



East-West BRT Planning Study

General Information and Project Background

MADISON EAST-WEST BRT PLANNING STUDY

Moving Madison Transit Initiative

The NEED

- Madison is Attractive for All
- Madison is Growing

The PROBLEM

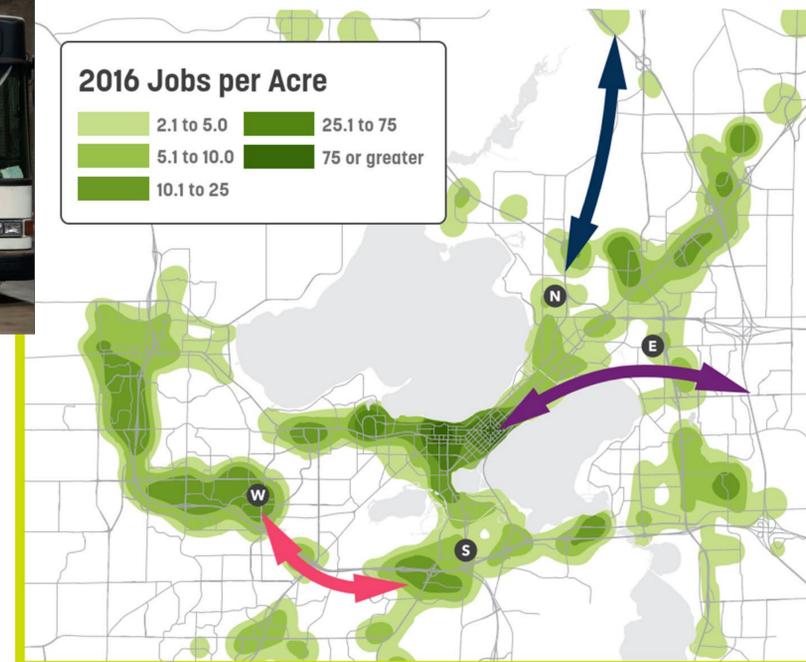
- Madison's Growth Cannot be Sustained by the Automobile Alone
- Metro Transit has Existing Challenges

The SOLUTION: MovingMadison

- Rehabilitate Metro Bus Garage on E Washington Avenue
- Satellite Bus Garage
- Transit Priority
- Bus Rapid Transit
- Serve Outlying Communities
- Improve Peripheral Bus Service
- Expand and Add Park and Ride Lots
- Electric Buses

The RESULTS

- Moving Madison is a Substantial Investment that takes our Transportation Network to the Next Level

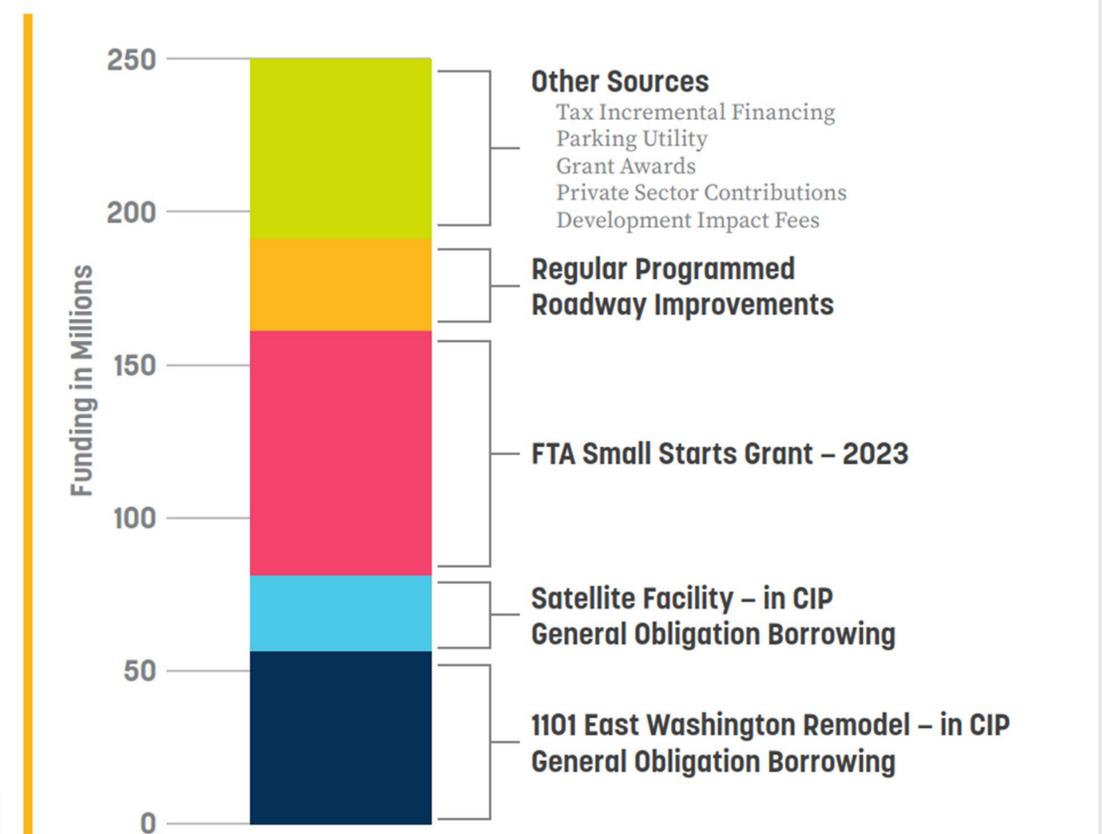


Shared ride access to peripheral employers.

Late night shared ride service for shift workers.

More efficient access to employers within Metro service area.

