



2023 Annual Operation Report

March 22, 2024

Madison
Department
Of Transportation



2023 MADISON TRANSPORTATION TRENDS

TRAFFIC

Traffic volumes are showing different trends in different places. For example, arterials serving Madison’s downtown are disparate. Monroe St. traffic volumes taken from the City’s Centracrs signal software (Figure 1), show a return to 2019 traffic volumes. Conversely East Washington Ave traffic volumes (Figure 2) provided from WisDOT continuous counters show volumes that remain well below 2019 volumes and even 2021 volumes.

Other arterials within Madison also show a continued reduction in volume. On Northport Rd, WisDOT’s continuous count shows average weekday volumes continue to be 15 percent below what they were in 2019 (Figure 2)

Traffic volumes on the state system have recovered. Figure 4 illustrates average weekday volumes on monthly basis for the Beltline. With the addition of the flex lane, the Beltline is now carrying 5 percent more than it did in 2019.

VMT nationally has recovered. Figure 4 uses data obtained from Federal Reserve statistics and shows that VMT in October 2023 was 104 percent of that experienced in 2019.

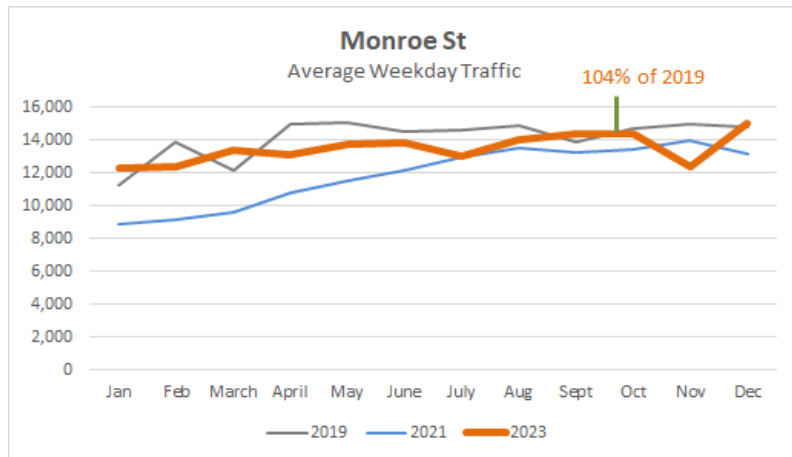


Figure 1 Monroe St Weekday Traffic (Wednesday)

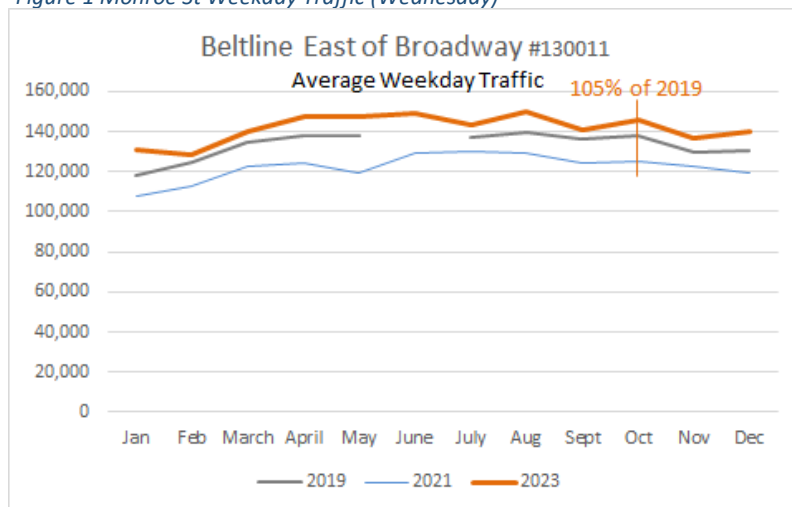


Figure 2 Weekday Hourly Volume – East Washington Ave

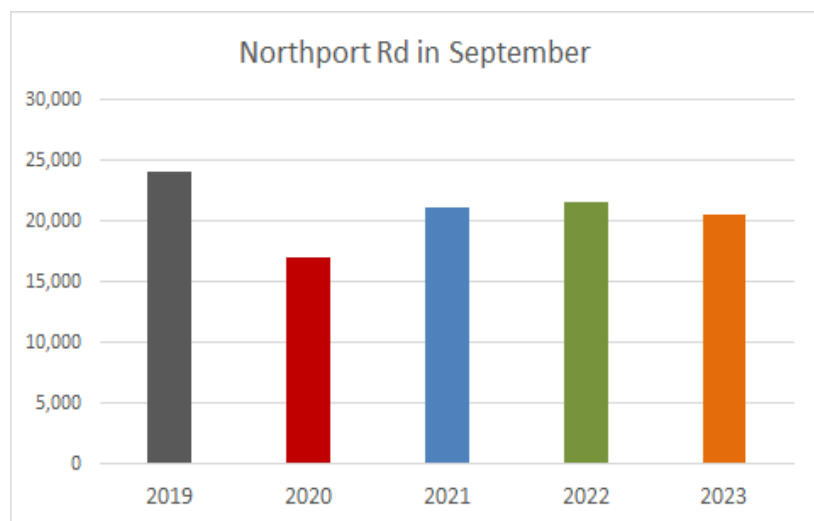


Figure 3 Weekday Volume in September – Northport Rd

The Greater Madison MPO developed a methodology for measuring VMT within the City limits using Streetlight probe data. Figure 5 illustrates their preliminary results for both “All Trips” and excluding “External to External” trips (eg freeway trips entering and leaving the county.) Note that the 2019 to 2021 VMT used data developed from cell phone usage. Streetlight changed their data source in 2022 to connected vehicle data. So while the graphics show 2022 had lower VMT than 2021, the different data methodologies make it difficult to compare 2022 with 2019-2021. Following years using a consistent collection methodology will shed more light onto whether Madison is meeting its VMT reduction targets.

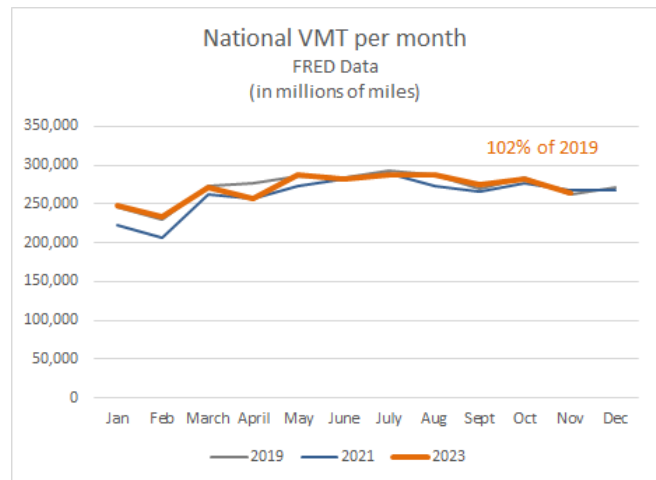


Figure 4 National VMT – Federal Reserve Data

Dane County VMT provided from WisDOT, which uses a fully different methodology based on fuel sales, fleet mpg averages, and other data, shows that VMT is back to 2019 levels (Figure 6).

