.

Chapter 4: Demand Assessment and Historic and Projected Ridership

Demand Assessment

There is extensive literature on assessing demand and forecasting ridership for transit services. Still, even the most powerful and modern methods of assessing demand often fail to capture the impacts of local conditions. At base, however, because transit serves to connect people with opportunities, including to work, learn, recreate, shop, socialize, and access medical and other necessary services, all these methods start with considering the population to be served, and the geographic area across which that population may have cause to travel.

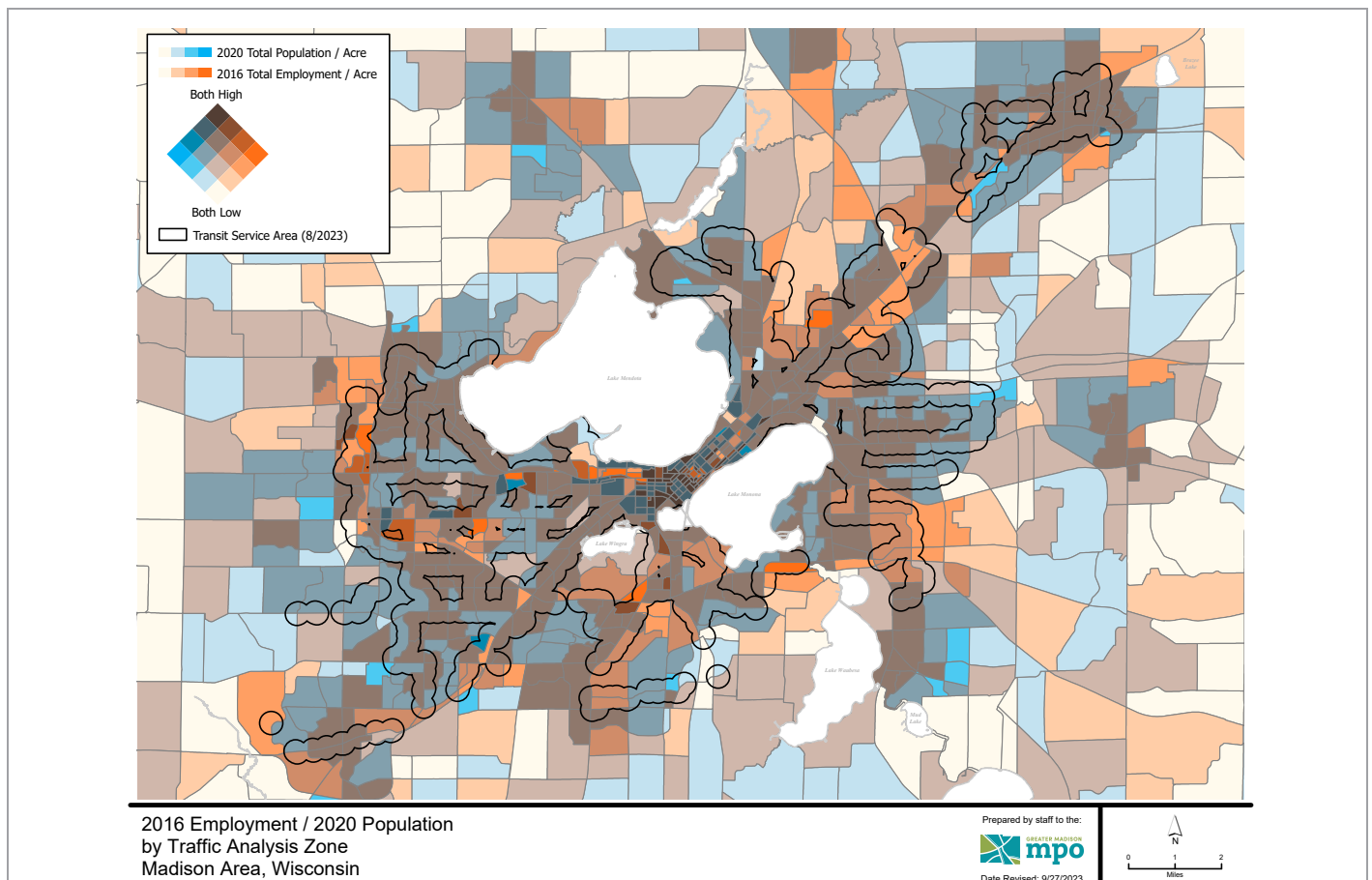
Existing Conditions

Figure 28 shows relative area employment and population densities with the Metro Transit Service Area.⁸¹ As this map shows, most areas within Madison, Middleton, and Sun Prairie with high residential and employment densities are served by Metro. Fitchburg and Verona have more geographically limited transit services, but most of the densest parts of these communities have transit services. McFarland, Cottage Grove, DeForest, and Waunakee have areas with relatively high population and employment density but do not have transit service. Monona is currently served by Monona Express/Lift⁸² but will become a Metro Service partner in March 2025. The densest portions of Monona will be

⁸¹ Area within ¼ mile of a Metro stop. Note that the service area for Bus Rapid Transit is generally considered to be ½ mile.

⁸² Monona Express and Monona Lift service areas not shown in Figures 28 and 29.

Figure 28: 2016 Employment/2020 Population by Traffic Analysis Zone, with 2023 Metro Service Area



Projected Growth

The growth scenario used in the Regional Development Framework and Regional Transportation Plan uses a base year of 2016, and forecasts growth through 2050. Figure 29 shows the expected relative change in population and employment density between 2016 and 2050, with the 2023 Metro Transit service area. Although much of the expected growth will occur within the Metro service area, continued development in outlying areas and communities will require the expansion of the service area or will result in population and employment centers without transit access. These areas include, clockwise from top center: DeForest; Windsor; the area between the American Center (Madison) and Prairie Lakes (Sun Prairie); Madison’s Northeast Area; Cottage Grove; far southeast Madison; McFarland; northcentral and northeast Fitchburg; far southwest Madison and the Town and City of Verona; southeast Verona; far west Madison; northwest Middleton; Waunakee; and Westport. Although commuter, and in some cases all-day service to these areas is included

in the future transit network in the RTP, most of these services are not likely to be economical within the planning horizon of this TDP given current population and demand.

Land use data shown in this map is based on adopted community plans as of 2020; both Middleton and McFarland have adopted updated plans since that time which call for increased density and/or mixed uses in areas that are not reflected in this map.

Variables Affecting Transit Ridership

The 2015 report *Investigating the Determining Factors for Transit Travel Demand by Bus Mode in US Metropolitan Statistical Areas*⁸³ examined the significance of both internal (controlled by the transit agency) and external (beyond the control of the transit agency) variables in affecting transit ridership. Table 1 shows both traditional and emerging internal and external variables that may affect transit ridership from a more recent (2022) TCRP report.

Table 16: Factors Affecting Transit Ridership⁸⁴

	Internal	External
Traditional	<ul style="list-style-type: none"> • Service Quantity • Fares • Speed & Reliability • Service Concentration • Access to transit • Security • Service Quality 	<ul style="list-style-type: none"> • Density • Population • Employment • Income • Gas Prices • Security • Commute Policies • Car Ownership • Demographics
Emerging	<ul style="list-style-type: none"> • Restructuring transit networks • Demand response, flex route services, and microtransit pilots & partnerships • New fare media & fare integration • Real-time information • Maintenance issues • Dedicated transit right-of-way • School & employer partnerships • Fare discounts or elimination 	<ul style="list-style-type: none"> • Gentrification • Aging population • Millennials • Telecommuters • Delivery services • Congestion & parking pricing • Shared mobility (ride-hailing, bikeshare, car-share, scooters)

⁸³ Mineta Transportation Institute Report 12-30 (Mineta) <https://transweb.sjsu.edu/sites/default/files/1101-transit-bus-demand-factors-in-US-metro-areas.pdf>.

⁸⁴ Transit Cooperative Research Program (TCRP) Report 231, Recent Decline in Public Transportation Ridership: Analysis, Causes, and Responses, National Academies. <https://nap.nationalacademies.org/catalog/26320/recent-decline-in-public-transportation-ridership-analysis-causes-and-responses>, Table 2-1.

TCRP Report 231's Web-Only Report 74⁸⁵ provides city-by-city results for all MSAs in the nation, and the results for Metro Transit are shown in Table 2. Madison's Metro service outperformed the model's expectations; although ridership dropped by 9.3% between 2012 and 2018, the model predicted a 15.9% decrease in ridership in that period.

This model predicts that route restructuring such as the Metro Transit Network Redesign, which focuses service on high-ridership corridors and increases service

frequency, will increase ridership. The pandemic-related increase in the rate of teleworking, on the other hand, is expected to decrease ridership. And finally, the continued expansion and increasing use of the BCycle bikeshare system⁸⁶ is expected to decrease ridership in the urban core of the system, but as additional stations are installed around the periphery of the transit system, bikeshare will become a more useful first- and last-mile connection and is expected to increase transit ridership within those suburban areas.

Table 17: Madison Metro Area Estimated and Actual Effects on Ridership by Variable⁸⁷

Description	Average Values			Ridership Effect	
	2012	2018	% Diff	Absolute	% Diff
Vehicle Revenue Miles	4,822,860	5,032,180	4.3%	288,330	1.90%
Average Fare (2018\$)	0.91	0.97	6.2%	-268,570	-1.80%
Network Restructure	-	-	-	-	0%
Major Maintenance Event	-	-	-	-	0%
Population + Employment	908,510	1,023,550	12.7%	375,120	2.50%
Share of Population and Employment in Transit Supportive Density	0.25	0.25	-2.5%	-36,750	-0.20%
Average Gas Price (2018\$)	3.93	2.72	30.9%	-629,310	-4.20%
Median Per Capita Income (2018\$)	33,390		16.2%	-149210	-1%
% of Households with 0 Vehicles	8		-4.1%	-10770	-0.10%
% Working at Home	4		37.5%	-163030	-1.10%
Years Since Ride-hail Start	-		4	1,852,950	-12.30%
Bike Share	1		-	-	0%
Electric Scooters	-		-	-	0%
New Reporters	-	-	-	-	0
Total Modeled Ridership					-15.90%
Total Observed Ridership					-9.30%
Unexplained Change					6.50%

85 <https://nap.nationalacademies.org/catalog/26494/recent-decline-in-public-transportation-ridership-hypotheses-methodologies-and-detailed-city-by-city-results>.

86 See discussion of BCycle system in Chapter 2, Travel Demand Management (TDM) Policies, Active Transportation section.

87 Ibid. Page 144.

Gasoline Prices

The 2015 study found that almost all variables with statistically significant impacts on ridership are internal, except for the price of gasoline:

Recent studies generally show a small but significant relation between rising fuel cost and increased ridership. A comparative study using international data found the aggregate of transit modes increase in ridership associated with fuel costs in the US to be modest (0.12 of a percent), consistent with the relatively low price of gasoline. In Australia, a nation with both comparable rates of auto dependency and higher fuel prices, the study found a more striking increase in transit ridership of 2.2 percent for every 10% increase in gasoline price (Currie and Phung 2007). A follow-up study comparing data from Australia and the US found that when home loan interest payments were added to the price of fuel in Australia, light rail ridership rose with the extra burden on income. The authors suggest that using a similar methodology, studies might shed light on comparable findings in the US (Currie and Phung 2008).⁸⁸

Interestingly, post-pandemic, the data suggest that the price of gas now has a reduced impact on transit ridership than it did pre-pandemic.⁸⁹

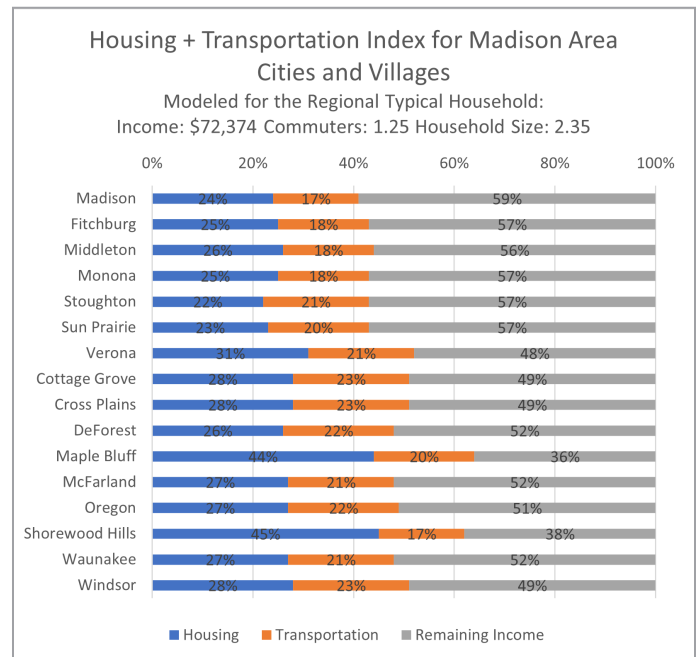
Housing & Transportation Costs

The finding regarding the effect of including housing costs on transit ridership mentioned above is demonstrated by the Housing + Transportation Index (HTI)⁹⁰, which combines housing and transportation costs for geographic areas to compare relative total affordability of those areas. The methodology applies a single set of regional values for the “Regional Typical Household”. Figure 30 shows the HTI for Madison-area cities and villages. The regional typical household would have over 55% of their income left after paying for housing and transportation in Madison, Fitchburg, Middleton, Monona, Stoughton, and Sun Prairie – all of which have public transit service – and would have less than 50% of their income left after those expenses in Verona, Cottage Grove, Cross Plains, Maple Bluff, Shorewood Hills, Waunakee, and Windsor.

and Windsor. This suggests that there may be demand for transit service in these “more expensive” communities, where the regional typical household is likely to struggle to afford both housing and transportation costs.

Developing new and in-fill transit-supportive corridors helps reduce transportation costs for residences in those corridors, as well as supporting transit ridership. See the Future Land Use section of Chapter 2 and the Transportation/Land Use Connection & Transit-Oriented Development section of Chapter 5 for more on this topic.

Figure 30: Housing + Transportation Index for Madison Area Cities and Villages



Low-Income Riders

Low-income riders make up a significant portion of transit riders in the Metro system. In the 2018 Metro On-Board Survey, 59.7% of riders reported making less than \$74,999/year, and 42.4% reported making less than \$49,999/year. “Research shows that low-income groups lacking access to automobiles are most likely to rely on transit for access to employment and fulfillment of household and other necessities (Alam 2009; Holtzclaw et al. 2002; Polzin et al. 2000).”⁹¹ People with disabilities

88 Mineta Page 13.

89 <https://www.governing.com/community/predicting-future-transit-ridership-is-trickier-than-ever>.

90 <https://htaindex.cnt.org>.

91 Mineta, Page 14.

are much more likely to be low-income and transit-dependent than are people without disabilities; at any wage, only 46% of people aged 21–64 with disabilities were employed in Wisconsin in 2021, while 83.5% of those without disabilities were employed.⁹² Those people with a disability who did work in 2021 had a median income of \$46,300, while those without a disability had a median income of \$53,600.⁹³

Many low-wage jobs have work shifts that begin and/or end outside of transit service hours; nationally, 17% of workers in U.S. Metropolitan Statistical Areas (MSAs) start work between 4 PM and 6 AM⁹⁴ (“late shift” workers/jobs). In the Madison Metro area, pre-COVID-19 pandemic, nearly 13% of workers left home to go to work between 4 PM and 5:30 AM.⁹⁵ The lack of transit access during even one direction of travel makes transit a non-viable travel mode in both directions, unless employees use alternate modes for the other direction (carpool, taxi, TNC, walk, bike) or they travel at a time when transit is available, but which requires that they arrive at work very early or that they wait for transit service to begin after their shift ends. At best, this results in “time tax”⁹⁶ and “bandwidth tax”⁹⁷ impacts on these employees; at worst, it requires them to use a travel mode that is much more expensive for the traveler than transit is, or to forgo employment opportunities which they cannot feasibly travel to or from.

There is potential to improve transportation access and increase the number of jobs available to low-income workers by extending transit service hours to serve second- and third-shift commutes. This could be done by continuing to run existing routes later or even through the night, by operating new night-only routes that are designed to connect lower-income areas with areas

with a high number of service-industry jobs or other jobs with non-traditional first-shift hours, or by a combination of the two. Extending service hours can also result in increased ridership during hours when service is already provided. The Mineta Transportation Institute Report cited above reports that “extending service in the evening hours had an unexpected and immediate positive effect on afternoon boardings, possibly indicating the sudden viability of transit commutes for workers with evening shifts (Currie and Loader 2009).”⁹⁸

In recent years, and beginning with the Great Recession specifically, poverty has become much more common in suburban areas and has become less common in urban areas. Lower-income residents of suburban areas, where they may have settled due to lower housing costs compared to more urbanized areas with better access to services, typically experience less access to public transit – especially high-frequency service and service connecting them to jobs and services. In *The Changing Geography of US Poverty*,⁹⁹ “limited transportation options and fewer jobs nearby” are cited as primary challenges faced by low-income families in suburban areas. This holds true in the Madison area, where concentrations of lower-income residents exist primarily in peripheral areas,¹⁰⁰ especially in north, far east, southeast, south, and southwest Madison, Fitchburg, and northeast Middleton.

From the perspective of transit ridership, this trend is a challenge in that serving low-income suburbs may require a disproportionately high number of service hours to provide a relatively low number of rides; however, for those riders this service may be the difference between holding any job or no job at all. It is also an opportunity to grow ridership, as lower-income suburbs will likely

92 <https://www.disabilitystatistics.org/report/html/2021/2055000#emp-state>.

93 Ibid.

94 Supporting Late-Shift Workers: Their Transportation Needs and the Economy, American Public Transportation Association (APTA) https://www.apta.com/wp-content/uploads/APTA_Late-Shift_Report.pdf, Page 3.

95 U.S. Census Table B08011: Sex of Workers by Time of Leaving Home to Go to Work: 2017 ACS 5-year Estimates. With an average commute time of approximately 23 minutes for workers in the Madison Metro area, a 5:30 AM departure corresponds to a 6:00 work start time (U.S. Census Table B08012: Sex of Workers by Travel Time to Work: 2017 ACS 5-year Estimates).

96 Opportunity cost of time spent travelling rather than earning wages, APTA page 25.

97 Effect of time scarcity on a person’s ability to retain information, engage in logical reasoning, and plan ahead, APTA, page 25.

98 Mineta, Page 17.

99 Elizabeth Kneebone, 2017 <https://www.brookings.edu/articles/the-changing-geography-of-us-poverty/>.

100 Notwithstanding student populations in and near the UW-Madison campus.

support higher ridership than would be achieved by serving similarly dense higher-income suburbs.

Fare Capping

Monthly fare capping, in which riders who pay per-ride or per-day have their payments tracked and who receive free rides after they have reached the cost of a daily/weekly/monthly pass, has been shown to increase ridership over time. The 2023 report *The app or the cap? Which fare innovation affects bus ridership?*¹⁰¹ found that monthly fare capping for at least a year resulted in 3.6% to 4.1% annual ridership increases. Often implemented as an equity measure, monthly fare capping encourages transit use by lower-income riders who cannot afford the cost of a daily/weekly/monthly pass all at once, and who have historically been disadvantaged by ultimately paying more to ride transit than those who can afford (or whose employer provides) a monthly pass. Daily fare capping is most appropriate for complex systems that require multiple transfers, sometimes using multiple modes (e.g., ferry, rail, and bus). Monthly fare capping is more common for systems with a single or only a few modes (e.g., bus and bus rapid transit), where transfers or multiple-legged trips are less common.

Metro implemented daily, weekly, and monthly fare capping in 2024.

Bus Stop Accessibility & Features

*The Role of Bus Stop Features in Facilitating Accessibility*¹⁰² found that bus stop accessibility improvements are “associated with significant increases in stop-level boardings and decreases in ADA paratransit demand,

and that these phenomena are linked (i.e., that some of the increase in scheduled-service boardings is coming from patrons who are switching from ADA paratransit).” Where boardings are lower than would be expected based on surrounding land uses and service levels, stop improvements should be made to help boost ridership .