Potential Capital Funding



MADISON EAST-WEST BRT PLANNING STUDY

Project Development Process

DESIGN



We
Are
Here

2019

2020

2021

2022

2023

2024

FUNDING

Identify Locally Preferred Alternative (fall to winter)
Request Entry into Project Development

Federal (FTA) Project Development

Start Federal (FTA) Project Development Process

Request Eligibility Review from FTA

Apply for FTA Capital Funding

Receive Capital Funding from FTA

CONSTRUCTION

Begin Service

ENVIRONMENTAL

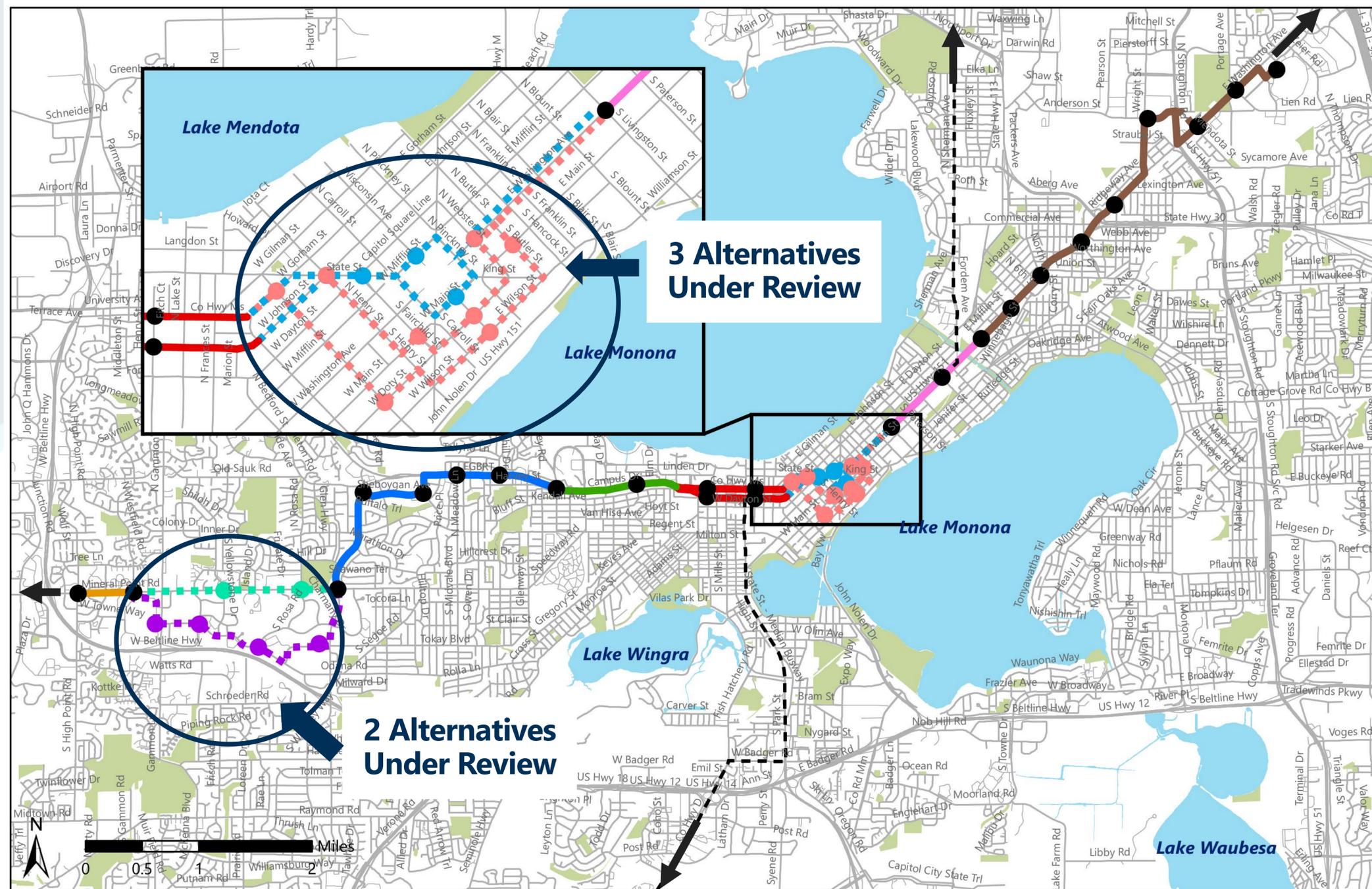
Start Analysis

Receive Clearance from FTA



MADISON EAST-WEST BRT PLANNING STUDY

Working Locally Preferred Alternative Route



Madison East-West BRT Planning Study

- Potential Station Location
- Future North-South BRT
- Segment 1
- Segment 2: Mineral Point Rd Option
- Segment 2: Odana Rd Option
- Segment 3
- Segment 4
- Segment 5
- Segment 6: State Street Option
- Segment 6: Henry/Wilson Option
- Segment 7
- Segment 8
- Segment 8 Mendota Option
- ← Future BRT Extensions



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MADISON EAST-WEST BRT PLANNING STUDY

