

City of Madison

DEPARTMENT OF



TRANSPORTATION

Route 3

Improving On-Time Performance
October 2019

DRAFT

Table of Contents

1. Introduction.....	1
2. On-Time Performance Analysis	1
3. Causes of Delay.....	2
4. Possible Route Changes.....	2
5. Bus Stop Spacing and Traffic Engineering Improvements.....	5
6. Staff Recommendations	7

1. Introduction

Route 3 operates every 30 minutes on weekdays between the West Transfer Point and East Transfer Point serving the Odana Road / Monroe Street Corridor, UW Campus, Capitol Square, Jenifer Street, and Atwood Avenue. In response to a proposal to install speed humps on Spaight Street, served by Route 3, Metro staff investigated Route 3's on-time performance and found Route 3 often runs late and misses pulses at transfer points.

Transfers are particularly important at the East Transfer Point where riders arriving late for the pulses at 15 and 45 minutes after the hour would result in riders waiting for 30 or 60 minutes for the next bus.

2. On-Time Performance Analysis

Metro uses TransitMaster hardware and software to record the locations of all of its fixed-route buses in real time. This system also records when the bus leaves and arrives at time points. Metro staff analyzed this data for all weekdays in 2018, excluding holidays and other anomalies such as the day after Thanksgiving. Overall conclusions are shown below:

2018 Route 3 On-Time Performance						
By "Via"						
	Eastbound		Westbound		Total	
Division trips	3,435		3,871		7,306	
0-2 min to pulse (close)	56	1.6%	348	9.0%	404	5.5%
After pulse (missed)	34	1.0%	429	11.1%	463	6.3%
Winnebago trips	5,002		4,697		9,699	
0-2 min to pulse (close)	233	4.7%	392	8.3%	625	6.4%
After pulse (missed)	256	5.1%	435	9.3%	691	7.1%
Total	8,437		8,568		17,005	
0-2 min to pulse (close)	289	3.4%	740	8.6%	1,029	6.1%
After pulse (missed)	290	3.4%	864	10.1%	1,154	6.8%
By Time Period						
6-9 am	1,522		1,487		3,009	
0-2 min to pulse (close)	35	2.3%	239	16.1%	274	9.1%
After pulse (missed)	21	1.4%	332	22.3%	353	11.7%
9 am - 3 pm	2,963		2,969		5,932	
0-2 min to pulse (close)	101	3.4%	193	6.5%	294	5.0%
After pulse (missed)	51	1.7%	155	5.2%	206	3.5%
3-6 pm	1,491		1,484		2,975	
0-2 min to pulse (close)	140	9.4%	271	18.3%	411	13.8%
After pulse (missed)	208	14.0%	351	23.7%	559	18.8%

- Overall, Route 3 arrived late at the East or West Transfer Point an estimated 6.8% of the time, meaning that riders likely missed transfers.
- Route 3 arrived between 0 and 2 minutes before the pulse an estimated 6.1% of the time, meaning that riders may have missed transfers if they were not able to change buses in time.
- Westbound is worse than eastbound (10.1% after pulse compared to 3.4%)
- The “Via Division” version of the route performs about the same as the “Via Winnebago” version.
- On-time performance during the afternoon peak is the worst, with an estimated 18.8% of trips missing pulses. The morning peak is bad in the westbound direction.

3. Causes of Delay

Route 3 has long, unreliable travel times primarily because of its circuitous routing. Rather than taking a direct path from Whitney Way and Tokay Boulevard to Milwaukee Street and Corporate Drive, it makes many turns as it serves areas west of the West Transfer Point, MLK Jr Blvd, Jenifer Street, Division Street, and Walter Street.

Several other challenges along the route exist which are barriers to Route 3 making reasonably efficient travel times and keeping its schedule. New speed humps on Monroe Street and proposed speed humps on Spaight Street likely currently or will cause operators to slow down as they go over them. Jenifer Street is a significant delay because of the slow speeds, frequent stops, and many turns; it was narrowed in 2016 leading to lower speeds and more mirror strikes. Finally, Route 3 buses frequently encounter trucks making deliveries at the Schoep’s Ice Cream facility on Division Street which need to back into the loading dock (as pictured).