Implementation of Bus Rapid Transit (BRT)

As Bus Rapid Transit has grown in popularity as a service model in North America in recent years, there is an increasing body of research indicating that although rail modes generally result in the highest ridership increases over traditional bus service, BRT does typically result in increased ridership compared to comparable bus routes that were replaced by BRT. A study by the General Accounting Office (GAO)¹⁰³ found that 13 of 15 systems surveyed reported increased ridership over the previous service, that seven of those 13 systems reported ridership increases of 30% or more in the first year of service, and that one system reported ridership gains of 5% or more for each of the first three years of service. More recently, the National Academies of Science found that converting routes to BRT resulted in bus ridership increases of 22% to 46% in the year after conversion.¹⁰⁴

The implementation of Metro Rapid East-West BRT (Route A) in late 2024 will likely result¹⁰⁵ in an increase in ridership over Route A of 22% to 46% percent in the first year of operation,¹⁰⁶ and potentially up to 5% growth in the first one or two subsequent years. Metro Rapid North-South BRT (Route B) implementation, planned for 2027-2028, should result in a similar boost in Route B ridership in 2028-2029 and potential continued growth in following years.

101 Abubakr Ziedan, Ashley Hightower, Luiz Lima, Candace Brakewood, Transport Policy, 2023, ISSN 0967-070X. <https://doi.org/10.1016/j.tranpol.2023.10.014>.

102 Bartholomew, K., Kim, J., Chandrasekhar, D., Ewing, R., Adkins, A. & Jensen, S. NITC-RR-1214. Portland, OR: Transportation Research and Education Center (TREC), 2020. <https://rosap.nrl.bts.gov/view/dot/54742>.

103 Bus Rapid Transit: Projects Improve Transit Service and Can Contribute to Economic Development, July 2012. GAO-12-811. <https://www.gao.gov/assets/gao-12-811.pdf>.

104 Recent Decline in Public Transportation Ridership: Analysis, Causes, and Responses, DATE. TCRP Report 231 (2022). <https://www.trb.org/Main/Blurbs/182505.aspx>.

105 Economic Effects of BRT, September 17, 2021 memo, Gritzmacher. City of Madison. https://www.cityofmadison.com/metro/documents/Economic%20Effect%20of%20BRT%209_17_21.pdf. “Madison’s future BRT system, in its current proposed configuration, conforms to the best practices outlined in BRT best practices and successful case studies found in literature.” (page 3).

106 In Figure 34, the ridership increase associated with Metro Rapid Route A is applied in 2025, and in 2028 for Metro Rapid Route B.

Effects of Variables on Ridership

In its examination of the impact of internal and external variables on transit ridership, the Mineta report found that:

Studies of internal determinants generally find that fare reductions, increased service coverage, and service quality are associated with increased ridership. Studies have found that reduced fare programs for university students may increase ridership, but effects of fare price adjustments (increases or reductions) are consistently found to be less significant than the effects of service extensions or rising fuel cost. Increased transit service coverage and quality, e.g., short headways and extended hours, are generally found to be the system factors most associated with increased ridership.¹⁰⁷

The study found that certain variables that many transit planners¹⁰⁸ view as important determinants of transit demand did not have significant impacts on transit demand. Variables such as transit orientation pattern, median household income, percentage of college population, percentage of immigrant population, vehicles per household, and MSAs in the South behaved as expected.

Overall, the study indicates that the internal variables show signs of causing significant impacts on travel demand by bus transit mode in 2010, while the external factors, with the exception of gas price, do not. It indicates that the socioeconomic factors that are beyond the control of transit managers and operators do not necessarily contribute to the effectiveness and efficiency of transit systems. This simplifies the problem in a sense. It reveals that the job of building ridership belongs to, and is within reach of, policy makers, transit managers and operators, and that to achieve this goal, all efforts should focus on providing better transit systems that work more efficiently.¹⁰⁹

Ultimately, due to major factors such as the unknown impacts of continued high levels of telecommuting, the Metro Network Redesign, and the implementation of

BRT it is impossible to predict ridership demand over the five-year planning horizon of this TDP with any accuracy. By the time the TDP is next updated, it is likely that sufficient data will be available to better ascertain recovery from the COVID-19 pandemic and its fundamental impacts on how we live our lives. Changes to ridership resulting from the Network Redesign and BRT implementation, as well as the initiation of fare capping, are likely to have stabilized by the next TDP update as well, so it will be much easier to predict future ridership trends at that time. As a March 2023 article¹¹⁰ on predicting transit ridership put it: “The future is either going to be very bleak, surprisingly OK, or, in all likelihood, an unpredictable mixture of the two.” Only time will tell which it will be, but with staff and policy-maker guidance, internal variables can be modified to make Metro’s operations more attractive to riders and to grow ridership.

Fixed-Route Ridership

Historic Ridership

Madison Metro Transit’s ridership increased an average of 4.5% per year, or 30% overall (from 11,476,000 trips to 14,924,000 trips) between 2005 and 2011, while annual service hours increased only 0.8% per year, or 5% overall, from 364,500 to 383,100. This ridership increase was a positive development; however, overloading and crowded buses became substantial problems during peak periods and occasionally at other times. At 2005–2011 growth rates, year 2020 service would consist of about 412,000 annual service hours with 22.2 million rides; ridership would double by about 2027. Overcrowding issues that were becoming more severe during the early 2010’s indicated that this disconnect between ridership growth and service growth was ultimately not sustainable.

Ridership peaked in 2014 with 15,224,000 total passengers served during 403,600 service hours, but by 2017, ridership had fallen to 12,817,000 passengers during 404,400 service hours. Between 2011 and 2017, ridership fell 14% while service hours increased by 5%. The

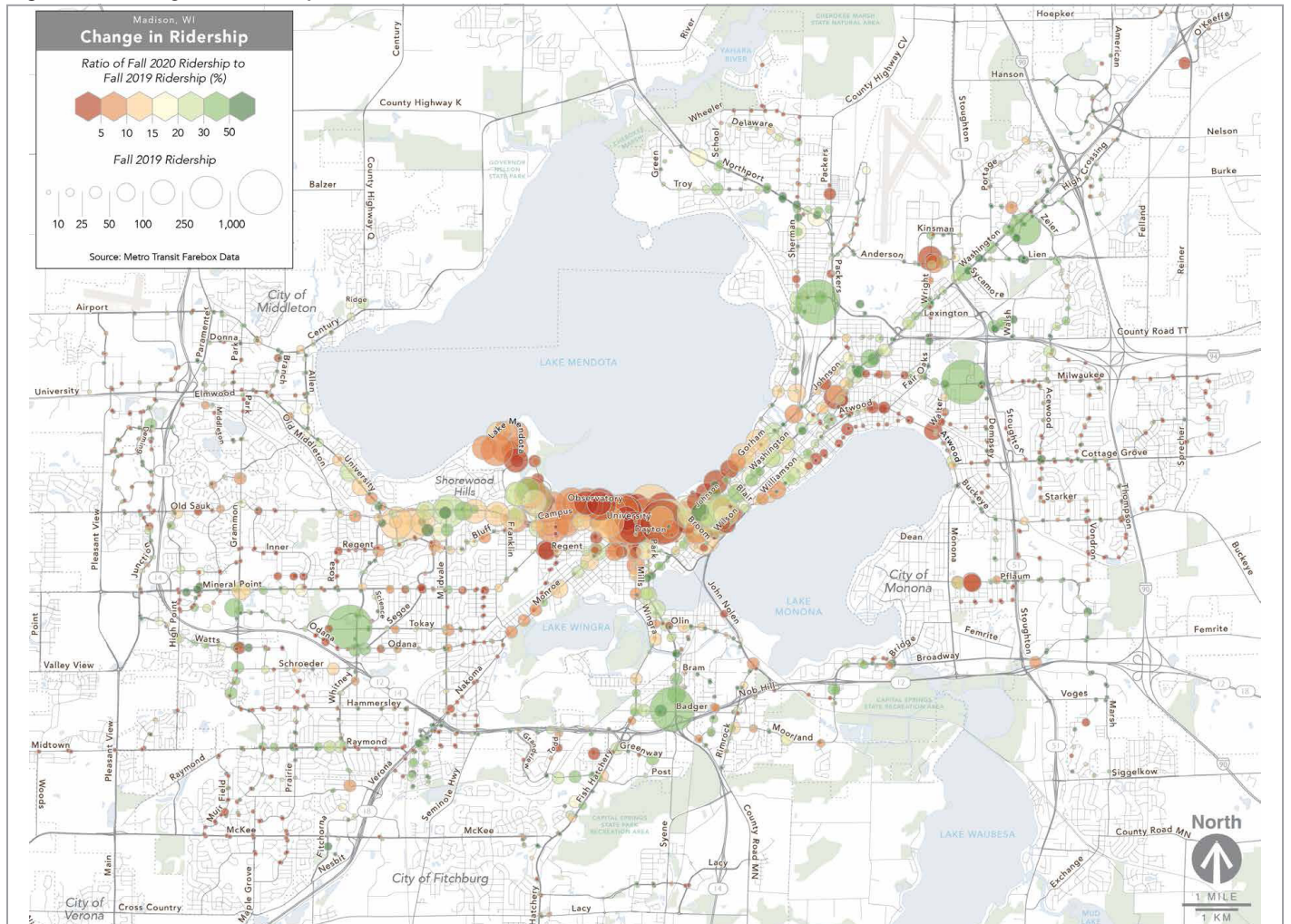
¹⁰⁷ Mineta, Page 18.

¹⁰⁸ It is worth noting that although this study had this finding, planners at Metro Transit, as well as the primary author of this plan at the MPO, “do not subscribe to this fallacy...[and are] very much aware that service quality drives ridership far more than things like vehicle availability or immigrant status” (Metro staff comment, 12/2/23 email).

¹⁰⁹ Mineta, Page 35.

¹¹⁰ <https://www.governing.com/community/predicting-future-transit-ridership-is-trickier-than-ever>.

Figure 31: Change in Ridership, Fall 2019 to Fall 2020



two-year period from 2015 to 2017 saw ridership decline by nearly 16% while service hours held steady with an increase of 0.1%. In 2018, ridership grew to 13,231,000, a 3.2% increase over 2017 ridership. Although concerns regarding the sustainability of ridership growth were expressed in the 2013-17 TDP, it is clear that the dramatic decline in ridership experienced after 2014 was not considered a possibility when that plan was drafted and adopted.

While the overall decline in ridership since 2014’s peak cannot be attributed to any single factor, the combined effects of internal and external factors have reduced transit ridership nation-wide during this time period. In the Madison area, crowded buses during peak periods may have laid the groundwork for choice riders to feel less than optimally comfortable on buses; gas prices dropped considerably after 2014, reducing consumer’s

financial impetus for choosing public transit over private automobiles; the advent and growth of ride-hailing services such as Uber and Lyft has been correlated with declines in transit ridership nation-wide; and, construction of housing outside the City of Madison has outstripped the construction of housing within Madison, resulting in an increasingly dispersed population that is more difficult to serve with transit, and thus former riders have been lost faster than new riders have been recruited. It is likely that the decline of ridership between 2014 and 2019 resulted from a variety of factors, including economic and geographic considerations beyond Metro’s control and operational factors that Metro can control.

The decline in transit ridership in the late 2010’s was significant and widespread enough to be the subject of scholarly research, including the National Academies

Transportation Research Board’s TCRP Report 231, *Recent Decline in Public Transit Ridership*,¹¹¹ which included analyses of major metropolitan areas’ transit systems.¹¹² The analysis of Madison’s Metro Transit system, shown in Table 2, found a modeled ridership decline of 15.9% between 2012 and 2018; given that the observed ridership decline in this period was 9.3%, Metro’s ability to retain riders was better than expected. Factors contributing to estimated ridership reduction included -12.3% from ride-hail system availability, -4.2% from low gas prices, -1.8% from fares, -0.2% from suburban development that is not supportive of transit, and -2.2% from factors related to income, working from home, and zero-car households.

Although gas prices increased sharply beginning in 2020, this increase in cost did not immediately correlate with the return of many choice riders to transit, likely due to changes in overall travel behavior resulting from the COVID-19 pandemic. As vaccines became available and more people returned to in-person work and socialization, ridership did gradually increase, as did fuel prices until peaking in early 2022. Transit ridership declined by nearly 64% in 2020 due to the COVID-19 pandemic, but notably, ridership declined much less in areas with transit-dependent populations than in areas with choice riders. Metro adjusted its service to eliminate much of the capacity that had been used to serve office workers while retaining service to areas with concentrations of lower-income and minority residents, ensuring that essential employees were able to get to work while not wasting capacity on routes whose former riders were now teleworking. Additionally, immunocompromised former riders may not be able to access public transit safely anymore, and this is likely to continue indefinitely given continued viral mutations and new emerging diseases.

111 National Academies of Sciences, Engineering, and Medicine 2022. *Recent Decline in Public Transportation Ridership: Analysis, Causes, and Responses*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26320>.

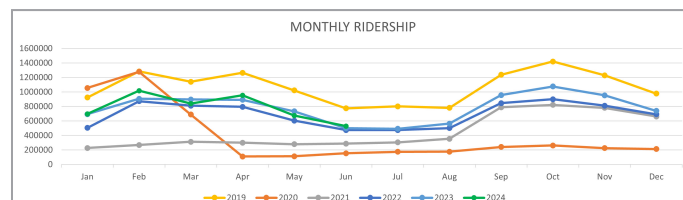
112 National Academies of Sciences, Engineering, and Medicine 2022. *Recent Decline in Public Transportation Ridership: Hypotheses, Methodologies, and Detailed City-by-City Results*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26494>.

113 Figure 12 of the Metro Network Redesign Choices Report, <https://www.cityofmadison.com/metro/documents/network-redesign/ExistingConditionsChoicesReport-20210311.pdf>.

Figure 4 (on page 9)¹¹³ shows how ridership changed from Fall 2019 to Fall 2020. Each dot represents one bus stop. The larger the dot, the more people used this bus stop in Fall 2019. Red and orange dots are stops where ridership fell the most from 2019 to 2020. Green dots are stops where ridership fell the least. Beyond the four Transfer Points and the East Towne Mall, other green dots are clustered in neighborhoods with concentrations of low-income and minority populations, including North Madison, N. Thompson Drive, Broadway, South Park Street, Allied Drive, McKenna Boulevard, Raymond Road, areas near the UW and VA hospitals, and the central isthmus. Figure 5 shows monthly ridership trends from 2019 through May 2024.

Figure 32 shows monthly ridership trends from 2019 to May 2024.

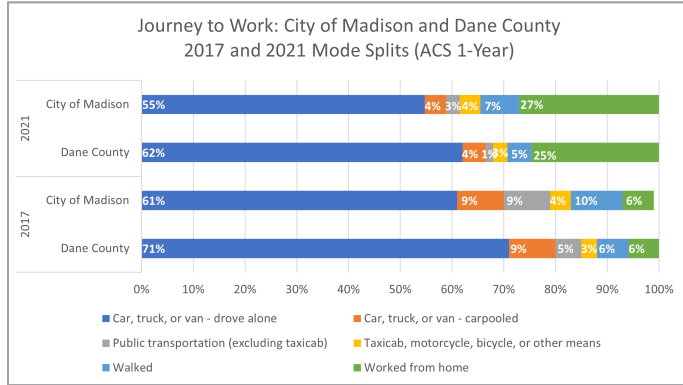
Figure 32: Monthly Metro Ridership, 2019–June 2024



Projected Ridership

In the past, TDPs have projected annual growth (or loss) rates for Unlinked Passenger Trips and for Vehicle Revenue Hours based on the average annual change for the last ten years. Given that ridership declined by 63.8% in 2020 due to the COVID-19 pandemic, and that ridership grew by 14.8% in 2021 as vaccines became available and by 53.8% in 2022, it is clear that any projections based on average annual changes during this time period will be skewed by the impact of the pandemic on ridership.

Figure 33: Journey to Work: City of Madison and Dane County 2017 and 2021 Mode Splits

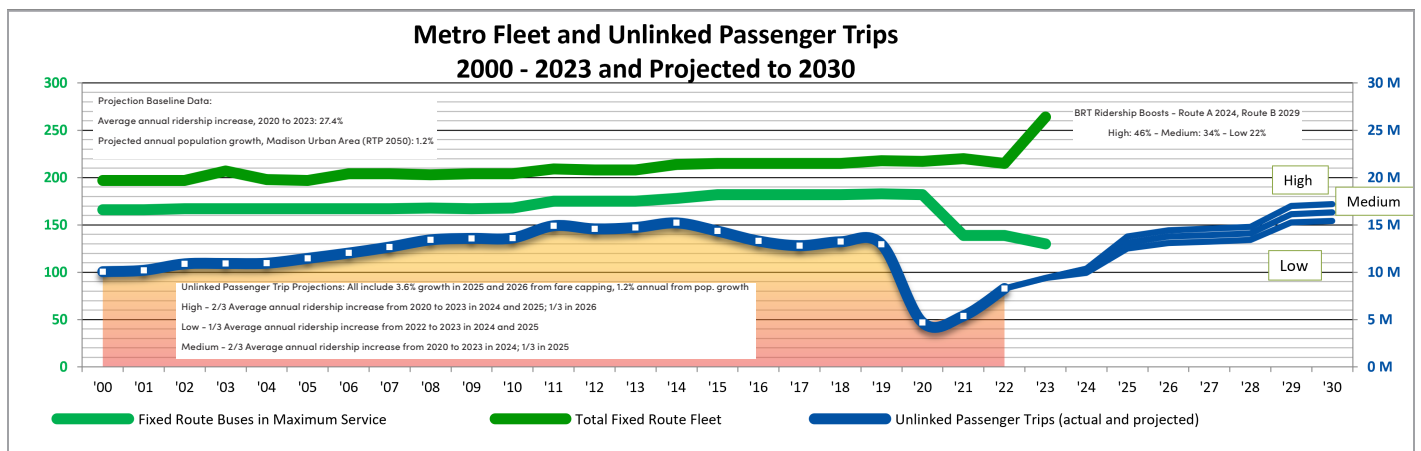


Due to the tremendous growth in remote work that followed safer-at-home orders (see Figure 33), and the likelihood of most office workers continuing to work remotely at least part-time for the indefinite future, it is doubtful that ridership would fully recover to pre-pandemic levels within the five-year horizon of this plan if the Metro system remained the same. However, with the initiation of Bus Rapid Transit and the Transit Network Redesign, it is likely that increased convenience and speed of travel will attract both new riders and pre-pandemic choice riders back to the transit system at an accelerated pace. Additionally, system expansion to new areas – such as new all-day routes S and W in Sun Prairie – will increase ridership by growing the number of residents, jobs, and destinations accessible by transit. Even so, it is likely that a return to pre-pandemic ridership levels will take years to accomplish. This

is true for transit agencies across the country; in spring 2023, the Washington Metropolitan Transit Authority anticipated no more than 75% of pre-pandemic ridership by 2025, and New York’s Metropolitan Transportation Authority predicted 73-88% of pre-pandemic ridership by 2026.¹¹⁴ By comparison, ridership of transit systems recovered more strongly in the fall of 2023 than many agencies expected, with national bus ridership up to 75-77% of pre-pandemic levels in October and November 2023. APTA reports that medium-sized urban areas such as Madison have had “particular difficulty attracting office workers and those with more options back to transit”, with these areas recovering to 71% of 2019 levels while larger and smaller cities have recovered to 79-80% of 2019 levels.¹¹⁵ Metro’s 2023 ridership was 72.6% of 2019 pre-pandemic ridership, positioning the system as one of the marginally better-recovering systems in the nation compared to the performance of other mid-sized urban area transit systems.

Figure 34 shows Unlinked Passenger Trips and Vehicle Revenue Hours for 2000 through 2023, and projected ridership for 2024-2030.

Figure 34: Metro Fleet and unlinked passenger trips for Metro Transit, with ridership growth/decline rates for various periods shown.



¹¹⁴ <https://www.governing.com/community/predicting-future-transit-ridership-is-trickier-than-ever>.

¹¹⁵ APTA Public Transportation Ridership Update, American Public Transportation Association, December 2023. <https://www.apta.com/wp-content/uploads/APTA-POLICY-BRIEF-Transit-Ridership-12.01.2023.pdf>.