Goals and Objectives

GOAL	OBJECTIVE	EVALUATION PHASES		
		Tier 1: Defining Project Alternatives (qualitative analysis)	Tier 2: Evaluating Alternatives (qualitative & quantitative)	Tier 3: Refining Preferred Alternative (quantitative & qualitative)
Increase the efficiency, attractiveness, and utilization of transit for all users	<ul style="list-style-type: none"> • Provide reliable, frequent service that improves the experience of existing customers and attracts “choice” riders • Provide capacity for future growth in transit ridership • Provide enhanced passenger amenities and infrastructure • Reduce travel times 	<ul style="list-style-type: none"> • Typical ridership capacity • Service reliability 	<ul style="list-style-type: none"> • Ridership • Transit travel times 	<ul style="list-style-type: none"> • Mobility improvements^a
Efficiently manage the forecasted increase in corridor travel demand	<ul style="list-style-type: none"> • Provide frequent, high-capacity, one-seat transit connections between key East-West BRT Corridor activity generators • Manage increasing corridor travel demand through more efficient use of the existing transportation network • Contribute to acceptable levels of traffic operations and parking supply in the corridor • Improve pedestrian and bicycle connections to East-West BRT Corridor transit • Coordinate with existing and planned transit services 	<ul style="list-style-type: none"> • Connectivity between population and employment centers 	<ul style="list-style-type: none"> • Traffic impacts • Parking impacts • Potential right-of-way impacts • Bicycle and pedestrian impacts 	<ul style="list-style-type: none"> • Mobility improvements^a • Congestion relief^a
Contribute to a socially-, economically-, and environmentally-sustainable transportation network	<ul style="list-style-type: none"> • Promote a more efficient and sustainable transportation system that reduces energy usage, emissions, and costs of living • Increase mobility and accessibility for transit-dependent populations • Support regional planning efforts for a more balanced, multi-modal transportation network in the region • Support local and regional goals for compact, mixed-use development along the corridor • Support institutional and key stakeholder planning efforts 	<ul style="list-style-type: none"> • Environmental impacts (visual, natural) • Demonstrated ability to catalyze economic development • Consistency with existing corridor character • Compatibility with local and regional plans 	<ul style="list-style-type: none"> • Station area population and employment densities • Station area equity characteristics • Station area land use and economic development opportunities • Environmental impacts/benefits 	<ul style="list-style-type: none"> • Economic development^a • Land use^a • Environmental benefits^a
Develop and select an implementable and community-supported project	<ul style="list-style-type: none"> • Define and select transit improvements with strong public, stakeholder and agency support • Define and select transit improvements that are cost-effective and financially feasible, both in the short- and long-term • Define and select transit improvements that are competitive for FTA funding 	<ul style="list-style-type: none"> • Typical per-mile capital cost • Community support 	<ul style="list-style-type: none"> • Capital and operating and maintenance costs • Cost effectiveness • Community support 	<ul style="list-style-type: none"> • Financial capacity analysis^a • Cost effectiveness^a