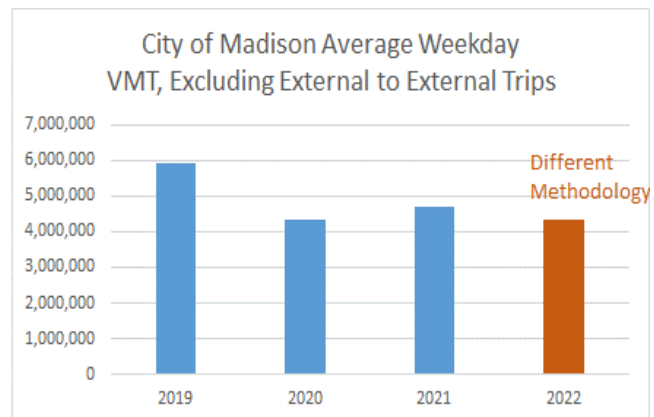
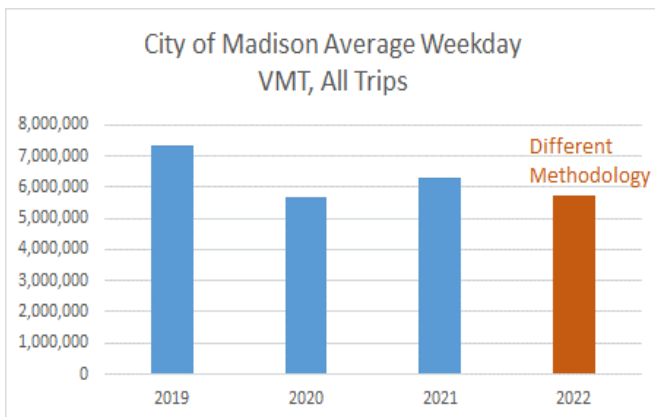


Figure 5 City of Madison Vehicle Miles Traveled

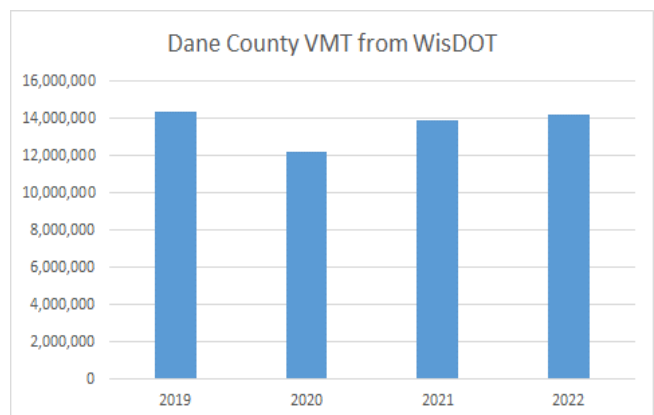


Figure 6 Dane County VMT – WisDOT Methodology

Bicycle traffic in 2023 continues to be less than 2019 levels. Figure 7 shows counts taken by the Eco-Totem bicycle counters on the Southwest Path and the Capital City Trail. This might suggest that telework has decreased bicycle commuting just as it has for motor vehicle trips.

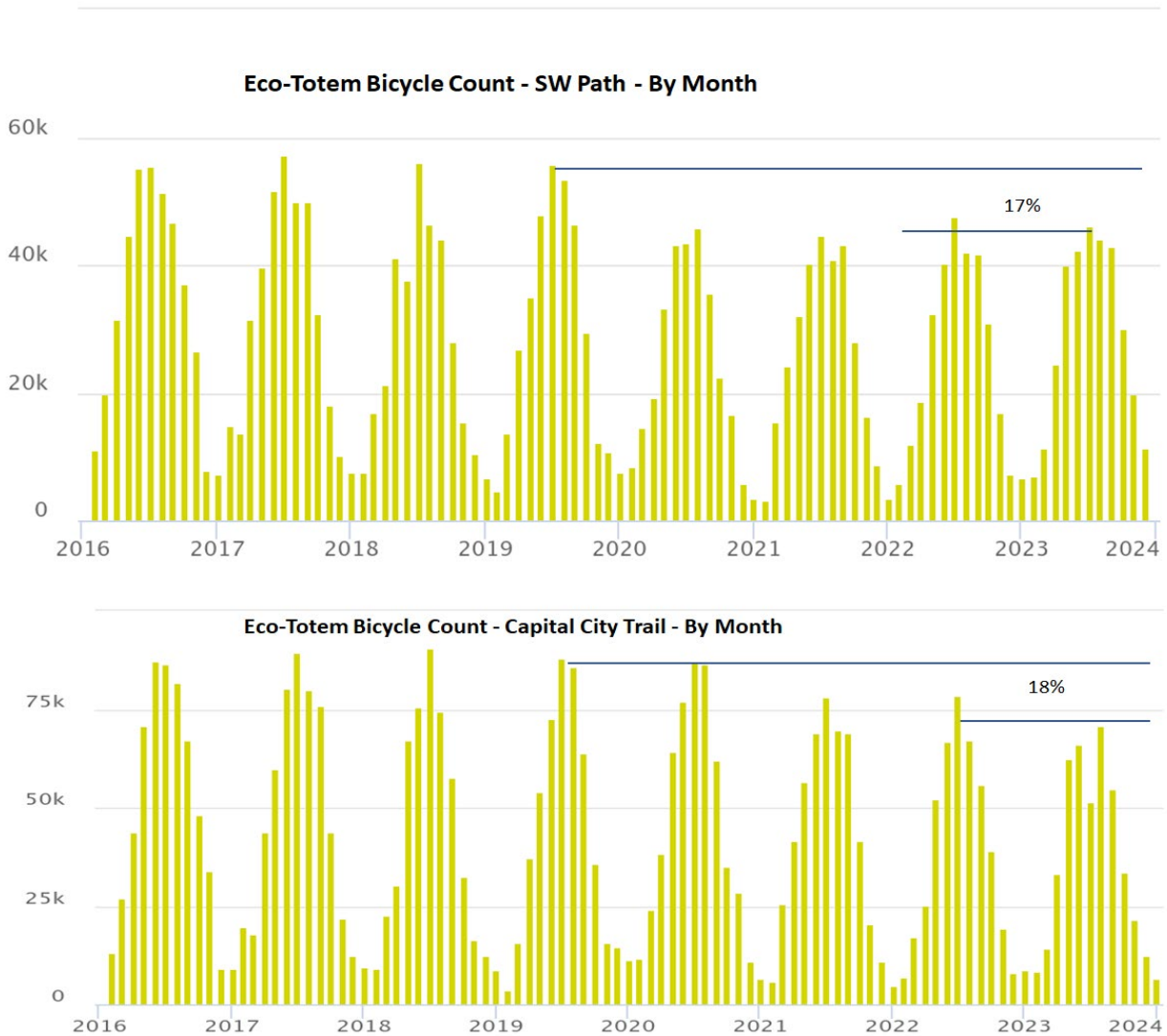


Figure 7 Bicycle Counts

Safety – 2023 was a poor year for fatal crashes and fatalities. If all roads are considered, there were 17 fatal crashes and 18 fatalities. If fatal crashes and fatalities are removed from roadways not within Madison’s jurisdiction (Beltline, Interstate, etc). there were 12 fatal crashes causing 13 fatalities. Figure 8 shows fatality and fatality crash trends on All Road, and on Roads excluding State Roads. A 5-year rolling average is shown on both graphs to help moderate the yearly variation. All indicators show 2023 was a poor year.