Figure 35: Historic and Projected Ridership and Annual Vehicle Revenue Hours¹¹⁶

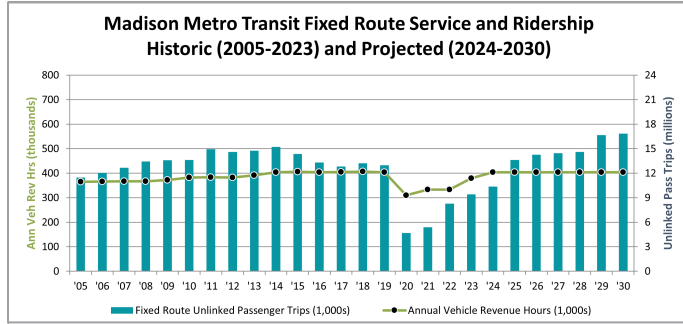


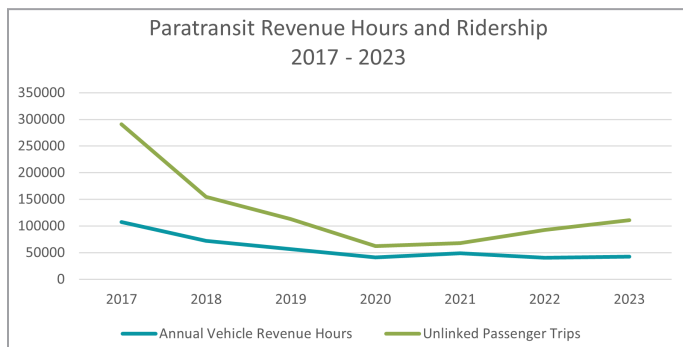
Figure 35 shows Unlinked Passenger Trips and Vehicle Revenue Hours for 2005 through 2022, and projected ridership for 2024–2030.

Paratransit Ridership

Historic Ridership

In 2017, Metro Paratransit provided about 291,000 one-way or “unlinked” trips at an operating expense of \$7.2 million, which included both directly operated transit and purchased transit. In 2018, the year in which Metro transitioned away from directly operated service to entirely purchased transit service, 155,000 unlinked trips were provided at an operating expense of \$4.3 million. And in 2019, the first year in which Metro did not directly operate paratransit at all, 113,000 rides were provided at an operating expense of \$3.2 million. Since most demand-response trips serve one passenger at a time, annual revenue service hours generally keep pace with ridership, as can be seen in Figure 36.

Figure 36: Paratransit Revenue Hours and Ridership, 2017-2023



¹¹⁶ Unlinked passenger trips for 2024–2025 based on 2/3 annual increase of 13.6% between 2022 and 2023, and Metro Service Partner communities forecast average annual population growth rate of 1.2%. Ridership boosts of 34% in 2025 for Route A and in 2029 for Route B transitions to BRT.

The implementation of Family Care on paratransit ridership was exacerbated by the COVID-19 pandemic, which saw further reductions in ridership, with only 62,000 rides provided in 2020 at a cost of \$2.2 million. Ridership began to recover in 2021, which saw 68,000 rides provided at a cost of \$2.6 million and continued in 2022 with 92,341 rides at a cost of \$3.4 million. In 2023, ridership returned to near-2019 levels, with 110,735 rides provided at a cost of \$4.6 million. Costs per one-way trip and per service hour for 2017–2023 are shown in Figure 37.

Figure 37: Paratransit Costs, 2017-2023

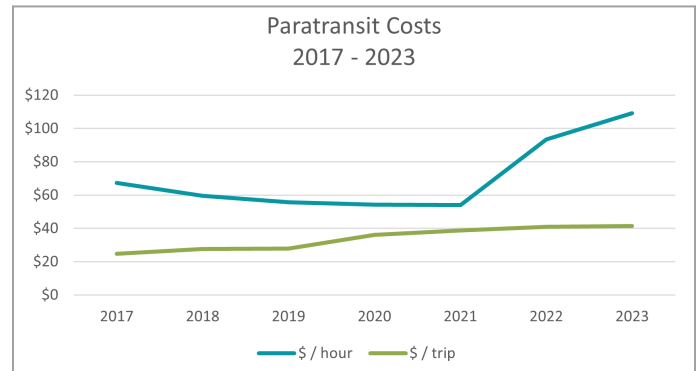


Figure 39 shows paratransit ridership hotspots with 25 or more trips beginning or ending in an area/location in the second half of 2023, after the Network Redesign had been implemented. Although paratransit service was available in Sun Prairie during this period, there are no trip origins or destinations in Sun Prairie that had 25 or more trips.

Figure 38: Total annual Metro paratransit ridership and service levels from 2003 to 2023.

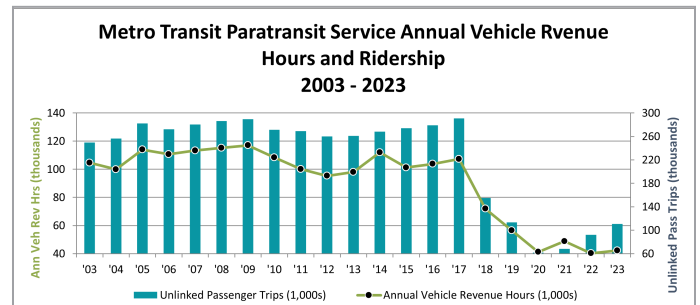
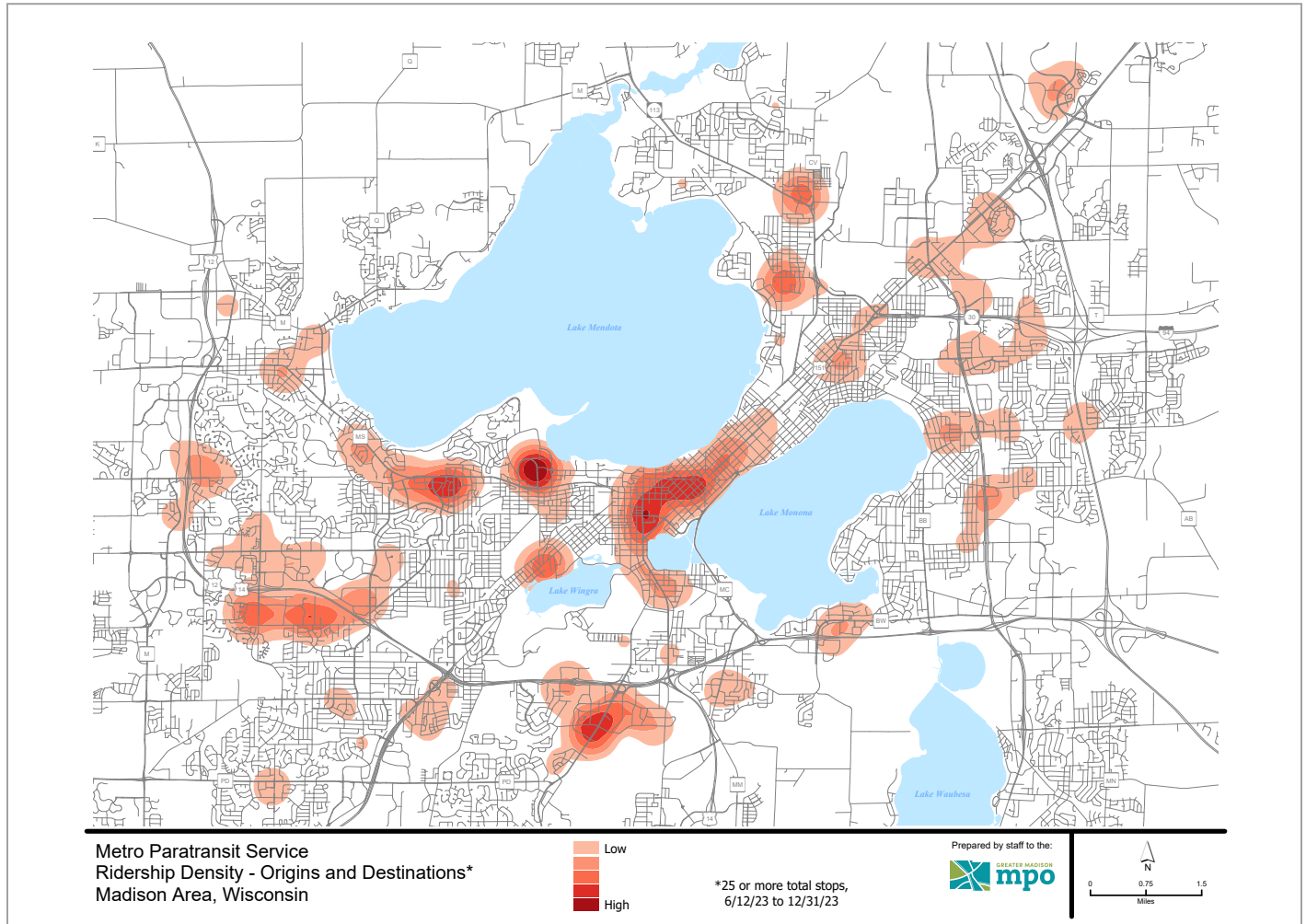


Figure 39: Metro Paratransit Service Ridership Density – Origins and Destinations with 25 or more total trips June 12 to December 31, 2023

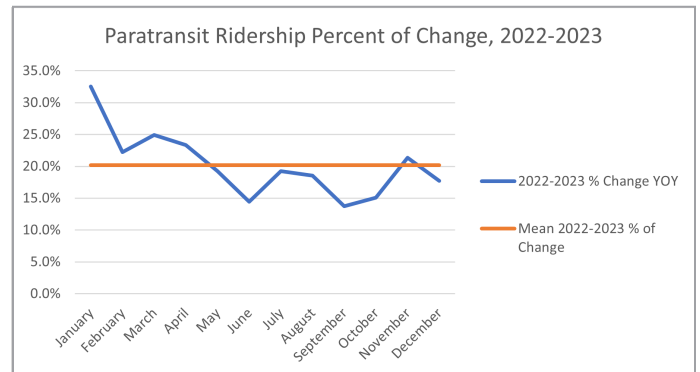


Projected Ridership

With the implementation of the Transit Network Redesign in June 2023, there was a widespread assumption that demand for paratransit service would increase for at least two reasons. First, with fewer routes running on fewer streets, the Transit Network Redesign resulted in longer distances between routes and thus longer walks to reach routes for many riders. This would make some paratransit-eligible riders less likely to use fixed-route service and more likely to be dependent on paratransit. Second, with the expansion of fixed-route service to new geographic areas such as Sun Prairie, there are now more residents and destinations within the paratransit service area. However, as is shown in Figure 40, although paratransit ridership increased an average of 20.2% year-over-year from 2022 to 2023, all but one of the months with an increase greater than the annual average were prior to the June implementation of the Network Redesign. November, the only month with a

year-over-year increase greater than the annual average following the Network Redesign, only exceeded the average by 1.2%.

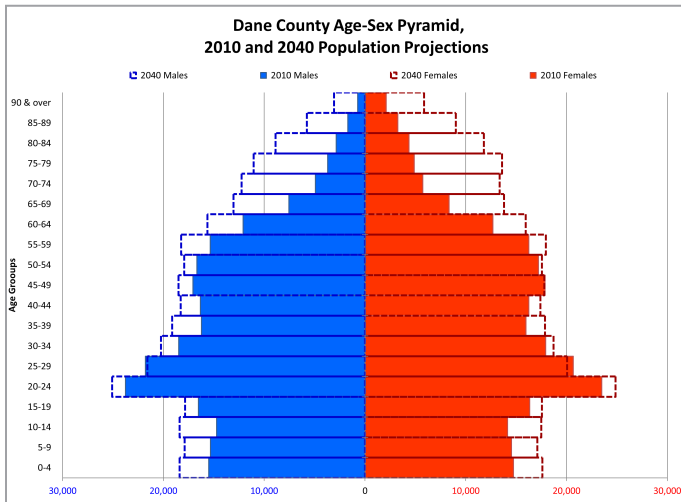
Figure 40: Paratransit Ridership Percent of Change, 2022-2023



Although paratransit ridership appears to have returned to the “new normal” of post-Family Care and post-Covid, it is likely that paratransit ridership will

continue to increase during the planning horizon of this plan. In addition to the natural growth of ridership through population growth, assumed to be 1.2% based on the projections used in the Regional Development Framework and Regional Transportation Plans, the aging population will place additional demands on the paratransit system as age-related health conditions result in paratransit-eligible persons making up a larger percentage of the total population.

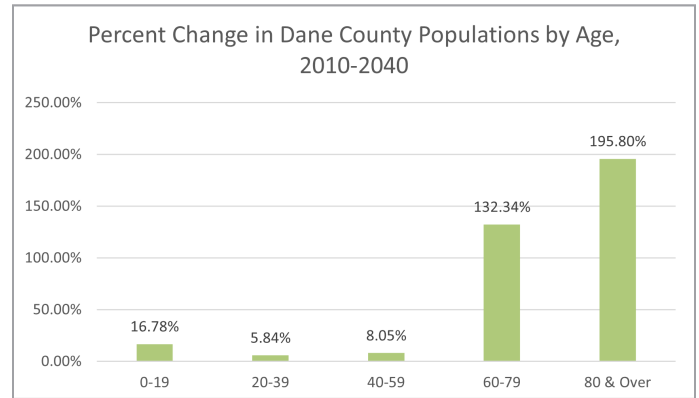
Figure 41: Dane County Age-Sex Pyramid, 2010 and 2040 Population Projections¹¹⁷



The State of Wisconsin has published population projections by age for each county through 2040; the age-sex pyramid for Dane County is shown in Figure 41. This age-sex pyramid shows that population brackets over age 65 will experience much more growth than younger age brackets in the next twenty years. This “silver tsunami” is already underway as Baby Boomers age and birth rates decline. As aging typically results in increasing health and mobility issues, this aging population will require special attention to ensure that they are able to complete trips for social, employment, recreational, health care, and other purposes.

As shown in Figure 42, population age cohorts between 0 and 59 years of age are projected to grow by approximately 6-17% between 2010 and 2040. The 60-79 age bracket is expected to grow by over 132%, and the population aged 80 and over is expected to grow by nearly 196%.

Figure 42: Percent Change in Dane County Populations by Age, 2010-2040¹¹⁸



This growth is partially due to the aging of members of the Baby Boomer generation as well as advances in medicine that have increased life expectancies. The growth of this population cohort comes at a time in which aging in place – living in one’s own home and community, independently regardless of age, income, and ability – has become not only an expected consideration but a norm. Even with carefully planned and coordinated specialized transportation services, the aging population of Dane County and the Metro service area will result in increased demand for paratransit services for a population that experiences increasing mobility limitations.

According to 5-year ACS estimates, there were 80,883 (14.4% of the total county population) people aged 65 and over in Dane County in 2022, an increase of 69% from the 2010 population of 47,775; 31,239 (5.6% of the total population) was aged 75 and over in 2022, an increase of 33% from the 2010 population of 23,410. As Figure 43 shows, many areas with more than 23% of their population aged 65 and over are outside Metro’s current service area, and do not have paratransit service available; however, the potential for increased paratransit demand should be considered when planning fixed-route services to outlying communities.

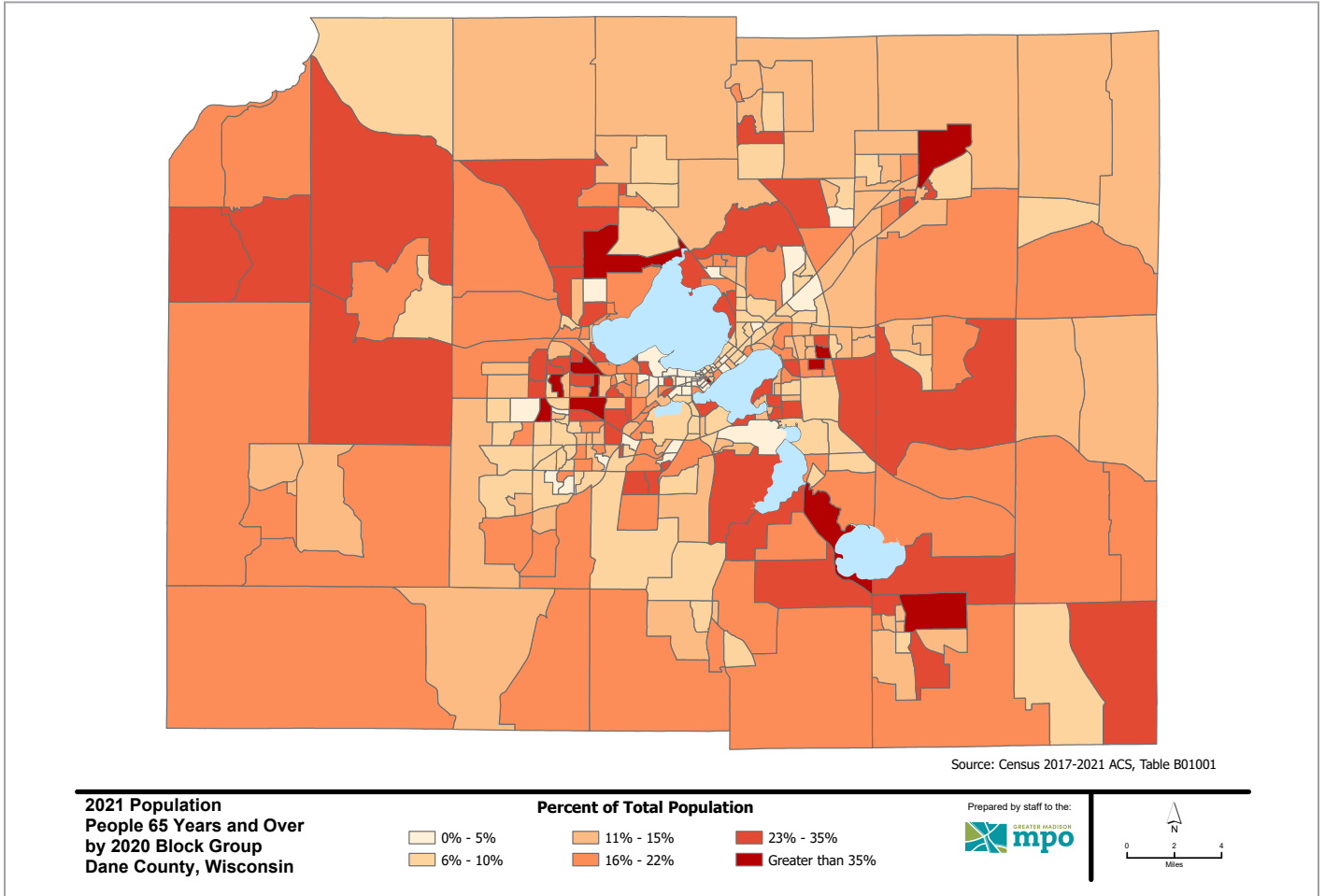
Figure 44 shows the 2022 and 2023 Dane County population aged 60-79 years and 80 years and older,¹¹⁹ with the number of unlined passenger trips provided

¹¹⁷ Population and Household Projections, Produced in 2013, based from 2010 Census. <https://doa.wi.gov/DIR/2010-2040CoPyramids.xlsx>.

¹¹⁸ Wisconsin Department of Administration. https://doa.wi.gov/DIR/Proj_cofinal_2010_2040Web.xlsx.

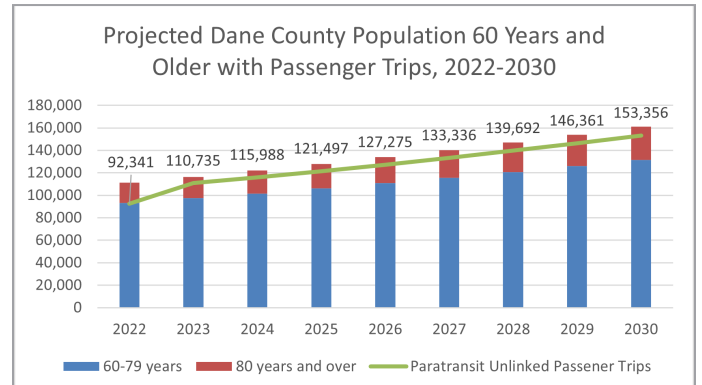
¹¹⁹ Here age is used as a proxy for eligibility for paratransit service, given greater data reliability and smaller geographic area scale for age compared to disability.

Figure 43: 2021 Population, People 65 Years and Over by 2020 Block Group shows the spatial distribution of people aged 65 and over in Dane County.



by Metro Paratransit.¹²⁰ This figure also shows projected population estimates for these age groups for 2024-2030 as well as projected paratransit ridership. Ridership projections are based on project population growth rates for these age groups and the 2023 paratransit trips divided by the total population aged 60 and over (95.8%). This assumes that the distribution of this population throughout Dane County, and particularly the distribution between the Metro Paratransit Service Area and areas outside that service area, remains at its current geographic balance. Based on these projections, Metro will need to expand paratransit services to accommodate approximately 40,000 additional annual trips by 2030 even with no expansion of the paratransit service area.

Figure 44: Projected Dane County Population 60 years and Older with Passenger Trips, 2022-2030.¹²¹



¹²⁰ Disclaimer: As of the writing of this plan, 2023 ridership data is preliminary. This data will not be finalized until NTD validation is complete, which usually occurs during the summer of the following year.