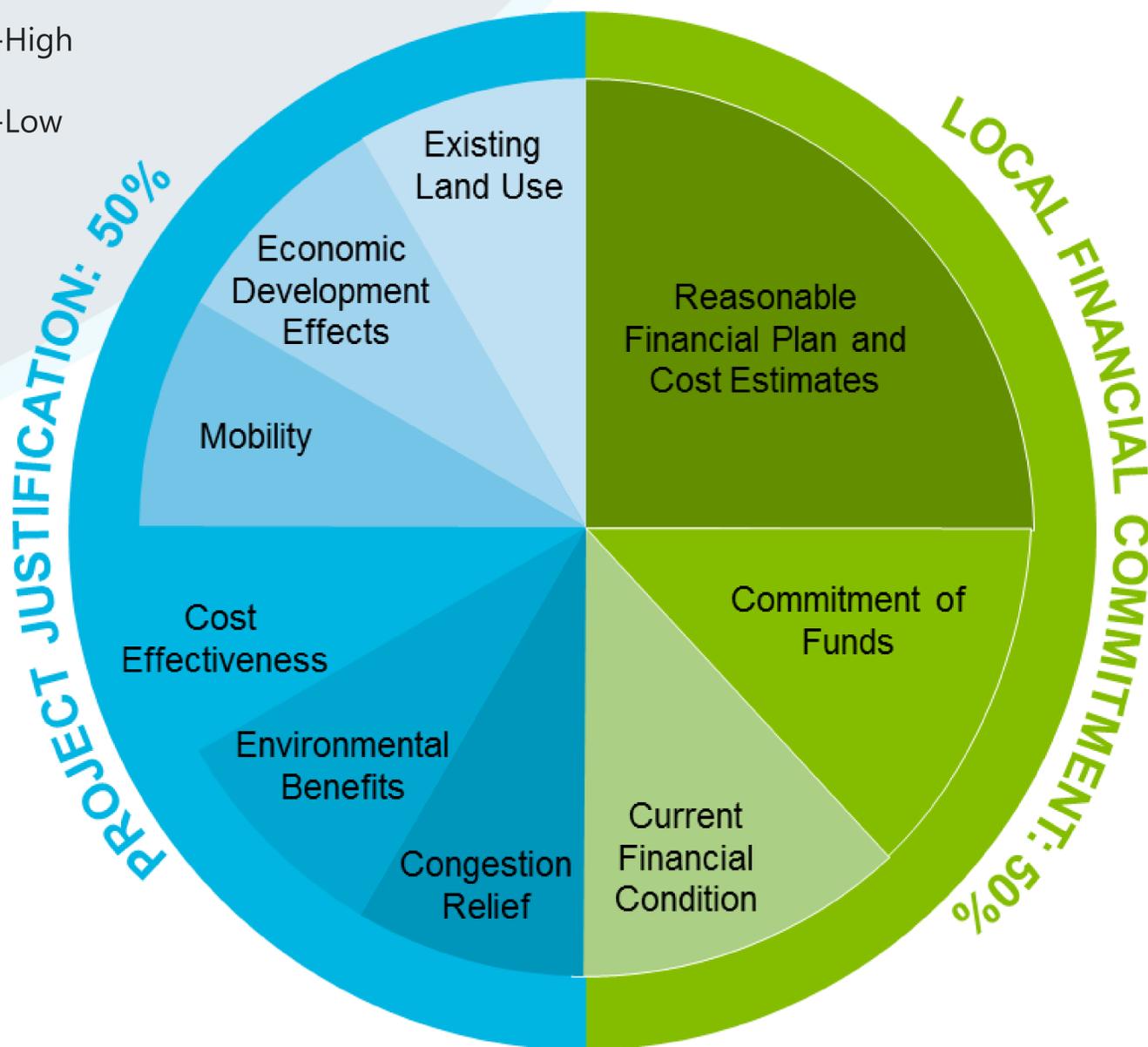
MADISON EAST-WEST BRT PLANNING STUDY

FTA Small Starts Evaluation Criteria

Projects must receive an **average “Medium” rating** from the Federal Transportation Administration (FTA), for both the **Project Justification** and **Local Financial Commitment**, in order to enter into the “Small Starts” grant application process.

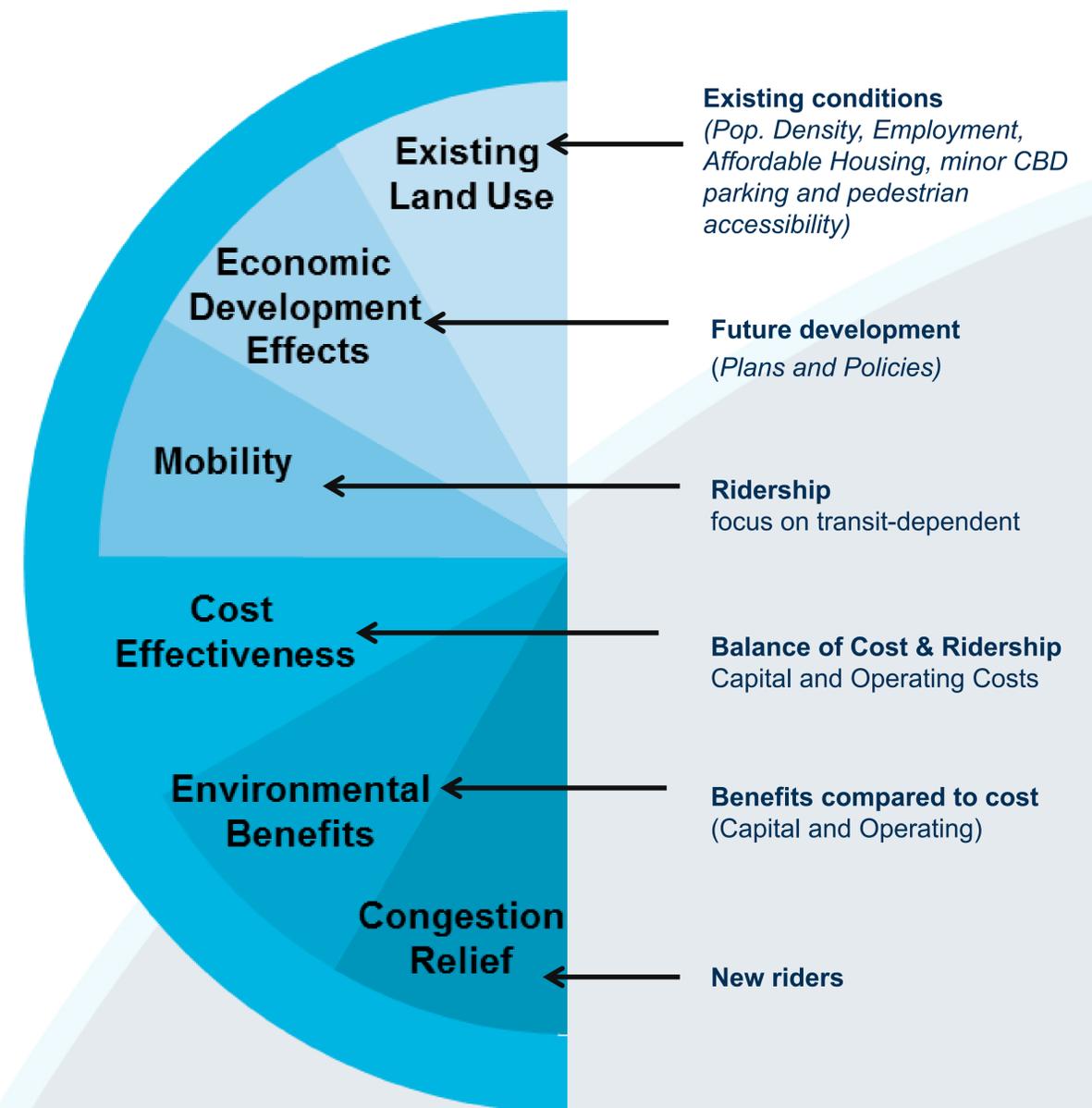
FTA rating scale applied to **each** piece of the pie:

