

**RED LINE**

# Welcome

## Red Line Open House Meeting

**Please sign in and then view the boards and participate in the activities. Project Team members are available for discussion and to answer your questions.**



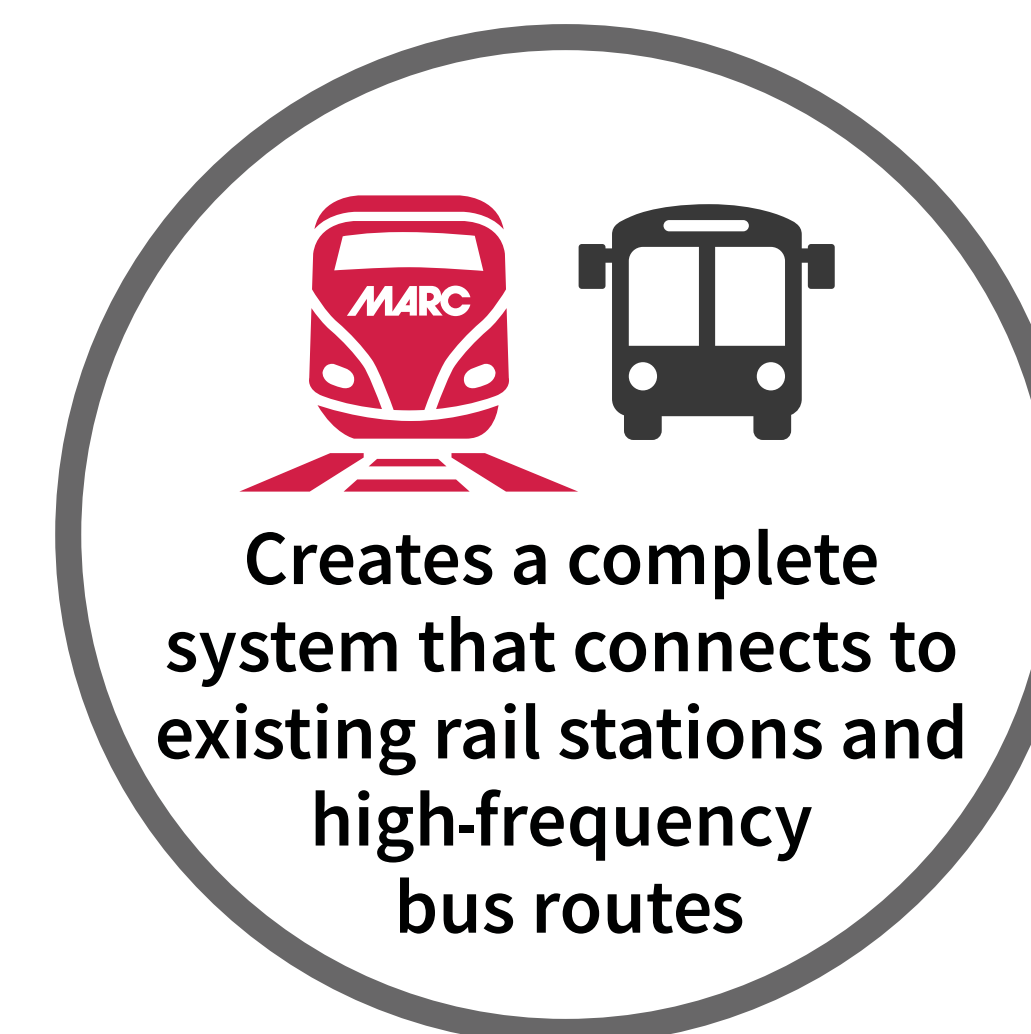
MARYLAND DEPARTMENT OF TRANSPORTATION  
MARYLAND TRANSIT ADMINISTRATION

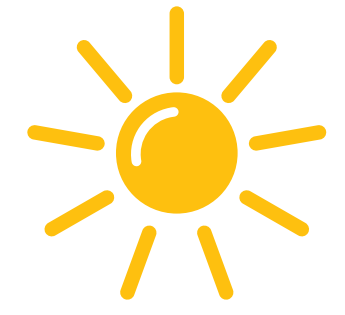
# 1 What is the Red Line?

The Red Line will be a high-frequency, high-capacity transit line for the Baltimore Region that fills a major gap in east-west transit service. The project represents a substantial investment in residents' access to jobs, education, services, and economic opportunities. **The relaunch of the Red Line builds upon the extensive technical work and community engagement conducted prior to the cancellation of the project in 2015.**

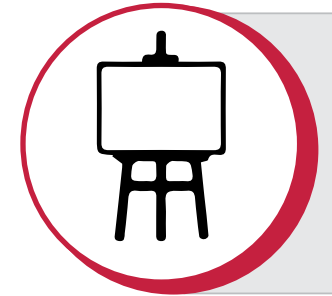
## The Baltimore region deserves great transit.

- The Red Line is an east-west high-frequency, high-capacity transit line for the Baltimore Region.
- It is an investment in communities' access to jobs, education, services, and opportunities.
- This major investment in transit will create better, faster, east-west connections across the region through downtown Baltimore.
- Over ten years of study, engineering, environmental analysis, and substantial community participation have shaped the Red Line.