Additionally, some Route 3 trips started their trips late, and as a result finished their trips late. These late starts could be addressed by improving the on-time performance of other routes that interline with Route 3, like Route 30.

4. Possible Route Changes

Straightening Route 3 and removing deviations and circuitous routing are the most effective ways to make significant improvements on travel times and on-time performance. Below is a summary of possible Route 3 route changes; see the map on Page 4.

1. Reroute westbound Route 3 and from Wilson Street and MLK Jr Blvd to King Street

This change streamlines the route, eliminating circuitous routing downtown and several turns and signalized intersections. The route would no longer stop directly in front of the Madison Municipal Building, City-County Building, or Monona Terrace; however, these destinations would be less than a one-quarter mile walk and would still be served directly by Routes 1, 4*, 12, 19, 38, 56, and 57.

* Southbound Route 4 could also be rerouted to King Street for travel time savings and consistency.

2. Reroute from the Capitol Square and State Street to Wilson/Doty and Broom/Bassett

Realigning the route to Wilson/Doty Streets and Broom/Bassett Streets improves on-time performance and reliability in both directions. The Bassett neighborhood would see improved service with access to two transfer points – something the neighborhood currently lacks, and riders would be one to two blocks from the Capitol Square. A permanent bus stop would need to be established at Doty Street and MLK Jr Blvd, removing a few metered parking spaces.

Routes 10 and 38 may use this new path as well in order to be consistent with Route 3 and improve access to the route.

3. Move Routes 3, 4, 7, 10, and 38 from Jenifer Street to Williamson Street

Williamson Street is faster and more direct than Jenifer Street. Although it has higher traffic volumes and traffic signals, the one-block deviation to Jenifer Street and low speeds and frequent bus stops on Jenifer Street add to the travel time. This change would also alleviate the problems caused by snow and parking on Jenifer Street. Residents living on the isthmus south of Jenifer Street would have to walk one additional block and cross Williamson Street in one direction, and new bus stops would eliminate some parking on Williamson Street.

Moving only Route 3 to Williamson Street is not recommended because having major bus routes one block away would be confusing and difficult for riders in the neighborhood trying to catch the next bus towards downtown.

4. Eliminate “Via Division” version of Route 3

Although both versions of Route 3 have on-time performance issues, the “Via Division” route may be subjected to proposed speed humps on Spaight Street. In addition, it suffers from unreliability caused by truck deliveries at Schoep’s Ice Cream and the narrow, local streets that it operates on. Eliminating the “Via Division” version of the route would make the bus system simpler and easier to understand, likely reducing the number of times people miss their bus because they are in the wrong place at the wrong time. Residents south and east of Eastwood Avenue would have to walk to Atwood Avenue or Winnebago Street to catch a bus, potentially up to one-half mile.

5. Reroute Eastbound Routes 3 and 7 from Winnebago Street and Atwood Avenue to Eastwood Boulevard

This change would save two traffic signals and save a significant amount of time while only closing one bus stop. While most eastbound transit service would be removed from Atwood Avenue between Winnebago Street and Division Street, Route 4 would serve the west end and Route 3 would serve the east end at Division Street less than one-quarter mile away, with an additional stop at Amoth Court on block away.

6. Eliminate a portion of the route west of the West Transfer Point

Route 3 would no longer serve Tokay Boulevard and Odana Road west of Whitney Way, but would use Whitney Way between the West Transfer Point and Odana Road. This change would save a few minutes with little to no lost coverage, since Route 73 serves the eliminated area. Riders traveling to commercial and institutional areas west of Whitney Way, such as Ultratec or the Social Security Administration, would have to walk further or transfer to Route 73. Whitney Way backs up considerably during peak periods – as a result, this route may not produce as significant travel time savings when they are most needed.