- High
- Medium-High
- Medium
- Medium-Low
- Low



Details of Project Justification

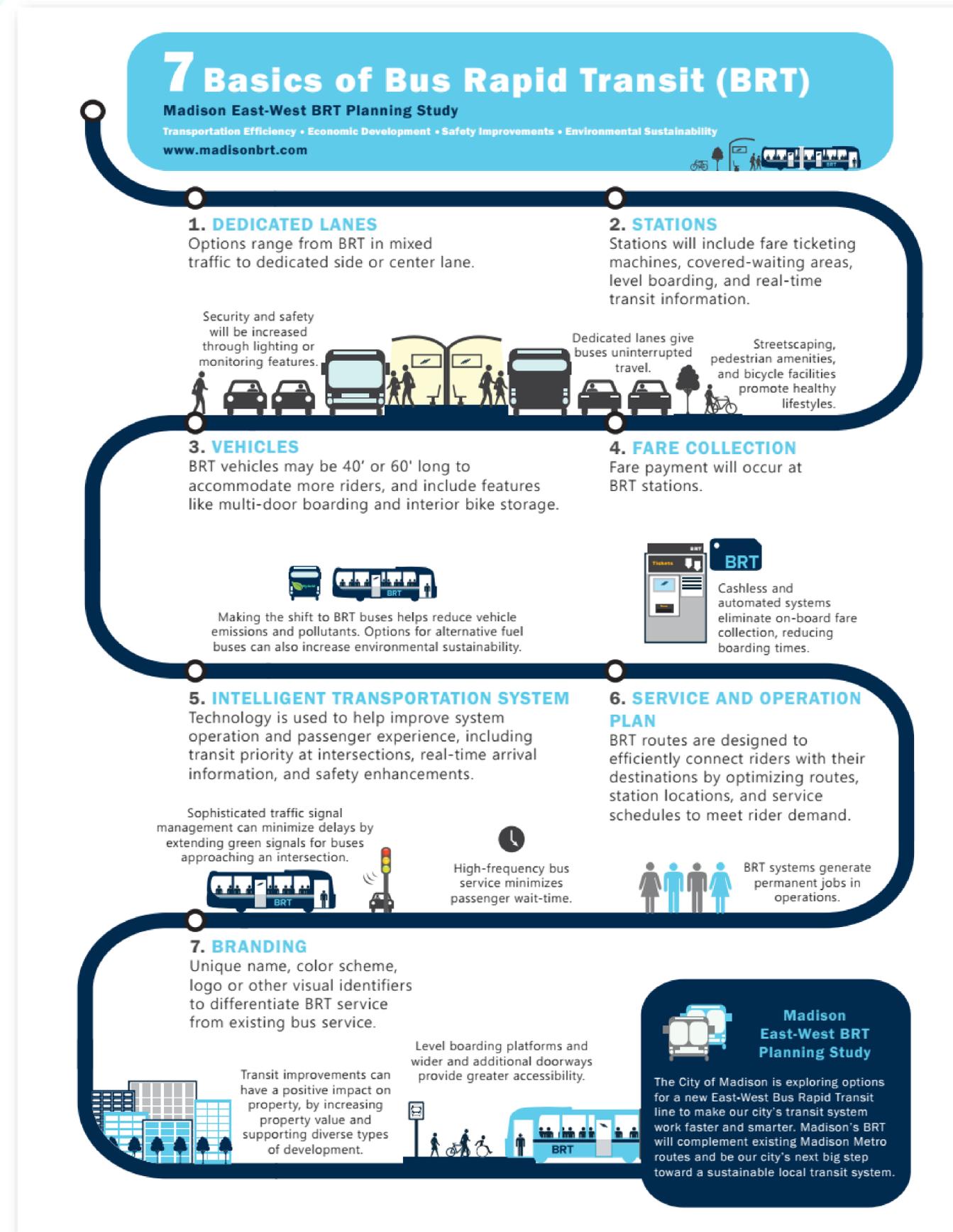
This information is being compiled as part of the current planning study, to develop Madison’s application for Federal funding.



MADISON EAST-WEST BRT PLANNING STUDY

Benefits of BRT

- Improved mobility
- Future growth and development
- Improved access to employment and education
- Increased quality of life
- More sustainable community



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AECOM

MADISON EAST-WEST BRT PLANNING STUDY

What is BRT

- **Branded stations and buses**
 - Goal is 100% electric!
- **Direct routes/fewer stops**
- **Frequent, all-day service (every 10-15 minutes)**
- **Transit signal priority**
- **Off-board fare payment**
- **Bus-only lanes where feasible**



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MADISON EAST-WEST BRT PLANNING STUDY

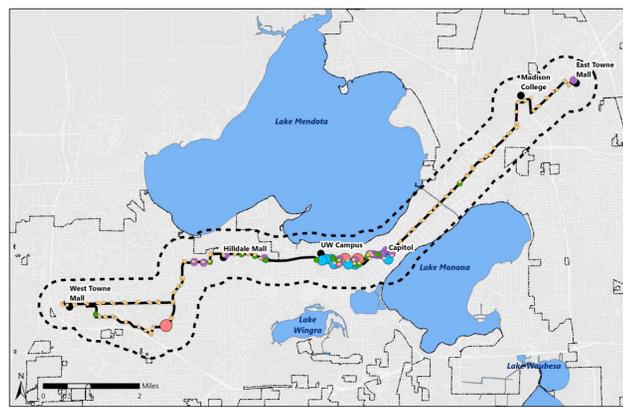
Purpose and Need

The purpose of the Madison East-West BRT Planning Study is to identify and implement the optimal transit investment strategy that will accommodate the anticipated growth in travel demand and increased ridership within the corridor, support mobility options that match emerging demographic trends and preferences, leverage the existing transportation infrastructure to improve connectivity within the corridor, and encourage sustainable development patterns that reduce reliance on single-occupant motor vehicles.

Project Need #1: Improve Travel Times throughout the Corridor

Current transit travel times are about 41 minutes from the far west side to downtown and 32 minutes from the far east side to downtown. There are an estimated 20,000 boardings on the bus stops that are currently on the proposed BRT alignment. There are an additional 21,000 boardings within a half-mile of the alignment.