## Summer Engagement Activities



5 Open Houses



20 Pop-Up Events



30+ Institutions, Elected Official and Community Meetings



1,500+ Interactions & Conversations



300 Surveys Completed

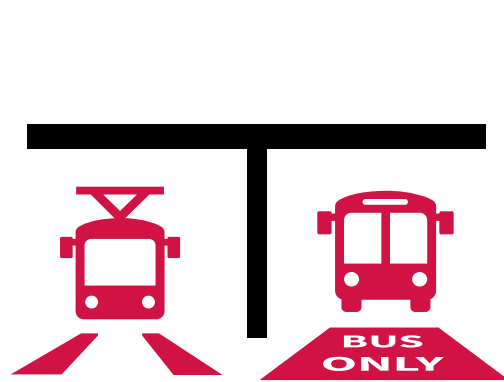
## What We Heard

- Vocal support to get the Red Line built quickly
- Support for creating a dedicated transitway with vehicle separation
- Strong support for Light Rail Transit (LRT) and interest in learning about the differences between Bus Rapid Transit (BRT) and bus
- Mixed opinions of tunneling vs. surface
- Support for economic investment and Transit Oriented Development (TOD) around future stations
- Desire to make seamless connections to existing transit to advance a regional transit network
- Concerns around safety (e.g., crossing to stations) and personal security (e.g., adequate lighting)

# What are we studying now?

The Red Line builds on decades of work to address transit needs in this corridor. While many things remain the same, it is important that we explore several key considerations to make sure the project is modernized for today.

## Preliminary Alternatives explore the following:



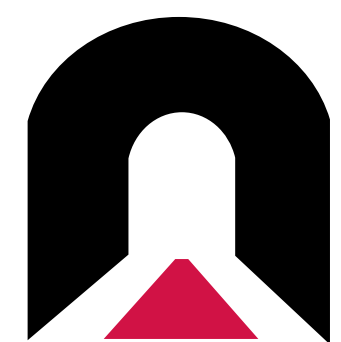
### Transit Mode

- Light Rail Transit (LRT)
- Bus Rapid Transit (BRT)



### Alignment Adjustments Due to Development Changes

- Highlandtown/Bayview
- Canton/Brewer's Hill
- Downtown Baltimore
- Woodlawn



### Surface Running vs. Tunneling

- Cooks Lane
- Downtown Baltimore



### Adjacent Projects

- West Baltimore United Reconnecting Communities Study
- RAISE East-West Priority Corridor Project
- Frederick Douglass Tunnel: West Baltimore MARC Station

## Where are we in the process?



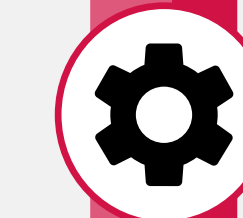
Previous Red Line Work



**Alternatives Analysis**  
*We Are Here*



Preferred Alignment/  
Project Development



Preliminary  
Engineering



Final Design



Construction

# Station 2

## Preliminary Alternatives Under Consideration

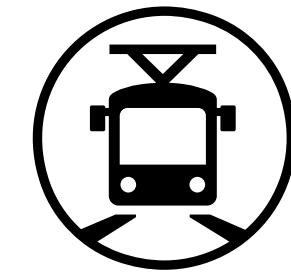
Six Preliminary Alternatives are under consideration, which combine three alignment options (mapped below) and two modes:

- Light Rail Transit (LRT)
- Bus Rapid Transit (BRT)