Short term optics in fatalities have occurred with Vision Zero Cities. Transportation Alternatives published a “[Lessons Learned](#)” article for New York City as they also have had variable results with their Vision Zero program. Madison’s upturn may have to do with the small sample size and the statistical

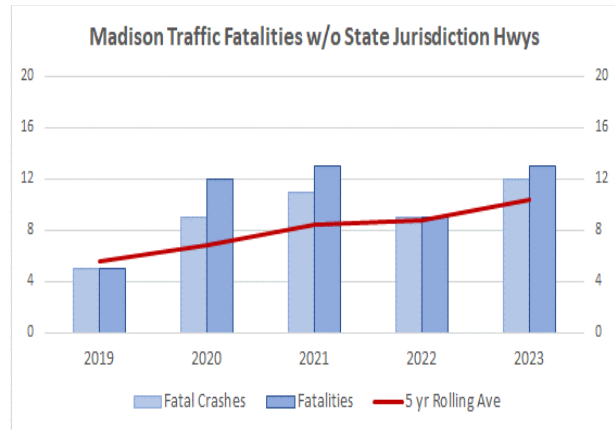
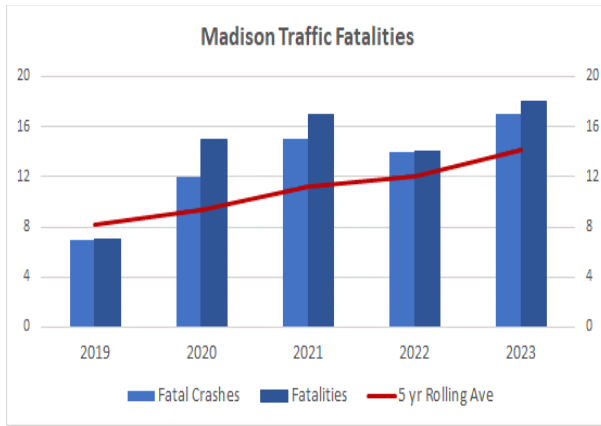


Figure 8 Madison Traffic Fatalities

significance of the data¹. One of the fatalities is being investigated by the State agency as other causes such as suicides, and those may be removed from the final 2023 traffic fatality statistics. Note that this data was obtained from WisDOT’s Community Maps data portal. It differs from Madison Police Department data, having 3 more fatal crashes.

Another factor may be the small amount of Vision Zero/Safe Streets Madison projects when compared to the total city street mileage of 847 miles. Less than 1 percent of Madison’s total roadway mileage is treated every year, so results could take a while. Toole Design published an article regarding the phenomena we are experiencing, and it can be read here:

<https://tooledesign.com/insights/2024/03/why-vision-zero-isnt-working-yet/>.

The upward trend warrants additional study and a review of the pace of countermeasures.

TRANSIT

Metro Transit ridership has normalized from the effects of the pandemic. Figure 8 illustrates the total number of October passengers from 2019 through 2023. In October boardings were at about 73 percent of 2019. While lower than 2019, Metro Transit has recovered better than most agencies in the US, partly because of our partnership with UW Madison.

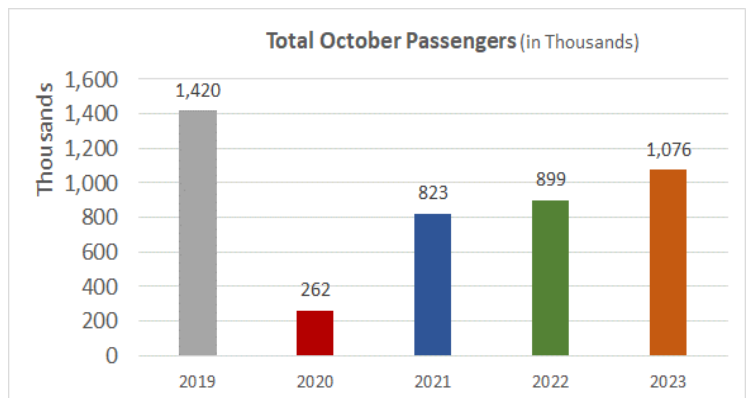


Figure 9 October Metro Passengers

The implementation of the Transit Network Redesign in May, and BRT in late fall of 2024 will likely positively affect ridership numbers. Some studies show that implementation of BRT can improve ridership by 10 percent or more.

Metro Transit has re-established the revenue hours service that it provided in 2019. There are 2 percent more revenue hours to reflect increased service requested by Metro Partners, and the council’s implementation of Route O.

Figure 11 shows passengers per revenue hour – a measure of efficiency. While passengers per revenue hour is 3 percent less than 2022, the number of revenue hours grew by more than 20 percent. This statistic of efficiency is very good considering the increase in hours, and ranks well nationally. When

¹ <https://assets.publishing.service.gov.uk/media/60d0590c8fa8f57ce8c462ad/testing-for-statistically-significant-changes.pdf>

compared with 2022 NTS data (2023 is not yet available), Metro Transit is easily within the top 5 percent nationally and is one of the more successful transit agencies in the US.

2023 fare revenue is estimated to be about 13 percent greater than 2022. Partner contributions should rise in 2024, and the effects of the Covid years leave the rolling average.

Fare revenues do not correspond directly to ridership because roughly half of Metro fare revenue is associated with unlimited pass programs through the UW and other employers. Those programs use a trailing four year average of ridership to calculate contributions. The low 2020 pandemic revenue from these partners will increase as the Covid years leave the rolling average. The further increased ridership associated with the network redesign likely will increase fare revenues for 2024.