Weekday Boardings at Bus Stops throughout the Corridor

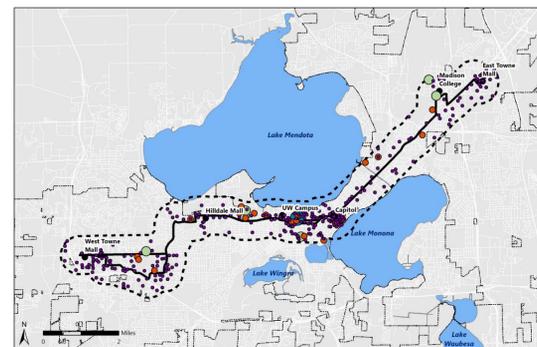


Legend for Weekday Boardings Estimate: 0 - 100, 101 - 200, 201 - 500, 501 - 1,000, 1,001 - 1,851. Other symbols include Potential Corridor Alignment, Madison City Limit, Point of Interest, and Corridor Alignment Study Area.

Project Need #2: Provide higher and more regular service levels connecting all neighborhoods to services and employment

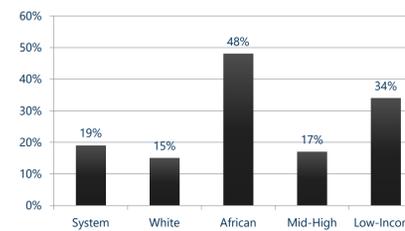
Equity is a top priority of City leaders, and any investment in transit should serve those who have the greatest need, including low-income populations and transit-dependent individuals and households. Transit should provide efficient connections to jobs and centers of employment.

Employers with At Least 50 Employees

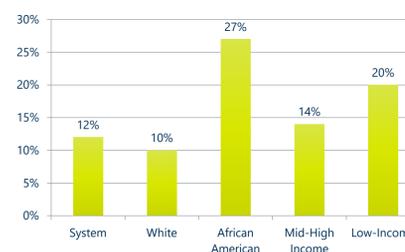


Legend for Employers with At Least 50 Employees: 20-49, 50-99, 100-499, 500-999, 1,000-3,100, 3,101-11,000. Other symbols include Corridor Alignment Study Area, Point of Interest, Potential Corridor Alignment, and Madison City Limit.

Bus Transfer Rates



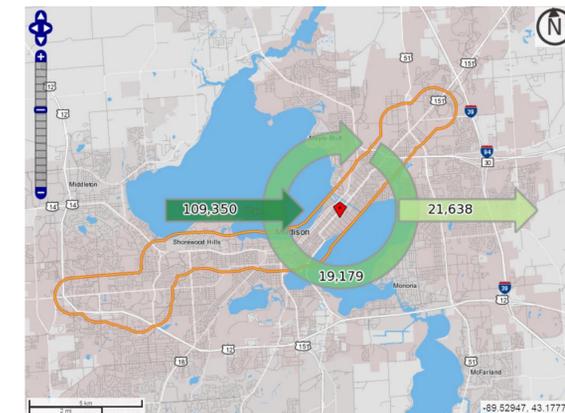
Share of Transit Riders with Travel Times that exceed 45 minutes



Project Need #4: Accommodate increased travel demand to and from existing and planned developments, services, jobs and destinations through multi-modal transportation investments

Approximately 120,000 motor vehicles pass through the Isthmus on an average weekday. Downtown streets are already physically constrained by the lakes; therefore, it is not feasible to add additional travel lanes. Providing high-capacity BRT will more efficiently and quickly move people through the most congested area of the city and will better meet future demands for travel.

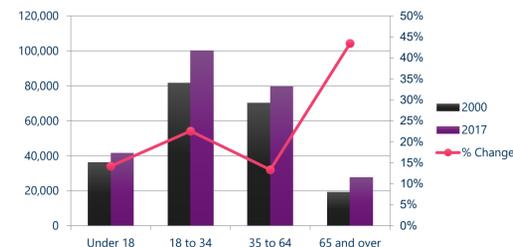
Inflow/Outflow of Workers and Residents in the Corridor



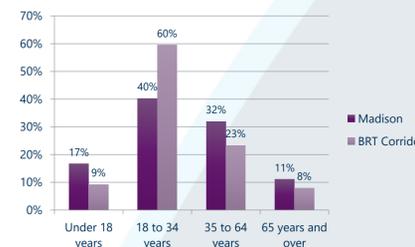
Project Need #3: Provide service that meets the needs of everyone, particularly millennials and seniors

Since 2000, Madison has seen significant increases in the number of 20 to 34 year olds and 50 to 64 year olds. Even though the number of people between ages 60 and 64 has doubled since 2000, the large increase in millennials has driven down the city's median age.

Percent Change in Population by Age Group



Population Age Distribution for City of Madison and BRT Corridor



Project Need #5: Invest in sustainable options that are consistent with local/regional plans and future technology

The *Imagine Madison*, *Madison In Motion*, and RTP 2050 plans all call for a transportation system that accommodates transportation demands while easing congestion, promoting air quality, and supporting affordable housing goals, sustainability, and energy conservation. Transit service also plays a critical role in increasing access to services. A high-capacity BRT transit system investment that leverages existing transportation facilities while reducing reliance on single-occupant motor vehicles will be necessary to achieve these goals.

The East-West BRT will meet this need by:

- Reducing pollutant emissions and single-occupant motor vehicles
- Following corridor, municipal and regional plans
- Being ready to adapt future technologies, such as automated bus and intelligent transportation systems

Why Bus Rapid Transit?

Madison is attractive and our transportation needs are growing



Madison has grown and is growing. Our housing and employment growth is explosive, and future projections indicate this momentum will continue.