### Light Rail Transit (LRT)



**Alternative 1**  
(LRT-Tunnel)



**Alternative 2A**  
(LRT-Surface North)



**Alternative 2B**  
(LRT-Surface South)

### Bus Rapid Transit (BRT)



**Alternative 3**  
(BRT-Tunnel)

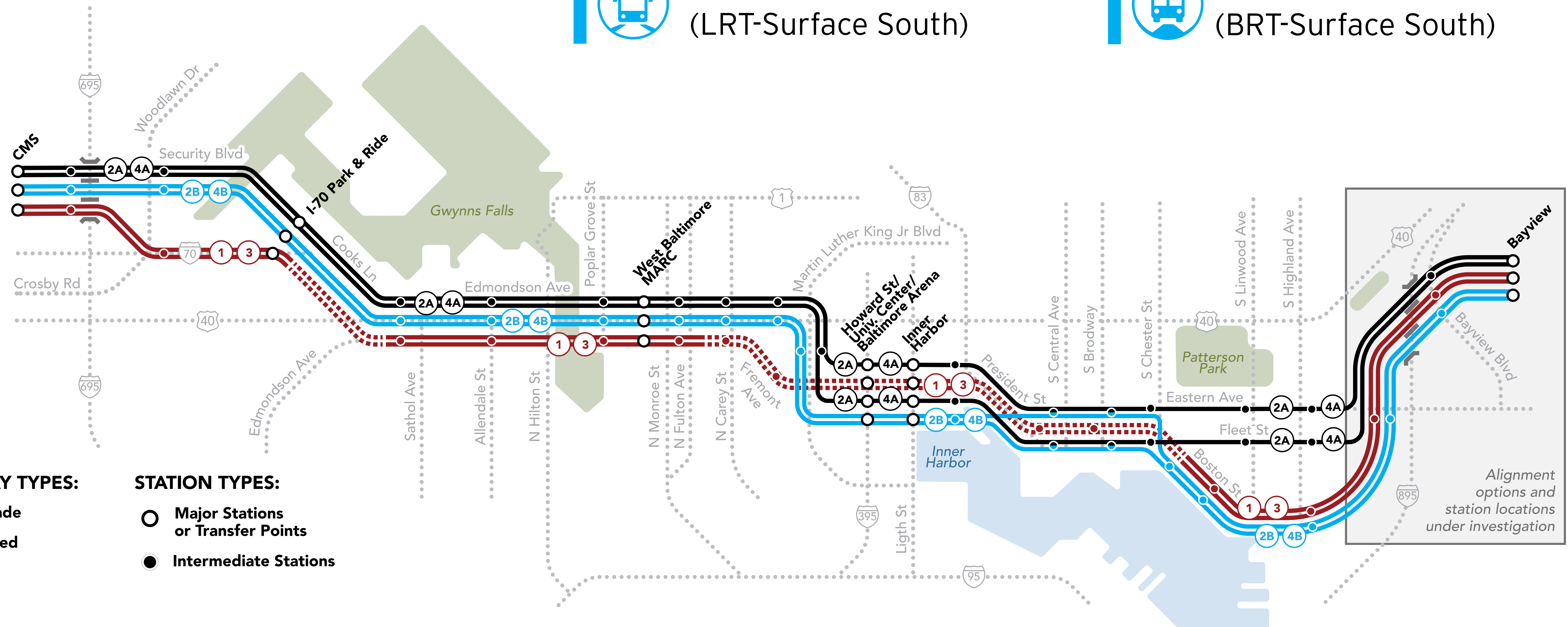


**Alternative 4A**  
(BRT-Surface North)



**Alternative 4B**  
(BRT-Surface South)

- 2A
- 4A
- 2B
- 4B
- 1
- 3



#### GUIDEWAY TYPES:

- At Grade
- Elevated
- Tunnel

#### STATION TYPES:

- Major Stations or Transfer Points
- Intermediate Stations

Alignment options and station locations under investigation

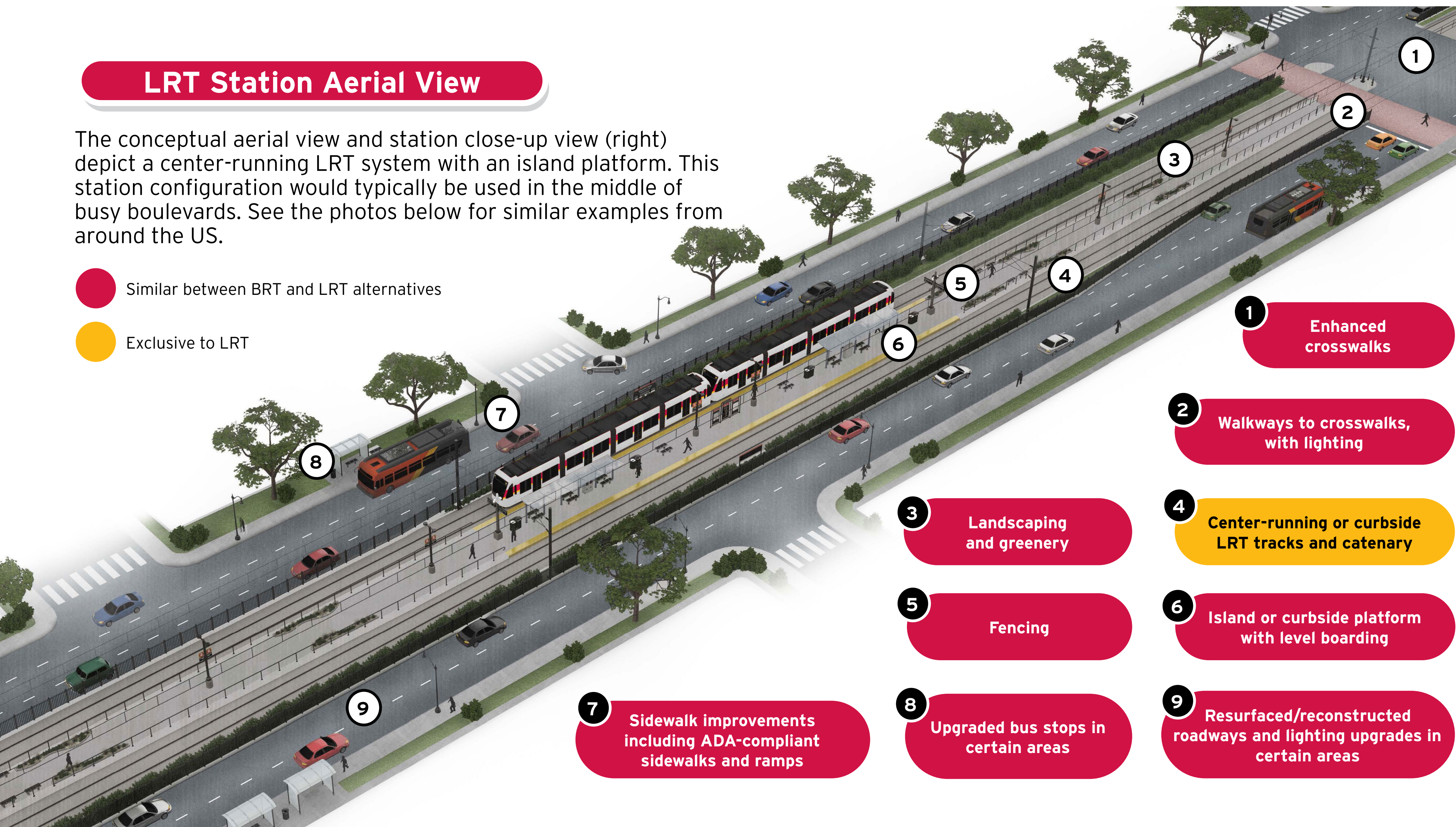


# What is Light Rail Transit (LRT)?

## LRT Station Aerial View

The conceptual aerial view and station close-up view (right) depict a center-running LRT system with an island platform. This station configuration would typically be used in the middle of busy boulevards. See the photos below for similar examples from around the US.

- Similar between BRT and LRT alternatives
- Exclusive to LRT



## Station Platform Close-Up



Stations are conceptual and their exact configurations and roadway layouts will be determined by local context.