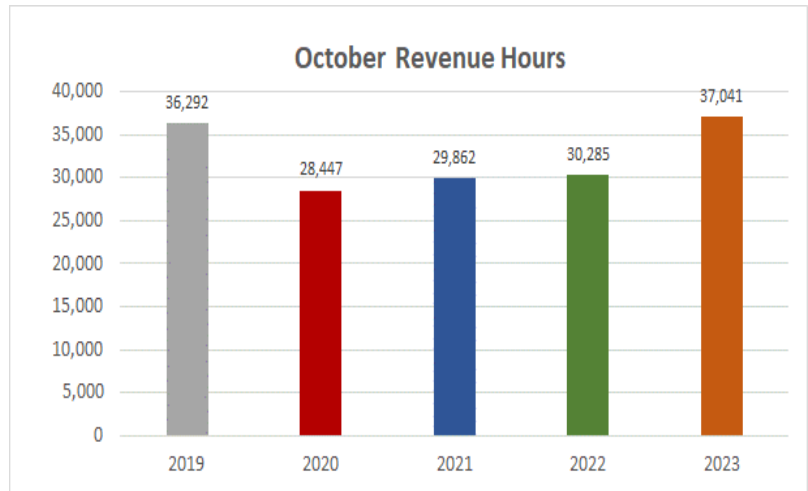


Figure 10 October Metro Transit Revenue Hours

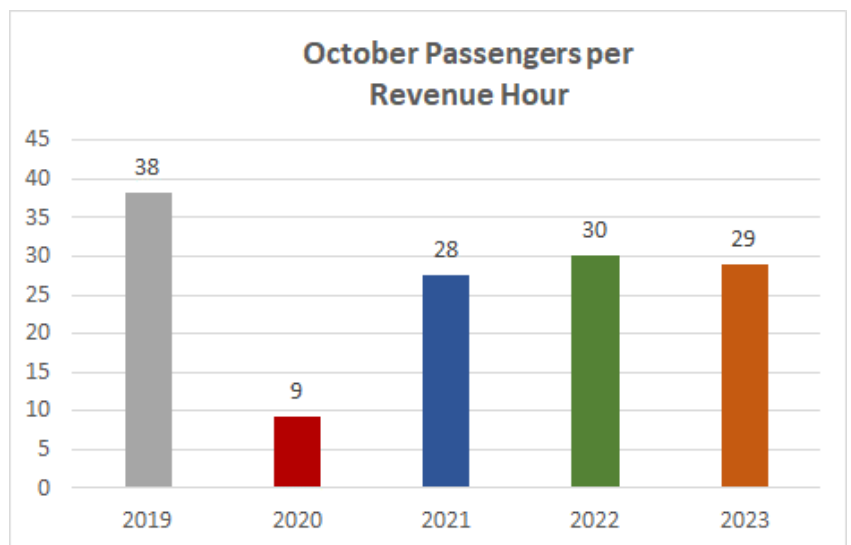


Figure 11 Passengers per Revenue Hour

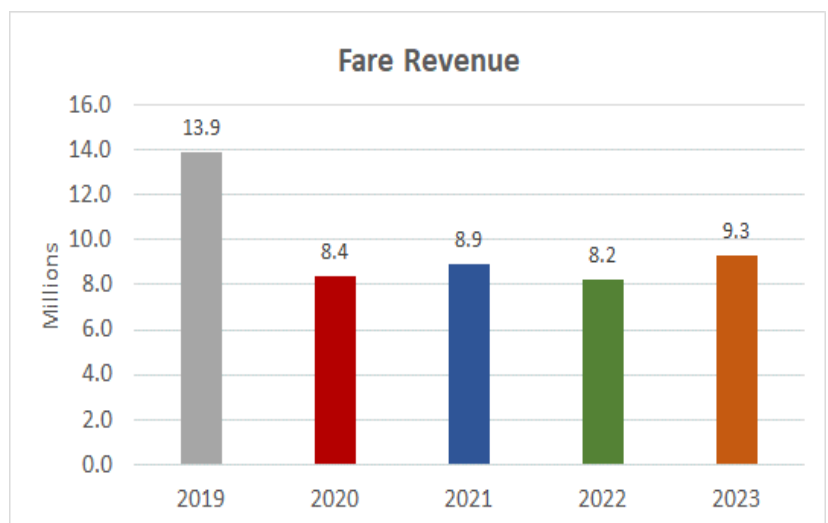


Figure 12 Fare Revenue

PARKING

The increase in telework and flexible schedules in downtown workers is illustrated by the occupancy of our garages. Figure 13 compares average September occupancy in 2019 with 2022 and 2023 from 10 am to 2 pm. Campus garages (left of the graphic) have much greater occupancy than downtown garages (right on the graphic). This is also reflected in revenue per garage, where the State Street Campus garage(SSCa) (both Lake Street and Frances St) have much greater revenue than the other garages (Figure 13) such as State Street Capitol (SSCO), Overture, and Wilson.

It is interesting to note that prior to the pandemic, garages close to the capital had high employment parking (weekly) and more modest weekend parking. That phenomena has reversed itself with downtown garages having more vacancy during the week and higher occupancy on the weekends, reflecting the changing role they have for entertainment and tourism.

With the Lake Street garage taken out of service in late 2023 for reconstruction, there will be a reduction in 2024 and 2025 parking revenue.

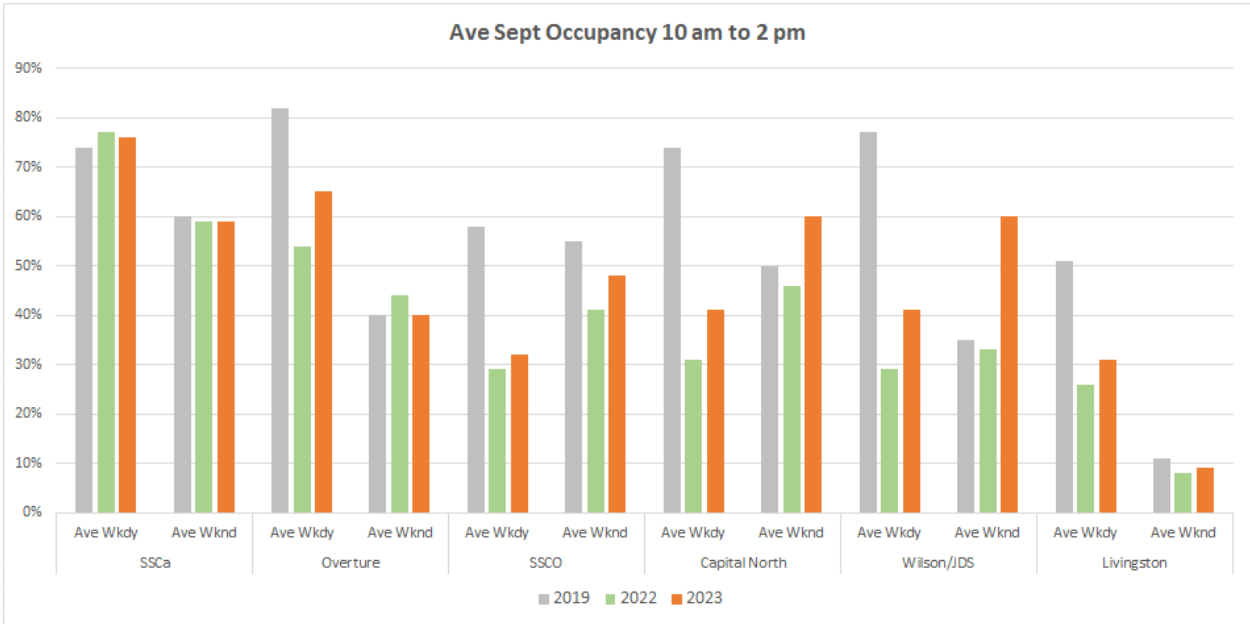


Figure 13 Garage Parking Occupancy - Weekday and Weekends

Figure 14 illustrates the revenue by garage, broken out by hourly and long term leases. Again, the State Street Campus garages are generating more revenue than the garages downtown, but note that the SS Campus garage was actually two structures with over 1000 parking spaces. Again, the reconstruction of the Lake St garage half will affect 2024 revenues.