Alternatively, to avoid congestion on Whitney Way, Routes 3 and 7 could use Tokay Boulevard to Midvale Boulevard, eliminating off-peak service on Odana Road between west of Whitney and Midvale Boulevard. This corridor would still be served during peak periods by Route 58. Areas south of Odana Road are mostly consumed by a golf course and residents on Odana Road would need to walk ¼-mile north to Tokay Boulevard.

7. Reroute Route 3 from Walter Street and Atwood Avenue to Milwaukee Street and Fair Oaks Avenue

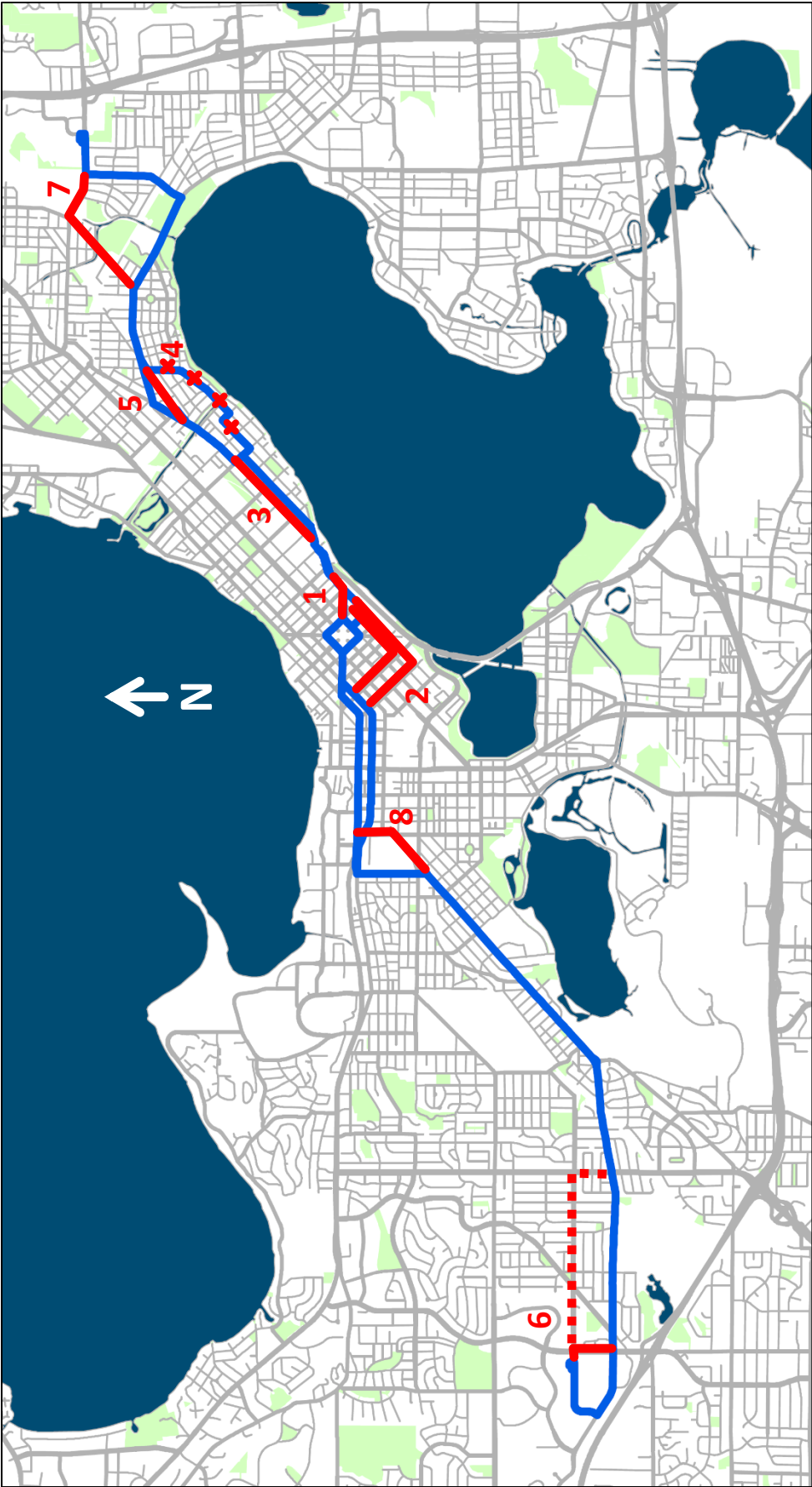
This change would make Route 3 more similar to Route 7 and make it faster and more direct. However, the neighborhoods south of Milwaukee Street would lose access to Route 3 – they would have to transfer from Route 16 or 31 or walk farther.