¹²¹ 2022 5-year ACS Table S0101.

Chapter 5: Transit Development Program

Introduction

This section describes improvements and planning activities that are relevant for the period of 2024 to 2028. Some actions – particularly long-range items like building out Bus Rapid Transit beyond the initial East-West and North South corridors – will likely extend beyond the traditional limits of the TDP planning horizon; however, specific activities are planned within the next five years that are necessary to eventually achieve those outcomes.

Connect Greater Madison 2050: Regional Transportation Plan Recommendations

1. Implement a Bus Rapid Transit (BRT) system.
2. Improve the local bus network by investing where needs are greatest.
3. Add service in developing neighborhoods.
4. Enhance transit stops with improved pedestrian/bicycle access and amenities.
5. Explore alternative service delivery models to serve low-demand areas.
6. Maintain, expand, and enhance bus rolling stock and supporting facilities.
7. Implement a regional express bus network.
8. Expand park-and-ride facilities in conjunction with BRT and express services.
9. Take steps to ensure financial solvency of the transit agency.

Equity Considerations

The purpose of this discussion of how transit does or does not service traditionally marginalized and disenfranchised demographic groups is to inform later discussions during annual route adjustments and new service planning. This system-wide discussion considers a cumulative, big picture view that does not serve the same purpose of analyses at the route level. It stresses a qualitative description and discussion of existing conditions, rather than the quantitative analysis that will be

conducted during route adjustment and planning for new service.

The consideration of equity impacts stemming from proposed transit service changes is required by federal law, including:

- Title VI of the Civil Rights Act of 1964 prohibits recipients of Federal financial assistance (such as the City of Madison, including Metro Transit) from discriminating on the basis of “race, color, and national origin”.
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations incorporates requirements from Title VI and other federal laws to “prevent minority [...] and low-income communities from being subject to disproportionately high and adverse environmental effects”.
- The Federal Transit Administration (FTA) has established regulations to comply with Title VI and Environmental Justice requirements in circular FTA C 4702.1B – Title VI Requirements and Guidelines for Federal Transit Administration Recipients.
- In the case of a major service change like the Metro Transit Network Redesign, the FTA requires Metro Transit to undertake a Title VI Service Equity Analysis. This analysis is to establish that the proposed change does not pose a disproportionate impact to minority populations, or a disproportionate burden to low-income populations. Specifically, the Service Equity Analysis seeks to ensure that minority and low-income populations aren’t unfairly impacted by any service reductions, and that these groups do receive their fair share of service improvements.

In addition to these legal requirements, the Biden-Harris administration’s Justice40 initiative addresses gaps in transportation infrastructure and public services by working toward the goal that at least 40% of the benefits from many of US DOT’s and other federal agency grants, programs, and initiatives flow to disadvantaged communities.¹²²

¹²² <https://www.transportation.gov/equity-justice40>.

The City of Madison and Metro Transit have policies in place to ensure that the perspectives of minority and low-income populations are considered in all decision-making processes, including transit system amendments. These include Metro's Title VI Policy¹²³ and the City of Madison's Racial Equity and Social Justice Initiative¹²⁴ (RESJI), which provides a mechanism to "facilitate conscious consideration of equity and examine how communities of color and low-income populations will be affected by a proposed action/decision of the City."¹²⁵ The City of Madison has also developed a Public Participation Resource Guide¹²⁶ to assist in ensuring that meaningful public participation occurs at the appropriate level for each project.

Improving transit access for minority and low-income populations was a primary concern in the development of the alternatives considered in the Metro Transit Network Redesign, and in the final adopted plan. The Title VI Service Equity Analysis¹²⁷ conducted for the final service plan confirmed that the project team had succeeded in designing a system that would improve transit access for minority and low-income populations more than it would for white and higher-income populations.

Key findings include:

- There is no evidence of a disproportionate impact on minority populations. People of color will benefit at similar or higher rates as White non-Hispanic people.
- There is no evidence of disproportionate burden on low-income populations. Low-income residents will experience a smaller increase in service quantity (people-trips) than the average resident, but they will be far more likely to experience more useful service (improved destination access).

As transit may be the primary or even the only motorized transportation mode available to lower-income individuals, and lower-income individuals are disproportionately people of color and other disadvantaged populations, and as the 2025-2029 TDP is the first TDP to be undertaken since the adoption of RESJI in 2014, this TDP update views the transit system through RESJI lens,

if not the toolkit. Neither the short- nor the long-form RESJI process are designed or appropriate for use in a process such as the TDP, which is essentially a technical document reflecting recommendations based on public input received through other efforts (e.g., RTP Update, BRT, Network Redesign, Let's Talk Streets, Sun Prairie local service planning, etc.).

After discussing this with City of Madison Transportation Department, Metro, Department of Civil Rights, and Planning Division staff, it was determined that convening EJ/RESJI focus groups to meet with during TDP development would be the most appropriate method to ensure that the TDP was developed with EJ groups and the RESJI process in mind. Focus groups were organized by community organizations, which recruited participants, provided language- or culture-specific feedback on focus group materials, and hosted in-person meetings. Host organizations included the Latino Academy of Workforce Development (in Spanish), Vera Court Neighborhood Center (bilingual in English and Spanish), the Madison Area Chinese Community Organization (in Chinese), and the Wisconsin Hmong Association (in Hmong). Access to Independence hosted two focus group meetings for people with disabilities (with American Sign Language interpreters on-hand), but although over 300 people initially requested to participate in these meetings, only one person attended either of the meetings. In order to reach this population, an on-line survey was developed and promoted through disability rights, advocacy, and support organizations. Focus group and survey results and more detailed summaries are provided in Appendix E, Public Participation.

High-level takeaways from focus groups and disability survey responses include:

- Although participants of various focus groups felt differently about the effects of the Transit Network Redesign, there was widespread if not unanimous feedback that transfers are now more difficult, dangerous, and confusing since many transfers require moving from one stop to another on a different side of the street/intersection.

¹²³ <https://www.cityofmadison.com/metro/contact/civil-rights-title-vi>.

¹²⁴ <https://www.cityofmadison.com/civil-rights/programs/racial-equity-social-justice-initiative>.

¹²⁵ <https://www.cityofmadison.com/civil-rights/documents/ComprehensiveRacialEquityAnalysis.docx>.

¹²⁶ https://www.cityofmadison.com/civil-rights/documents/RESJI_PublicParticipationResourceGuide.pdf.

¹²⁷ https://www.cityofmadison.com/metro/documents/november-publichearing/TitleVI_ServiceEquityAnalysis.pdf.

- Safety while waiting for buses and while crossing intersections to reach stops was raised as a concern by all groups, with multiple groups suggesting that improved lighting at stops and shelters with fewer walls (i.e. a windbreak and roof only, not a full enclosure) would improve safety.
- Language barriers to using transit service were raised as a concern by several groups, with suggestions that system information should be readily available in more languages or in a language-free icon-based information system. Audible system information was requested by disability focus group respondents.
- Multiple groups suggested that there should be additional routes serving north/south corridors in both east and west Madison, as the current system generally forces out-of-direction travel for many north/south trips in these areas.
- The provision of more shelters and benches at stops throughout the system was widely supported by all focus groups.
- On-Time Performance, and specifically early buses, were raised as issues during multiple discussions. Early buses are very problematic and cause ripple effects in travel scheduling, resulting in missed transfers and employer penalties for arriving to work late.
- Driver training in how to respectfully interact with riders with limited English proficiency or disabilities was raised as a concern in multiple groups.
- The increased distance between Bus Rapid Transit stops compared to regular bus stops was raised as a concern and barrier to using transit by many respondents to the Disability Focus Group survey.

Transit Service Planning Guidelines & Performance Standards

Transit planning guidelines and performance standards for the fixed-route system have been developed as part of the TDP to guide short- and long-term transit planning activities and publish expectations for transit system characteristics and performance. The guidelines are not intended to be rigid, and deviations from them are to be expected. However, transit planning guidelines provide direction and parameters for agency staff in designing services, making facility improvements, and identifying unmet needs. The use of performance standards ensures service is being provided as efficiently and effectively as possible. The guidelines and standards provide a consistent approach to issues, requests,

and concerns that may arise with regards to service and facilities. Transit planning based on such guidelines has the potential to improve transparency in the decision-making process.

The 2013–2017 TDP transit service planning guidelines and performance standards are included in Appendix A of that document. The planning guidelines are general in nature and mainly address basic transit planning concepts such as routing, service levels, and facilities.

The sections include:

1. Introduction
 - Section 1: Fixed Route Transit Service Planning/ Design Guidelines
2. The Transportation–Land Use Connection
3. Route Classification
4. Route Alignment
5. Service Frequency
6. Service Span
7. Bus Stop Spacing
8. Bus Stop Location
9. Service Change Prioritization
 - Section 2: Performance Standards
10. Service Coverage / Route Justification
11. On-Time Performance
 - Section 3: Bus Stop Amenities

The performance standards in Section 2 of the 2013–17 TDP Appendix A detail expectations that can be reasonably met for fixed-route transit service. All new and existing service should meet, come close to meeting, or be expected in the future to meet these standards. These planning guidelines and performance measures have not been updated as part of this TDP update, as Metro did not have the staff capacity to complete this work in 2024. MPO and Metro staff will work to develop updated planning guidelines and performance measures based on this TDP and lessons learned from implementation of East-West BRT in 2025.

Microtransit & On-Demand Transit

Microtransit, or on-demand transit, is a relatively new model of providing transit service for United States cities, although it has been common in various forms for

many years in other countries. Although models vary, generally these services have some established stops, including locations where riders can easily transfer to other fixed-route modes such as bus or rail, but otherwise they serve a geographic area with few if any established stops. Riders can request rides via a smart phone app, a web page, or by telephone, and a vehicle is dispatched to their location or a neighborhood stop.

The rapid growth of Transportation Network Companies (TNCs, e.g., Uber and Lyft) and app-based transportation offerings have affected the public's expectations regarding transportation systems, and microtransit aligns well with these new expectations of door-to-door service at the rider's convenience. This has led to increased calls for public transit agencies to add microtransit services to their systems.¹²⁸

Although this mode is growing in popularity, the subsidized cost per ride is generally much higher¹²⁹ than for fixed-route transit service so it is crucial to only employ microtransit in geographic areas where dispersed populations make fixed-route bus service untenable but where access to the transit system and/or destinations within the service area are considered community priorities.

Green Bay Metro has contracted with Via, a private provider of mobility solutions, to provide the GBM On Demand service.¹³⁰ The first on-demand transit service available to the general public in Wisconsin, GBM On Demand provides rides within four distinct zones and a fifth zone that is eligible for rides to and from those four zones, as well as connections to transfer points.

FlexRide Milwaukee¹³¹ was established as a pilot project to improve job access to an identified Employment Zone from two nearby residential zones. The FlexRide pilot was supported by a research project by the University of Wisconsin-Milwaukee and the Southeastern Wisconsin Regional Planning Commission, with financial support from the National Science Foundation. The pilot project, which required riders to complete an application and meet age and residency requirements, was expanded

to allow the general public without an application in October 2022, with funding to continue the program through at least 2024.

While microtransit can be an important tool for providing transit access in the right situations, it is not a universal cure-all for areas that are currently under-served by transit. Where sufficient demand exists and can be met by fixed-route buses, they are far more affordable to operate on a cost-per-ride basis than is microtransit. Another emerging model combines, or "commingles", paratransit and microtransit services: in areas where paratransit service is provided, accessible microtransit can result in a reduction in the cost-per-ride compared to stand-alone paratransit service. These services can be commingled at three different levels, depending on the needs of the system:

1. **Commingled Fleets:** In commingled fleets, paratransit and demand-response services are both operated with the same fleet of vehicles. Each vehicle/driver shift is assigned to one type of service or the other each day, based on pre-booked paratransit demand and vehicle/driver availability to provide demand-response services. Green Bay Metro uses this type of commingling to reduce overhead and ensure that drivers and vehicles are providing cost-effective services.
2. **Commingled Shifts:** Both paratransit and demand-response services are provided by drivers during a single shift. During any given ride, only paratransit or demand-response riders are transported, with demand response rides provided between pre-booked paratransit rides as time and trip routing allow. This type of commingling is practiced by both High Valley Transit and the Utah Transit Authority in and around the Wasatch front in Utah.
3. **Commingled Trips:** Commingling trips requires careful attention to paratransit trip performance in order to comply with the ADA and to ensure that paratransit trips are not delayed due to provision of on-demand trips. Any given vehicle/driver may be transporting both paratransit and on-demand riders at any time, with on-demand rides booked dynamically with pre-booked paratransit trips to ensure efficient operations. This type of commingling is practiced by

128 https://nap.nationalacademies.org/cart/download.cgi?record_id=26028.

129 As an example of this, a [September 14, 2023 article](#) in the Los Angeles Times reports that although the fare for Metro Micro is only \$1, the service costs taxpayers \$43 for each ride provided.

130 <https://greenbaywi.gov/GBM-On-Demand>.

131 <https://www.flexridemke.com/>.

Railway City Transit in St. Thomas, Canada, where the Accessible Canada Act (ACA) applies instead of the United States' ADA, and paratransit operations are subject to different requirements. Even so, the 2011 TCRP Report 143, *Resource Guide for Commingling ADA and Non-ADA Paratransit Riders*,¹³² found that 53% of responding transit agencies commingle trips, so compliance with ADA is not an absolute barrier to commingling trips.¹³³

In the Madison area, there are several potential candidate areas for microtransit service. These areas may warrant further study and pilot projects to test the efficiency of microtransit in serving the needs of area residents and employees. Given that Metro will be actively engaged in rolling out and adjusting the redesigned transit network and BRT in the coming years, Metro staff do not believe that they will have the resources to pursue microtransit evaluation or planning within the horizon of this plan.

Metro route L, serving Madison's north side and far southeast with service to grocery stores and other important destinations mid-route, could be a good candidate for replacement with two microtransit zones. Operating on a more-than-hourly headway and costing ~\$1 million/year, route L could be replaced with two on-demand service areas: one in North Madison connecting to the Pick n' Save on Aberg Ave, BRT routes A and B, Madison College, and Woodman's east; the other serving Owl Creek, the Dutch Mill park and ride, Pinney Library, Woodman's east, the Elvehjem/East Buckeye/Richmond Hill neighborhoods, and connections to routes C and G. This microtransit zone could also include the Ho-Chunk Casino, nearby hotels, and the Dane County Sustainability Campus. MPO staff set up these zones in Remix On-Demand, an online transit planning platform, which estimated that with an average 10-minute wait time for rides each of these zones would cost around \$408,000 annually to operate. Adding these two demand-response microtransit zones to the Metro system would likely cost about the same or less than route L, with shorter waits and faster travel times.

Although the two microtransit zones described as potential replacements for Route L appear to have lower operational costs than Route L does and might therefore be justified, the cost per ride for many other potential on-demand zones examined for this plan is high enough that they would be unlikely to secure funding from policy makers unless other compelling reasons for the service existed. Table 18 shows the Remix-estimated "medium" ridership scenario for on-demand services in the listed communities or areas;¹³⁴ due to Wisconsin's prohibition against providing transit service across jurisdictional boundaries without those services being provided under contract, these scenarios generally use approximate municipal boundaries for service areas. Service areas in two or more communities include those in Madison/Fitchburg, Madison/Middleton, Windsor/DeForest, Cross Plains/Black Earth, and Mazomanie/Black Earth/Cross Plains. One potential on-demand zone, "Stoughton 3-mile radius", is shown for comparison to the existing Shared-Ride Taxi in Stoughton. Although shared-ride taxi is essentially a form of on-demand transit service, the Remix platform underestimates ridership on this system by approximately 132 rides/week, and over-estimates its operating cost by nearly 100%. In addition to the base service areas, many areas include specific destinations beyond their borders, such as important grocery stores, employment centers, or opportunities to transfer to fixed-route buses. Based on the estimated number of vehicles required to provide peak-hour service and the shortest expected average wait time less than 30 minutes possible for the lowest operating cost, estimated operating cost per ride provided is calculated, with potential on-demand service areas ranked by this estimated per-ride cost. The 2022 costs per Metro fixed-route ride, Metro paratransit ride, Stoughton Shared-Ride Taxi ride, Green Bay Metro On-Demand, and Metro Route L (2023) are provided for comparison. The microtransit zones estimated to require an operating subsidy of \$60/ride and less are shown in Figures 45-53.

Given that Remix substantially under-estimates ridership in an on-demand zone mimicking the existing Shared-Ride Taxi in Stoughton, as well as estimating much lower ridership on the combined Northside 2 and

132 <https://nap.nationalacademies.org/download/14474>.

133 For more information, see https://ridewithvia.com/wp-content/uploads/2022/09/2749873257_Commingling-101_Digital.pdf.

134 Service hours are 6 AM to 8 PM seven days/week in all scenarios.

Table 18 : Estimated Per-Ride and Annual Costs for On-Demand Service in Dane County Communities

Community/Zone	Rides/ Week (Medium Ridership Scenario Estimates)	Est. Operating Cost/Ride	Est. Avg. Wait Time (minutes)	Est. Number of Vehicles at Peak	Est. Annual Operating Cost
Actual Performance					
Metro Fixed-Route (2022)	161,142	\$6.16	-	181	\$51,583,205
Stoughton Shared-Ride Taxi (2022)	428	\$18.74	-	-	\$417,033
Metro Route L (2023)	1,145	\$28.94	40	-	
Green Bay Metro On-Demand (2022)	901	\$34.17	-	12	\$1,601,154
Metro Paratransit (2022)	1,776	\$36.52	--	27	\$3,372,498
On-Demand Zones estimated under \$60/ride Operating Expense					
South Madison Mid Fitchburg	206	\$38.06	20	1	\$407,700
Northside 2	200	\$39.20	15	1	\$407,700
West Madison South Middleton	193	\$40.62	10	1	\$407,700
Fitchburg +	339	\$46.26	10	2	\$815,400
Stoughton	168	\$46.67	10	1	\$407,700
Owl Creek Dairy Drive	152	\$51.58	10	1	\$407,700
Stoughton 3-mile radius (apx. same as actual service area)	296	\$52.98	25	2	\$815,400
North Middleton	145	\$54.07	10	1	\$407,700
Windsor - DeForest	144	\$54.45	15	1	\$407,700
Southwest Madison +	279	\$56.20	15	2	\$815,400
On-Demand Zones estimated over \$60/ride Operating Expense					
Northside 1	113	\$69.38	10	1	\$407,700
South Madison East Fitchburg	107	\$73.27	15	1	\$407,700
Waunakee	87	\$90.12	10	1	\$407,700
McFarland	83	\$94.46	10	1	\$407,700
Verona	82	\$95.61	10	1	\$407,700
Oregon	63	\$124.45	10	1	\$407,700
Cottage Grove	48	\$163.34	10	1	\$407,700
Mt Horeb	29	\$270.36	10	1	\$407,700
Cross Plains - Black Earth	12	\$653.37	20	1	\$407,700
Mazomanie to Cross Plains	15	\$1,045.38	10	2	\$815,400

Owl Creek Dairy Drive on-demand routes than exist on the much less useful Route L, it is reasonable to assume that one or more unique characteristics of the Madison area result in higher ridership than Remix's algorithms expect, although it is unknown if these characteristics would apply to other communities or geographic areas in the Madison region. This may mean that on-demand transit services would be more productive and less-ex-

pensive per ride than the Remix estimates in Figures 45-53 suggest.

