City of Madison

Department of

Transportation

Metro Rapid Route B

Locally Preferred Alternative Report

May 2024

Table of Contents

1. Summary of the Locally Preferred Alternative....1
2. Introduction....3
3. Mode Alternatives....4
4. Route and Stations....4
5. Service Plan....7
6. Runningway Characteristics....8
7. Accessibility....13
8. Changes to Pedestrian and Bicycle Facilities....14
9. Public Involvement....14
10. Options Evaluated and Dismissed Related to Routing, Stations, and Runningway....15

Attachments

Appendix A
Appendix B
Bicycle and Pedestrian Facilities - Staff Memo
S. Park Street On-Street Parking - Staff Memo

1. Summary of the Locally Preferred Alternative

A locally preferred alternative (LPA) is a community's preferred mode and route that best meets the needs of the corridor. The LPA is a required part of the project development process to qualify for funding under the Federal Transit Administration's (FTA) Capital Improvement Grant (CIG) program.

North-South Bus Rapid Transit project (Rapid Route B) is the second bus rapid transit (BRT) line in Metro Rapid, Metro Transit's BRT system. North-South BRT will run from the north side of Madison, through the downtown area, to Madison's south side neighborhoods and ending in the City of Fitchburg. The central segment of the route, which runs through the isthmus between Lakes Mendota and Monona, shares the alignment, stations, and runningway with Rapid Route A (the East-West BRT line), planned to open in late 2024.

This route was identified in a feasibility study completed by the Greater Madison MPO in 2012 and is now served by Route B, a route that was initiated as part of the Metro's 2023 Transit Network Redesign and intended to be converted to a BRT route in the future.

The LPA is about 15 miles long and will serve 35 total stations. It will connect key residential and commercial areas—providing rapid transit access to an additional 53,000 people and 40,000 jobs (U.S. Census Bureau, 2020) within one-half mile of the new stations along the route, and connect residents and visitors to many other important destinations. The route will also serve about 19,000 car-free households, 6,800 people with disabilities, 33,000 people of color or of Hispanic/Latino origin, 14,000 lower-income households, 6,800 seniors and older adults, and 10,700 people under 18 (2020 U.S. Census and 2017-2021 American Community Survey).

A little more than half of Rapid Route B will be in dedicated bus only lanes. Bus lanes will be built or improved along Fish Hatchery Road, Park Street, and Packers Avenue. Park Street will be reconstructed with bus lanes and new bicycle accommodations.

What is a Locally Preferred Alternative?

IT IDENTIFIES:

- Mode (BRT, light rail, other)
- General route alignment
- General station locations
- General runningway characteristics

IT IS NOT:

- A detailed design document
- The end of analysis and planning
- Approval of funding for the project
- The end of public involvement

WHY THE LPA IS IMPORTANT:

- Solidifies key planning decisions
- Preliminary engineering can begin
- Environmental analysis can begin
- Minimizes delays and costs

Metro Rapid Route B Summary Statistics

Length: 15 miles (11.5 miles of new alignment)

Number of Stations: 35 (26 new stations)

Features will Include:

- Service every 15 minutes most of the day
- High-quality stations with raised platforms
- Priority at traffic signals
- Dedicated lanes with fewer stops

The Route will Serve:

- 97,000 residents (52,900 along new alignment)
- 78,000 jobs (39,700 along new alignment)

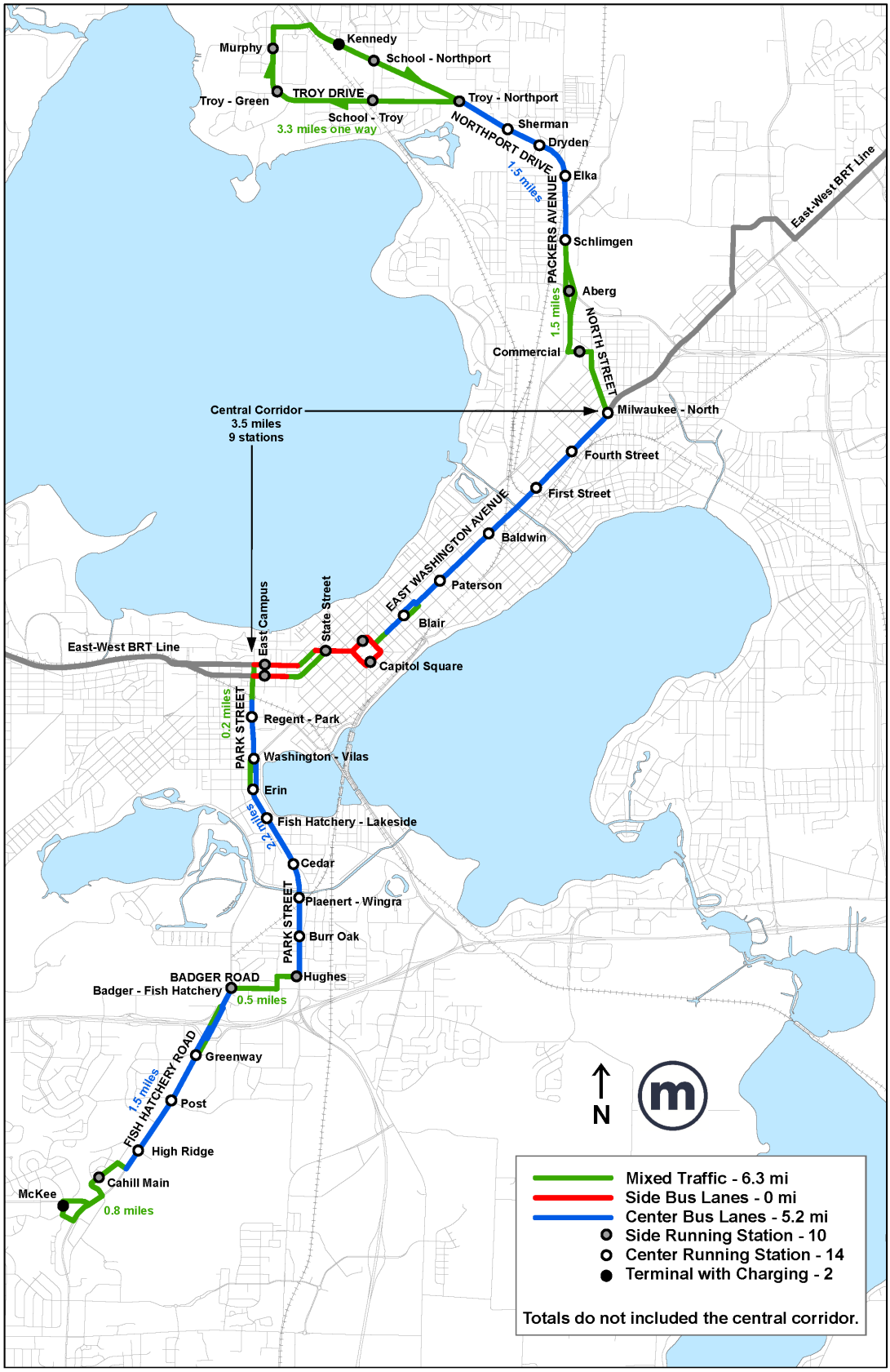
Estimated Daily Ridership:

Estimated Capital Cost:

Estimated Change in Operating Costs: $0

A map of the LPA route and station locations are shown in Figure 1-1.

Figure 1-1: North-South BRT Locally Preferred Alternative Map



2. Introduction

The Metro Rapid Route B locally preferred alternative (LPA) is a bus rapid transit (BRT) line connecting north Madison, central Madison, south Madison, and Fitchburg. The route is approximately 15 miles long and will be the second BRT route in Madison. The portion of the route between Park Street and University Avenue / Johnson Street, and East Washington Avenue and North Street – about 3.5 miles – is shared with Metro Rapid Route A (East-West BRT). Rapid Route A is under construction between 2023 and 2024 and is expected to open in late 2024. The only additional improvement in this part of the route is an additional northbound station on North Street at East Washington Avenue. The majority of the route is within the City of Madison, and the southern 1.5 miles of the route is in the City of Fitchburg.

The majority of public transit service in the Madison area is operated by Metro Transit. Metro operates fixed route bus service in addition to paratransit service in the Madison area with service extending into the City of Fitchburg as well as other neighboring communities in Dane County. Metro Transit is part of the City of Madison within the City Department of Transportation, which also oversees the Traffic Engineering Division and Parking Utility. The City of Madison Department of Transportation is the project sponsor and will implement the project with the help of other city agencies, partner public entities, and the private sector.

The LPA defines the mode, route, and general characteristics of the project. The route and station locations can be somewhat flexible with guidance encouraging the LPA to provide as much detail as possible to streamline the process during Project Development and environmental evaluation. Projects may be modified somewhat during Project Development.

The major components of the Small Starts process are shown below.