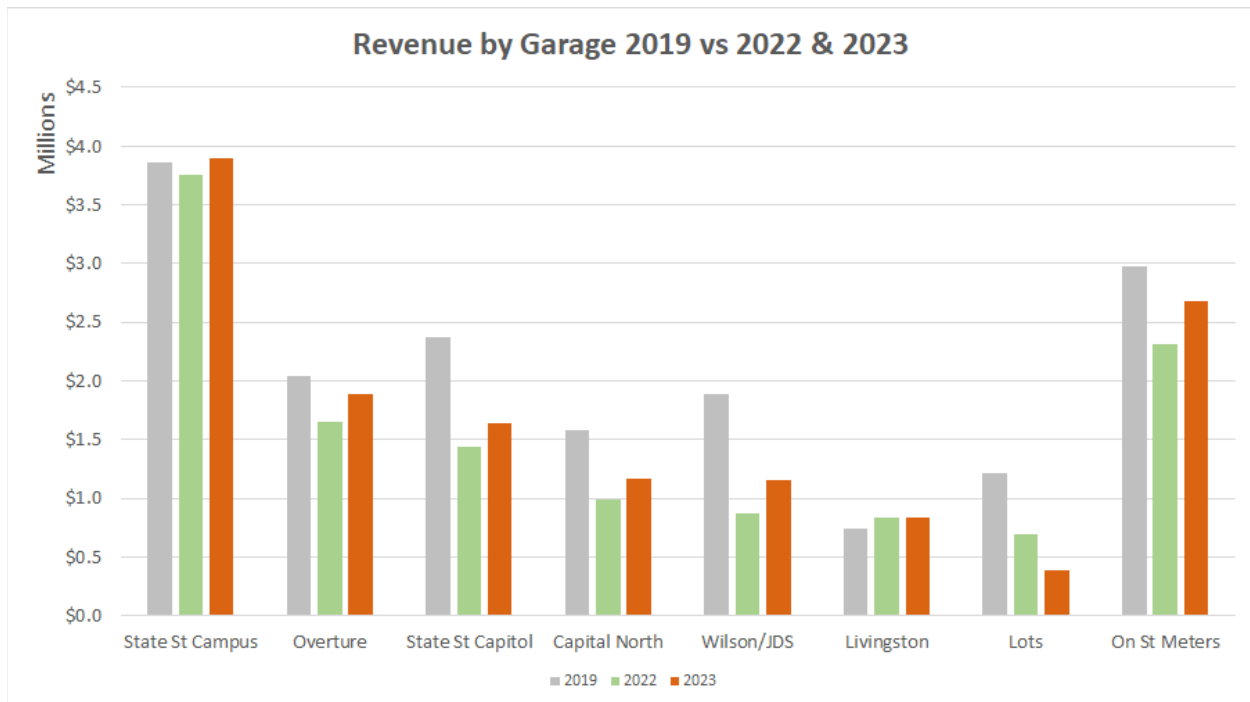


Figure 14 Revenue by Garage

Figure 15 shows the Net Parking Revenue, which includes expenses. Note that the 2019 and 2020 do not fully reflect the Parking Enforcement Expenses (roughly \$3 million/year). In 2023 the Parking Division generated about \$1 million of reserves, less than what was generated prior to the pandemic but growing. In 2025 the Parking Division will begin to service some of the debt incurred with bonds

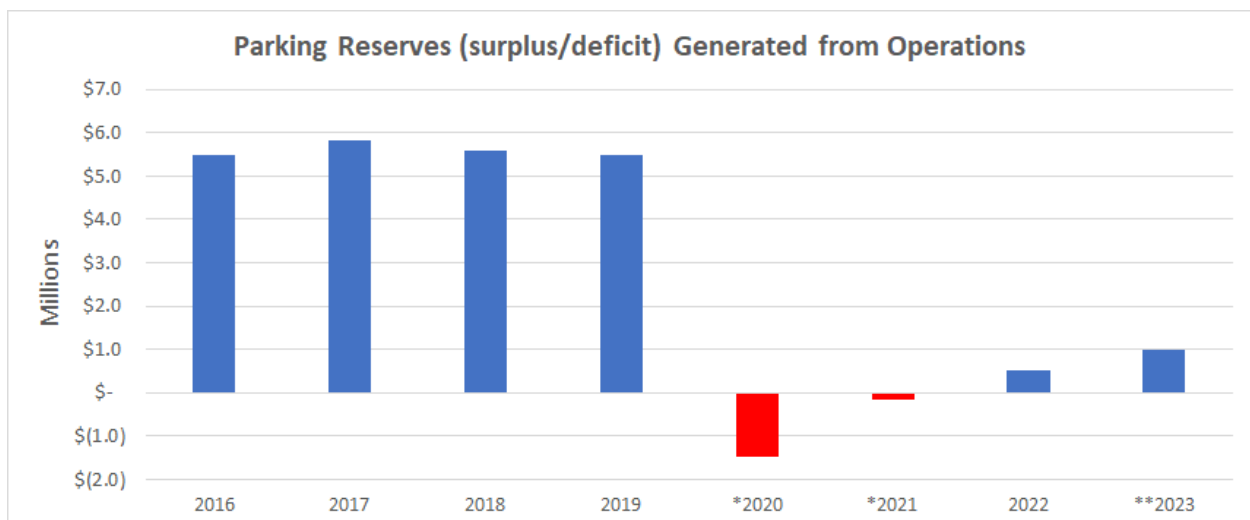


Figure 15 Net Parking Revenue/Expense

associated with the Lake St garage reconstruction. This debt service is anticipated to be around \$1 million per year.

Figure 16 illustrates the expenses and the citation revenue generated by the Parking Enforcement Officers. Note that the citation revenue is directed to the General Fund and not the Parking Fund. Citation revenue continues to exceed enforcement costs. With the implementation of BRT, enforcement will play an even greater role in the efficiency of the transit system.

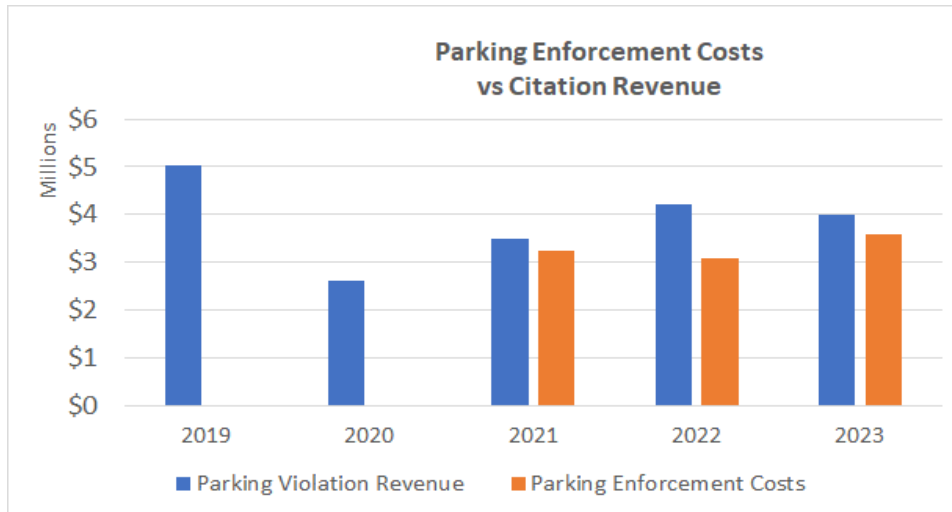


Figure 16 Parking Citation Revenue – PEO Expense

OBSERVATIONS

We have emerged from the pandemic and the new transportation paradigms are beginning to be set. Some observations from the trends include:

- Downtown is transitioning from an employment area to an entertainment and tourism destination. This is borne out by parking occupancy of the different garages.
- The Parking Division is perhaps most affected by this new normal as it seeks to increase revenues and use garages efficiently.
- Motor vehicle volumes are unfortunately returning to pre-pandemic levels, especially on state owned routes. It is difficult to decrease our reliance on the automobile. One consolation is the traditional morning and evening rush hour peaks are now more muted.
- Metro’s Transit Network Redesign is having an effect on ridership and fare revenue. More growth is anticipated.
- The effects on traffic fatalities from Vision Zero efforts will not be linear. As with cities such as New York, Madison will need to continue to aggressively seek effective counter measures.