8. Reroute from University Avenue and Breese Terrace to Randall Avenue and Monroe Street

This change would eliminate service on Breese Terrace. Because of the westbound left turn, the last stop buses could serve on University Avenue would be at Mills Street.

Route 58 could also use Randall Avenue and Monroe Street for consistency.

Route 3 Potential Route Changes



5. Bus Stop Spacing and Traffic Engineering Improvements

Various bus stop placement and traffic engineering approaches could be used to improve the performance of Route 3. However, since most of the route operates on low-speed, local streets, the opportunities for bus-only lanes and queue jumps are minimal. Atwood Avenue is planned to be restriped from four lanes to three between Oakridge Avenue and Walter Street, but this slight reduction in capacity is unlikely to affect Route 3.

1. Consolidate bus stops on Jenifer Street, Atwood Avenue, and Walter Street

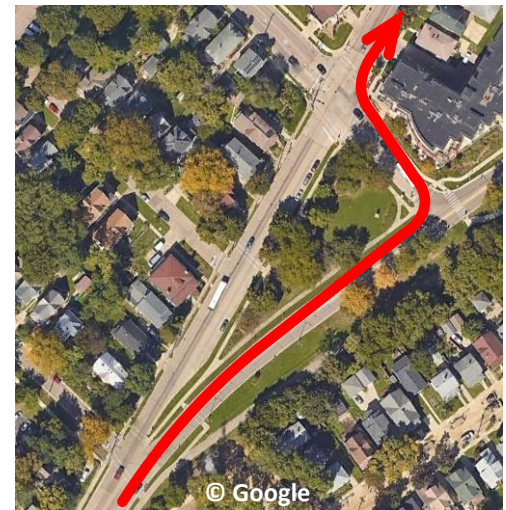
Metro had attempted to remove about three bus stop pairs on Jenifer Street about five years ago. This change would have brought bus stop spacing in the corridor to every other block, meeting Metro's adopted stop spacing of 990 to 1,320 feet, but the recommendation was rejected by the Transit and Parking Commission.

2. Maintain Spaight Street without speed humps where Route 3 operates on it, or reroute bus service to Baldwin and Rutledge Street

While this change would not improve Route 3's on-time performance, it would prevent degradation of its run times. If speed humps are installed on Spaight Street adjacent to Marquette and O'Keeffe schools, the city could remove parking on the south side and trim trees on Rutledge Street and shift bus routes there.

3. Expand parking restrictions on Atwood Avenue, Winnebago Street, and Monroe Street

Currently, parking on these streets is generally restricted for 1.5 hours inbound in the morning and outbound in the evening in order to provide a second travel lane. Parking is allowed in the reverse direction – outbound in the morning and inbound in the evening. Extending the no-parking period to include the reverse direction would reduce delays caused by traffic congestion as well as pulling into and out of bus stops. The westbound parking on Atwood in the afternoon may be particularly effective since it would help westbound Route 3 afternoon trips. Additionally, Winnebago Street and Atwood Avenue do not have eastbound restrictions because most traffic uses the Eastwood Drive bypass, but restricting this parking would help the eastbound peak period Route 3. Expanding the no parking time periods from 1.5 hours to 2 or 3 hours may help as well.