- **Alternatives Analysis**. In this phase, a corridor with a need for a major transit project is identified. Alternatives are explored such as mode (BRT, streetcar, light rail, etc.), routes, and running way characteristics. This phase is primarily completed locally with little official involvement from the FTA. The outcome is a locally preferred alternative.
- **Project Development**. In this phase, planning and design is completed. Projects are scored based on their merits and recommended for funding by the FTA if they have an overall project rating of medium or better. Each year, Congress approves a list of projects to be funded through the 5309 discretionary grant program.
- **Construction Grant Agreement**. In this phase, final design is completed and the project is built.

System planning for the BRT system began in 2012 with a report issued by the Greater Madison Metropolitan Planning Organization (MPO) in cooperation with Metro Transit, the Capital Area Regional Planning Commission (CARPC), and others. The report identified the need for a four-corridor BRT system organized into two routes – north-south and east-west. Because of Madison isthmus geography and the need to connect neighborhoods with both downtown Madison and the University of Wisconsin, the west and south lines continue towards the east and north respectively.

In June 2023, Metro Transit implemented its Transit Network Redesign project. This effort reorganized its routes and schedules to better serve the community. The project switched from numbered routes to lettered routes, and introduced Routes A and B, which were intended to eventually become Rapid Route A and Rapid Route B.

In March 2023, the Madison Common Council authorized staff to begin planning for BRT in the north-south corridor. The City of Madison was granted its request to enter into Project Development in July 2023 and the project was included in FTA's Fiscal Year 2025 Annual Report on Funding Recommendations, at a funding amount of $118 million, in December 2023. Based on this progress, the project team aims to have a Construction Grant Agreement with FTA in place by 2026, with construction occurring in 2026 and/or 2027, and fully launch Rapid Route B for service in 2027-2028.

3. Mode Alternatives

The 2012 study by the Greater Madison MPO investigated bus rapid transit in the Madison area. Other studies between the 1980s and early 2000s, such as Transport 2020 and Madison Streetcar provided detail on other modes. A description of the modes considered and key factors of this recommendation are described below.

- **Light Rail**
  Light rail transit (LRT) consists of electric multiple unit trains with low floors that have the ability operate on city streets as well as on separated right-of-way. LRT was dismissed as a viable option due to its high cost and the fact that many of Madison's arterial streets have undergone major reconstruction within the last few decades.

- **Commuter Rail**
  Commuter rail can use a variety of train types and either diesel or electric propulsion. Commuter rail throughout Dane County was studied in the 1990s. The Transport 2020 project planned for a shorter commuter rail – light rail hybrid project in the 2020s. These concepts were dismissed due to their high cost. Additionally, the typically longer station spacing, limited frequency, and constrained route options do not meet the urban mobility needs in the north-south corridor.

- **Streetcar**
  The Streetcar mode consists of smaller rail vehicles than light rail systems, typically operating mostly or entirely within street right-of-way. Streetcar was dismissed because it does not meet the travel time and cost-effectiveness needs in the north-south corridor.

- **Bus Rapid Transit**
  Bus rapid transit is a bus mode with dedicated lanes on city streets or in other corridors, elevated transit stations, transit signal priority, and other improvements. BRT was selected due to its cost effectiveness, route and station options, travel time improvements, ability to integrate into the existing roadway system, and compatibility with East-West BRT (Rapid Route A).

Bus rapid transit is the selected mode for North-South BRT. BRT systems come in several different forms, using mainly existing street infrastructure in mixed traffic (corridor BRT), bus lanes on existing streets, or on new off-street busways (fixed-guideway BRT), or along freeways. Rapid Route B will be a fixed-guideway BRT system that primarily uses bus lanes on existing streets, but will also have some mixed-traffic segments.

4. Route and Stations

The locally preferred alternative for Rapid Route B will be an on-street BRT system that runs in a combination of mixed traffic and bus-only lanes with running way improvements such as limited stops, transit signal priority, and other various intersection improvements. It will run from Northport Drive and Knutson Drive to Triverton Pike Drive and McKee Road, via Troy Drive, Green Avenue, Knutson Drive, Northport Drive, Packers Avenue, Commercial Avenue, North Street, East Washington Avenue, the Capitol Square, State Street, University Avenue

and Johnson Street, Park Street, Hughes Place, Cypress Way, Badger Road, Fish Hatchery Road, Caddis Bend, Cahill Main, and Fish Hatchery Road. The terminals are at Northport Drive and Kennedy Road on the north side, and at Triverton Pike Drive and McKee Road on the south side.

The route will have 35 stations and is 15 miles long. 3.5 miles and 9 stations will be shared with East-West BRT; as a result, 26 stations and 11.5 miles of bus rapid transit will be added with the project.

Station locations were identified by considering a variety of factors, including:

- Density of existing development—residential, commercial, employment, etc.
- Types of existing development, with major employers and regional destinations like hospitals, shopping centers, schools, community centers, and affordable multi-family housing prioritized over auto-oriented development that is less likely to generate transit trips
- Public and stakeholder feedback
- Intersection of other transit routes
- Spacing from adjacent stations with a goal to space stations about one-half mile apart
- Pedestrian crossing infrastructure and pedestrian network continuity

Figure 1-1 shows a map of the route and approximate station locations. Figure 4-1 lists the approximate location of station pairs.

Figure 4-1: Rapid Route B Station Locations

1. Kennedy (one-way, side running, terminal)
2. Murphy (one-way, side running)
3. Troy – Green (one-way, side running)
4. School - Troy (one-way, side running)
5. School – Northport (side running)
6. Troy – Northport (WB side, EB center)
7. Sherman (center running)
8. Dryden (center running)
9. Elka (center running)
10. Schlimgen (center running)
11. Aberg (side running)
12. Commercial (side running)
13. Milwaukee – North (new NB side running)
14. Fourth Street (center running)[a]
15. First Street (center running)[a]
16. Baldwin (center running)[a]
17. Paterson (center running)[a]
18. Blair (center running)[a]
19. Capitol Square (side running)[a]
20. State Street (side running)[a]
21. East Campus (side running)[a]
22. Regent – Park (center running)
23. Washington – Vilas (center running)
24. Erin (center running)
25. Fish Hatchery – Lakeside (center running)
26. Cedar (center running)
27. Plaenert – Wingra (center running)
28. Burr Oak (center running)
29. Hughes (center running)
30. Badger – Fish Hatchery (center running)
31. Greenway (NB side, SB center)[b]
32. Post (center running)[b]
33. High Ridge (center running)[b]
34. Cahill Main (side running)[b]
35. McKee (side running, terminal)[b]

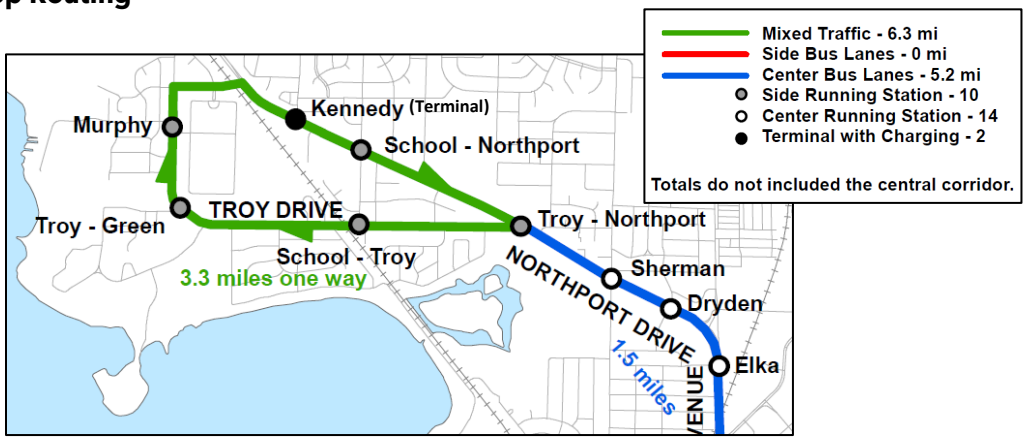
Notes: [a] Existing Station Location; [b] Station located in the City of Fitchburg

The station list includes intersecting streets where station pairs would generally be located. Ongoing planning work will determine the more precise location of each station.