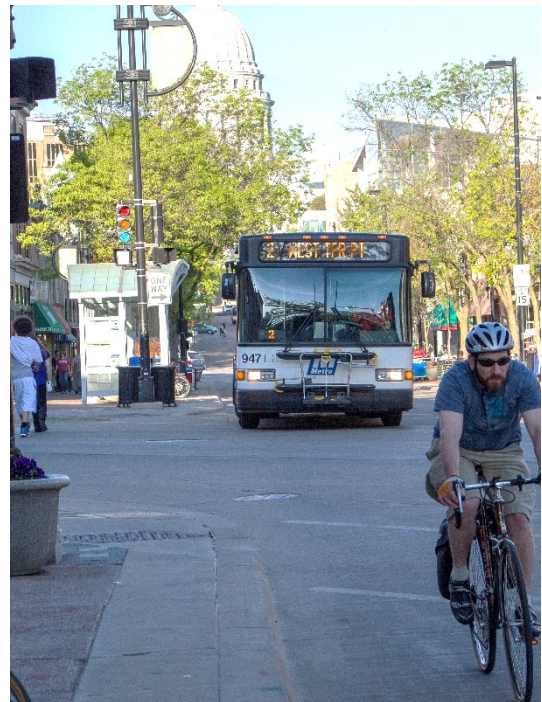


Figure 17 Transit Network Redesign

FEDERAL FUNDING

The past few years of pursuing federal funding has borne fruits in 2023. The Bi-partisan Infrastructure Law has been very good for the City of Madison. Over the past 18 months we have seen almost \$300 million of specific federal funding for projects in Madison. This funding has been for Capital Budget projects, not Operating Budget. These projects would otherwise have been left undone or fully paid for with city funding/borrowing. A summary of the largest federal grants received for Madison Transportation. Note that this list includes the March 2024 funding awards and recommendations for N-S BRT. It does not include additional federal grants for Engineering’s projects such as John Nolen Drive and shared use path projects that Transportation Divisions helped secure, which have also obtained federal funding.

Project Title	Federal Contribution
Metro Bus Satellite Facility	
Purchase Hanson Road	7,000,000
Remodel Hanson Road	12,500,000
Roof and Solar Hanson Road	9,447,200
Transit Technology System	13,983,291
Equipment and Facility Repairs	692,500
Electric Buses (16) and Charging Equipment	24,978,840
East Washington Bus Roof and Solar Equipment	8,536,800
East Washington Bus Facility Phase 3b	6,400,000
Safe Streets for All 2023	6,267,668
Miscellaneous Traffic Engineering Grants	4,513,000
Reconnecting Communities Planning Grant 2024	1,000,000
NS BRT 2023	670,000
E-W BRT 2022	143,413,105
E-W BRT 2020	1,272,523
N-S BRT 2024 FTA Recommendation*	118,100,000
Total Federal for Transportation Projects	358,774,927

*Needs congressional appropriation

2023 GENERAL TRANSPORTATION EFFORTS

While the Transportation Department is composed of Traffic Engineering, Metro Transit, and Parking, there are a couple of initiatives of Transportation staff that did not fit squarely under one of the divisions. Some of these efforts are major accomplishments for Transportation policy within the City of Madison.

East-West BRT

It has been all-hands on deck to implement the largest project Madison has ever undertaken. The construction amounts to about \$85 million, with busses and other items amounting to another \$95 million. The help for this project has come from so many divisions within the city.

- Traffic Engineering has been building a Transit Signal Priority system, relocating significant fiber communications lines, procuring needed traffic equipment in advance, and handling traffic control, permitting, and daily requests to change traffic control.
- City IT has also been a critical partner as we relocate and upgrade portions of the City’s fiber network. This has been a significant effort.
- City Engineering reviewed and bid the project through well-established processes. This includes Plans, Specifications, Standard Details, and award procedures. They continue to provide advice through every stage of the project.
- Economic Development has performed right-of-way acquisition, with extremely aggressive deadlines.
- Parking is working on various signage and ordinances to keep the dedicated bus-ways clear and effective.
- Metro Transit is in the center of the project. This includes addressing daily construction issues, equipment requisitions, bus procurement, grant administration, driver training, and building an organization that can implement and run a Bus Rapid Transit line.



Figure 18 Eau Claire BRT Station Early Stages

North-South BRT

Transportation and Metro staff submitted the successful Small Starts application for the North-South BRT and began the process of developing a Locally Preferred Alternative (LPA). This required quite a bit of effort in that it occurred right in the middle of East-West BRT construction. A key goal for the first half of 2024 is the adoption of an LPA and the initiation of the environmental document process.

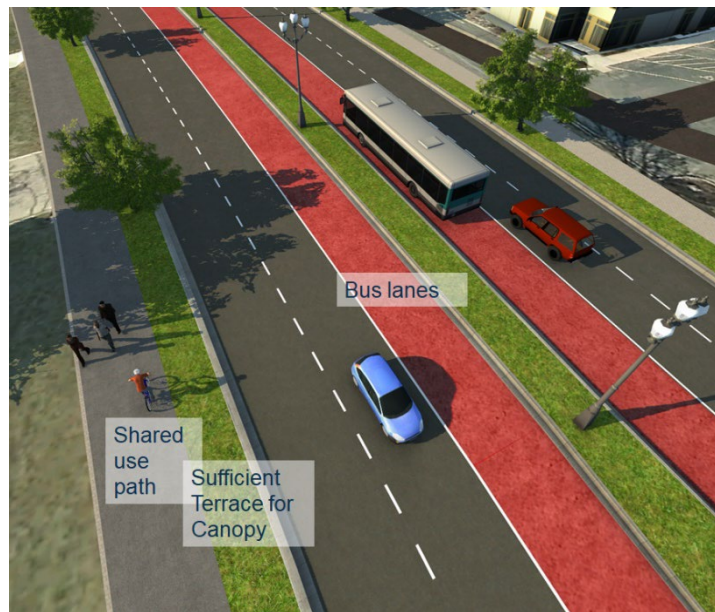


Figure 19 N-S BRT Park Street Concepts

Transportation Improvement Program

Recent transportation staff hires (Jose Navarro) have helped to refine the GIS analysis tool that is used by Engineering to program street reconstruction projects. A goal for 2024 is to document the process for official Transportation Commission and Council approval. Future refinements may include making this tool web-based for the public to view.

Passenger Rail

The Federal Rail Administration (FRA) announced that Wisconsin would receive 4 Corridor ID grants in the fall of 2023. One of the grants is tied to the extension of the Hiawatha Line from Chicago to Madison and onto Eau Claire. Our new project manager, Liz Callin, re-initiated the project with a screening report and a new round of engagement. A January 2024 public involvement effort gained 450 in-person and virtual participants. Goals for 2024 include selecting site(s) and beginning to make provisions to secure that site.