Top 5 city for software and developer salaries

Top 10 City for Young Entrepreneurs

One of the highest concentrations of millennial talent in the country

3rd Best Place to live in the nation

Madison is one of only 11 of America's largest 100 metro areas to see employment and wage gains for both with and people of color since 2010. Our diverse economy is number one in America for industry diversity and number one for tech momentum.

+ 14,000 dwelling units added in last 5 years

3.3 million sf

of office, commercial, and industrial space added since 2016

+100,000 residents added to Dane County by 2050

+85,000 jobs added in Dane County by 2050

This growth is creating transportation challenges



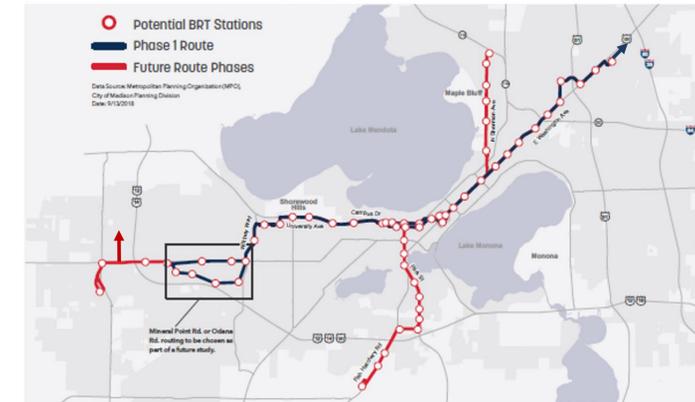
180,000 Daily trips have been added in the last 3-5 years

If we focus on automobile expansion only, the Madison area projected job growth would require adding one to two lanes in both directions to East Washington Ave, University Ave, Park St, and other arterials. It also would require doubling the public and private parking spaces available.

This type of capacity expansion isn't feasible or sustainable.



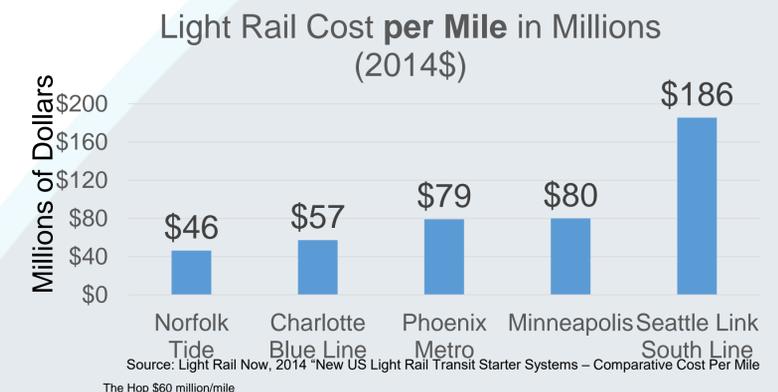
PLANNED BRT SYSTEM



Why Not Light Rail?

The Federal Transit Administration is funding more and more Bus Rapid Transit projects because it is a cost-effective alternative to rail projects. In fact, a special federal funding program (Small Starts) was established to help encourage mid-sized cities to enhance their transit systems, utilizing BRT. In 2018, more miles of BRT were funded than any other type of transit. The graph below shows the cost per mile of light rail projects. The recently completed HOP streetcar in Milwaukee cost about \$60 million per mile. If the 15-mile network being proposed in Madison were a light rail project, the capital costs could exceed \$1 billion. In contrast, the proposed BRT project will cost about \$8.5 million a mile (which includes a fleet of new articulated electric buses). This cost per mile is just 15 percent of the cost of Milwaukee's HOP.

15 miles – West to East Madison - \$8.5 million/mile



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OF TRANSPORTATION

What is Bus Rapid Transit?

In 2018 the Federal Transit Administration funded more miles of bus rapid transit than any other type of transit improvement. More and more cities are using BRT to address their most critical transportation challenges. BRT has:

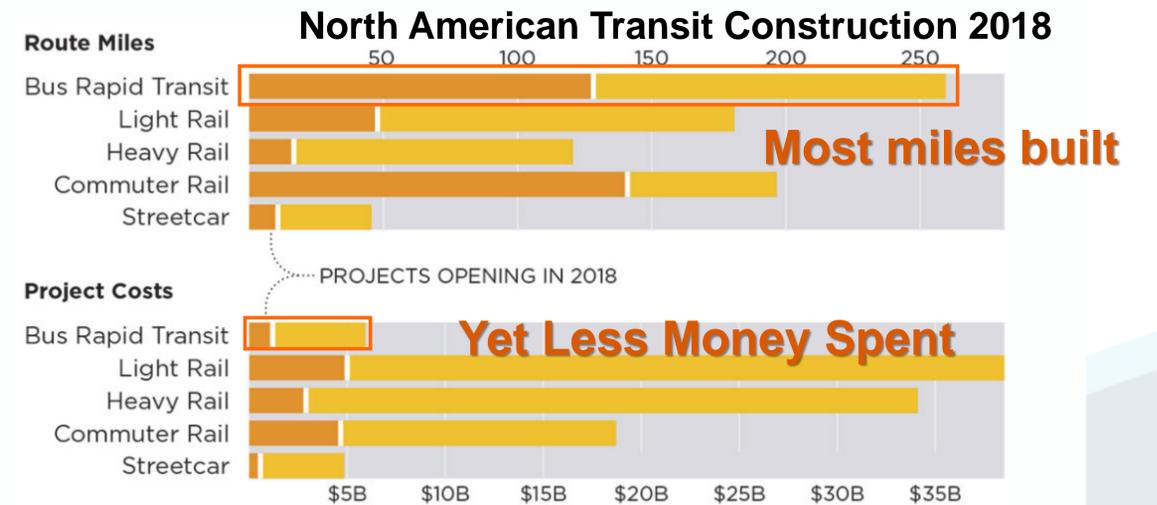
- Very high level service, similar to but one step down from light rail.
- Typically over 50 percent of the route will have dedicated bus lanes, giving buses an advantage in congestion.
- 10-15 minute service levels - 6 am to 12 midnight.
- Used in many growing urban areas such as *Boston, Chicago, Cleveland, Phoenix, San Diego, Seattle, San Francisco, and many others.*



Cleveland's Health Line BRT



Example of dedicated bus lanes



Source: The transportpolitic.com. Graphic by Haisam Hussein based on graphic by Yonah Freemark.