Route Terminals

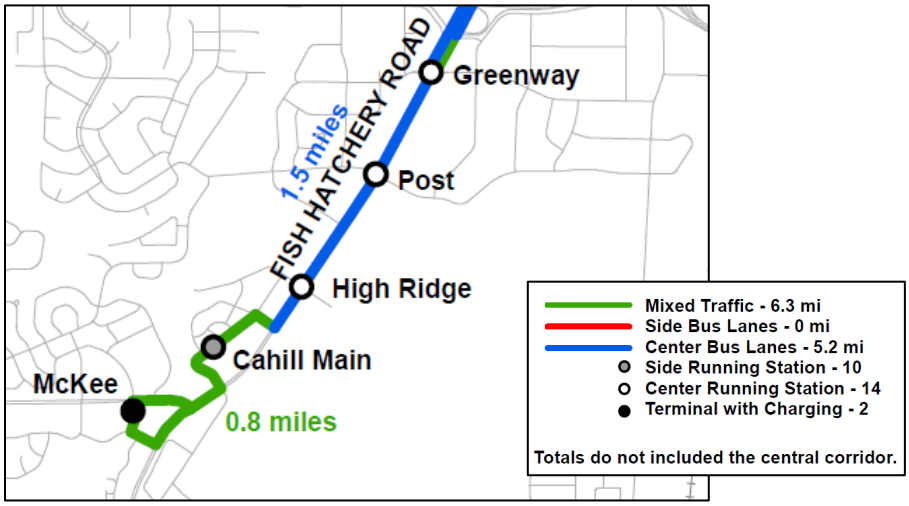
On the north side, the route will use a one-way, clockwise loop using Troy Drive, Green Avenue, Knutson Drive, and Northport Drive. The northern terminal will be eastbound on Northport Drive at Kennedy Road. This location offers service to many residents both north and south of Northport Road. Locating the terminal at this station allows residents in this area better access to use the rest of the line in both directions without waiting through a layover in the middle of the loop, in comparison to the existing Route B terminal at Northport Drive and Sherman Avenue.

Figure 4-2: North Loop Routing



The southern terminal will be at Triverton Pike Drive and McKee Road. This terminal represents a short extension of the current Route B, and improves access to many residents and businesses in the area.

Figure 4-3: South Terminal

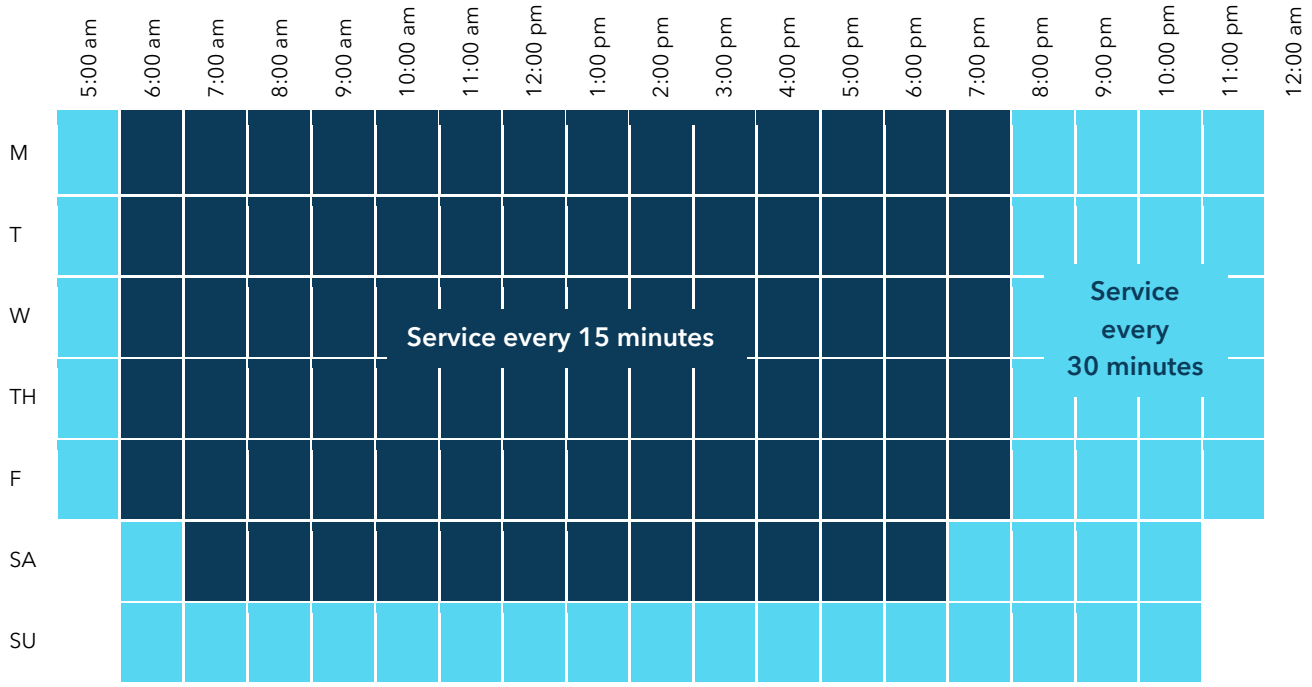


Both the north and south terminals will feature a station with electric bus charging and restrooms for drivers to use.

5. Service Plan

The North-South BRT line will operate as Route B every 15 minutes during most of the day, with 30-minute headways early in the morning, in the evenings, and on Sundays and holidays. In the existing central section, between East Campus and Milwaukee – North stations, Routes A, F, and R will provide additional service and lower headways.

Figure 5-1: Recommended Service Plan



6. Runningway Characteristics

Figure 1-1 illustrates the planned runningway for each segment of the North-South BRT line. The following paragraphs describe the type of running way available.

Mixed Traffic BRT Operations

BRT systems can, and do, operate in mixed traffic like normal buses do. Some streets are not wide enough to incorporate bus lanes. In some situations, removing parking or bike facilities, or widening streets to add bus lanes does not fit with the character of the street, and in many of these cases traffic volumes do not present significant delays to transit buses. Virtually all BRT systems have some segments that operate in mixed traffic. Although there is a preference to have at least 50 percent of the routing be on dedicated running way (bus lanes). Removing unpredictable delays associated with traffic congestion is one of the fundamental characteristics of BRT.

Several improvements to mixed traffic running ways can reduce delays for buses in mixed traffic. In-lane bus stops, as opposed to pull-out stops, mean buses do not have to wait for a gap in traffic. Transit signal priority, more direct routing, faster fare payment, and fewer stops also improve service.

Side Running Bus Lanes

Bus lanes on the right side of the road are present on several Madison streets. These lanes prevent most through traffic from delaying the bus. At intersections, buses usually do not have to wait for a queue of cars to clear when the light turns green. Side running bus lanes are usually fairly easy to implement if space is available.

Side running bus lanes are almost always shared with right turning traffic and bikes. This scenario can present delays and a diminished quality of service for transit users. Further, side running bus lanes may be occupied by parked cars, delivery vehicles, and other uses like garbage collection.

Center Running Bus Lanes

Center running bus lanes remove virtually all conflicts with other road users, creating the highest level of on-street performance. The stations are one unified place where people can get real time information, use amenities, and catch a bus in either direction, as opposed to needing two separate stations for side-running BRT.

The main disadvantages to center running bus lanes are logistical. Left turns need to be protected only where turns can only be made on a green arrow, and in some cases, left turns need to be removed entirely. Unless contraflow bus lanes are used, buses using center running stations must be equipped with doors on both sides of the bus.

Off-Street Busways

Off-street busways are sometimes constructed along railroad or freeway rights-of-way, or in other locations. These facilities are generally completely free of conflicts except for where they cross streets. Busways, however, are generally expensive and used for short distances to make connections that would not otherwise exist. Madison's rail system provides some opportunities for busways, but in most cases they provide inferior access to neighborhoods and destinations and do not reduce travel times because of the circuitous routing needed to access them.

Typical Sections

While the locally preferred alternative is not intended to provide detailed design or engineering recommendations, conceptual typical sections were developed as part of the runningway recommendations for each general segment where changes are expected. In the next phase of this project, these concepts will be refined further.

Note that no changes to the typical section of the existing roadway are expected in the following corridor segments:

- North terminal loop (northern route loop, located north of Northport Drive and Troy Drive intersection)
- Packers Avenue south of Schlimgen
- Commercial Avenue
- North Street
- Any portion of the Central segment (East Washington Avenue, Capitol Square, State Street, University Avenue, and Johnson Street)
- Badger Road
- Southern terminal loop in Fitchburg (High Ridge Trail, Cahill Main, Caddis Bend, McKee Road, Triverton Pike Drive, or Brendan Avenue)

In these areas, the bus will operate in an existing general purpose travel lane.

Northport Drive and Packers Avenue

The route segment that runs along Northport Drive and Packers Avenue between Troy Drive and Schlimgen Avenue is planned to be converted from three general purpose travel lanes in each direction to two general purpose travel lanes and one dedicated bus lane in each direction, as shown conceptually in Figure 6-1.