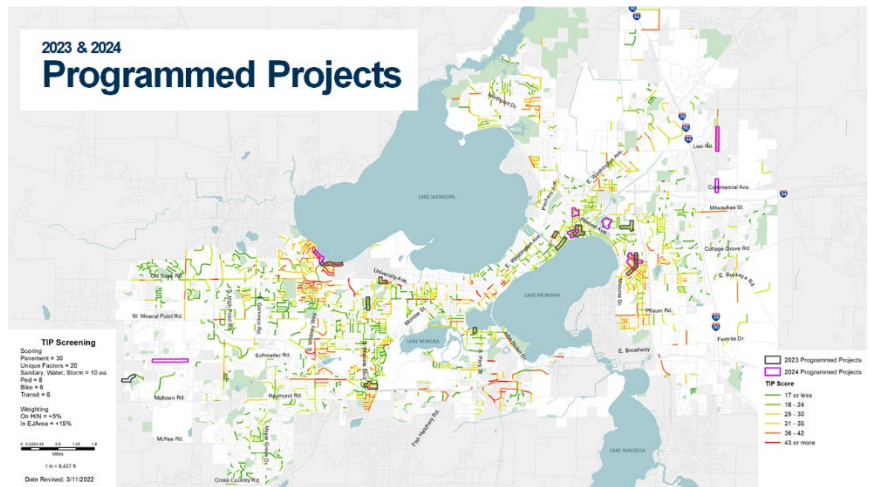


Figure 20 Programing Projects Using New Prioritization Tool



Figure 21 Amtrak Progress Meeting January 2024

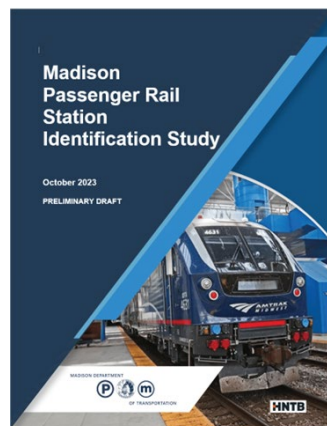


Figure 22 Amtrak Station Location Alternatives

2023 TRAFFIC ENGINEERING EFFORTS

Traffic Engineering continued maintaining the City’s transportation network while advancing key initiatives. This involves considerable amount of coordination. There were over 3,700 workorders produced – many of which were direct responses to requests from our residents and businesses.

Vision Zero and VZ Progress Report

In March 2024 the first Vision Zero Progress Report was released, summarizing progress made since the start of initiative in 2020 till the end of 2022, which is the last year that complete data is available. This also provides a tracking mechanism for how effective our infrastructure and other investments are.

Bike Network Projects

In partnership with Engineering, 2023 saw a marked increase in bike network projects, which includes the separated cycle track on Wilson St (figure 24) and a new path system associated with the Atwood Ave project. The following table illustrates the almost 6 miles of bike projects added in 2023.



Figure 23 Vision Zero Progress Report

Street/Area	Location	Facility Type	Mileage
W Wilson St	Bassett St to Carroll St	2-way Cycletrack/PBL	0.4
Broom St	JND to W Wilson	Path	0.05
Broom St	W Wilson to W Main St	2-way PBL	0.1
Bassett St	W Main St to W Wilson St	2-way PBL	0.1
Hammersley Rd	Brookwood to Gilbert	Path on north side	0.6
Davies St	Buckeye to just south of Maher	Path on west side	0.3
Olbrich Park	Lakeland to Atwood	Path	0.17
Atwood Ave	Oakridge to Walter	Path w/separated bike/ped	0.4
Atwood Ave	Walter to city border (south side)		0.2
Atwood Ave	Walter to Cottage Grove Rd (north side)	Path	0.5
Walter St	Atwood to Capital City Path	Path	0.2
S Pinckney St	Wilson to Doty	bike lanes (center)	0.05
West Towne Path	Commerce Dr to S Junction Rd	Path	0.25
Delaware Blvd	Wheeler Rd to N Sherman	Bike lanes	0.9
Wheeler Rd	Delaware Blvd to N Sherman	Bike lanes	0.6
W Beltline Frontage Rd	Beltline ramp to Coho	Bike lanes	0.2
Felland Rd	Tranquility Trl to Autumn Lake Pkwy	Path	0.3
Pleasant View Road	Timber Wolf Trl to Blackhawk Rd	Path	0.4
E Washington Ave	Webster to Franklin	Bike lane	0.2
Total			5.92



Figure 24 Atwood Ave Cycletrack (left) and Wilson St Cycletrack (right)

There were also several sidewalk installations that occurred primarily with Engineering’s street reconstructions. These can be seen in the following table.

Street/Area	Location	Facility Type	Mileage
Davies St	Buckeye to just south of Maher	sidewalk on east side	0.3
Lake Mendota Dr	Spring Harbor to Village of SH	sidewalk on north side & school connections	0.4
La Mariposa Ln	Regent to W Washington	Path	0.15
Rustic Pine Rd	Redan Dr to 313 Rustic Pine Rd	Sidewalk	
Redan Dr	493 Redan Dr to 170 Tawny Acorn Dr	Sidewalk	
			0.85

LED Streetlight Conversion

LED streetlight conversion began in 2021 – with a pause in the summer due to staff shortages. Traffic Engineering reinvigorated this program in the midst of staff and contractor shortages by using existing staff on weekends. While at a slightly slower pace than envisioned, staff have found a way to move forward with this initiative with thousands of streetlights already converted.

Safe Streets for All Federal Grants

Traffic Engineering successfully secured quite a few federal grants, including two Safe Streets for All (SS4A) grants. Particularly, the SS4A Implementation Grant brings over \$6.3 million of federal funds to the City to help supplement Traffic Engineering’s Safe Streets Madison program in making roadway safety improvements in our community. The projects funded focus on low-cost, high-impact strategies that are proven safety countermeasures to prevent fatalities and serious injury crashes for people walking, biking and accessing transit.

Projects and activities funded include:

- Building sidewalk and path along E Washington Ave (US Hwy 30 to Annamark) while also improving crosswalks and lighting.
- Traffic calming and crosswalk improvements along Schroeder Rd.

- Improvements at 21 intersections near transit stops.
- Improvements at 6 shared-use path crossings.
- Increased funding for the Madison Safe Ride program and other impaired driving initiatives.
- New safety studies to help determine future improvements in 4 locations – Regent St (W Washington Ave to Speedway), S Whitney Way (Schroeder Rd to Williamsburg Way), N Fair Oaks (E Washington Ave to Commercial Ave) and Winnebago (Thornton to 2nd St)/Atwood Ave (1st St to 2nd St)
- Working with teens to find better ways to address common types of crashes for their age group
- Additional planning to support better engagement, improved reporting and updating the high injury network map.

METRO TRANSIT 2022 EFFORTS

Bus Rapid Transit – *Imagine Madison Land use and Transportation Strategy 2b*

Key accomplishments for E-W BRT in 2023 include:

- The start of the Main bid package, worth over \$65 million.
- The bidding of the Mineral Point Widened sidewalk, worth \$7 million.
- The ordering of 62 battery electric articulated buses.
- The execution of a \$194.25 grant agreement with the Federal Transit Administration.

