

East-West Corridor High Capacity Transit Plan

Rapid Transit Evaluation Results



About the Corridor

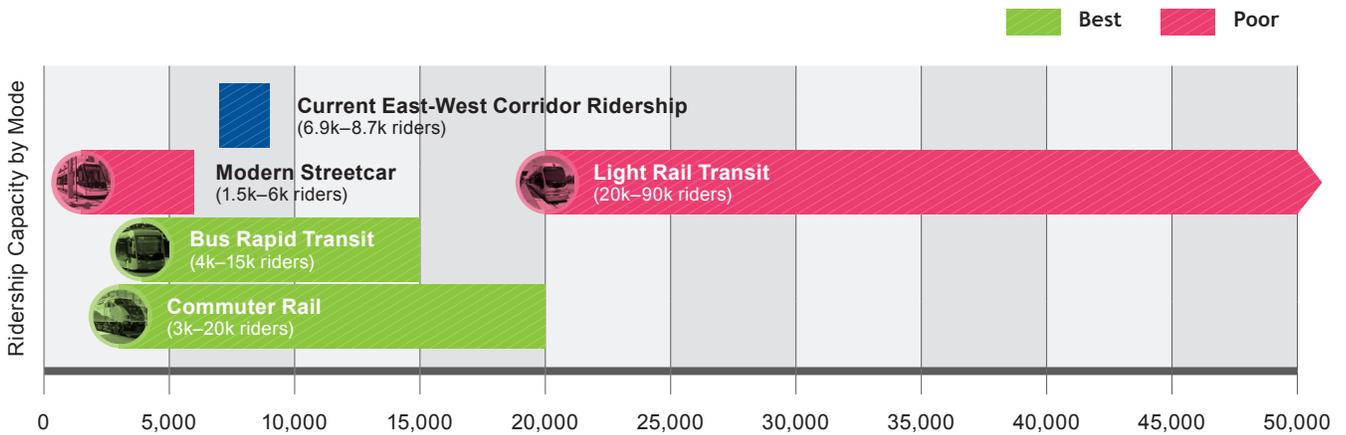
The AECOM consultant team conducted a high-level analysis of commuter rail, light rail transit (LRT), streetcar and bus rapid transit (BRT) to determine the most appropriate mode for the East-West Corridor. Based on the corridor fit, ridership capacity, cost per mile to build/operate and available right-of-way, BRT will move forward for more detailed analysis. This fact sheet provides, in more detail, how BRT and LRT compared and why BRT was determined to be the best fit.

BRT with LRT Screening Results

Below are the similarities and differences between bus rapid transit (BRT) and light rail transit (LRT).

Features	Bus Rapid Transit (BRT)	Light Rail Transit (LRT)
Service Frequency	Frequent service during peak hrs. (5–15 min.)	Frequent service during peak hrs. (5–15 min.)
Typical Corridor Length	5–25 mi.	10–20 mi.
Range of Operating Speed	25–55 MPH	30–55 MPH
Right-of-Way	Dedicated lanes and/or mixed traffic	Dedicated lanes with overhead electrical systems
Typical Station Spacing	½ and one mile apart	One mile apart, outside of downtowns
	Level boarding at high-quality stations	Level boarding at high-quality stations
Vehicle Types	▶ 40- or 60-ft. buses that have multiple doors	▶ 1–3 car trains; low floor vehicles
Technology	Traffic signal priority	Traffic signal priority
	Real-time passenger info	Real-time passenger info
	Off-board fare payment	Off-board fare payment
Typical Operating Cost per Hr.	▶ \$100–\$200	▶ \$200–\$400
Typical Capital Cost per Mi.	▶ \$2.5 million–\$20 million	▶ \$140 million+

Ridership Capacity by Mode



The chart above demonstrates that BRT and commuter rail both have the needed capacity to meet ridership needs. However, commuter rail operates on freight railroad tracks, thus this is not the best corridor fit.

Peer System Ridership Growth Rates for BRT and LRT

		Location	Percent Increase in Ridership After Implementation
Bus Rapid Transit Peers	Community Transit – SWIFT BRT	Snohomish County, WA	+11%
	Cleveland Healthline BRT	Cleveland, OH	+31%
	Metro Transit A Line BRT	Minneapolis, MN	+32%
	Grand Rapids Silver Line	Grand Rapids, MI	+35%
Light Rail Transit Peers	Charlotte Lynx Blue Line LRT	Charlotte, NC	+10%
	Utah Transit Authority – TRAX LRT	Utah Transit Authority – TRAX LRT	+23%
	Metro Transit Green Line	Minneapolis, MN	+25%
	Valley Metro LRT	Phoenix, Arizona	+35%

Experience across the country shows that, once a rapid transit investment is made, ridership growth can range from approximately 11% to 35%. This demonstrates that BRT will best meet expected ridership demands in the East-West Corridor for at least two decades.

Mode Evaluation Findings

As part of the initial screening portion of the project development process, four modes were analyzed across the following five metrics and given a grade of either best, good, fair or poor in each. Based on this analysis, BRT is moving forward for more detailed evaluation. [THE RESULTS](#) ▶

Best
 Good
 Fair
 Poor

Mode	Corridor Fit	Ridership Capacity	Cost per Mile per Station	Operating Cost per Hour	Availability of Right-of-Way
Bus Rapid Transit	Best	Best	Best	Best	Best
Light Rail Transit	Good	Poor	Poor	Good	Good
Modern Streetcar	Poor	Poor	Fair	Good	Good
Commuter Rail	Poor	Best	Good	Poor	Poor

Frequently Asked Questions

Q

How is future ridership determined?