Figure 6-1: Conceptual Changes to Northport Drive and Packers Avenue between Troy Drive and Schlimgen Avenue

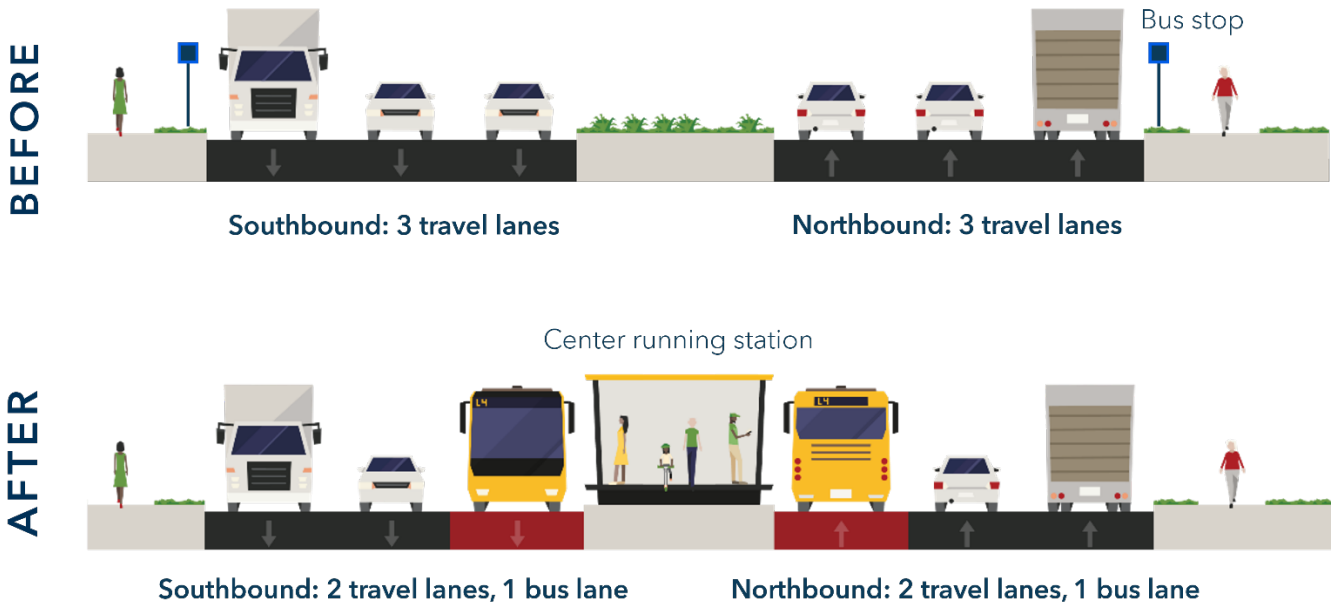


Image Source: Streetmix and the City of Madison

Because this segment was reconstructed approximately 10 years ago, the extent of changes to this segment is expected to be limited to pavement re-striping and minor changes near stations. This segment is designated as State Highway 113, and as such, project staff will be working closely with the Wisconsin Department of Transportation to refine the design.

South Park Street between Spring Street and Fish Hatchery Road

The route segment on South Park Street between Spring Street and Fish Hatchery Road is planned to be converted from two general purpose lanes and a parking/auxiliary lane to two general purpose lanes and a dedicated bus lane as shown in Figure 6-2.

Figure 6-2: Conceptual Changes to South Park Street between Spring Street and Fish Hatchery Road

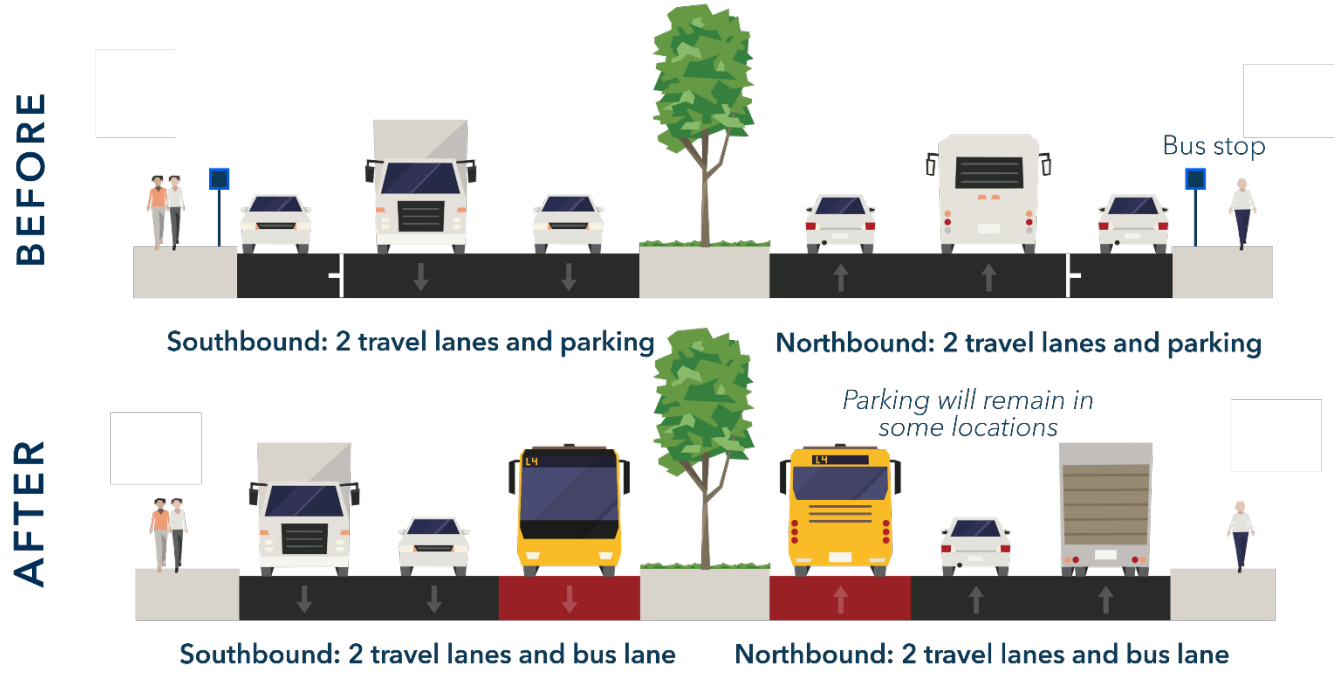


Image Source: Streetmix and the City of Madison

Within this segment, on-street parking is recommended to remain in select locations (more details provided in the following section of this report). Like the Northport Drive and Packers Avenue segment, changes will be limited to pavement re-striping and minor changes near stations. This segment is designated as U.S. Highway Route 151 south of West Washington Avenue, and as such, project staff will be working closely with the Wisconsin Department of Transportation to refine the design.

South Park Street between Fish Hatchery Road and Hughes Place

The route segment on South Park Street between Fish Hatchery Road and Hughes Place is planned to be reconstructed in coordination with this project. The typical section is recommended to change from two general purpose travel lanes and an auxiliary lane to two general purpose lanes and a dedicated bus lane as shown in Figure 6-3.

Figure 6-3: Conceptual Changes to South Park Street between Spring Street and Fish Hatchery Road

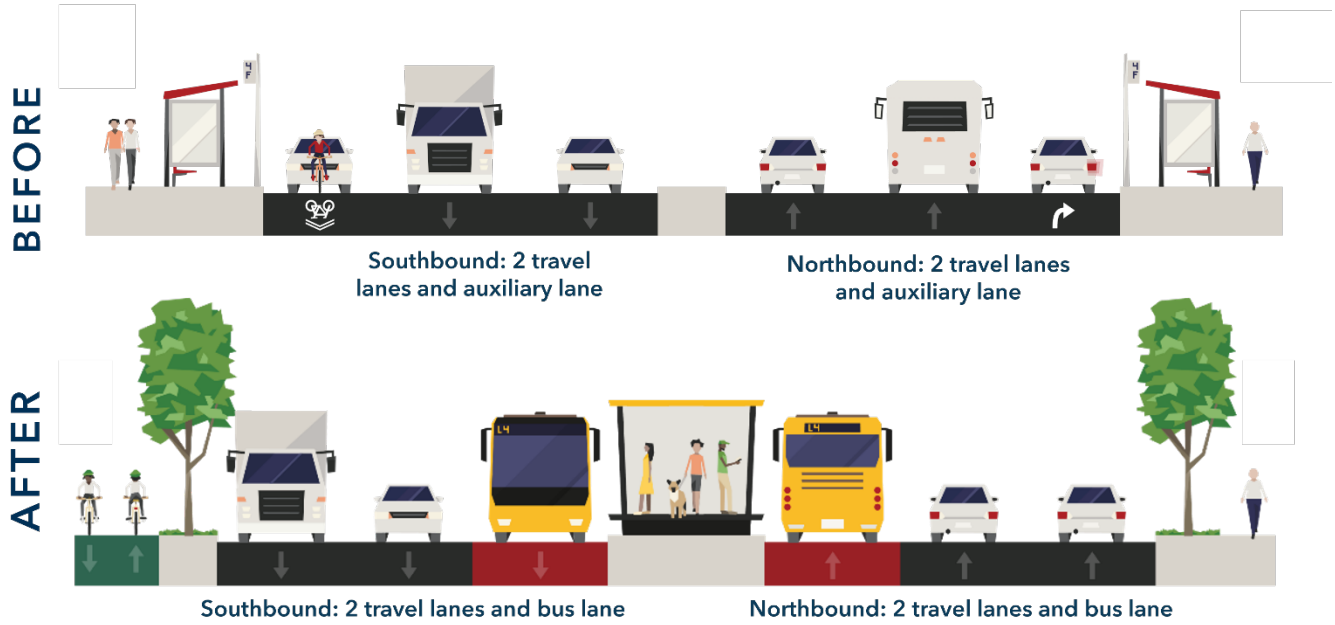


Image Source: Streetmix and the City of Madison

The existing auxiliary lane currently serves as a combination of a right turn lane, a parking lane, and a bicycle lane, and is used by buses on the existing Route B to serve bus stops on the segment. An off-street multi-use path is also planned to be added to the west side of the road with the reconstruction project, which will provide a bicycle facility that is suited for all ages and abilities based on the width and volume of the roadway. Terraces in this segment will also be widened with the project, with street trees added where possible to provide more shade for pedestrians and improve traffic calming. The segment is also designated as U.S. Highway Route 151; therefore the reconstruction project will be largely funded by the Wisconsin Department of Transportation.