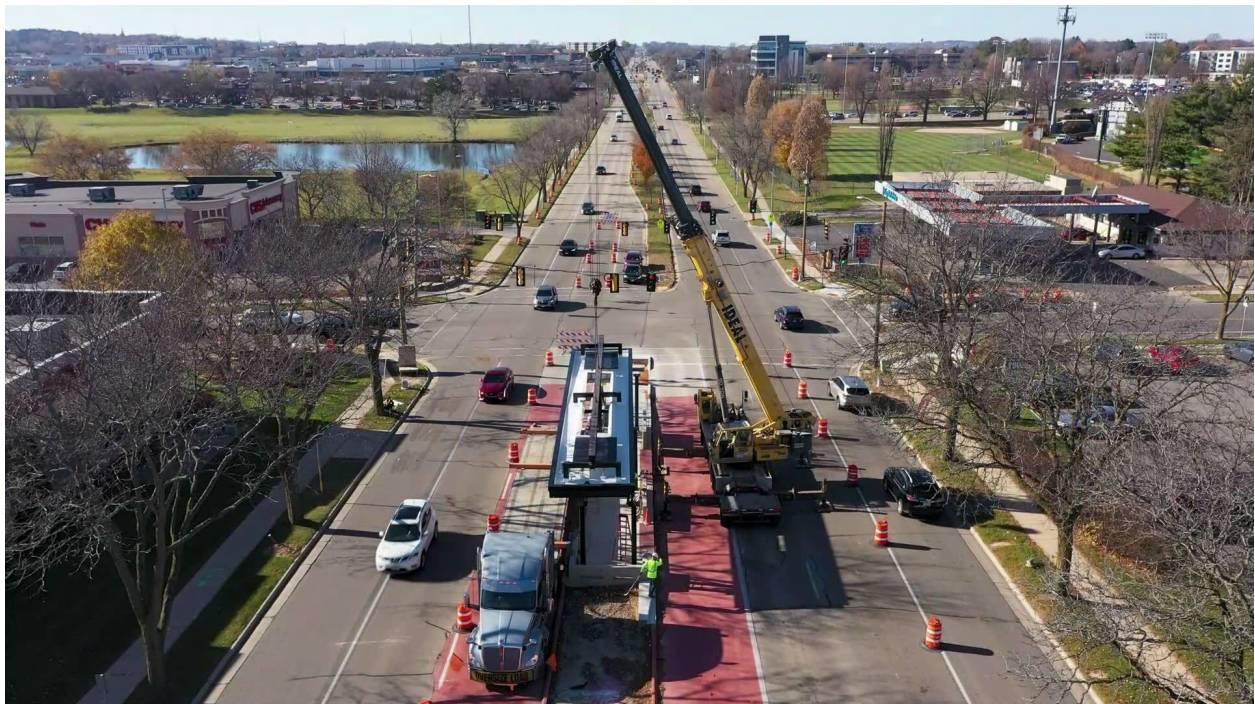


Figure 25 Erection of a Mineral Pt Rd BRT shelter. Photo courtesy of Wisconsin State Journal

<https://bloximages.chicago2.vip.townnews.com/madison.com/content/tncms/assets/v3/editorial/b/0e/b0e02421-519e-5db5-94e9-71d74d5ec467/65556658cbcd0.image.jpg?resize=1920%2C1080>

This project is on an accelerated schedule, with opening expected this fall.

Transit Network Redesign – *Imagine Madison Land Use and Transportation Strategy 1a-c*

A once in a quarter century event, the approved Network Redesign seeks to increase frequency and reduce the number of transfers by riders. The redesign was implemented in June of 2023. With substantial road construction throughout the city, there were challenges keeping the schedule. Through the winter the schedule has become more reliable, and ridership has increased.

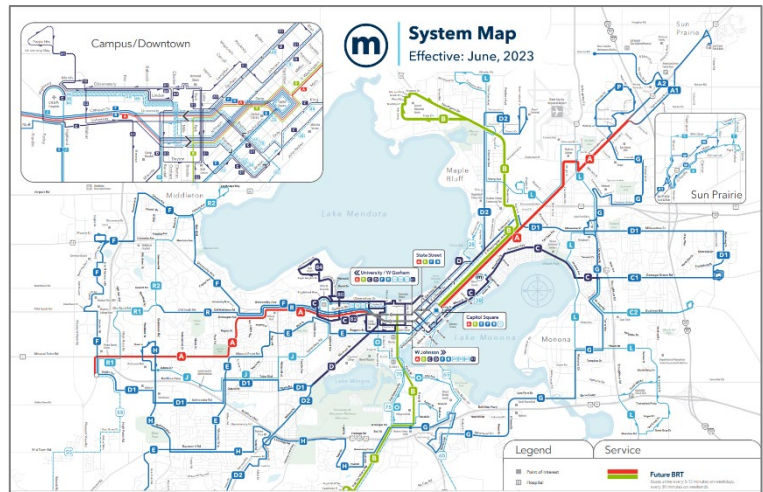


Figure 26 Transit Network Redesign

Delivery of 60-foot Articulated Buses –

Metro’s order of 62 articulated buses started their “builds” over the summer and fall of 2023. Metro took delivery of some of these buses in winter of 2023/2024 and are now using them to train drivers.



Figure 27 New Battery Electric Articulated BRT Buses

Improvements to Metro’s Satellite Facility – *Imagine Madison Land Use and Transportation Strategy 2a (partial)*

Construction began on Metro’s Hanson Road facility, with the majority of improvements being completed by summer of 2024. This project will house, maintain, and charge BRT buses. The added capacity also allows the transit system to grow, which was previously limited by Metro’s capacity to store buses.

Fare Collection – *Imagine Madison Land Use and Transportation Strategy 9*

Metro Transit began work on a new fare collection system. This system will allow for cloud based accounts, fare capping, credit card use, and faster processing. The new fare system will be installed on Metro buses in the summer of 2024 and will be an integral part of the BRT.



Figure 28 Groundbreaking at Metro’s Hanson Road Facility

PARKING 2023 EFFORTS

State Street Campus Garage Mixed Use Development

The reconstruction of the State St Campus Garage (Lake St) began in earnest in December of 2023. This is a result of years of negotiations with the Development Partner (Mortenson), design professionals. City Engineering was very supportive in the leading preparation, bidding, and observation of the construction. Once completed, this project will also house inter-city bus terminal and provide more student housing.

Parking Enforcement

Parking Enforcement Officers (PEOs) were moved out of MPD District stations and centralized into one unit in one location. The relocation to the former Town of Madison site completes the process of moving the PEOs fully to the Transportation Department under the Parking Division.

Transportation Demand Management

In June the Parking Division hired a TDM coordinator and implemented the new TDM ordinance. This program, designed to be self-supporting, will help incentivize sustainable modes of transportation.



Figure 29 Demolition of State St Campus Garage Began in January 2024

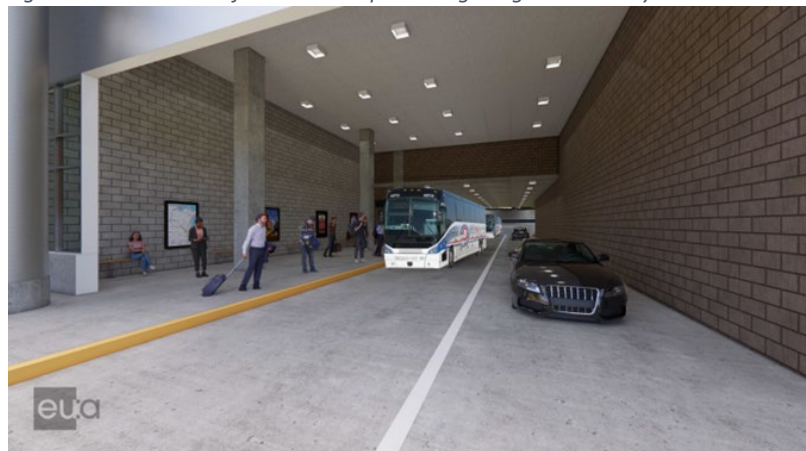


Figure 30 Rendering of Intercity Bus Terminal



Figure 31 PEO Relocation to the Former Town of Madison Bldg