4. Add a stop sign for westbound left turns at Monroe Street and Nakoma Road

Eastbound Route 3 has to wait at a stop sign for a gap in traffic in the free-flowing westbound left turning traffic which is likely heading towards the Beltline. Adding a stop sign and letting each approach go one at a time would reduce delays for eastbound Route 3.

5. Make the rail crossing at Walter Street exempt

This rail line has very few trains since it ends at Cottage Grove, WI and no longer continues east to Milwaukee. Saving one stop could mean the difference between making and not making transfers.

6. Improve the northbound movement at Winnebago Street and First Street

This intersection is awkward and slow in the northbound direction, requiring buses to make two turns and wait at two traffic signals to make a simple through movement (pictured here).

7. Open a new access on the west side of the East Transfer Point

This new access could be unsignalized and used for Routes 3, 5, 7, 14, 15, and 16 in the westbound direction. It would save time because the bus would not have to go around the loop, backtrack to Corporate Drive, and wait at the traffic signal. However, this new driveway would likely use private land and the City would need to negotiate with the owners of the property.



8. Skip the bus stop at University Avenue and Randall Avenue for Routes 2, 3, 19, 37, and 48

This bus stop is at the very end of the University Avenue bus lane. Buses continuing to Old University Avenue must immediately merge into the left lane, making four lane changes in the course of about 300 feet. If these routes could skip this stop, they could merge more gradually and likely save time and improve safety and reliability.

6. Staff Recommendations

Metro and Transportation Department staff recommend the following actions in the short term to improve the on-time performance of Route 3 and ameliorate the effects of the speed humps. Although all of the above strategies should be explored, these four are the most immediate changes that can likely be made at low cost, in a short time frame, and with few impacts.

- **Consolidate bus stops on Jenifer Street, Atwood Avenue, and Walter Street**

Bus stop consolidation is arguably the most effective way to improve on-time performance. Metro staff believe that these corridors should meet the same bus stop spacing standards as the rest of the city, including downtown and similar neighborhoods, in order to meet the city's equity goals since low-income people are more likely to live in Madison's periphery and are more likely to rely on transfers.

Estimated average travel time savings: 30 seconds

- **Reroute westbound Route 3 from MLK Jr Blvd to King Street, or, reroute both directions to Broom and Bassett Streets and Wilson and Doty Streets**

Staff will consider rerouting to Wilson, Doty, Broom, and Bassett Streets which may require other changes to routes. If that change is not desirable then the westbound route will be moved to King Street.

Estimated average travel time savings: 2 minutes on westbound trips

- **Reroute from Atwood Avenue to Eastwood Drive with a new bus stop at Amoth Court**

While most other recommendations help the westbound Route 3, this change will help eastbound buses. Although eastbound trips have better on-time performance than westbound, they suffer during the afternoon peak and some connections at the East Transfer Point have hourly service.

Estimated average travel time savings: 2 minutes on eastbound trips

- **Eliminate the "Via Division" version of Route 3**

This change will make the route more reliable and also easier for people to use and understand. Route 38 will serve the Rutledge Street corridor and Route 3 will not be impeded by the new speed humps.

Estimated average travel time savings: Minimal, but no impact from speed humps and improved reliability

- **Open a new westbound access on the west side of the East Transfer Point**

This exit will help westbound Route 3 as well as other routes. The eastbound entrance is more problematic because it may require access through private property and buses cannot turn around at the east end of the loop.

Estimated average travel time savings: 30 seconds on westbound trips

Estimating travel time savings is difficult, however the travel time savings show above have been assumed for the recommended improvements to Route 3. Applying these travel time savings to every trip would result in buses arriving after the pulse an estimated 2.9% of the time compared with 6.8%. Westbound, the number drops from 10.1% to 3.8%, and during the PM peak drops from 18.8% to 10.0%.