Fish Hatchery Road between Greenway Cross and Caddis Bend

The route segment on Fish Hatchery Road between Greenway Cross and Cahill Main is planned to be converted from two general purpose lanes and an outside-running shared bus/bike lane to two general purpose lanes and a center-running dedicated bus lane as shown in Figure 6-4. This segment has an existing off-street multi-use path on the west side of the road that serves bicycles; which is considered an optimal facility for all ages and abilities on this corridor.

Changes on this segment will be limited to pavement re-striping and minor changes near stations. This segment is located in the City of Fitchburg and is designated as County Highway D, and as such, project staff will be working closely with the City of Fitchburg Engineering Division and Dane County Highway and Transportation to refine the design.

Figure 6-4: Conceptual Changes to Fish Hatchery Road between Greenway Cross and Cahill Main

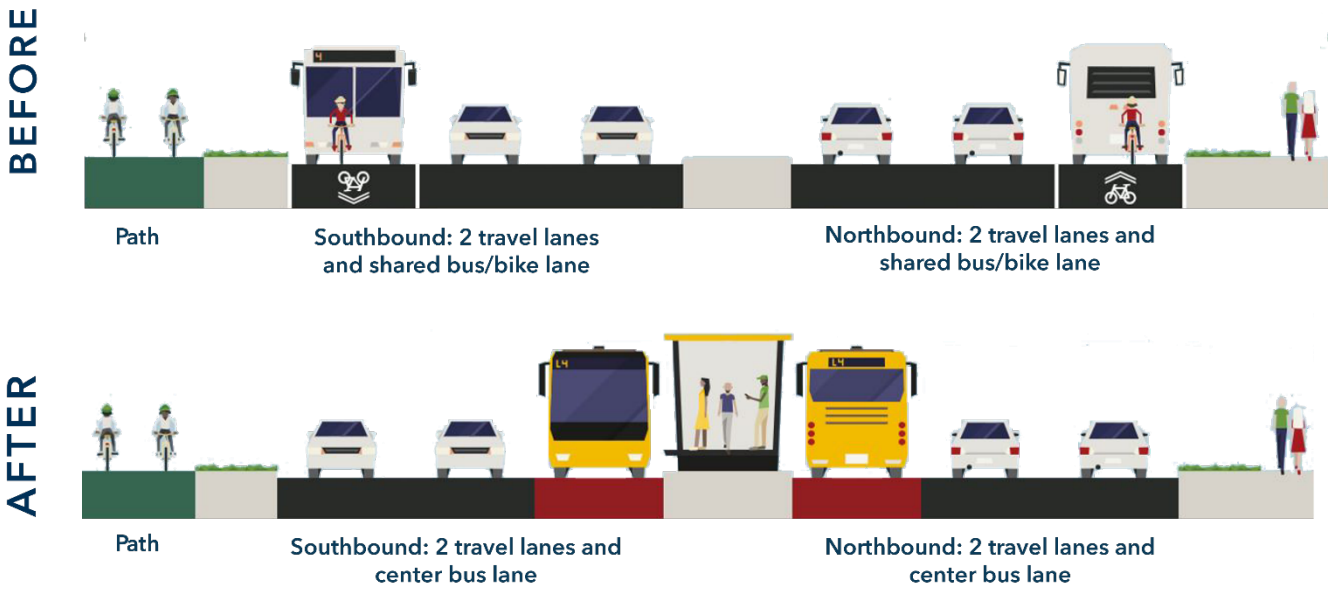


Image Source: Streetmix and the City of Madison

7. Accessibility

Several features of the recommended service will result in a higher level of accessibility at stations when compared to existing bus stops. Accessibility features of the recommended service are listed below:

- **Elevated platforms at stations** – platform edges will be 13.5 inches above the roadway leaving no vertical gap for boarding. Small flip out ramps will be used to bridge the horizontal gap between the vehicle and the platform (Figure 7-1).
- **Detectible warning fields with directional tiles** – these surfaces will be used in locations where bus doors will be located when the bus is stopped at the platform to guide visually impaired riders to the appropriate location to board the bus.
- **Audible signs and signals** – audible components to bus signs, including push-buttons for audible read out of real-time bus signals, and audible pedestrians signals will be added at stations and station approaches
- **New traffic signals** – in location where there is no traffic signal, they will be added to promote safer and more accessible pedestrian crossings.
- **Connecting curb ramps** – curb ramps leading to stations will be retrofitted to meet the latest accessibility guidelines
- **On-bus accommodation** – two wheelchairs will be accommodated on each bus, one of the designated locations will have an automatic self-securing option, although riders can chose to ask for help from the driver if needed or desired

Figure 7-1: Transit Vehicle Using Bridge Plates on Vehicle Test Platform

Image Source: City of Madison Staff

8. Changes to Pedestrian and Bicycle Facilities

Pedestrian improvements including improved crossings, pedestrian signals, and accessible ramps are recommended to be added to pedestrian approaches to each station, and in some cases to improve access to nearby destinations, to help improve safety and convenience. There will be space to store up to three bicycles at a time on buses on this route, and bike racks will be provided at stations.

On S. Park Street from Fish Hatchery Road to Badger Road, an off-street multiuse side path on the west side of the street is recommended to be incorporated into the reconstruction of this roadway segment to provide a protected bicycle facility that meets guidance for All Ages and Abilities bike accommodations.[1]

More details about additional to changes to pedestrian and bicycle facilities are included in the Bicycle and Pedestrian Facilities memo, attached to this report.

9. Public Involvement

Public involvement has been a crucial part of this effort and in many cases, has re-shaped the recommendations included in this report. The public involvement plan for this effort is included in Appendix A and a Summary of Public Involvement is included in Appendix B, which includes themes from feedback received and how staff incorporated feedback into the recommended LPA.

[1] National Association of Transportation Officials (NACTO), Urban Bikeway Design Guide, "Designing for All Ages and Abilities"

10. Options Evaluated and Dismissed Related to Routing, Stations, and Runningway

Throughout the development of the LPA, several options were considered in different parts of the corridor in terms of routing, station locations, and runningway. The following section provides a summary of the various options evaluated with additional information provided in the appendices of this document as appropriate.

North Segment Routing

On the north portion of the corridor, several different routing alternatives were considered, including:

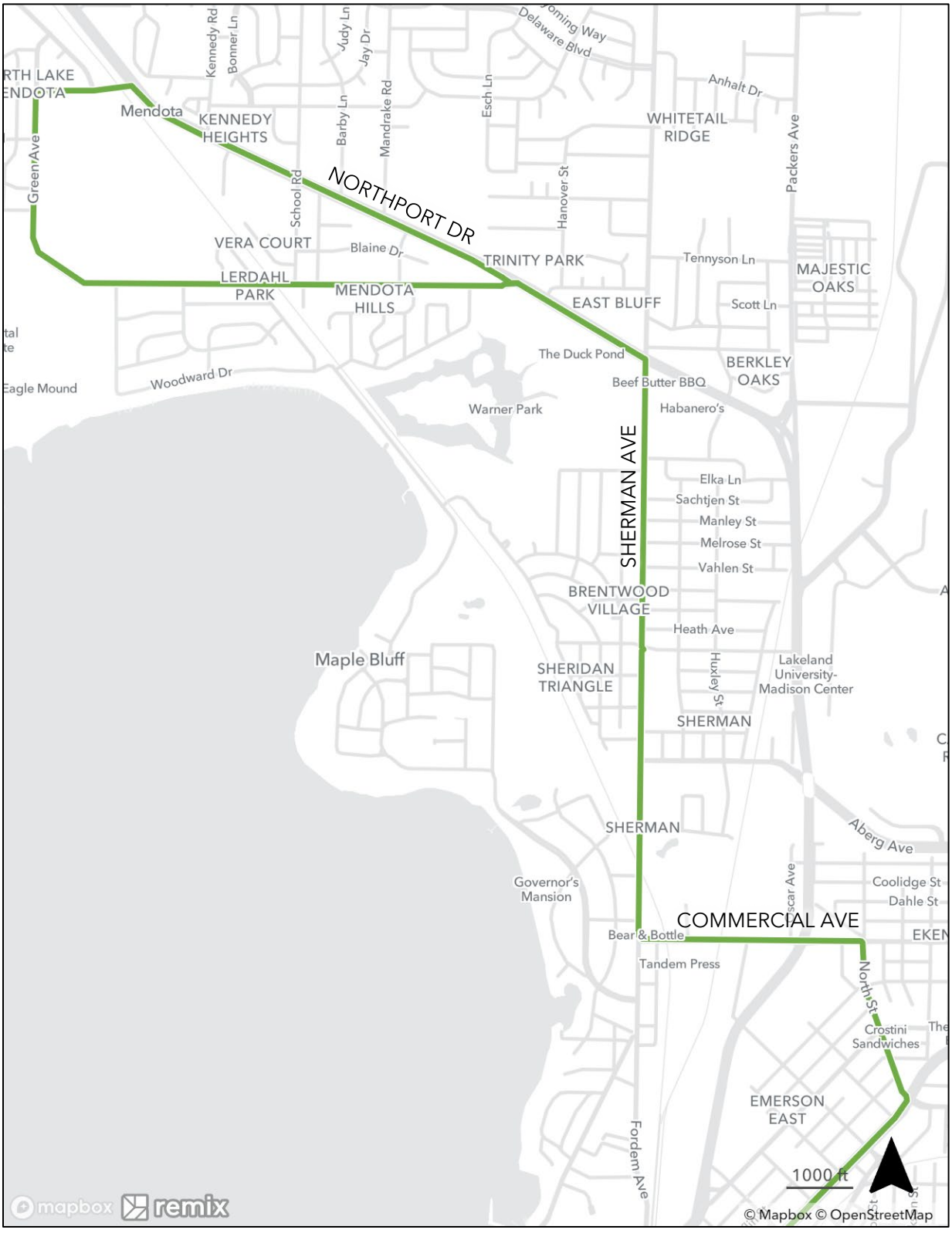
- Routing on Sherman Avenue instead of Packers Avenue
- Routing to the Airport
- Variations on the north terminal loop (Troy Drive)