## Similar Examples from Other Cities



Center-running, Portland

WSP Video Services



Center-running, Seattle

WSP Video Services



Curbside, Portland

TriMet



Tunneled, Seattle

WSP Video Services



Elevated, Seattle

WSP Video Services

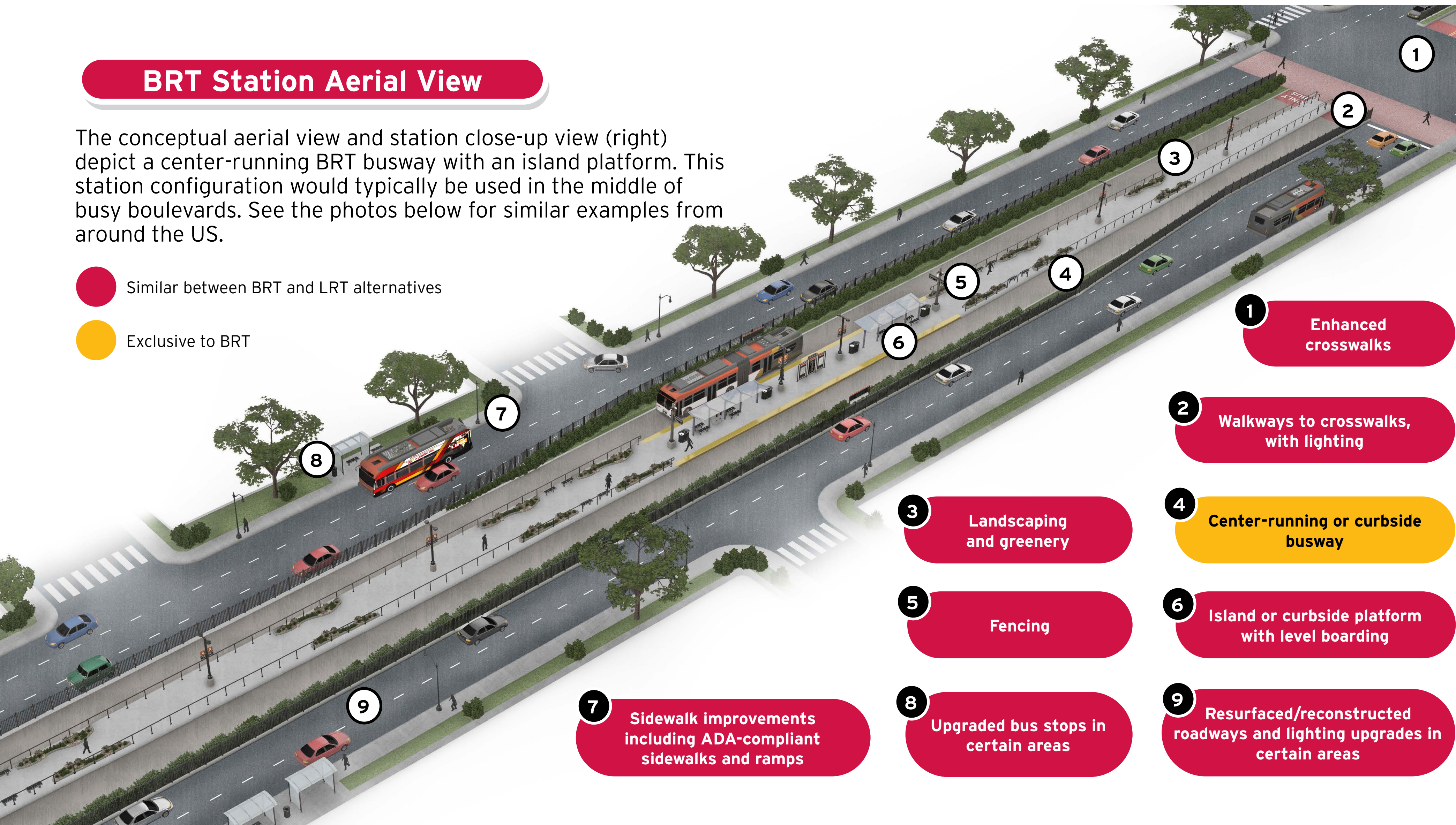


# What is Bus Rapid Transit (BRT)?

## BRT Station Aerial View

The conceptual aerial view and station close-up view (right) depict a center-running BRT busway with an island platform. This station configuration would typically be used in the middle of busy boulevards. See the photos below for similar examples from around the US.

- Similar between BRT and LRT alternatives
- Exclusive to BRT



7 Sidewalk improvements including ADA-compliant sidewalks and ramps

8 Upgraded bus stops in certain areas

9 Resurfaced/reconstructed roadways and lighting upgrades in certain areas

3 Landscaping and greenery

4 Center-running or curbside busway

5 Fencing

6 Island or curbside platform with level boarding

2 Walkways to crosswalks, with lighting

1 Enhanced crosswalks

## Station Platform Close-Up



Stations are conceptual and their exact configurations and roadway layouts will be determined by local context.