Figure 45: South Madison Mid Fitchburg

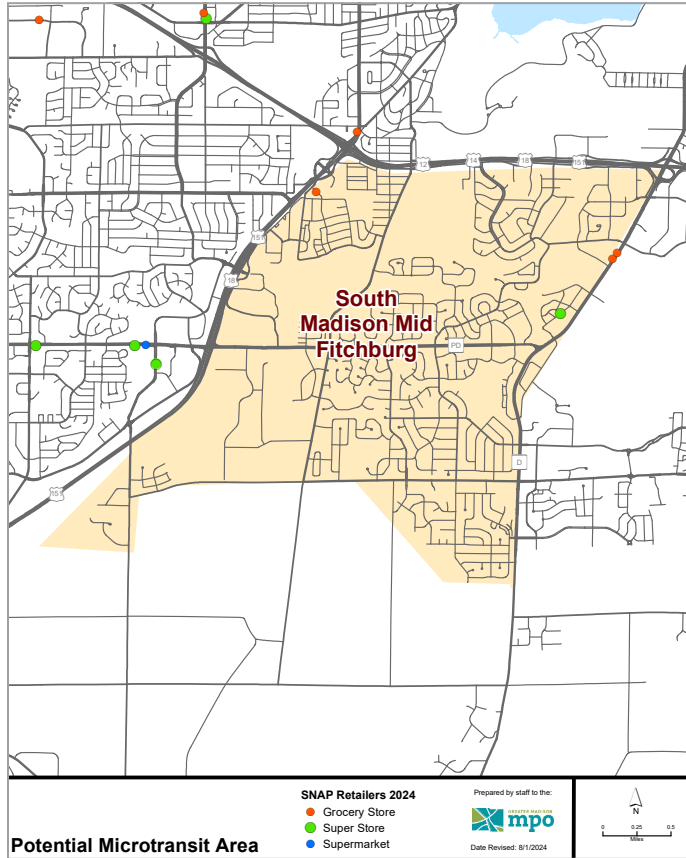


Figure 47: West Madison South Middleton

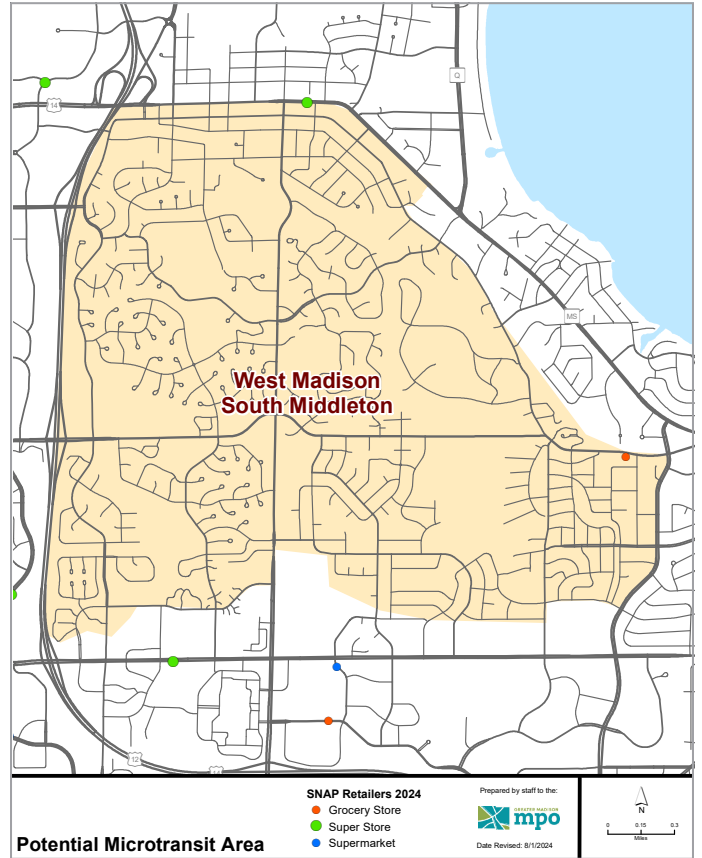


Figure 46: Northside 2

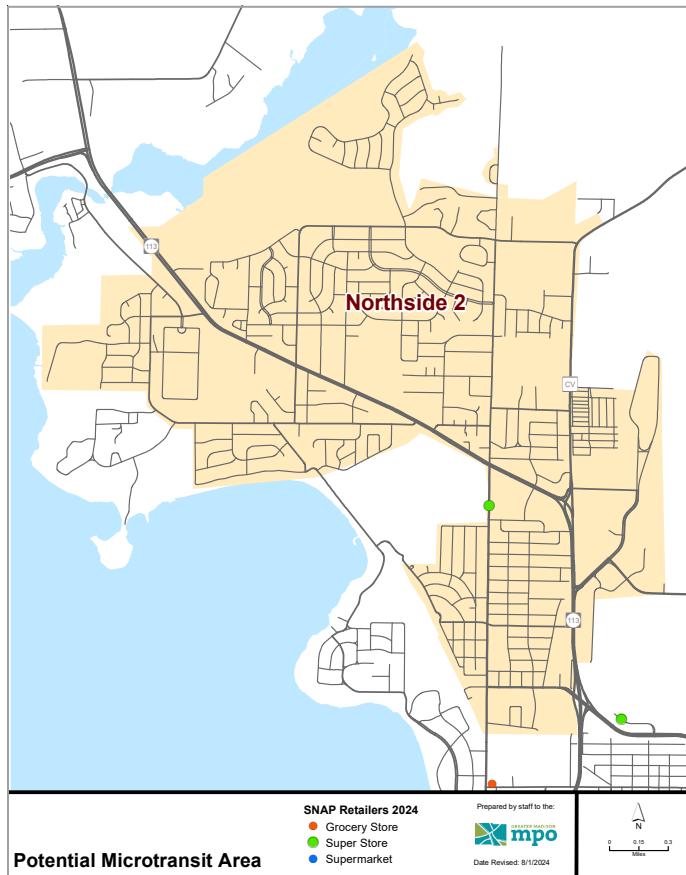


Figure 48: Fitchburg +

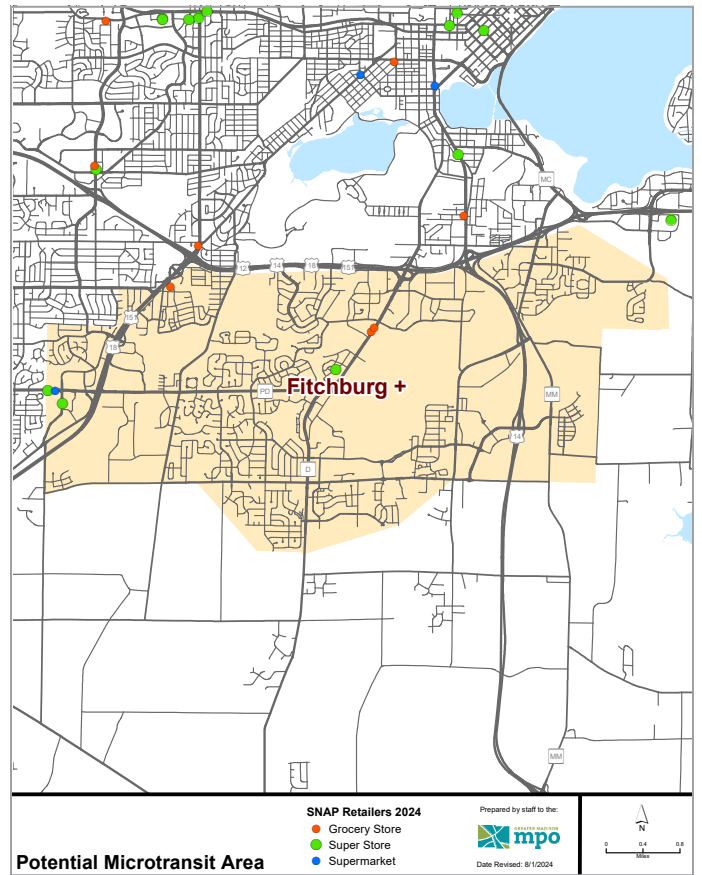
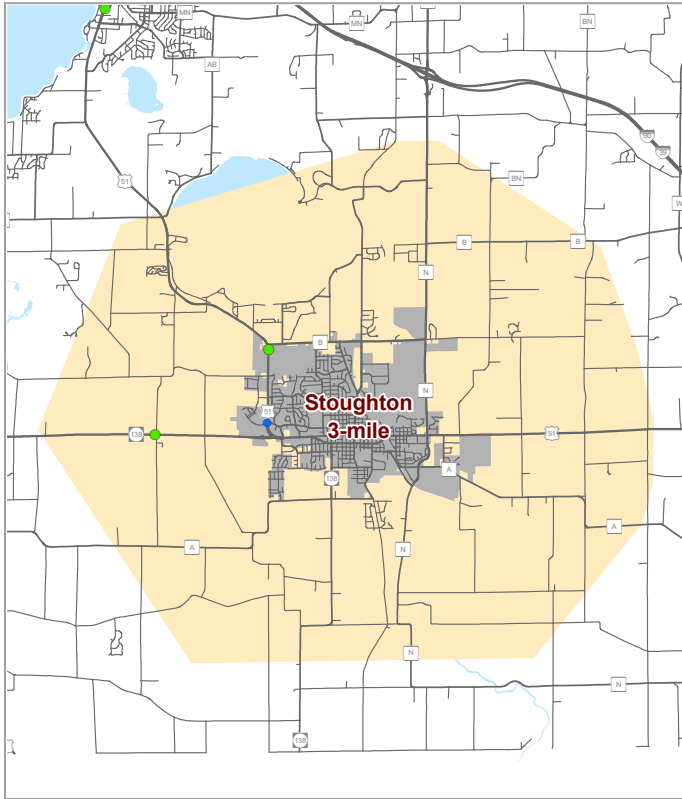


Figure 49: Stoughton




Potential Microtransit Area

SNAP Retailers 2024

- Grocery Store
- Super Store
- Supermarket

Prepared by staff to the:



Date Revised: 8/1/2024


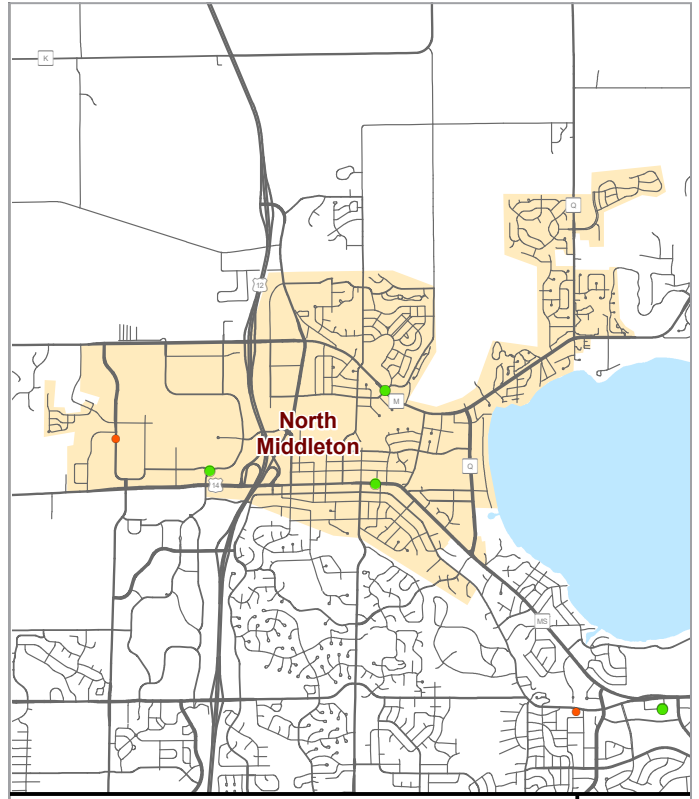


Figure 51: North Middleton




Potential Microtransit Area

SNAP Retailers 2024

- Grocery Store
- Super Store
- Supermarket

Prepared by staff to the:



Date Revised: 8/1/2024


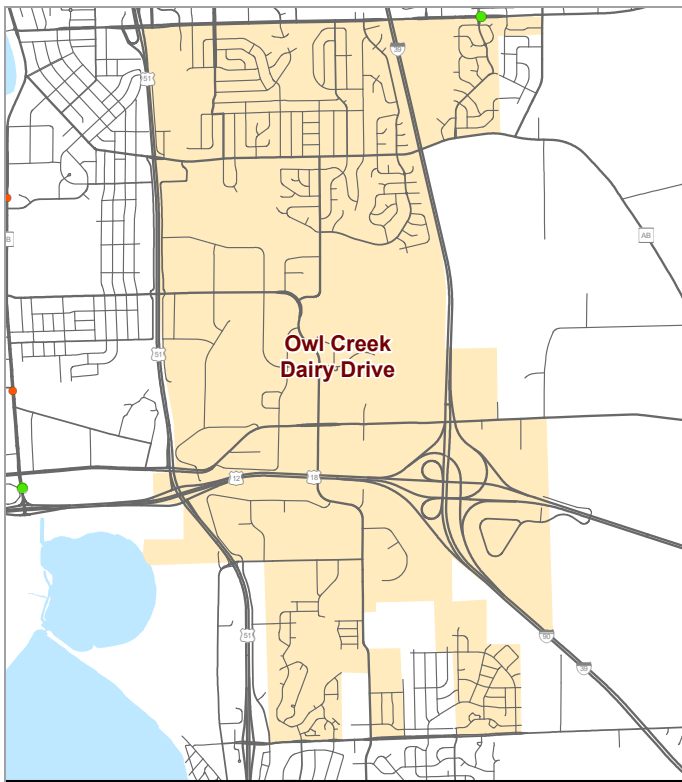


Figure 50: Owl Creek Dairy Drive




Potential Microtransit Area

SNAP Retailers 2024

- Grocery Store
- Super Store
- Supermarket

Prepared by staff to the:



Date Revised: 8/1/2024


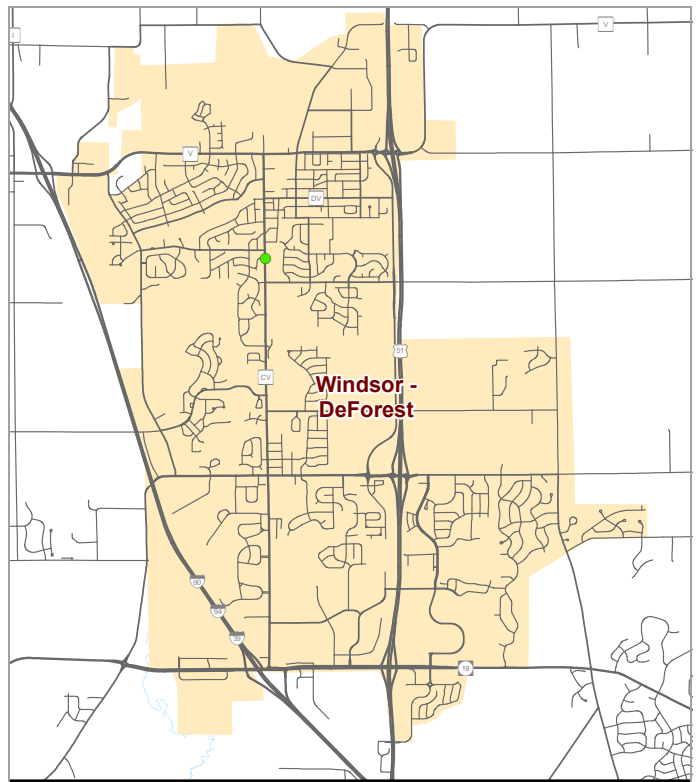


Figure 52: Windsor - DeForest




Potential Microtransit Area

SNAP Retailers 2024

- Grocery Store
- Super Store
- Supermarket

Prepared by staff to the:



Date Revised: 8/1/2024


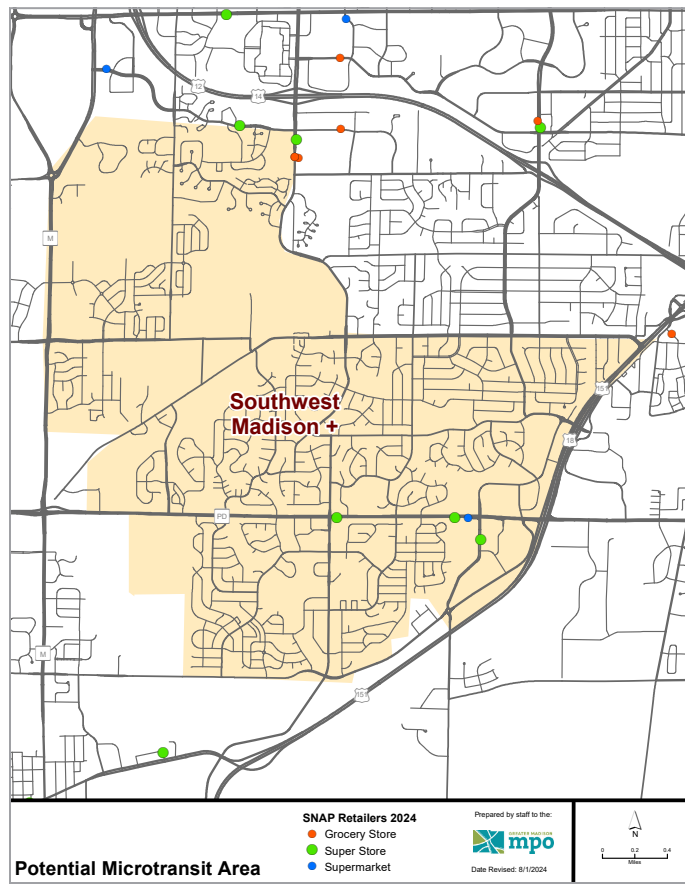


Figure 53: Southwest Madison



The MPO will continue to follow microtransit projects across the region and country and will coordinate with Metro on any potential microtransit pilot projects should Metro have the capacity to undertake them. After riders have become accustomed to the redesigned Metro network, and after Metro has addressed any needed service adjustments following network implementation, the MPO may recommend that the potential for microtransit be further evaluated in various geographic areas.

Capital Facility Needs, Planned Improvements, and Development Recommendations

Capital Facility Needs and Planned Improvements

For many years, Metro’s most pressing capital facility need was the expansion of Metro’s maintenance facility and/or a new satellite facility. The maintenance facility on Ingersoll Street at East Washington Avenue had reached and exceeded its capacity. The newest portion of the facility had been constructed in 1981 as an addition to a WWI-era munitions factory; this facility was designed to accommodate a fleet of 160 buses and

accommodated a fleet of up to 218 full-size transit buses, plus other vehicles. Metro Transit is in the process of upgrading the Ingersoll Street (formerly the East Washington) facility and renovating a new satellite facility on Hanson Road in northeast Madison. This facility will primarily be used to maintain and store the new 60-foot articulated buses to be used in the Bus Rapid Transit system.

In 2011, many of Madison’s strong transit corridors in the central Madison area (Johnson and Gorham Street, Jenifer Street, Monroe Street, and University Avenue) had bus stops every block – eight or more per mile. This condition had not substantially changed since Mills Street, University Avenue, State Street, Jenifer Street, and Johnson Street were served by streetcars in the early twentieth century operating in traffic conditions that were substantially different than today. While closely spaced bus stops are convenient for riders in these corridors, they result in delay for all riders using the service. The 2013-17 TDP evaluated bus stop spacing in central Madison, and one of the recommendations was to implement a bus stop consolidation program in corridors with stops spaced more closely than the standard of 990-1320 feet. Metro successfully consolidated stops on Johnson, Gorham, Monroe, Old University, and Turner in conjunction with street reconstruction projects, as well as individual stops on other routes. Stop consolidation efforts continue as warranted, most recently with stops at East Washington and Dickinson removed in August 2019. Metro intended to reduce the number of stops on Jenifer Street, but due to neighborhood opposition, that effort was abandoned. With implementation of the Transit Network Redesign, streets served by new routes will have new stops installed under the 990-1320 foot standard.

Connected & Autonomous Vehicles

The *Connect Greater Madison 2050 Regional Transportation Plan* states that:

Connected and Autonomous vehicles (CV/AVs) are vehicles in which at least some aspect of safety-critical control functions occurs without driver input. Over time, it is anticipated that vehicles will gradually gain more autonomy. Because of this continuum of automation, “levels of vehicle automation” have been developed to determine how driver-reliant a vehicle is. A vehicle with a rating of 0 has no automation, while a rating of 5 is completely automated.

Examples of vehicle automation are becoming more mainstream each year. Many higher-end vehicles currently come with automated features such as parking assist and crash avoidance. Examples of this type of technology include advanced drive assistance systems (ADAD) that alert drivers to objects or people nearby using radar, sonar, or infrared signals; technologies that apply brakes to avoid crashes; and technologies that avoid collisions by cooperative communication between cell-phone signals, vulnerable users, and vehicles to notify both parties of potential issues.

The future impact of Level 5 (completely automated) CV/AVs on the transportation system is still uncertain. It is likely that fleets and freight will be early adopters. The potential benefits and challenges will largely be dependent on which technology and service models businesses and consumers embrace, and how regulators and policy makers respond. Benefits of this technology are likely to include a dramatic reduction in crashes, reduced travel times, reduced energy consumption, reduced vehicle emissions, improved reliability, increased roadway capacity, and increased transit accessibility.¹³⁵

There are several efforts underway to research and develop CV/AV technologies in Wisconsin and in Madison. These projects are likely to involve pilot CV/AV shuttles at some point in the future, but these are expected to be limited in scope and duration and will not be operated by Metro. Organizations currently involved in CV/AV development in Madison include UW-Madison's Wisconsin Autonomous¹³⁶ and Traffic Safety and Operations Laboratory (TOPS Lab)¹³⁷.