Routing on Sherman Avenue Considered but Dismissed

Early in the planning process, routing on Sherman Avenue instead of Packers Avenue was considered, generally as shown in Figure 10-1. Staff found that the route would serve a similar number of people and jobs, existing ridership is about the same on both the existing Route D2 (which currently runs on Sherman Avenue) and Route B (which currently runs on Packers Avenue). Because the existing typical section on Sherman Avenue generally consists of a bike lane in each direction, one travel lane in each direction and a two way left turn lane in each direction, it would not be possible to have dedicated lanes on this segment without either a full reconstruction of the roadway or a single, bi-directional transit lane. Sherman Avenue is generally more pedestrian friendly than Packers Avenue.

Given the similarities of the two routing options, staff recommends routing on Packers Avenue primarily to allow for a dedicated transit lane in each direction, which enhances speed and reliability of the service, and will allow the service to meet Federal Transit Administration definition for bus rapid transit, which requires that at least half of the route length consist of dedicated transit lanes.

Figure 10-1: Sherman Avenue Routing Considered but Dismissed



Routing to the Airport Considered but Dismissed

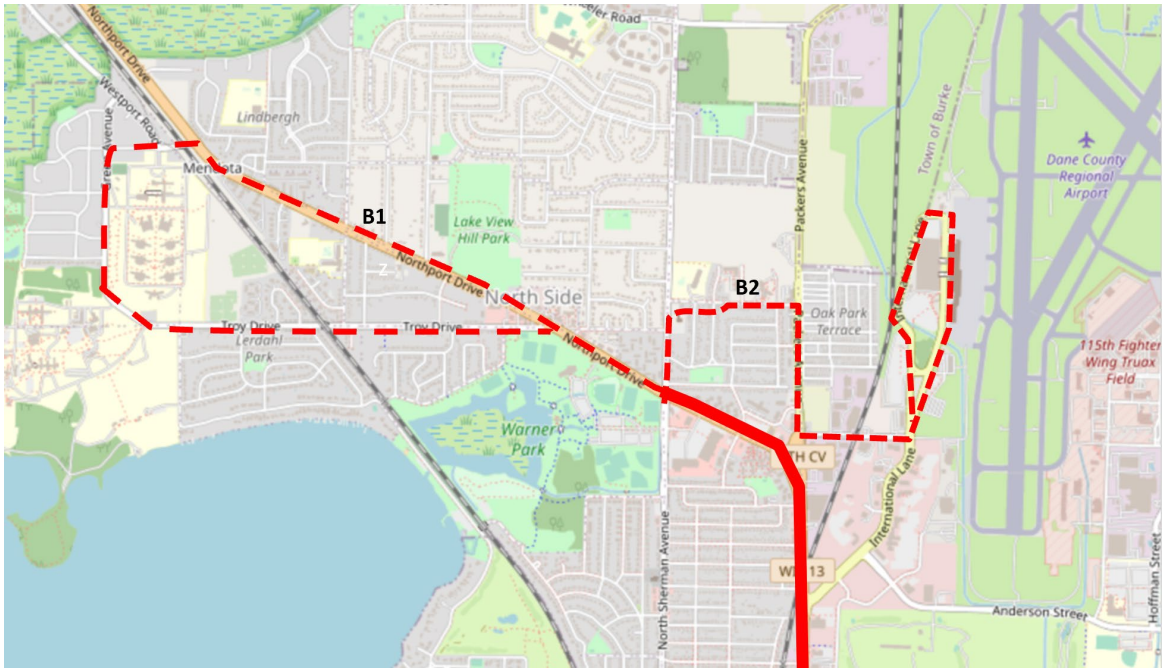
Multiple options considered to serve the Dane County Regional Airport, although the primary option considered was to split the route into two variation north of N. Sherman Avenue and Northport Drive, such that one variation (B1) would continue north west along the initially recommended Troy Drive loop, and another variation (B2) would travel north onto N. Sherman Avenue, east onto Tennyson Lane and then serve the airport. The B1 and B2 segments would function as local transit routes with 30 minute headways. The routing for this option considered are shown in Figure 10-2.

While a clear advantage of this option would be service to the airport, staff found the following disadvantages:

- Existing ridership nearly double on Troy loop
- Airport boardings currently low
- Troy loop - 150 daily boardings
- Airport loop - 60 daily boardings (including 18 at Airport)
- Would not improve frequency of service to airport; would decrease service frequency to Troy loop area
- Troy loop has serves approximately 6,500 people including 42% people of color and 36% lower income families
- Airport segment would serve approximately 500 additional people including 44% people of color and 51% lower income families

For these reasons, staff has dismissed this route option from the recommended locally preferred alternative.

Figure 10-2: Routing Option Considered to Serve the Airport



North Terminal Loop Options Dismissed

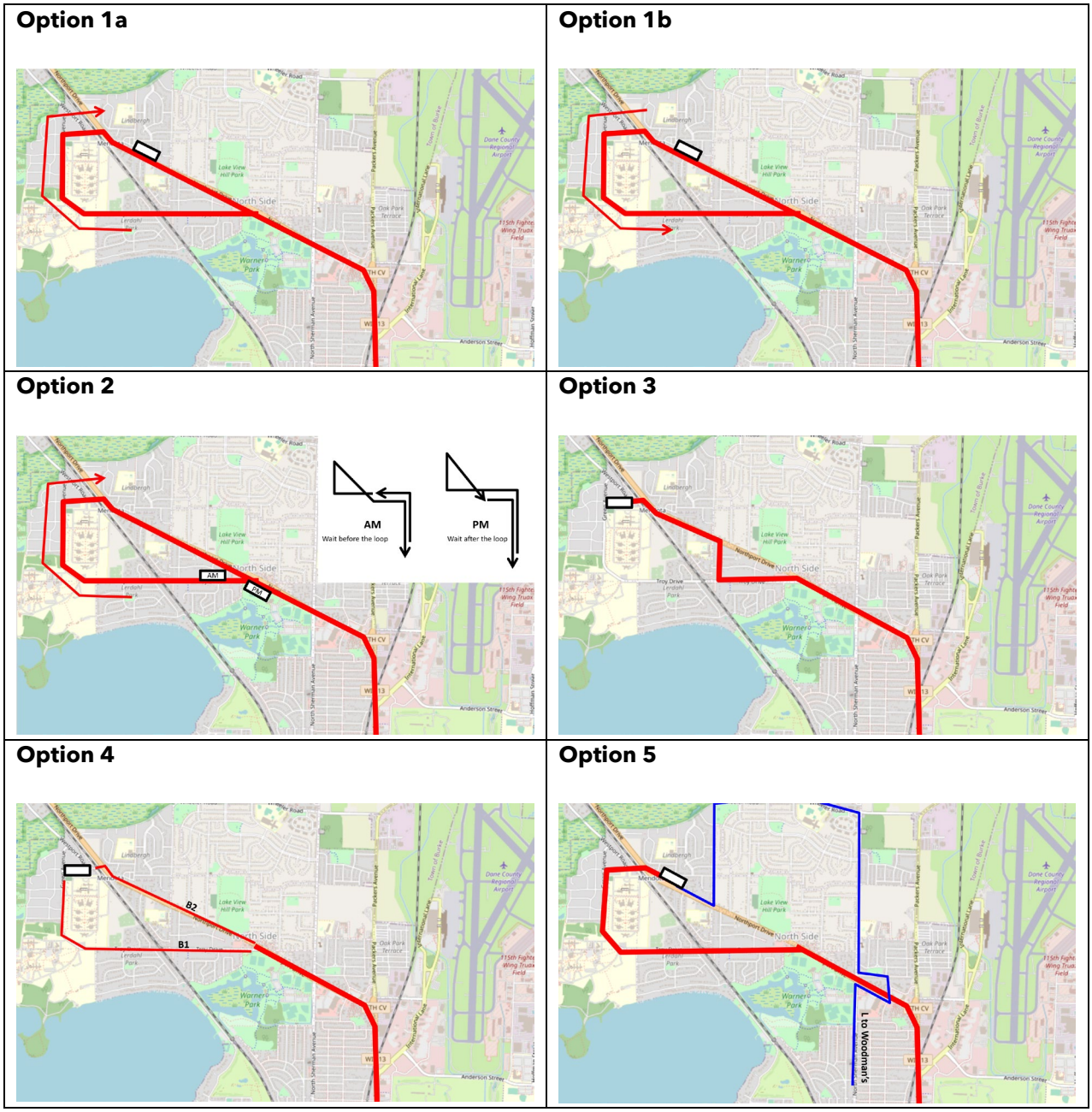
Several options for the north terminal loop were considered to serve the northern portion of the route. The loop generally runs along Northport Drive beginning at Troy Drive to Knutson Drive, continues on to Knutson Drive,