## Similar Examples from Other Cities



Curbside, Richmond

WSP Video Services



Curbside, Cleveland

RTA



Center-running, Richmond

WSP Video Services



Center-running, Cleveland

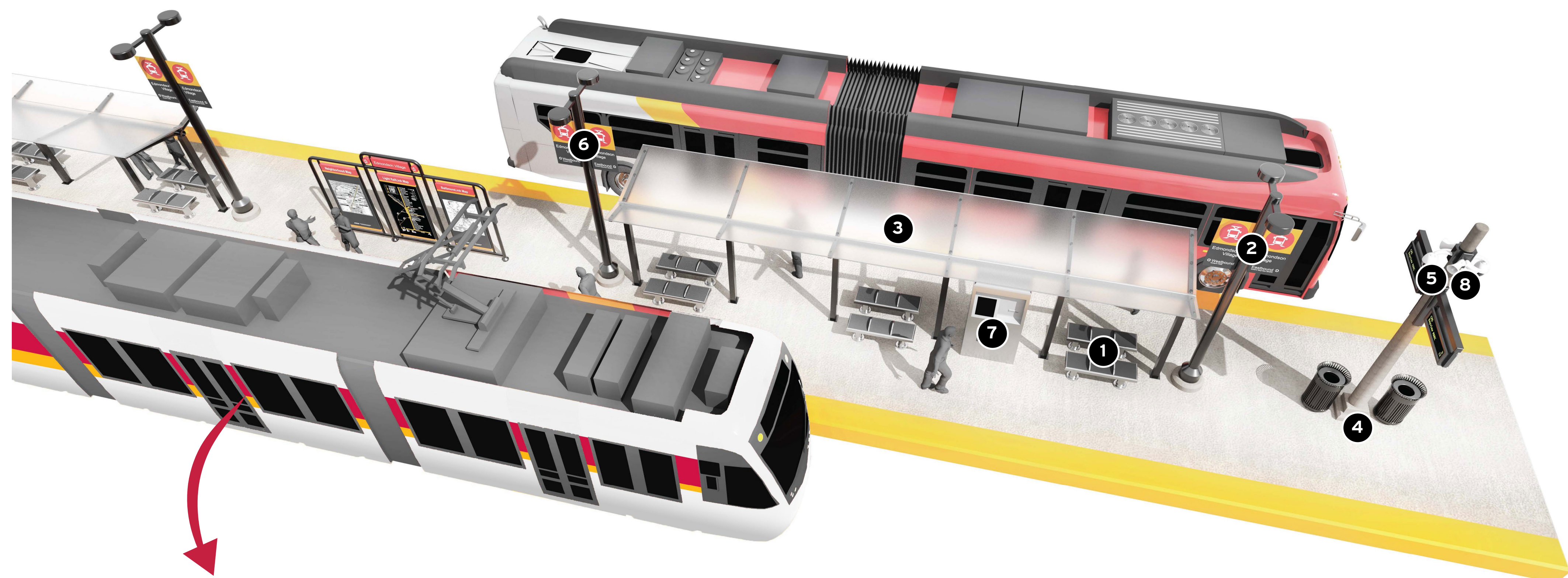
WSP Video Services



Center-running, Cleveland

WSP Video Services

# Station 2 Proposed Station Amenities



## Matching LRT and BRT Stations

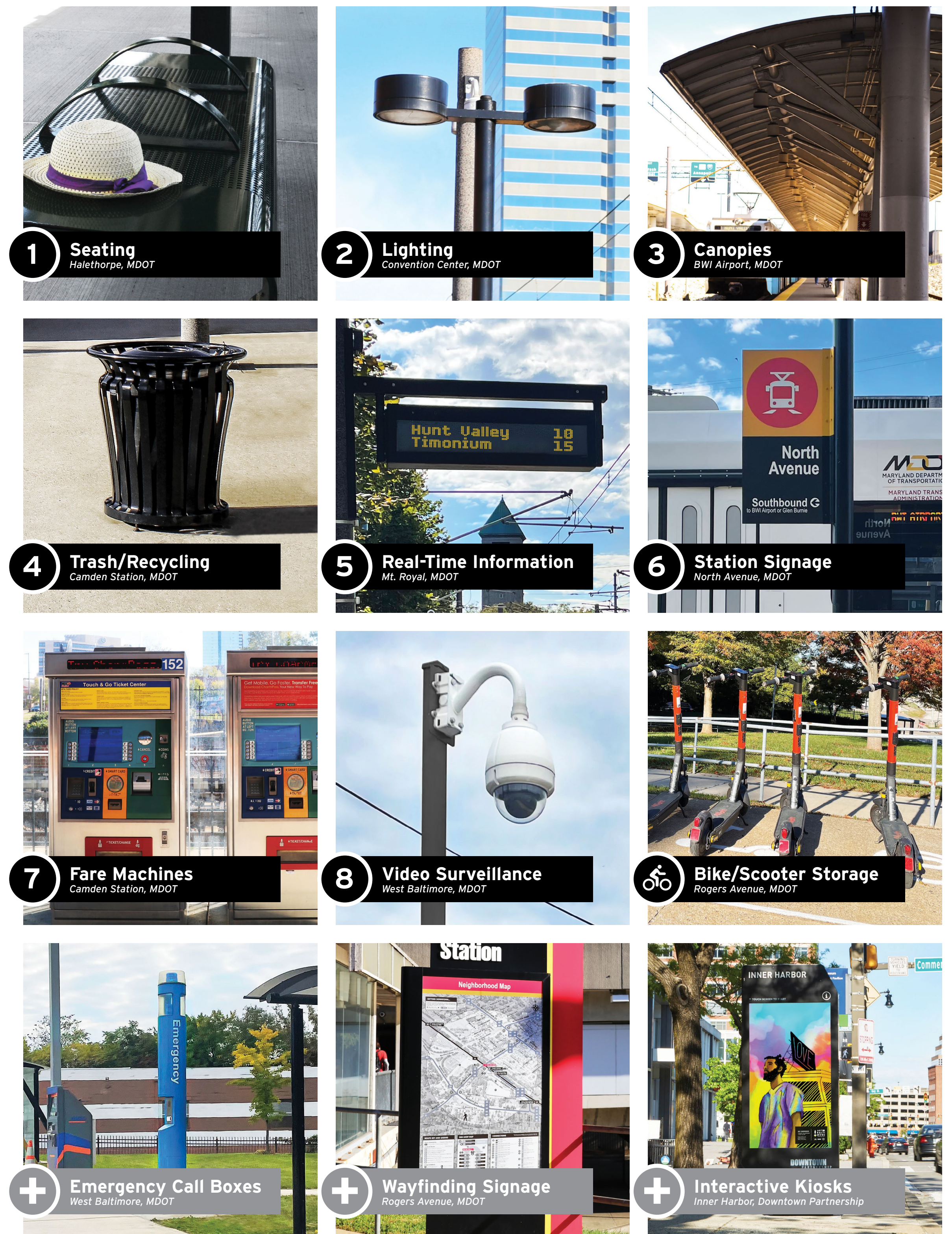
Regardless of the mode selected for the Red Line, LRT or BRT stations would be designed to be as similar as possible. Stations for both modes would offer the same seating, canopies, lighting, and other amenities. On the right are examples of essential (black) and supplemental (gray) amenities proposed for LRT and BRT stations. Note that examples are illustrative and do not necessarily represent the actual amenity model/style to be provided.