Within the plan horizon, it is expected that some Metro buses will be equipped with limited ADAD features. It is anticipated that Level 5 CV/AVs will not be used as transit vehicles by Metro other than potentially in pilot projects, for which an operator will be present. Metro has requested an earmark to equip the new fleet of 60-foot buses with technology to warn bus drivers of impending collisions, warn pedestrians and bicyclists outside the bus that they are in the bus turning path, install camera-based mirror systems that reduce blind

spots and provide better visibility in adverse weather conditions, and identify hot spots where frequent near-miss situations are happening. This system would use radar-based sensors and cameras to monitor the movement of people and vehicles around the bus and determine if current trajectories could present a danger. The system will then alert the driver and/or the person outside the bus with a visual and/or audible alert. Metro staff have indicated that this technology will be installed on a small number of 60-foot buses if the earmark is not approved.

Even with limited adoption of CV/AV technology on Metro buses, it is crucial that roadway construction and reconstruction projects include or accommodate the fiber network required for CV/AV operation in the longer term.

Fleet Electrification

In 2022, the Federal Transit Administration awarded a Small Starts grant to the City of Madison and Metro Transit. This grant provided \$110 million to Metro Transit for its Bus Rapid Transit project, which includes purchasing 42 electric articulated buses that will be delivered in 2024. Metro Transit plans to establish the main charging station for its electric fleet at the Hanson Road Operations Facility and install end-of-line charging stations at the Sun Prairie Park and Ride and Junction Road facilities. In June 2023 Metro was awarded another \$38 million grant for the purchase of 16 additional 60-foot articulated electric buses, on-route charging stations, and facility upgrades. This latest award brought the total number of Battery Electric Buses (BEBs) in Metro's fleet to 62.

The *Dane County Climate Action Plan*¹³⁸ identifies electrification of the transportation sector as "a key strategy for achieving deep decarbonization." The plan includes specific actions that the county can undertake to promote bus fleet electrification:

Municipal Transportation Electrification: The Office of Energy & Climate Change will work with the public and private sector to prioritize electrification of

135 <https://www.greatermadisonmpo.org/planning/documents/Ch-04-ConnectRTP-web.pdf> (pg. 4-8).

136 <https://wa.wisc.edu/>.

137 <https://topslab.wisc.edu/research/av/>.

138 <https://daneclimateaction.org/documents/CAP-2020/Dane-Co-Climate-Action-Plan-202004-web.pdf> pages 96-97.

shared-use vehicles: buses, bikes, taxi cabs, carpool vans, and community cars.

EV Education and Outreach: [The] Office of Energy & Climate Change will work with Madison to build on Madison's goal of 100% renewable and net-zero carbon bus fleet by 2030, and work with other municipalities to adopt similar goals.

Passenger Information, Marketing, and Education

Metro Network Redesign

In 2020, Metro initiated the process of redesigning its route network for the first time since 1998 in order to better meet the needs of Madison area residents and complement the planned investments in Bus Rapid Transit. Metro hired Urban Assets to assist with the public outreach and engagement process for the network redesign. This outreach was done in three phases spanning from January 2021 to May 2022.¹³⁹

Throughout this process, over 9,000 people responded to community surveys designed to gather input on the community's values and preferences regarding transit service.¹⁴⁰ Both online and paper survey options were provided in multiple languages including Spanish, English, and Hmong. Additionally, over 75 public engagement events were held between the three phases. These events provided qualitative data that Metro used to further inform its network design, with over 19 amendments being provided to the draft plan following the final phase of public engagement.¹⁴¹

Once the final network design was adopted, Metro began working to communicate these changes to the public. Metro engaged in an extensive public education campaign to prepare riders to transition to the new system. This campaign included advertising the network change through both traditional and new media, hiring employees dedicated to outreach, and employing temporary ride guides to inform riders. Two outreach specialists were hired to inform the public in both Madison and in Metro's partner jurisdictions (Verona, Sun Prairie, Middleton, & University of Wisconsin) of the changes to

the network. Additionally, Metro hired part-time ride guides that were stationed at 50 locations across its service area to inform regular riders of the upcoming service changes and help them learn the new system. These ride guides were deployed in the weeks leading up to the implementation of the network redesign and again in August at the start of the UW session.

Throughout the implementation of the redesign, Metro staff and ride guides were active in collecting and processing feedback from both passengers and drivers. This feedback allowed Metro planning staff to make minor changes in August to further refine the redesign. As the implementation of the redesign progresses, Metro staff will continue to review customer feedback and make adjustments to the system.

Bus Rapid Transit (BRT)

Public engagement for the planning phase of Madison's East-West Bus Rapid Transit Corridor began in October 2018 and ended in October 2019. During this process, Metro Transit and its partners, Urban Assets, LLC, received over 5,000 survey responses, held 15 small group meetings, 5 public meetings, and 9 mobile engagement stations. With this line entering service in September 2024, Metro staff have continued to host public meetings and attend community events to further educate the public about Bus Rapid Transit. For the first two days of service, City of Madison employees from a wide variety of departments served as "BRT Launch Ambassadors" at stations to help orient riders to new stations and fare media.

In 2023, Metro began the public engagement process for selecting a Locally Preferred Alternative (LPA) for its anticipated North-South BRT line. This process will include extensive public engagement, including stakeholder meetings, public meetings, and surveys. The input gathered from this process helps Metro and City of Madison staff craft an LPA for approval by the City of Madison Transportation Commission and Common Council.

¹³⁹ <https://www.cityofmadison.com/metro/documents/network-redesign/TransitNetworkRedesignPhaseThreePublicOutreachReport.pdf>.

¹⁴⁰ <https://madison.legistar.com/View.ashx?M=F&ID=10441389&GUID=D27001AB-F521-47EC-84CF-0988A9EA2011>.

¹⁴¹ <https://www.cityofmadison.com/metro/documents/network-redesign/TransitNetworkRedesignPhaseThreePublicOutreachReport.pdf>.

Ongoing Marketing, Outreach, and Education

Metro communicates with its customers in a variety of ways, including social media, printed newsletters, polls/surveys, press releases, text releases, and targeted mailings. Metro plans to continue with its current practices over the period of this Transit Development Plan (2024–2029) while continuously monitoring emerging technologies and innovations to assist with passenger outreach and education. A brief description of each can be found in the sections below.

News Releases

News Releases are written and distributed by a City of Madison electronic dissemination system to local media outlets. Public hearing news releases are sent approximately fourteen calendar days prior to the hearing. All news releases are translated and posted in Spanish. Other alternative language and formats are available upon request.

Polls/Surveys

Depending on the subject matter, Metro encourages feedback in the form of polls and surveys from all members of the community, as decisions often affect more than just those who ride. Surveys are disseminated online, on all fixed-route vehicles, in-person (at stops, transfer points and on-vehicle) and are sent via postal mail to those living near the affected area.

In 2019, Metro conducted mini-touch point surveys, or intercepts, regarding our future Bus Rapid Transit service and whether or not it should operate and serve stops on our Capitol Square. The Greater Madison Area MPO worked with a consultant team and Metro to conduct a statistically significant ridership survey in the spring of 2024. The results of this survey will be used to update the regional travel model and for Title VI analyses. Responses that are relevant to this TDP are included in Appendix E.

Rider Update Texts and Emails

Metro has over 2,500 riders subscribed to its weekly General Rider Updates e-newsletter and over 6,000 riders subscribed to its Rider Alert messages. These services provide riders with updates on service updates/announcements, Metro news, detours, and winter weather alerts. These services are also available in

Spanish and the General Rider Updates are available in Hmong.

Social Media

Metro Transit maintains active X accounts (@mymetro-bus) in both English and Spanish, a Facebook account, and an Instagram account. While Metro’s social media presence is currently small, customer service staff encourage customers to provide feedback and engage in open dialogue when appropriate. Metro plans to continue expanding its social media presence over the Transit Development Plan period (2024–2029).

Printed Newsletters/Flyers

Metro produces two Paratransit ADA newsletters per year. Newsletters are sent via postal mail and go to all ADA paratransit riders. If paratransit individuals have marked LEP status on their application, the newsletter in their preferred language or alternative format is provided. Additionally, Metro provides bus flyers posted at stops that are affected by a service or policy update such as detours, service reductions, stop closures, etc.

Website

Metro’s website is available in both English and completely translated into Spanish. In 2022, Metro recorded more than 267,000 visitors to its site with more than 1.1 million pages viewed.

Metro’s online feedback form is available at mymetro-bus.com/feedback or in the drop-down menu on the homepage. Supervisors and staff are required to sort and respond to all complaints, compliments, and suggestions daily. In the past year, the online feedback form was visited around 3,600 times.

The homepage also features the latest news and highlights. All public participation opportunities are posted in the “Rider Updates” section at least thirty calendar days prior to the event.

New Bus Tracking System

In 2024, new bus tracking technology was installed on 12 buses to improve bus tracking and trip planning for riders. The most notable rider-facing changes are that GPS tracking of test buses is on a separate platform, and that audible stop announcements have been updated. Following testing, the new technology was installed on the remainder of the fleet in August 2024.

The Metro Transit Bus Tracker page allow riders to see predicted stop times based on bus location, view a real-time map of bus locations, plan trips, and subscribe to receive stop and route updates in both English and Spanish.

Funding & Fares

Funding

Metro’s capital and operating costs are funded through a combination of federal funding, state operating assistance, passenger fares, and local funds primarily derived from the property tax. Federal funding may be used for capital project expenses, preventive mainte-

nance costs, and a portion may be used for complementary paratransit service for persons unable to use fixed-route transit. See the Metro Transit Costs and Revenue section of Chapter 3, Today’s Transit, for details regarding Metro funding.

Given flat state funding and tight local budgets, in part due to the state expenditure restraint program, and the many other competing demands for property taxes, it will become increasingly difficult for Metro to cover inflationary operating cost increases in the future let alone meet the service improvement and expansion needs of the growing metro area and address its capital needs, including bus replacements. Because Metro has

Table 19: Summary of Programmed 2024-2028 Transit Project Costs by Funding Source

	Funds Programmed (\$000s)				
	2024	2025	2026	2027	2028
A. Federal Funds					
Other Federal (Areas of Persistent Poverty grant)	258	-	-	-	-
Transit Section 5307 Urbanized Area Program	-	-	-	-	-
Annual Allocation (excludes carryover funding)	15,090	13,730	13,730	13,730	13,730
Transit Sec. 5339 Bus & Bus Facilities	-	-	-	-	-
Annual Allocation (excludes carryover funding)	40,897	1,930	1,930	1,930	1,930
Transit Sec. 5337 State of Good Repair	1,325	900	900	900	900
Transit Sec. 5309 (Small Starts)	-	-	-	-	-
Transit Sec. 5310 E/D Enhanced Mobility Program*	458	-	-	-	-
SUB-TOTAL FEDERAL FUNDS	57,976	16,560	16,560	16,560	16,560
B. State Funds					
State Transit					
Sec. 85.20 Operating Assistance	18,995	19,375	19,762	20,158	20,561
Sec. 85.21 Senior/Disabled Transp. Assistance	709	737	767	798	829
SUB-TOTAL STATE FUNDS	19,704	20,112	20,529	20,955	21,390
C. Local Funding					
City of Madison	23,207	15,486	133,058	4,311	4,311
City of Madison & Others	31,525	30,144	28,548	29,266	3,067
City of Fitchburg	35	99	36	37	38
City of Sun Prairie	311	317	324	330	337
City of Monona	139	142	145	148	150
City of Stoughton	176	180	183	187	191
Dane County	30	-	-	-	-
Dane County & City of Madison	555	559	563	568	572
Sub-total Local Funds	55,978	46,927	162,857	34,847	8,666
Total Transit Funding	133,658	83,599	199,946	72,362	46,617
*Local share of accessible vehicle purchases by non-profits not listed					

had to use the majority of its federal funding for eligible operating expenses, this has put a squeeze on its capital budget. A regional transit governance structure with a dedicated local source of transit funding will be required in order to make major regional service improvements such as building out the full BRT system, initiating express commuter service to outlying communities, and increasing service frequency in the core area.

The state legislature adopted legislation in 2009 authorizing the creation of the Dane County Regional Transit Authority (DCRTA) with the authority to implement a local sales tax of up to ½ percent. The DCRTA was formed in 2010 and, with the help of City of Madison, Metro, and MPO staff, developed a draft short-term plan for improved transit service to support a referendum on a ¼ percent sales tax. However, Assembly Bill 40 (Act 32) was passed in 2011, eliminating the RTA authorizing legislation and dissolving the DCRTA.

Lacking enabling legislation for a regional transit authority, in 2020 the City of Madison adopted a new motor vehicle registration fee (VRF), which replaces \$3.6 million/year in Metro funding that had previously come from property tax revenue, adds \$2.7 million to address increasing operational costs, and provides \$1.5 million for expanded transit service including BRT.3 Dane County also collects a VRF, a portion of which could conceivably be used to support the provision of transit service to areas and communities outside the current Metro service area. While regressive, VRFs have the potential to close the funding gap for incremental system growth while a long-term funding solution to regional transportation needs is secured.

Transit funding programmed in the 2024-2028 Transportation Improvement Program (TIP) is shown in Table 19. Metro Service Partner costs are included in the "Madison & Others" line. Section 5310 funding is programmed one year at a time, so is only shown in 2024; the local share of Section 5310 projects is not included for non-profit agency accessible vehicle purchases but is included for Metro Transit and Dane County programs, which have historically been funded every year. The City of Madison expects to receive Section 5309 Small Starts funding for the North/South BRT project.

Table 19 shows massive investments in 2024 and 2026, with 2028 funding at only 23-64% of the other years in

this period. This reflects a tremendous investment in transit through construction and capital costs of the BRT projects, continuing renovations at the main Metro bus maintenance facility, preparation of the new BRT vehicle maintenance facility, and related improvements in 2024-2027 – and not a funding cut in 2028.

Fares

Metro conducted a Transit Fare Options Analysis in 2021, which considered the costs and benefits of three fare system options: fare-free transit, a proof-of-payment system, and a cashless tap-card system. The Executive Summary of the analysis is paraphrased below:

- The costs of making transit fare-free at pre-pandemic service levels, not including Bus Rapid Transit, are estimated to be \$7.5-\$18.4 million annually. The analysis report discusses several revenue loss scenarios and mitigation options, including various partnerships. It also discusses revenue replacement scenarios, including a vehicle registration fee, a levy limit referendum, and a transportation utility fee.
- The study considered various costs and benefits of proof-of-payment and cashless tap-card systems, including equity concerns. The enforcement concerns associated with a proof-of-payment system make this a less attractive option.
- Metro staff recommend the continued collection of fares. Without an additional revenue source, service cuts may impact under-represented communities. If additional revenue sources were found, staff believe expansion of service and hours would have a more beneficial impact to the Madison area communities.
- With the continued collection of fares, Metro staff recommend a cashless tap-card system. This would include a half-fare system for those who qualify, fare-capping, a broad retail network, and limited vending kiosks, but may pose barriers for unbanked and under-banked residents, and those with limited internet access.
- Using this research as a background, next steps include community seeking community input on these fare options.

According to the Fare Options Analysis, in the 2016-2019 pre-pandemic period, the capital costs for fare collection were \$3.26 million (one-time cost), and average annual operating costs were \$512,813. For the same period average annual fare revenues and related revenues

that are fare-dependent¹⁴² totaled \$16.52 million.¹⁴³ If fares were eliminated, the roughly \$16 million in lost fare revenue would need to be provided by other sources, or service would need to be reduced to make up the difference, which would result in a less-useful transit system that fewer people would use.

During the summer of 2024, Metro introduced “Fast Fare” smartcard payments. This payment system will require riders to use rechargeable smart cards; each ride fare will be \$2, deducted from the balance on the card. Once that rider reaches a daily cap of \$5, each subsequent ride that day will be free. Over the course of a week, fares will be capped at \$16.25, and at \$65 for each month. For youth, seniors, riders with qualifying disabilities, and low-income riders’ fares will be capped at \$2.50 per day, \$7 per week, and \$28 per month.

Riders will be able to pay \$2 cash fares when boarding buses but will need to purchase a ticket or day pass at BRT ticket vending machines prior to boarding BRT vehicles.

Metro plans to roll out the ability for fares to be paid with contactless credit cards, Google Wallet, and Apple Pay in 2025, with a Metro Fast Fare app available in late 2024 or early 2025.

Special Events: Effects on Performance & Routing

Madison and the surrounding communities host many events throughout the year that require road closures, frequently on roads with transit service. While some route detours are unavoidable due to the nature of the events, alternate routes should always be available to ensure transit access throughout the community. Detours around regularly-schedule events which take place in a localized area, such as closures of the Capitol Square for the Dane County Farmer’s Market, of

King Street for Live on King Street, and of State Street for a wide variety of events, can be planned and implemented with only minor impacts on passengers and schedules. A much smaller number of large, sprawling events may result in the closure of roads throughout the region and have major impacts on transit service; these types of events include the Ironman and the Madison Marathon, and to a lesser degree, the Crossfit Games. Historically, road closures for these events follow a route designed for the event with little to no consideration for how – or even if – buses will traverse the city.

Metro is currently informed of potential closures through its representative on the Street Use Staff Commission but has only one vote on the commission and thus cannot ensure that street closures for events will maintain a route for buses to detour around the closure in a timely manner. The Street Closure application “strongly encourages” organizers of run/walk events to contact the Madison Police Department, Traffic Engineering, and Madison Metro prior to submitting an application, but this route planning consultation is not required.

Traffic Calming: Effects on Performance & Routing¹⁴⁴

While many traffic calming techniques work by creating “friction” which drivers respond to by slowing their speed due to perceived obstacles, such as narrowing roadways, adding street trees, adding traffic circles, and other such horizontal treatments, vertical treatments such as speed bumps, speed humps, and speed cushions function by providing physical feedback to the driver. While the effects of all these vertical treatments are magnified by increased travel speeds, they have graduated impacts, with speed bumps being the most impactful and speed cushions being the least impactful, with speed humps¹⁴⁵ having a comparatively moderate effect.

¹⁴² Including Pass Partnerships, where employers or UW agencies pay for employee/student passes, and Route Partnerships, where service partners pay for operations within their communities or serving their facilities. In a fare-free scenario, the future of these funding sources would be uncertain, and some would likely be eliminated.

¹⁴³ Not including paratransit fares.

¹⁴⁴ Adapted and updated from Speed Humps and Transit Operation, City of Madison Department of Transportation, Oct. 24, 2019.

¹⁴⁵ Speed humps may vary from 12 to 22 or more feet in length, and have comparable impacts on drivers as do raised crosswalks and intersections; however, as these devices are generally only used at intersections and not in mid-block locations, they may have less impact on transit service as buses will likely be slowing or stopping at these locations for traffic control devices, crossing pedestrians, or for a bus stop, and therefore not have to slow just for the speed hump.

Figure 54: Schematic of Speed Hump, Speed Slot, and Speed Cushion¹⁴⁶

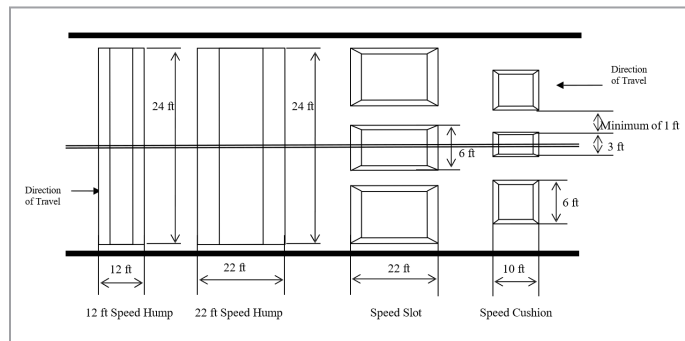


Figure 54 shows typical dimensions of speed humps, speed slots, and speed cushions. Speed humps have been used extensively in the Madison area. Speed slots and cushions are modified speed humps designed to avoid excessive discomfort to vehicle occupants or damage to vehicles by making separations in the hump through which vehicles with wider wheelbases, such as EMS and transit vehicles, may theoretically pass without encountering the hump. Speed slots require the vehicle to straddle the centerline and travel in both lanes of the roadway, which increases risk to all vehicles on the roadway and is not appropriate for transit vehicles. Speed cushions, however, allow the emergency or transit vehicle to remain in its respective lane but to still straddle the cushion and not have to slow for it. Unfortunately, the dual rear-wheel configurations of fire trucks, ambulances, and Metro buses are not actually wider than the wheelbase of passenger vehicles, so speed cushions are not effective given Madison’s EMS and transit fleets.