Green Avenue, and Troy Drive. Options considered are summarized in Figure 10-3 below and shown in conceptual maps in Figure 10-4.

Figure 10-3: North Terminal Loop Options

Option	Description	Benefits	Concerns
1	One-way clockwise loop with layover near Kennedy Drive	Few riders would have to sit through a layover	Finding space for a terminal station with space for layover and charging challenging
1a	One-way counter clockwise loop with layover near Kennedy Drive	Few riders would have to sit through a layover	Finding space for a terminal station with space for layover and charging challenging
2	One-way clockwise loop with layover before loop in AM and after loop in PM	Fewer riders would have to sit through a layover	Would require two charging points, changing routing could cause confusion
3	Eliminate loop in favor of routing on Troy Drive to School Road, to Northport, to Knutson, terminating on Knutson	Reduces overall route length and eliminates one-way loop	Not a good operating environment, would be difficult to serve Mendota Mental Health Institute
4	Split the route on each side of the loop, with terminal on Knutson	Reduces overall route length and eliminates one-way loop	May cause confusion, reduces frequency on both sides of the loop
5	Eliminate Northport Drive portion of loop between Troy Drive and Kennedy Road in favor of routing on Troy Drive, Green Avenue, and Knutson Drive with terminal at Northport Drive and Kennedy Drive	Eliminates one-way loop while prioritizing top origin and destinations	Increases route length, route travels on lower speed roadways

Figure 10-4: North Terminal Loop Options Considered

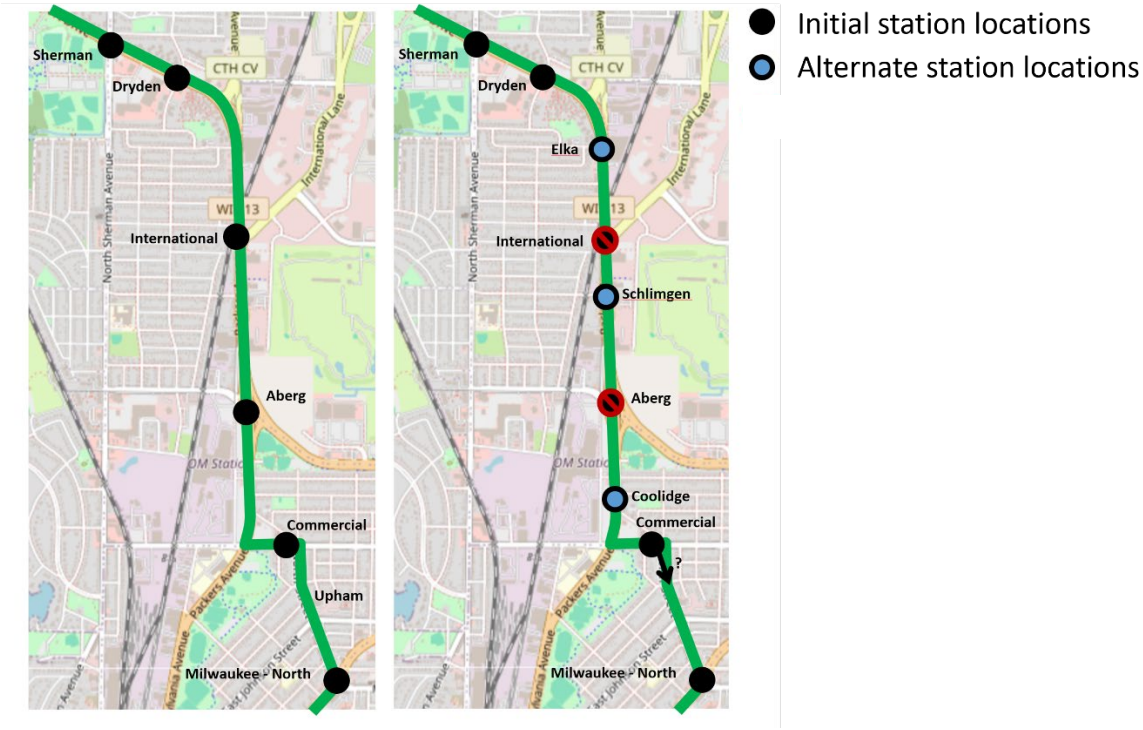


North Segment Station Locations

Packers Avenue Station Locations

Staff considered several options for northside stations on the portion of the route that runs along Packers Avenue and the portion that runs along Northport Avenue between Commercial Avenue and Sherman Avenue, shown in Figure 10-5.

Figure 10-5: North Segment Station Options Considered



Schlimgen, International, and Elka Station Options

A station at International Lane was initially considered in early planning for the project. It is a major intersection that would serve housing west of Packers Avenue well; however, development to the east consists of a suburban-style business park with a large number of employers. The large intersection is signalized but not conducive to pedestrian access.

Public feedback suggested staff consider a station at Schlimgen, which is adjacent to a new multifamily housing development and a school, among other residential and employment uses. This intersection is not currently signalized, but has an existing crosswalk that includes a rapid flashing beacon. If a station at Schlimgen Avenue was added it would be signalized, the station at International Lane would be omitted, and a station at Elka Lane would also be added to maintain the desired maximum of one-half mile station spacing along this portion of the route.

Existing bus stops are located at all three intersections, and current average weekday boardings for each stop is listed below:

- Elka Lane – 11
- International Avenue – 7
- Schlimgen Avenue – 19

To better serve residents and destinations in the area, respond to public feedback, and in an effort to locate stations in more pedestrian-oriented environments, staff recommends including a station at Elka Lane and Schlimgen Avenue and omitting the initially recommended station location at International Lane.

South Segment Routing

On the south portion of the corridor, to areas of the corridor were reviewed for routing options:

- South Park Street and Badger Road Intersection
- South Segment Route Extension

South Park Street and Badger Road Intersection

The South Park Street and Badger Road Intersection is an eight-lane intersection, just north of the Beltline Highway that serves large volumes of vehicles and, due to these characteristics, is not pedestrian oriented and can impact bus operations. Project staff considered a few options for stations and routing at and around the S. Park Street and Badger Road intersection.

Based on the benefits and concerns identified, staff recommends revising the route to operate on Hughes Place and Cypress Way with side-running stations located on Hughes place. This station will replace the South Transfer Point at Park Street and Badger Road and accommodate transfers between Rapid Route B and Routes G, H, and O. It will accommodate planned development in the area with a pedestrian connection to Madison College one block south on Badger Road.

During the second round of public involvement, differing opinions were expressed regarding routing on Hughes Place instead of through the S. Park Street and Badger Road intersection, with some concerned about travel delays and others concerned about traffic impacts on neighborhood streets in this area. Staff continues to recommend routing on Hughes Place as it is expected to result in nominal travel delays when compared to the Badger Road and S. Park Street intersection, since that is a highly congested area; that the station would be located in a more pedestrian-friendly environment; and that the development of a station on Badger Road would be technically challenging given the planned development for the area. Additional outreach with the neighborhood will be undertaken to minimize impacts and explore ways to alleviate impacts from additional bus traffic.

South Segment Route Extension

By request of leaders from the City of Fitchburg, and in response to public comments, staff reviewed options for extending the route further south into Fitchburg, terminating at Lacy Road near the Fitchburg Civic Center, as shown in Figure 10-6.