## Adapting Stations to Community Contexts

In addition to adapting stations to be locally contextually sensitive, there will be opportunities to integrate local artwork into stations to reinforce and promote the identities of the communities along the Red Line. Station Area Committees will engage with communities in this effort.



## Amenity Examples


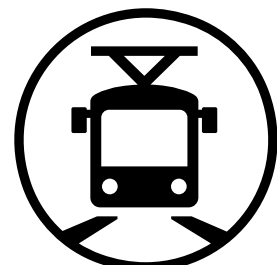








# Station 2 Ridership

All six Preliminary Alternatives attract sufficient ridership to warrant a premium transit investment.

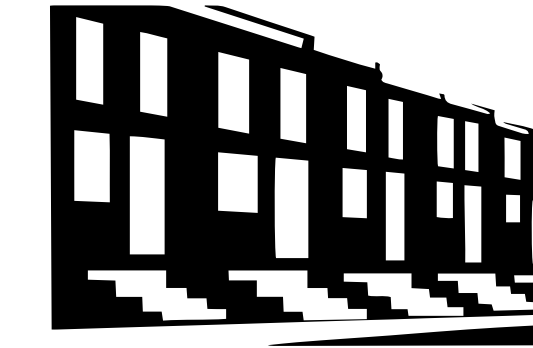
- LRT alternatives are estimated to carry higher ridership compared to BRT alternatives
- Regardless of mode, approximately a third of trips are made by individuals in zero-car households

Preliminary Alternatives		Average Daily Total Projected Trips	Average Daily Projected Trips from Zero-Car Households
<b>Light-Rail Transit (LRT)</b>			
	<b>Alternative 1</b> (LRT-Tunnel)	<b>33,000 - 35,500</b>	<b>12,000 - 13,500</b>
	<b>Alternative 2A</b> (LRT-Surface North)	<b>29,500 - 31,500</b>	<b>11,500 - 12,500</b>
	<b>Alternative 2B</b> (LRT-Surface South)	<b>28,500 - 30,000</b>	<b>11,000 - 12,000</b>
<b>Bus Rapid Transit (BRT)</b>			
	<b>Alternative 3</b> (BRT-Tunnel)	<b>17,500 - 24,000</b>	<b>6,000 - 8,000</b>
	<b>Alternative 4A</b> (BRT-Surface North)	<b>12,000 - 16,500</b>	<b>4,500 - 6,000</b>
	<b>Alternative 4B</b> (BRT-Surface South)	<b>11,500 - 16,000</b>	<b>4,000 - 6,000</b>

*Preliminary ridership estimates have been developed to compare Preliminary Alternatives and will continue to be refined as the project progresses through planning and design.*

# Station 2 Access

All the Preliminary Alternatives substantially increase access to jobs, students (ages 5-17), and households.



Preliminary Alternatives	Existing Jobs	Students	Total Households	Low-Income Households	Zero-Car Households
<b>Alternative 1 &amp; 3</b> (Tunnel)	137,000	12,000	43,000	17,000	11,000
<b>Alternative 2A &amp; 4A</b> (Surface North)	141,000	13,000	48,000	20,000	13,000
<b>Alternative 2B &amp; 4B</b> (Surface South)	138,000	13,000	45,000	18,000	12,000

- Surface options (Alternatives 2 A/B and 4 A/B) offer slightly more access and connections to other transit stations because of additional stops in downtown and East Baltimore.

# Reliability & Travel Time



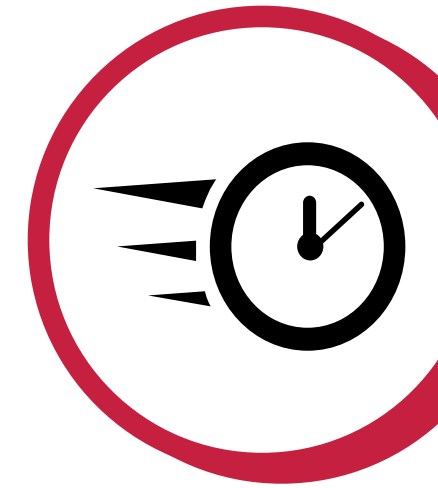
## Reliability

**TRANSIT ONLY**

All Preliminary Alternatives being evaluated would operate in **physically separated dedicated lanes for 90-100% of their length.**

**All alternatives will improve reliability and travel times along the corridor by implementing:**

- A physically separated transitway from other traffic using curbs, medians, posts, or raised rumble strips
- Extensive use of Transit Signal Priority (TSP), technology that gives transit vehicles special treatment at signalized intersections
- BRT surface alternatives offer greater flexibility to adapt to planned and unplanned roadway incidents, or construction

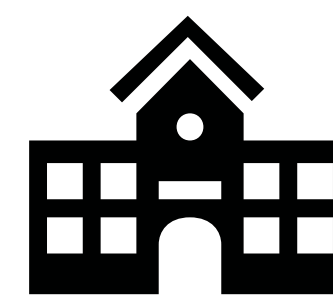


## Travel Time Savings

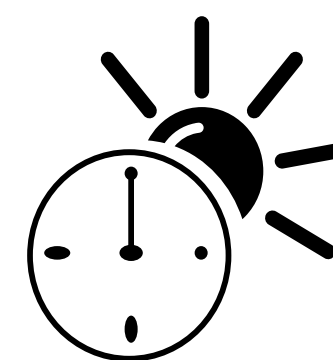
All project alternatives being evaluated will result in reduced travel times across the corridor. **The tunnel alternatives save an extra 11 to 15 minutes in end-to-end travel** compared to existing transit travel times since they are completely separated from downtown traffic.