Speed humps have been installed in many locations in the Madison area. Their goal is to force traffic to 20 to 25 mph in low-speed neighborhood streets. However, they can have adverse impacts on the operation of larger vehicles, including transit buses (both fixed route and paratransit). The negative impacts for transit fall into three general categories: On-time performance, passenger ride comfort, and increased maintenance costs.

In the Madison area, speed humps are found on many streets on which bus routes operate. These routes were generally in place before the speed humps were installed. When planning any new routing, Metro staff attempt to avoid proposing operation over streets with speed humps.

In the pre-pandemic transit system, Metro buses negotiated approximately 15,000 speed humps and other raised traffic calming features per week (not including supplemental school day service). After implementation of the Network Redesign in June 2023, Metro buses must navigate just over 8,500 speed humps each week.

Effect on On-Time Performance and Schedule Adherence

While it is difficult to determine precisely how much time is lost from operating over speed humps, additional time is required to navigate them. As a bus approaches a speed hump, it first decelerates, then continues slowly across it, and finally accelerates again as the rear wheels clear the speed hump. A series of speed humps will have a greater impact as this process is repeated for each hump.

The Federal Highway Administration (FHWA) compiled data from various municipal sources and found the travel time impact to be in the range of four to ten seconds per speed hump for emergency vehicles.¹⁴⁷ Bus operators are trained to drive in a smooth fashion so that passengers are comfortable and also to reduce the number of falls and injuries on the bus; buses likely experience a delay in the range of 10-15 seconds for each speed hump.

NACTO recommends that streets be designed for the target speed, a safe speed at which drivers should drive, rather than existing operating speed or statutory limit. The design speed and target speed should be aligned through the use of traffic calming measures, including narrower lane widths, roadside landscaping, speed cushions, and curb extensions. They note that “Traffic calming measures can be designed to slow gen-

¹⁴⁶ *A Comparative Study of Speed Humps, Speed Slots and Speed Cushions*. Johnson, LaToya and AJ Nedzesky. https://nacto.org/docs/usdg/study_speed_humps_speed_slots_and_speed_cushions_johnson.pdf.

¹⁴⁷ *Traffic Calming ePrimer*. Federal Highway Administration. https://safety.fhwa.dot.gov/speedmgt/ePrimer_modules/module5.cfm.

eral traffic while having little negative impact on transit vehicle operation.¹⁴⁸

Passenger Comfort

Operating over a speed hump affects the ride for the passengers and driver of any vehicle but in the case of a bus, there are more passengers affected. Unless they are in a mobility device tie-down position, the passengers are not secured in any way. The seats of transit buses are typically made of molded plastic with a thin cover and do not offer the same protection offered by a typical car seat. Whether secured or not, passengers, seated or standing, are subjected to the jolts as the suspension compresses and then expands again. This is especially concerning for seniors and other vulnerable passengers. There is an increased risk of a fall or of a mobility device tipping over.

Maintenance Considerations

The suspension of a transit bus is based on large pneumatic air bags at each wheel, rather than metal springs. These provides the bus with an extra measure of stability, an important consideration given the size of the vehicle and the loads and conditions under which it operates. The cycling of compression and expansion of these air bags as speed humps are traversed has an impact on the longevity of these air bags, as well as other parts of a bus's suspension system and even the frame network.

It is nearly impossible to study the correlation between speed humps and wear on buses because buses change through the years, drivers act differently, speed humps have been around for a long time, and there are many factors that affect the life of bus parts. Metro maintenance staff have indicated that speed humps can be at-

tributed to an increased number of maintenance issues, particularly frame cracks when the buses bottom out.

Conclusion

Over time, Metro buses are encountering more speed humps and other vertical traffic calming measures within the route system. These features have negative impacts on transit service, affecting on time performance, ride quality, and exacerbating maintenance issues. Other transit systems in the US have developed policies against the placement of speed humps along bus routes because of the adverse impacts.

Examples include:

- The South Carolina DOT says that speed humps are not desirable “on a primary emergency response or bus route.”¹⁴⁹
- Delaware State DOT states that, “Raised crosswalks/ speed tables ... should not be used on the primary routes for emergency vehicles and transit buses.”¹⁵⁰
- Virginia State DOT says, “Streets on major transit routes or that experience significant use by such vehicles should consider use of non-intrusive devices.”¹⁵¹

The Transit/Land Use Connection & Transit-Oriented Development

Policies and ordinances such as the City of Madison's Transit-Oriented Development (TOD) overlay zone¹⁵² help ensure that development is focused on centers and corridors, as envisioned in the 2050 Regional Development Framework¹⁵³ and Regional Transportation Plan¹⁵⁴.

Metro has used a service guideline that routes should provide coverage to at least 5,000 people, 5,000 jobs,

148 Transit Street Design Guide, ©2016 National Association of City Transportation Officials (NACTO), New York, NY. (pg. 114)

149 SC DOT Traffic Calming Guidelines. FHWA, sourced from South Carolina DOT. https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasq09028/resources/SCDOT%20Traffic%20calming%20guidelines.pdf (pg. 12).

150 Delaware Traffic Calming Design Manual. National Association of City Transportation Officials, sourced from Delaware DOT. https://nacto.org/wp-content/uploads/2015/04/DE-Traffic-Calming-Manual_2012.pdf (pg. II-28).

151 Traffic Calming Guide for Neighborhood Streets. Virginia Department of Transportation. <http://www.virginiadot.org/programs/resources/Traffic-Calming-Guide-For-Neighborhood-Streets.pdf> (pg. 18).

152 <https://cityofmadison.maps.arcgis.com/apps/webappviewer/index.html?id=89737c066cda41eea5d986dd71291576>.

153 https://carpc.sharepoint.com/Document_Library/Document%20Share/Regional%20Development%20Framework/RDF_Final-Report_July-2022.pdf (Page 25).

154 <https://www.greatermadisonmop.org/planning/documents/Appendix-A-ConnectRTP-web.pdf> Land Use and Transportation Integration Recommendation 1, Supporting Actions D and E (Page A-13).

and average 15 mid-day weekday boardings per hour for many years. This guideline is retained in this TDP.¹⁵⁵

For background information on the Transportation/Land Use Connection and its relationship to housing and transportation costs, see the Future Land Development section of Chapter 2. For discussion on its impact on ridership, see the Housing + Transportation Costs section of Chapter 4.

Transportation Demand Management

Transportation Demand Management (TDM) is generally defined as a set of strategies to reduce roadway congestion, vehicle miles traveled, and demand for single-occupancy vehicle (SOV) use by redistributing demand to alternative travel modes, times, and routes. TDM is implemented through land use policies that support compact, mixed-use development; transportation policies that support safe, connected, multimodal systems; financial incentives such as discounted transit passes and priced parking that influence demand; and public and private sector programs that use education and encouragement to promote behavior change.

TDM aims to reduce vehicle miles traveled and peak period roadway congestion by maximizing the availability and use of alternatives to driving alone. TDM promotes walking, bicycling, public transit, ridesharing, telework, flexible schedules, micro-mobility (e.g., bike share and e-scooters), and shared mobility (e.g., bike share and car share). TDM contributes to quality of life in the Madison region in many ways, including by expanding access to more affordable and equitable modes of transportation; minimizing the environmental impacts of transportation; and reducing demand for future roadway and parking expansions by using existing infrastructure more efficiently.

TDM is one of two goals in the MPO congestion management process (CMP), supported by performance measures and targets that include reducing vehicle miles traveled per capita, increasing transit ridership, and expanding the low-stress bicycle route network. The MPO also administers [RoundTrip](#), a TDM program that provides ride-matching services and uses information, encouragement, and incentives to raise awareness

and promote the use of alternatives to driving alone among individuals and employers.

The City of Madison adopted an updated TDM policy in 2022; the updated policy and information about development requirements are available on the City's [TDM web page](#). For more information on TDM in the Madison area, see [Connect Greater Madison 2050: Regional Transportation Plan](#) and the MPO's [Rideshare/TDM web page](#).

First- and Last-Mile Connections

First and last mile connections are the means by which riders travel between their trip origin and destination and the bus stops at which they board and alight, respectively. Typically, riders walk to their bus stop, and then walk to their destination after departing the bus. The rise of micromobility (bikeshare such as BCycle, in the Madison area), car-share (ZipCar in the Madison area), and emerging modes such as microtransit or on-demand transit and ridesharing Transportation Network Companies (TNCs)—including Uber, Lyft, and CarePool—have altered the transportation landscape dramatically, and offer new options for accessing transit. This section discusses these new and emerging modes and provides recommendations for improving first- and last-mile connections to the transit system.

Accessible Pedestrian Network

The most common way for riders to reach transit stops is by walking, including the use of assistive mobility devices. As such, having a complete and accessible pedestrian network is critical to riders being able to safely reach bus stops. The Greater Madison MPO's [Pedestrian Facilities web map](#) can be used by area communities and advocates to identify gaps in the sidewalk/path network as well as barriers such as missing curb cuts and stairs. These barriers must be removed when the adjacent roadway is resurfaced or similarly modified under Department of Justice and USDOT interpretation of the ADA.

It is worth noting that *The Role of Bus Stop Features in Facilitating Accessibility*¹⁵⁶ found that bus stop accessibility improvements are “associated with significant increases in stop-level boardings and decreases in ADA

¹⁵⁵ 2013–2017 TDP, Appendix A, Service Coverage/Route Justification.

¹⁵⁶ Bartholomew et. al. NITC-RR-1214. Portland, OR: Transportation Research and Education Center (TREC), 2020. <https://rosap.nfl.bts.gov/view/dot/54742>.

paratransit demand, and that these phenomena are linked (i.e., that some of the increase in scheduled-service boardings is coming from patrons who are switching from ADA paratransit).” Where boardings are lower than would be expected based on surrounding land uses and service levels, stop improvements should be made – both to ensure ADA compliance and to help boost ridership.

As important as an accessible pedestrian network is to providing access to and from bus stops, these facilities are not controlled by Metro but by the communities being served. Service partner communities should make efforts to complete their accessible pedestrian networks to ensure that potential and existing riders are able to access bus stops safely. See additional discussion of stop accessibility in Chapter 3, Boarding Platforms, and the 2013–2017 TDP Appendix A, Section 3 – Bus Stop Amenities.

Bikeshare

In the Madison area, bikeshare is provided by BCycle, which offers an all-electric bike (e-bike) fleet of 510 cycles,¹⁵⁷ with stations in Madison (beginning in 2012) Monona (2021), McFarland (2022), and Fitchburg (2023). Bikeshare has been incredibly popular in the Madison area, with every year breaking the prior years’ ridership record. In 2023, nearly 1.4 million miles were ridden in over 522,000 BCycle trips in the Madison area.

In addition to offering bikeshare rentals through hourly, daily, monthly, and yearly passes, BCycle passes can be checked out from Madison Public Libraries through the Community Pass Program, supported by the Madison Public Library Foundation.¹⁵⁸ The Community Pass Program allows lower-income and unbanked individuals to access the bikeshare system for up to a week at a time at no cost; helmets are also available for checkout.

Car-share

Car-sharing company Zipcar offers vehicles at 18 locations on or near the UW–Madison campus, downtown Madison, and on the isthmus. Nation-wide, 75% of Zipcar members do not own a car, and 19% of members

got rid of a car after joining Zipcar. Zipcar trips are more likely to be carpool trips (1.85 people on average) than nationally (1.67 people on average), and car-sharing encourages members to make short trips on foot, by bike, or by transit, and to only use a car for longer, purpose-driven trips. During the COVID-19 pandemic, when transit ridership plummeted by 53% nation-wide, only 5% of Zipcar members stopped using transit.¹⁵⁹ These figures show that car-share is a critical tool in providing transit-supportive transportation options and support the inclusion of car-share in residential developments as part of TDM initiatives as well as at mobility hubs, described below.

Mobility Hubs

Mobility hubs are locations where a transit stop is served by connections to other modes, such as having a bikeshare station, microtransit stop, kiss-and-ride, taxi kiosk, car-share, bike lockers or other covered storage, and access to the bicycle and pedestrian networks. Mobility hubs allow, and even encourage, travelers to use a variety of transportation modes to complete their journey. The Metropolitan Transportation Commission (San Francisco Bay Area MPO) has published a Mobility Hub Implementation Playbook¹⁶⁰ to help communities plan and implement mobility hubs; although it was drafted with Bay Area communities in mind, the playbook is a helpful guide for any community that is working to build or improve mobility hubs. The City of Minneapolis has also implemented several phases of mobility hub expansion and has published resources¹⁶¹ including annual pilot program reports for 2019 and 2020, how mobility hubs support Vision Zero, and a pilot program Executive Summary that includes recommendations and lessons learned which can help inform the development of mobility hubs in other communities.

Park & Ride Lots

Park & Rides have been a mainstay of commuter transit service for many years and are anticipated to continue to provide an important connection to the transit system for those who live far from transit but want to avail themselves of transit’s benefits when traveling in ur-

157 As of the beginning of the 2024 season.

158 <https://madison.bcycle.com/nav/in-the-community/community-pass-program>.

159 Zipcar Impact Report 2021, <https://www.zipcar.com/impact>.

160 <https://mtc.ca.gov/tools-and-resources/digital-library/mtc-mobility-hub-implementation-playbook>.

161 <https://www.minneapolismn.gov/government/programs-initiatives/transportation-programs/mobility-hubs/>.

banized areas. Park & Rides are most useful when they serve major transit stops on the periphery of transit systems, instead of being located in urbanized areas where the driver has already dealt with congested roadways (and added to that congestion) before parking.

New Park & Rides should be located where major roadways intersect with Metro's Frequent Service Network, Bus Rapid Transit, or Express/Commuter routes, facilitating a convenient mode shift for drivers whose driving routes are intercepted by convenient, high-quality transit service.

MPO staff had impromptu conversations with Metro drivers who were serving as Ride Guides in the weeks prior to the launch of the Network Redesign, and were told again and again that the most important change to the system to increase ridership and reduce the number of people driving alone would be to locate new Park & Rides beyond the limits of the new system, and to serve those Park & Rides with limited-stop commuter/express routes with direct service to major employment areas such as downtown Madison and the UW/VA Hospitals.

Park & Rides are not consistent with Transit Oriented Development, as they are auto-dependent uses, and they should not be located between transit stops and adjacent active uses such as residences, employment, or services. For more on Transit Oriented Development, see that section of this chapter. For more on existing Park & Rides, see Chapter 3, Today's Transit.

Regional Workforce Transportation and Vanpools

As communities surrounding the central Madison Urban Area develop, there is increasing demand for transportation alternatives both between those communities and connecting those communities to the central urban area. While these communities, with their relatively low populations and number of jobs, are not yet populous enough to support fixed-route transit service, there is growing interest in offering workforce transportation to and from these communities. The Village of Waunakee and MPO staff conducted a workforce transportation survey in 2021 to measure interest in potential vanpools or other service to bring workers into the village. In 2022-23 the MPO provided support to the Village of

Oregon in conducting a community survey to gauge interest in potential transit service within the village and connecting the village of nearby communities, following which the village board directed staff to pursue transit planning funding from WisDOT. MPO staff began working with Village of DeForest staff on a similar exploration of potential transit service in August 2023.

While these communities and others are recognizing that transit can provide critical transportation options for prospective and current employees, their distance from existing Metro service, low populations, and widely dispersed destinations make it difficult to design fixed-route transit services that can serve them efficiently. For many of these communities, it appears that vanpools or on-demand transit services (discussed above) may be the best fit until ridership justifies service expansion.

Pre-pandemic, the State Department of Administration offered a vanpool system with over 90 vehicles making daily trips from communities as far away as Oshkosh and Milwaukee to jobs in Madison. In 2022, administration of this program was transferred to Commute with Enterprise (CWE), a nationwide for-profit car- and vanpool operator. This program receives no public subsidy, and riders share the costs of the vehicle, its operation, and CWE's profit margin. With the combination of fewer potential riders due to increased teleworking by former vanpool riders and the lack of subsidy and resulting high cost of participation, this vanpool system is currently struggling to attract and retain riders.

In addition to the state vanpools, vanpools are offered through CWE by a variety of area employers:

- Total Active Vanpools – 14
- Total Active Participants – 140
- Employer Breakdown
 - Associated Milk Producers Inc – Three 15-passenger vans, total participants: 57
 - Findorff – One minivan, total participants: 5
 - FCI – Two minivans, total participants: 14
 - State & VA Vanpool – Eight minivans, total participants: 64

Current State Vanpool Program:

Vanpool Route	# of Participants	Vehicle
Janesville to Madison	13 Participants	15-Passenger Van
Beaver Dam to Madison	12 Participants	15-Passenger Van
Baraboo to Sauk City to Madison	7 Participants	7-Seat Minivan
Lodi to Dane to Waunakee to Madison	6 Participants	7-Seat Minivan
Barneveld to Madison	6 Participants	7-Seat Minivan
Portage to Madison	8 Participants	15-Passenger Van
Janesville to Madison	6 Participants	7-Seat Minivan
Rio to Windsor to Madison	6 Participants	7-Seat Minivan

Commute with Enterprise has conducted a market analysis of Dane County and the surrounding areas, and estimates that 79 vanpools could operate successfully in the eight-county area.

Current Annual Impact of Active Vanpools:

- VMT – 328,155
- VMT Reduction – 41,347,507
- Lbs. of CO2 Reduced – 31,510,381
- Tons of CO2 Reduced – 14,306

CWE-Estimated Growth Opportunity:

- VMT – 1,851,731
- VMT Reduction – 1,316,580,557
- Lbs. of CO2 Reduced – 1,003,348,419
- Tons of CO2 Reduced – 455,520

Madison Region Economic Partnership (MadREP) Workforce Vanpool Pilot

Local governments, chambers of commerce, workforce development agencies and community organizations throughout south central Wisconsin agree that a lack of responsive and flexible regional workforce transportation options is a barrier to employment. This pilot project addressed this key regional workforce participation

obstacle through an innovative workforce vanpool program.

The Need

As a result of shifting demographics over the course of the last two decades in Wisconsin and the Madison Region, it is generally accepted that the largest economic development challenge in the state is a shortage of labor to meet the demand of companies. There are two primary methods to grow our labor pool:

1. Attracting more workers from outside our region to move into (and work) in our region, and
2. To make the most of the residents we already have by increasing the number choosing to work. To do that, we must address elimination of barriers currently keeping them out of the labor force. One of those barriers to employment is the lack of reliable transportation.

Transportation as a Workforce Participation Barrier

While the cost of transportation is a budgetary consideration for all employees, it impacts disproportionately those with the most limited access, flexibility, networks, & available employment opportunities (low/moderate income households, people of color, lower levels of educational attainment and/or experience). It also disproportionately affects those in rural areas, as well as other locations with limited (or no) access to public transportation options.

The pilot program provided an additional transportation option for potential and existing employees to consider, with the intended goal of making it possible for additional individuals to enter or remain in the workforce.

The MadREP pilot project reflected consensus from regional meetings with dozens of community leaders, DEI advocates, municipal leaders, businesses, and agencies which included discussions regarding the necessity for more responsive and flexible regional workforce transportation. MadREP received forty letters of support from local and regional organizations that reinforced the need for expanded workforce transportation.

The Solution

MadREP believes a population of individuals exists in our region who would choose to work if they had a reliable means of transport. We've seen this before.

Following a community needs survey in Dodge County which revealed that transportation challenges were a major barrier preventing people from working, a local company owner started a vanpool. In 15 months, they increased their employee head count by 50%, had a more reliable 3rd shift, reduced tardiness & absenteeism, & improved employee morale & retention.

Vanpools are a benefit most companies have not provided. However, to entice new workers into the labor force, they may need to consider offering new benefits, which have a cost. To help defray the cost of exploring the use of vanpools, MadREP launched a pilot program to partially subsidize (for a period of time) the monthly costs charged to companies for contracted vanpools.

MadREP's goal is to eventually build a network of vanpools to support workforce commuting across our region. Establishing this network of company vanpools will provide opportunity for economically disadvantaged populations as well as populations in rural areas.