A

The ridership forecasts which will be developed as part of the detailed evaluation will represent both current year (pre-COVID) ridership and horizon year (2040) ridership. The ridership for current year and horizon year will be based on the regionally adopted socio-economic data (e.g. population, employment, access to an automobile, etc.).

MORPC is responsible for generating the growth forecasts that feed into our ridership projections. In other words, MORPC’s insight2050 “one million more” people projected to be in Central Ohio by 2050 is an assumption in our ridership forecasts. The federal government requires that we use the FTA STOPS model and these regional growth forecasts when pursuing federal capital funding. This ensures transit systems across the U.S. are using the same methodology. For more on FTA’s ridership forecasting process, see transit.dot.gov/funding/grant-programs/capital-investments/stops.

Q**How will this differ from (or be similar to) the existing BRT on Cleveland Ave.?****A**

Defining the scope and scale of BRT investment in the corridor is the major output of this study. Features that are under consideration for the East-West Corridor that are not currently present in the Cleveland Ave./CMAX include:

- ▶ Majority dedicated lanes
- ▶ Zero-emission or electric vehicles
- ▶ Near-level boarding at stations
- ▶ Board/alight via any vehicle door
- ▶ Off-board fare collection
- ▶ Transit signal preemption
- ▶ Complete Street improvements

The design of BRT within the East-West Corridor will be context-sensitive to the surrounding neighborhood and potential ridership. (BRT will likely look different in downtown Columbus than in Reynoldsburg, and Hilltop may look different than Bexley.) The Technical Group, Stakeholder Group and the public will be invited to provide input on the design through online surveys and virtual work sessions.

Q**Are you planning to dedicate lanes as part of this project? How does that make a difference in service?****A**

It is our goal to provide dedicated lanes wherever possible throughout the East-West Corridor. Dedicated lanes can improve speed and reliability compared to conventional bus service that operates in mixed traffic. The analysis we are conducting now will identify the benefits and impacts of dedicated lane operations throughout the corridor. We will be sharing the analysis process and results at upcoming stakeholder and public meetings.

Q**How “easy” is it to convert BRT to LRT in the future? Are there any examples of a BRT to LRT conversion in other cities?****A**

The Downtown Seattle Transit Tunnel with bus-only lanes opened in 1990. One bus lane was converted to an LRT line that opened in 2009. Bus service operated alongside LRT in the tunnel until 2019, when a second LRT line was added and several bus routes moved to surface streets. It was not inexpensive to make these conversions but still cost less than had the right of way not already been preserved. The potential conversion of BRT to LRT or other higher capacity transit mode of the future will be dependent on attracting increased ridership, which will require changes in zoning and land uses, including policies regarding parking and creation of a walkable environment along the corridor. Allowing for and focusing development along the corridor will provide density of both residents and jobs to promote ridership and support a higher capacity transit mode. It is also possible that some new mode will emerge. Preserving dedicated lanes now leaves open possibilities to evolve to new service models in the future.

Q

Are there things we can oversize or upgrade into a BRT design now that makes the conversion to LRT easier, like making stops bigger?

A

The best way to support the future conversion to a future higher capacity transit mode is to dedicate right-of-way, or a portion of it, exclusively for transit. Not only will this reserve the space within the right-of-way for transit into the future (like Seattle), but it will also signal to the development community Columbus's long-term commitment to transit in this corridor. Experience in other cities has shown this encourages developers to invest in developing and reinvesting along the corridor. Additional short-term benefits of this solution include improved travel times and reliability, which can reduce BRT service costs and help build ridership in the corridor.

Q

What vehicles are being considered for the East-West HCT Corridor? Are electric vehicles being considered? What features are available for BRT vehicles (e.g. air filtration or technology)?

A

Vehicle selection for the East-West HCT Corridor will not occur for a few years, but COTA will continue to monitor and explore various features for its BRT vehicles based on public input and the latest technology. COTA's goal is to be 100% diesel-free by 2025, which could include Compressed Natural Gas (CNG) or electric vehicles. COTA will make additional choices for air filtration and technology when the vehicle purchase process begins later.

Q

Was public perception of each mode for bus rapid transit and light rail transit considered in the analysis?

A

There may be perceptions around the reliability or timelines of each mode, but neither reliability nor timeliness of a mode are determined by rubber tires versus steel rail. Other amenities such as dedicated lanes can provide much needed reliability improvements. Reliability can also be enhanced by near level boarding, off-board fare collection and transit signal priority. There are always trade-offs between rail and bus, however for the East-West HCT Corridor it is important to match the appropriate mode to the identified needs and ridership levels.

It is important that the selection of mode for premium rapid transit in the East-West HCT Corridor is federally competitive based on Federal Transit Administration (FTA) criteria: compatible with anticipated ridership, consistent with local and regional plans, and provides the greatest value for cost. Both BRT and LRT can provide frequent and reliable service, offer travel benefits with traffic signal priority, can be integrated with enhanced stations for riders, spur development in a corridor and offer zero-emissions vehicles. Based on FTA criteria, BRT is the more appropriate fit and will be more competitive for federal funds.