Economic Benefits of BRT

Many cities, such as Cleveland Ohio, have seen significant economic investment along their BRT corridors. Madison is investing in transit because *it is critical* to meeting our growing *transportation* needs. However, it is likely that we also may see the community and business benefits that other cities have experienced.

For every \$1 communities invest in public transportation, approximately \$4 is generated in economic returns APTA

\$9.5 billion in economic development along BRT corridor in Cleveland

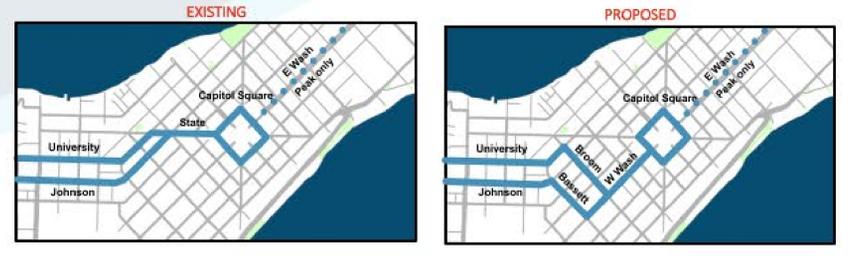
The HealthLine has been credited with having *the highest return-on-investment of any public transit project* in the nation, leveraging \$190 for every transit dollar invested.

Downtown Alternatives

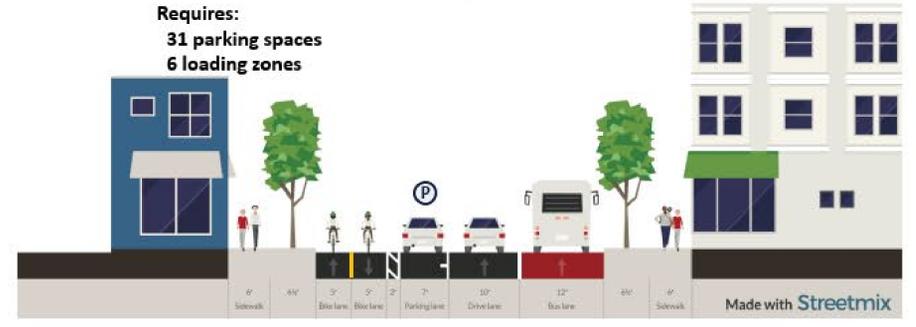


State Street Reroute Associated with Alternative 1

Example Routes 14 and 15



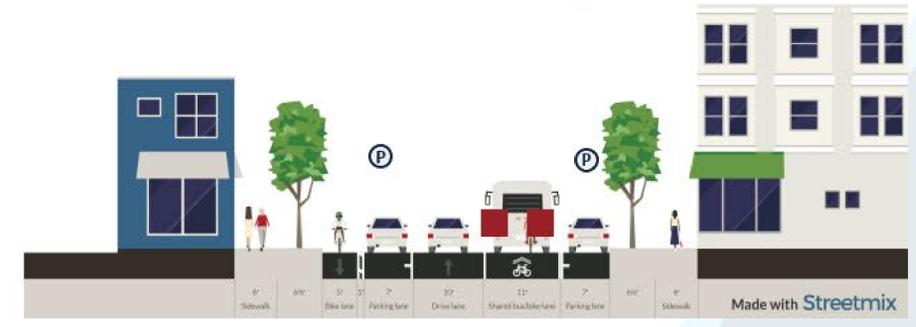
Wilson Street – Two-way Cycle Track



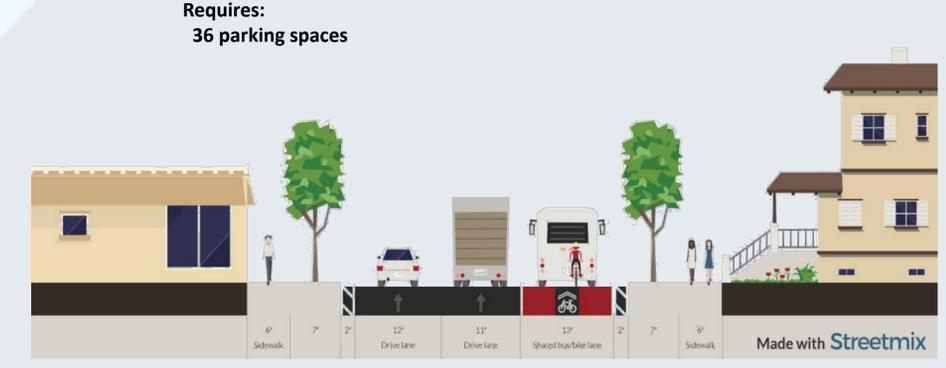
Broom Street Contra-flow Lane



Wilson Street – Contraflow protected bike lane - Shared bike/bus lane



Broom Street Bus Lane



Buses on State Street Reduced



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