Figure 10-6: Fitchburg Extension Option Considered

The extension would install a high-quality transit route before much of the area develops, facilitating and encouraging a development style that is less reliant on cars and parking, but higher density and supportive of transit use.

Despite this benefit, staff identified several concerns with this extension at this time, including:

- No existing bus service in this portion of the corridor—expanding service from zero, to 15-minute bus rapid transit service is a significant increase in service levels with an unknown ridership base
- Locking the City of Fitchburg into funding at this operating level in perpetuity may not be ideal as ridership demand may not meet level of service for many years
- Capital cost would be about $6 million for additional stations and buses needed to serve the route with the extension, which may not qualify for Federal funding due to lack of existing ridership
- Extending the overall route length could reduce the project's overall rating by increasing the length and cost but adding no bus lanes and little additional ridership

Due to these challenges, the extension is not recommended at this time. At the writing of this report, Metro is in discussions with the City of Fitchburg to identify other ways to provide improved and expanded transit services to its residents and businesses, which may include extending service hours for the existing routes 65 and 75.

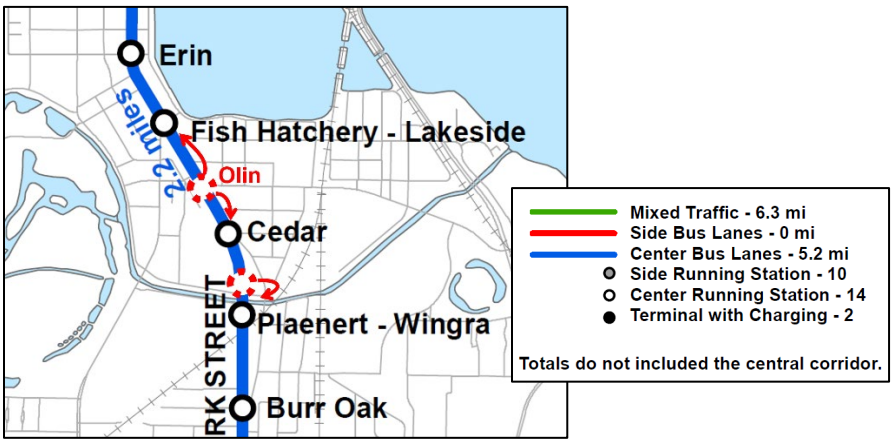
South Segment Station Locations

In South Madison, several different station options were considered between Erin Street and Burr Oak Lane. Existing bus stops in this area all have relatively high existing average daily boardings and many important destinations nearby. Options evaluated included:

- Fish Hatchery Road / W. Lakeside Street
  - Average daily boardings: 89
  - Serves UW Health clinic, large apartment building, residential, single family residences, and miscellaneous retail
  - Connection to Route O
- W. Olin Avenue
  - Average daily boardings: 73
  - Serves SSM Health clinic, multifamily and single family residential areas, and miscellaneous retail
  - Connection to Route O
- Cedar Street
  - Average daily boardings: 62
  - Serves new affordable housing apartments, and grocery store, single family residences, and miscellaneous retail
- W. Wingra Drive / Plaenert Drive
  - Average daily boardings: 33
  - Serves large employers, Madison Labor Temple, post office, miscellaneous retail, affordable apartments and single family residences

Initially staff recommended a station at Olin Avenue to maintain desired station spacing and best serve the route between Fish Hatchery Road and Cedar Street. However, after public feedback indicated the community would be better served by two stations in the area—split between Fish Hatchery Road and Cedar Street, staff updated the station recommendations accordingly, as shown in Figure 10-7. As suggested by public comment, including a station at both locations would improve access by reducing the distance between stations and better serve existing businesses and residents near Fish Hatchery Road and the new affordable housing apartments and future grocery store at Cedar Street. As a result of this change, staff also updated the recommended the station at W. Wingra Drive shift closer to Plaenert Drive for better station spacing distribution.

Figure 10-7: South Madison Station Reconfiguration



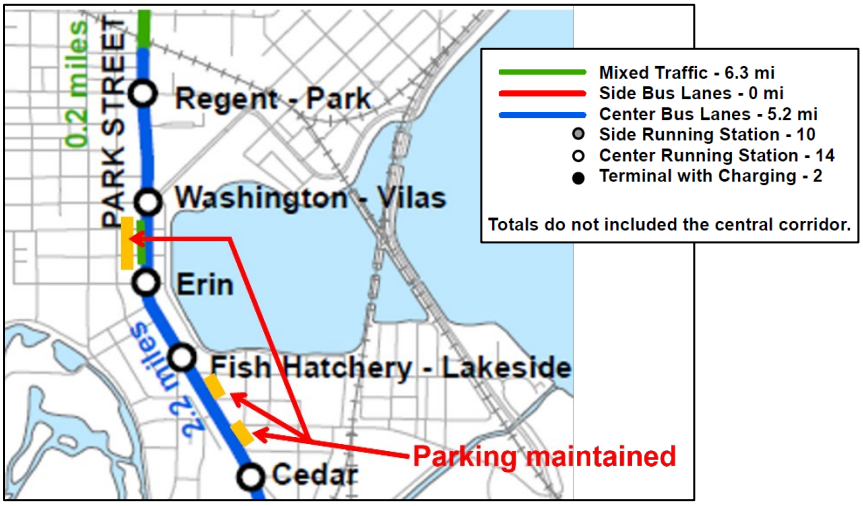
South Segment Runningway

Park Street Parking

The initial plan for the runningway along S. Park Street was to eliminate on-street parking or, where applicable, the right auxiliary lane, to provide space for a center-running dedicated bus lane while maintaining two travel lanes in each direction. After the first round of public involvement, several businesses that did not have designated off-street parking options (many of which are small businesses owned by people of color) expressed serious concerns about eliminating on-street parking near their location. As a result of this feedback, staff conducted additional outreach to businesses to gather more feedback and develop options that could retain some parking with limited impacts to bus operations.

Based on feedback, parking utilization data, alternative parking options available, and expected impacts to transit operations, staff recommends maintaining parking and loading zones on four blocks of South Park Street—specifically the southbound 400-600 blocks and the northbound 1000 and 1200 blocks. Buses will travel in a general purpose lane along the southbound 400-600 blocks of the route and a dedicated transit lane is recommended on all other portions of this corridor. A transit queue jump signal and lane markings will result in minimal impacts to bus operations while traveling in a mixed-traffic lane for this three-block stretch. Figure 10-8 shows the approximate location of where parking and dedicated bus lanes are recommended.

Figure 10-8: Small Business Parking Accommodated on S. Park Street



More details on the evaluation and outreach that impacted this recommendation are included in the S. Park Street Parking memo attached to this report.

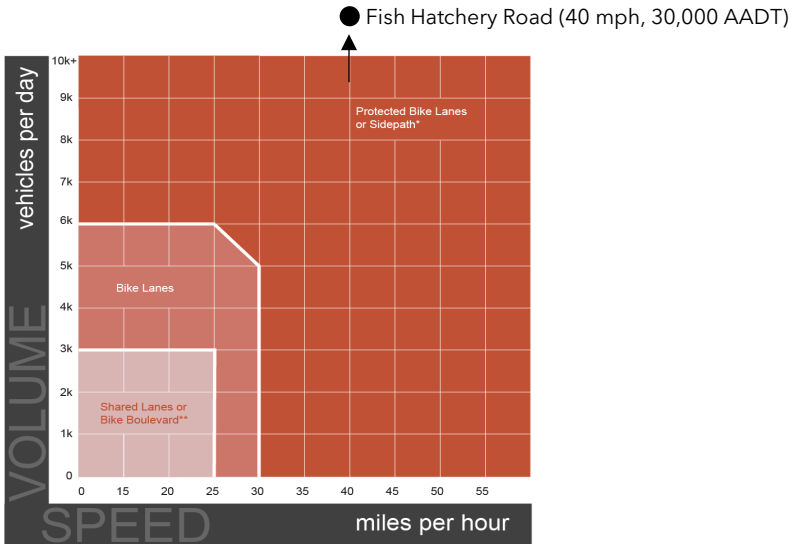
Fitchburg Bus Lane Location

As shown Figure 6-5, the recommended conceptual typical section in Fitchburg along Fish Hatchery Road between Greenway Cross and Caddis Bend includes a dedicated center-running bus lane, which would require eliminating the shared-bike aspect of the existing outside-running shared bus-bike lane.

Staff received feedback that included concerns about eliminating an on-street bike facility in this corridor, and reviewed options. However, a center running transit lane would maximize transit operations in the corridor, minimizing conflicts and improving reliability of the service, and the existing off-street path in this segment of

the corridor best meets the All Ages and Abilities[2] threshold for this type of roadway (see Figure 10-9). Since bicyclists will be well accommodated on that facility, staff is continuing to recommend center-running dedicated bus lanes in this segment.

Figure 10-9: Bike Facility Selection for All Ages and Abilities



[2] *Note: The speed limit on Fish Hatchery Road is 40 mph and this segment has an average annual daily traffic (AADT) count of approx. 30,000.*