MadREP's pilot project partner Commute with Enterprise (CwE) provides vanpooling for commuters across the country. Backed by a large fleet, extensive location network, & 24/7 customer service, CwE has more than 40 years' experience providing vanpool solutions. CwE teams are experts at managing vanpool programs of any size. With over 1.2 million vehicles in North America, vanpool groups can choose from passenger vans, crossovers, minivans, or SUVs. CwE provides vehicle choice, comprehensive maintenance, ride-matching technology, driver approvals, insurance coverage, business invoicing, program marketing, & National Transit Database (NTD) reporting.

In recognition of CwE's excellence in managing worker vanpools, in 2023 the Wisconsin Department of Administration (DOA) contracted with CwE to manage the State Employee Vanpool program. CwE now provides vans for this program and manages route participation.

The Pilot Project

To provide a financial incentive for companies to test the use of vanpools, MadREP set aside a small amount of funding for a limited number of vanpools. While the primary purpose of the vans was to recruit individuals to the workforce who had been unemployed due to a lack of transportation, a secondary benefit was to use vanpools as a means of retaining current employees.

This is a benefit that most companies have not traditionally budgeted for and may be reluctant to do so unless there is an incentive. MadREP's financial incentive was \$500 per workforce vanpool for a period of twelve months and included funding for three vans to participate in the program. In this way, pilot funds were used to reduce the cost of vanpools that are charged to participating companies, enticing some companies to experiment with this option. Eventually, however, if companies believe there is a benefit to retaining vanpools, they will need to build it into their operating budgets (with possible rider cost-share) to make this solution sustainable.

Results

The pilot program resulted in three vanpools being put on rent quickly, with two of them going to Associated Milk Producers Inc in Portage, WI and the other going to QPS Employment Group in Beaver Dam, WI (taking employees from the staffing agency to a company in Mayville, WI). These vanpools stayed on rent throughout the duration of the pilot program, with one van only briefly returning due to a fire at a facility and a temporary reduced need for employees to go to work at that site.

Once the funding for the pilot program was fully utilized, one of the vans did return through QPS Employment Group in Beaver Dam, however they have additional vanpools in other parts of Wisconsin and other states still as well. Associated Milk Producers Inc kept their two vans and added an additional van after the pilot ended. Their decision to fully fund and expand the program after the funding from MadREP had ended demonstrates the significant value they see in providing reliable transportation for their employees. They will be marking two full years of having employee transportation in October 2024.

Next Steps

In 2023 and early 2024, MPO staff worked with WisDOT, FTA, CwE, MadREP, and other stakeholders such as villages and employers to identify potential funding sources for vanpool subsidies for existing and potential future vanpool routes. Due to program eligibility requirements, only section 5307 funding was identified as an eligible funding stream to subsidize vanpool programs; however, as the Direct Recipient, Metro receives and allocates all section 5307 funding for the Madison

area. Metro does not currently have funding capacity to direct these funds to a new regional vanpool subsidy. If a regional vanpool program is initiated, reporting ridership, mileage, and other metrics to the National Transit Database (NTD) will result in increased funding levels through the section 5307 program; ideally, those funds would be returned to the system to create an on-going subsidy for the program.

The Dane County Climate Action Plan¹⁶² identifies “triple-benefit transportation system” strategies to reduce vehicle miles traveled (VMT), expedite the transition to electric vehicles, and creating just and equitable access to transportation. One of these strategies is to “expand transit options with electric buses in vulnerable communities including electric buses to transport blue-color [sic] workers to manufacturing jobs in outlying communities.”

Regional Express Commuter Service

Several regional express commuter bus lines are already in place; future routes are intended to build on and incorporate them. Metro routes 55 and 75 are the best examples of regional express service with direct, limited-stop express service between the Epic campus in west Verona and West Madison’s Junction Road BRT terminal (Route 55) and Capitol Square (Route 75). These routes are primarily designed to serve reverse commute trips to Epic but are also effective at serving Verona commuters who work in Madison. Starting in June 2023, Route 65 provides limited-stop peak-only service between Fitchburg City Hall and the UW and VA hospitals via Cheryl Parkway, CTH MM, Rimrock, John Nolen, the Broom/Bassett and University/Johnson couplets, Linden, Observatory, and University Bay Drive.

In addition, Monona Express provides fast, direct, express service between residential areas in Monona and the Madison CBD. The City of Monona passed a resolution to enter into a contract with Metro in December 2023; at this time, it is anticipated that this service will begin in March 2025.¹⁶³ A short-lived Express Commuter Route 23 connecting Sun Prairie with downtown Madison operated from August of 2019 until the implementation of the Network Redesign in June of 2023, at which

time the Sun Prairie Park and Ride became one of the east termini of East-West BRT and local routes S and W were implemented in Sun Prairie.

The conceptual express/commuter routes listed in Table 20 are identified in the Connect Greater Madison 2050 RTP as shown in Figure 55. These routes are not part of the fiscally-constrained plan, and implementing them would require new, unidentified operating funding. Due to Wisconsin state law,¹⁶⁴ communities served by public transit systems based in other communities must be served under contract and must provide financial support for the service. Accordingly, any communities served by new commuter service would need to provide financial support for those routes.

Table 20: New planned express commuter service.

Line	Routing
Waunakee West	BRT station at Sheboygan Avenue to Waunakee via University Avenue, Allen Boulevard, Century Avenue, and CTH Q
Waunakee East	BRT station on Northport Drive to Waunakee via a reversible AM/PM loop on STH 113 and Woodland Drive
Stoughton & McFarland	Central Madison to Stoughton via John Nolen Drive, Beltline Highway, and USH 51, including a deviation to serve downtown McFarland
DeForest	BRT station on Anderson Street to DeForest via USH 51 and CTH CV
Oregon	BRT station at Badger Road and Park Street to Oregon via USH 14
Verona	BRT station near Fish Hatchery Road at Caddis Bend to Verona via CTH PD and USH 151 – this route presumes that current peak-only routes 55 and 75 have been upgraded to all-day service, and adds peak-hour capacity

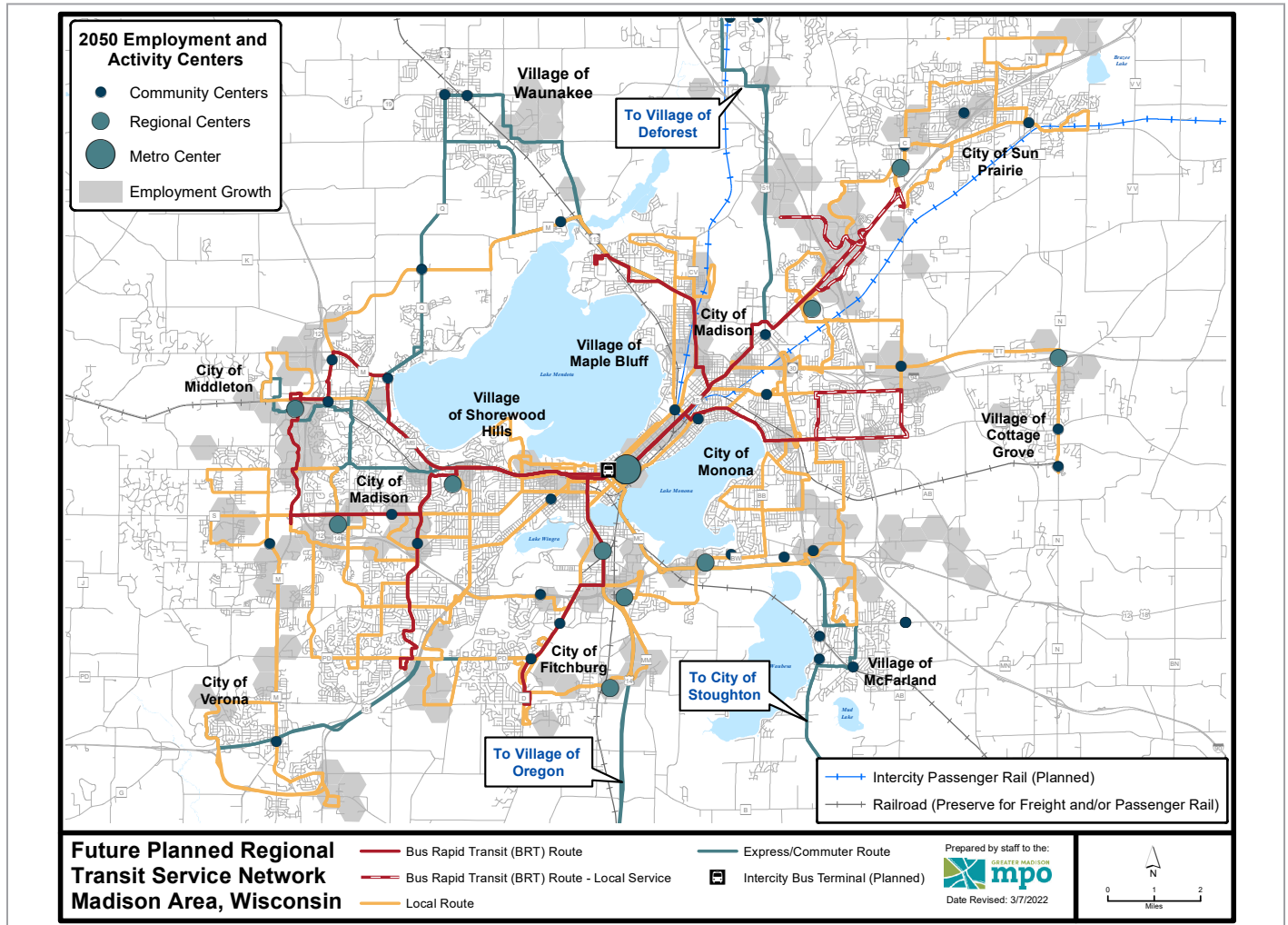
The routing for these lines was refined from past regional express bus planning efforts and follows the plan goal to support the development of walkable, transit-oriented centers and corridors. The stop patterns for each line are envisioned to be local stops in the primary

162 <https://daneclimateaction.org/documents/CAP-2020/Dane-Co-Climate-Action-Plan-202004-web.pdf> page 104.

163 Monona Mass Transit Commission Agenda, December 13, 2023. <https://www.mymonona.com/AgendaCenter/ViewFile/Agenda/12132023-2487> (page 5).

164 66.1021(10)-(12).

Figure 55: Future Planned Regional Transit Service Network, with 2050 Employment and Activity Centers



communities served, stops at appropriate points to transfer to other Metro routes, and limited (one to two stops per mile) or no stops in between. There is also potential for service directly between other communities, such as a route connecting Verona or Fitchburg, Oregon, Stoughton, and McFarland to Madison. A survey conducted by the Village of Oregon in the winter of 2022 found that 65% of survey respondents would use transit to travel to Madison, over 40% would use transit to travel to Fitchburg and Stoughton, and over 36% would use it to travel to Verona.

The *Dane County Climate Action Plan*¹⁶⁵ identifies a strong regional transit system as “an important foundation for reduced car travel” and identifies ways in which the County can support development of a regional transit system. Specifically, the County “could help facilitate a discussion among all local units of government to achieve the goals of an RTA [Regional Transit Authority]

through other structures and other sources of funding.” The plan also calls for prioritizing County and municipal funding of expanded transit service, improved transit facilities, and operating costs.

System Resiliency

Metro has three plans related to system resiliency:

1. System Security and Emergency Preparedness Plan (SSEPP).
2. Security and Emergency Response Plan (SERP).
3. Public Transit Agency Safety Plan (PTASP).

These plans are currently only available to high-level Metro staff, but the Safety Coordinator plans to update the plans and then establish staff training protocols to ensure that all Metro employees are familiar with the components of the plans that are relevant to their positions. The plans are summarized below:

¹⁶⁵ <https://daneclimateaction.org/documents/CAP-2020/Dane-Co-Climate-Action-Plan-202004-web.pdf> (page 102).

System Security and Emergency Preparedness Plan

To establish the importance of security and emergency preparedness in all aspects of our organization, Metro Transit has developed this System Security Program Plan. This Security Plan outlines the process to be used by Metro Transit to make informed decisions that are appropriate for our operations, passengers, employees and communities regarding the development and implementation of a comprehensive security and emergency preparedness program.

The purpose of this plan is to help establish and maintain the System Security Program for our system. It serves as a blueprint for all security activities by:

- Establishing how security activities are organized.
- Outlining employee and department responsibilities with respect to security.
- Instituting threat and vulnerability identification, assessment, and resolution methodologies.
- Setting goals and objectives.
- Security and Emergency Response Plan

Security and Emergency Response Plan

Madison Metro Transit's Security and Emergency Response Plan (SERP) addresses process for: Coordinating with local law enforcement and other public safety agencies to manage response to an incident that occurs on a transit vehicle or affects transit operations and Integrating Metro Transit's resources and capabilities into the community response effort to support management of a major event affecting the community. This SERP has been developed to optimize, within the constraints of time, cost, and operational effectiveness, the level of protection we can provide to our customers, employees, and other individuals who come into contact with the transit system during both normal operations and under emergency conditions.

Goals

- Create a culture that supports employee safety and security and safe system operation, during normal and emergency conditions.

- Ensure that security and emergency preparedness are addressed during all phases of system operation, including the hiring and training of personnel, procurement and maintenance of vehicles, and the design and maintenance of facilities.

Objectives

Every threat cannot be identified and resolved, but Metro can take steps to be more aware, to better protect passengers, employees, facilities and equipment, and to stand ready to support community needs in response to a major event. To this end, the SERP has 4 objectives:

- Achieve a level of security performance and emergency readiness that meets the operating experience of similarly sized transit systems around the nation.
- Undertake periodic vulnerability assessments, and based on the results of this program, establish a course of action for improving physical security measures.
- Train our employees on security awareness and emergency management issues, to obtain motivated compliance with rules and procedures that support a safe operating environment.
- Increase and strengthen our coordination with the City and County regarding security and emergency response issues.

Public Transit Agency Safety Plan

Metro Transit is committed to the implementation and continuous improvement of an effective safety management system (SMS) aligned with applicable transit standards. The primary objectives of the Metro Transit SMS are to:

- Promote early identification of safety hazards and risks.
- Take proactive steps to reduce identified safety hazards and risks.
- Promote and enhance our safety culture to support the SMS.
- Establish and continuously maintain an acceptable level of safety throughout Metro Transit.

The FTA requires that the Public Transit Agency Safety Plan (PTASP) be updated on an annual basis. The MPO

adopts the annual targets set in the PTASP as federal-required performance measures.¹⁶⁶

Regional Resiliency Plan

In the coming years, depending on interest by area communities and their efforts to develop local resiliency plans, the Greater Madison MPO may initiate a consultant-led Regional Resiliency Plan to assess vulnerabilities of the transportation system to weather events and to identify and prioritize projects and strategies to make the system more resilient to climate change. Climate change-related issues related to transit system resiliency include:

- Extreme heat, and rider safety while waiting for buses at unsheltered/unshaded stops.
- Extreme cold, and Metro's historic use of buses as warming shelters at transfer points – without transfer points, what will happen in extreme cold events?
- Flooding, and planned detours around low-lying areas to maintain service as much as possible.
- Potential need to use Metro buses to evacuate the public in case of fire/flood/chemical release/etc.

As low-income individuals, seniors,¹⁶⁷ and people with disabilities¹⁶⁸ are more likely to be transit-dependent and to not be able to access support services as easily as other residents, it will be critical to consider the needs of these populations in developing a Regional Resiliency Plan. As an interim measure, these needs should also be considered in updates to the Coordinated Public Transit – Human Services Transportation Plan for Dane County.

ITS Data, Accessibility, and Security

ITS is an operational system of various technologies that, when combined and managed, improve the operating capabilities of the overall system...ITS technology is the phone application that you use to determine how long to wait before walking to catch the next bus. It is your car's advanced braking system that monitors wheel speed and adjusts brake

pressure so that you can stop quickly and safely without losing control of your vehicle. ITS allows you to drive at highway speeds through toll collection kiosks, and helps you determine the exact location and delivery date of your online purchase with just a few clicks of the mouse.¹⁶⁹ – USDOT

Metro Transit has used various ITS technologies in the past, including Automatic Vehicle Locators (AVL), which are used to track the location of buses along their routes; paired with fareboxes, Metro is able to perform stop-specific counts of boardings throughout the system. New applications include Transit Signal Priority (TSP), which provide a transit-specific signal phase at intersections. This allows the bus to clear the intersection before general traffic, freeing the bus from potential congestion and its impacts on operation.

The impacts of ITS on transportation reach beyond transit and include many features of the transportation system that we encounter on a regular basis, such as Variable Message Boards, ramp metering, and dynamic roadway conditions reports on our cell phones. Emerging uses of ITS will have profound impacts on roadway safety and efficiency and machine learning, artificial intelligence, and big data. The Connect Greater Madison 2050 Regional Transportation Plan states that:

Advanced analytics and machine learning is a technology that provides computers with the ability to learn without explicitly being programmed, particularly when being inputted with “big data.” Example programs are being created with the capability of using big data to identify patterns that can be used to make well-informed predictions such as traffic models. Some traffic operations centers have automated traffic operations systems that automatically adapt signalization during periods of high traffic or alert operators of potential traffic accidents. An adaptive signal system was installed in the McKee Road and Fish Hatchery Road corridors as part of the Beltline/Verona Road construction project and has recently been installed on the University Avenue

¹⁶⁶ Adopted Performance Measures are included in the MPO's Performance Measures report for 2015–2019; 2022 and later Performance Measures are available in the MPO's Transportation Systems Performance Measures Data Dashboard. <https://www.greatermadisonmpo.org/trends/>.

¹⁶⁷ [Transportation must adapt to an aging population and a changing climate](#). Danielle Arigoni, Route-Fifty.com December 20, 2023.

¹⁶⁸ *Public Transportation: An Investigation of Barriers for People With Disabilities*. Bezyak et. al. Journal of Disability Policy Studies, 2017. Vol. 28(1) 52–60.

¹⁶⁹ https://www.its.dot.gov/history/pdf/HistoryofITS_book.pdf.

and East Washington Avenue corridors. Benefits include increased efficiency of existing roadways through predictive analytics and pre-trip guidance for travelers, and increased safety due to automatic dispatching of 911 services through a mixture of this technology and the “internet of things.”¹⁷⁰

As ITS applications grow in scope and complexity, vast amounts of data will be collected and become available for use in planning and evaluating system performance. How that data is stored, shared, and protected will become increasingly important considerations for Metro and other transportation providers, including Non-Emergency Medical Transportation providers, contracted paratransit and shared-ride taxi providers, taxi companies, and Transportation Network Companies (TNCs).

There are potential benefits to sharing some data publicly, as doing so increases transparency to the public as well as allowing researchers to delve into the data. Unfortunately, there are also risks associated with sharing the wrong information, such as personally-identifiable data regarding where and when a particular bus pass (rider) boards or alights from a bus, and precautions must be taken to safeguard – or prevent the collection of – this type of sensitive information.

As vehicles become more connected to each other (V2V) and their surroundings (V2I and V2X), the security of the system becomes increasingly important. USDOT states that “As connected vehicle applications exchange information among vehicles, roadway infrastructure, traffic management centers, and wireless mobile devices, a security system is needed to ensure that users can trust in the validity of information received from other system users – indistinct users whom they have never met and do not know personally.”¹⁷¹

In addition to being able to trust the data, users also need to trust the systems that collect and store the data:

“Cyber threats to transportation systems can impact national security, public safety, and the national economy. Concerns about cybersecurity for ITS and

traffic management deployments relate to both current technologies as well as legacy systems, coupled with the growing trend to integrate ITS deployments with other networks. This combination has introduced new threats that have not yet been encountered in this domain. And the cyber threat grows as the value of ITS ecosystem increases.”¹⁷²

The vast amount of data collected by ITS, and the benefits and risks inherent in that data, require careful consideration and planning to be used efficiently and safely. Improving ITS data management and access protocols should be given high priority by Metro and other transportation service providers. To that end, USDOT has developed a Cybersecurity Assessment Tool¹⁷³ to improve transit system cybersecurity, and the Transportation Research Board has issued the Transportation Research Report *Improving Access and Management of Public Transit ITS Data*,¹⁷⁴ which recommends that transit agencies adopt a standardized data structure to facilitate comparison of data across agencies and time.

170 <https://www.greatermadisonmpo.org/planning/documents/Ch-04-ConnectRTP-web.pdf> (pg. 4-8).

171 https://www.its.dot.gov/history/pdf/HistoryofITS_book.pdf (pg. 43).

172 Ibid (pg. 58).

173 <https://www.transit.dot.gov/research-innovation/cybersecurity-assessment-tool-transit-catt>.

174 <https://nap.nationalacademies.org/catalog/26674/improving-access-and-management-of-public-transit-its-data>.



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