From West Baltimore to Canton Crossing, the Red Line will save up to **28 minutes** on tunneled alternatives and up to **20 minutes** on surface alternatives



**Students** traveling to Patterson High School from Edmonson Village, Harlem Park, and Cherry Hill could save up to **12 minutes**



Improvements to **midday travel time** provide additional time savings for transit riders working second and third shifts


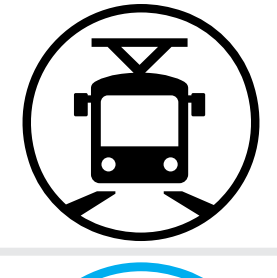


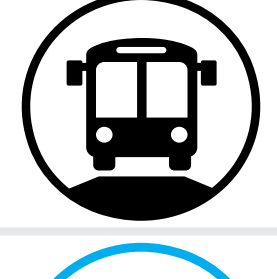



The Red Line will save up to **18 minutes** accessing jobs in Canton from Cherry Hill and Sandtown

# Red Line Costs

**\$ The Red Line will be a major investment for the Baltimore region and MTA will implement workforce development and local hiring best practices to benefit our communities. In all scenarios, billions of dollars in federal, state, and local money will be needed to fund the project.**

- Tunnel alternatives are 70% more expensive than surface alternatives.
- Capital costs for surface LRT alternatives are approximately 70% more expensive than surface BRT alternatives.
- Operations and maintenance for LRT is twice as expensive than for BRT.

		Preliminary Alternatives	Capital Cost (\$ Billions)	Annual O&M (\$ Millions)
Light Rail Transit (LRT)		Alternative 1 (LRT-Tunnel)	\$5.9 - 7.2	\$46
		Alternative 2A (LRT-Surface North)	\$3.4 - 4.6	\$39
		Alternative 2B (LRT-Surface South)	\$3.2 - 4.3	\$39
Bus Rapid Transit (BRT)		Alternative 3 (BRT-Tunnel)	\$4.1 - 5.7	\$26
		Alternative 4A (BRT-Surface North)	\$2.0 - 2.7	\$19
		Alternative 4B (BRT-Surface South)	\$1.9 - 2.6	\$19



**\$1** *Public Transportation Investment* 

*For every \$1*

*\$4 is generated*

**\$4** *in Local Economic Returns* 

According to the American Public Transportation Association, **for every \$1 invested in public transportation, approximately \$4 is generated in local economic returns**

Planning level cost estimates have been developed to compare Preliminary Alternatives.

**Capital costs** include professional services to plan and design the project in addition to the materials and labor to build it.

**Operation & Maintenance costs** refers to the costs associated with operating and maintaining the system each year.

# Transit Oriented Development and Economic Growth



The Red Line corridor spans various communities with diverse economic conditions. Improved transit connections and services could **encourage new development around transit stations that can revitalize surrounding neighborhoods** and advance the Baltimore region's economic development goals.

## Both BRT and LRT attract reinvestment and new development.

MTA's peers have found that:

- Transit can help expand an existing strong development market
- Visible permanent high quality transit infrastructure is valued by riders and investors
- Redevelopment is fostered by quality, attractive transit design; access to destinations; and effective promotion of transit service
- Local government incentives and infrastructure tailored to each station area's opportunities influence private investment and avoid displacement



## The Red Line would create or support approximately 15,000 jobs!

This project will represent billions of dollars of federal, state, and local government investment. A focus on local hiring will ensure that local communities benefit from economic growth, job opportunities, and social equity.



MTA is committed to connecting local area residents to future employment and training opportunities through initiatives such as:

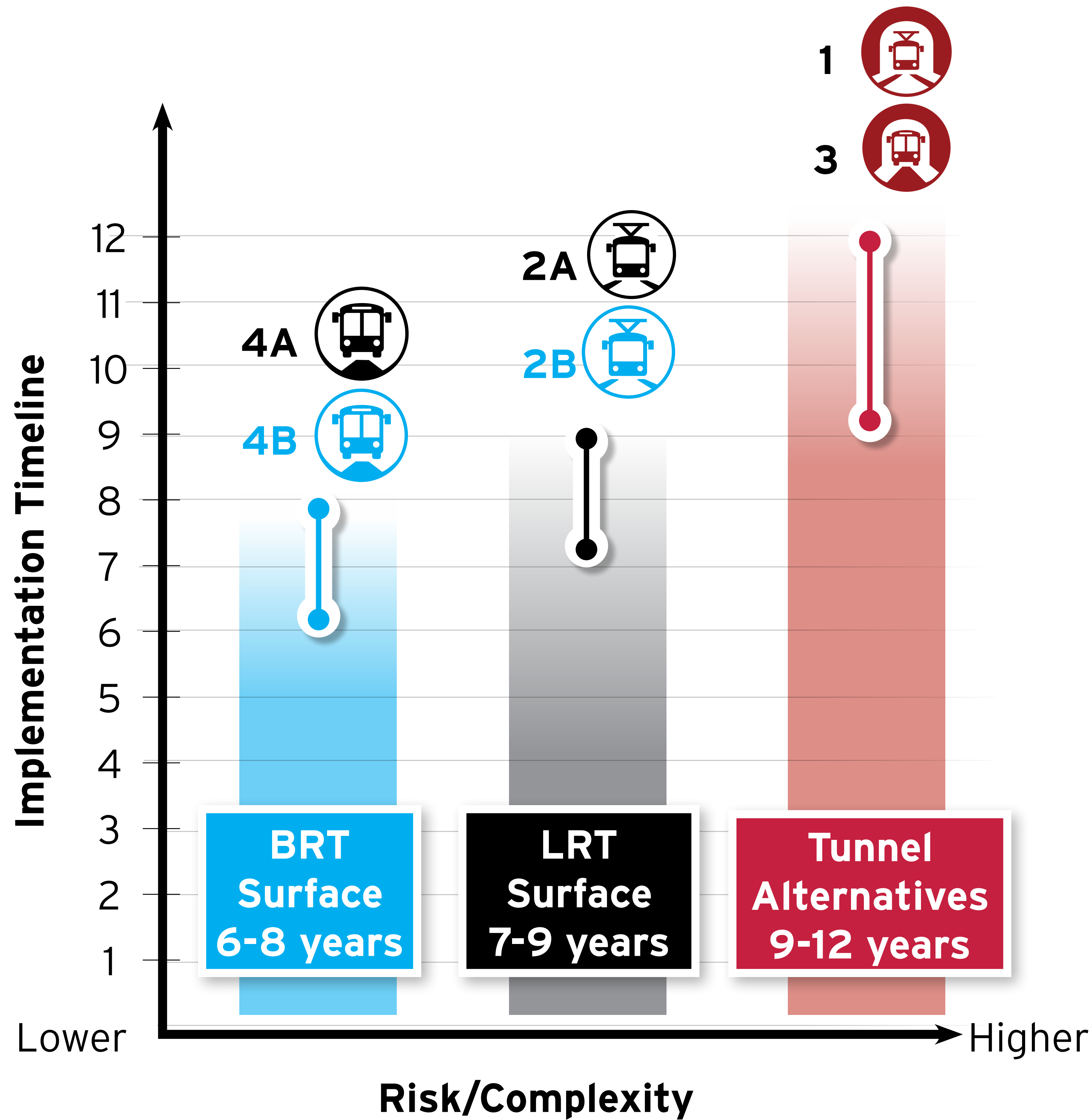
- Refining previously established Red Line Community Compact
- Establishing local internship and apprenticeship programs for careers in transportation



2011 Red Line High School Interns Touring the Corridor



# Time to Implement



Preliminary Alternatives' time to implement, as well as their risk and complexity, vary based on mode and tunneling decisions.

- LRT alternatives will have a longer construction timeline compared to BRT due to requiring more specialized construction methods related to rail and systems components.



Embedded track construction



Tunnel construction

- Tunnel construction is the most complex, introduces greater risk, and has a longer construction timeline.

# Potential On-Street Parking and Traffic Impacts


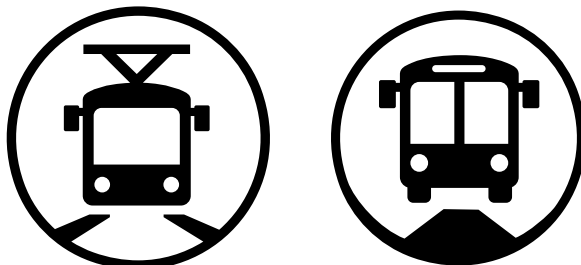

## P

### On-Street Parking Impacts

- **Differences in on-street parking impacts are not driven by mode.**
- Surface alternatives result in additional on-street parking impacts compared to tunnel alternatives.
- Approximately 50-60% of parking impacts occur in residential areas.

### By the Numbers:

Major differences in on-street parking impacts occur between MLK Jr. Boulevard Jr and Conkling Street.

Preliminary Alternative	Potential On-street Parking Impacts (MLK Blvd. to Conkling St.)
 <b>Alternative 1 &amp; 3</b> (Tunnel)	20 - 30
 <b>Alternative 2A &amp; 4A</b> (Surface North)	210 - 700
 <b>Alternative 2B &amp; 4B</b> (Surface South)	130 - 430



### Traffic Impacts

- Summer 2023 outreach showed a **strong community preference for a dedicated transitway**, which will require reducing the number of vehicle lanes.
- Early analysis indicates that parallel streets and other roadways can accommodate traffic diverted from Red Line streets.

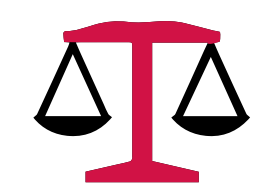
### Moving People More Efficiently

- Street and transit design options for surface alternatives will follow the Baltimore City Complete Streets modal hierarchy, a law that prioritizes walking, biking, transit, and freight above automobiles.

**MTA is currently evaluating different street and transit design options. We will work closely with communities to identify and resolve parking concerns.**

# Environmental Updates

MTA is updating environmental inventories and studies throughout the corridor to include:



Equity and Environmental Justice



Natural Resources



Hazardous Materials



Climate Change and Resiliency



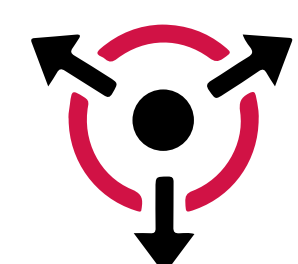
Air Quality



Socioeconomic and Land Use



Historic Resources



Indirect and Cumulative Effects



Transit and Transportation Effects



Noise, Vibration &  
Electromagnetic Interference (EMI)

**Potential environmental benefits and impacts of the project will be studied in greater detail during the NEPA process in the next phase of the project.**

## System Resiliency


- Extreme weather events are becoming more frequent and intense due to climate change.
- These events are changing how transportation systems need to be planned, designed, operated and maintained.

- BRT surface alternatives offer greater flexibility to adapt to extreme weather events - no overhead wires and no track to repair.
- Maintenance related to water infiltration of the tunnel will be a major ongoing investment challenge.






# Station 3

## Measures of Effectiveness Results Matrix

 **1**  
(LRT-Tunnel)

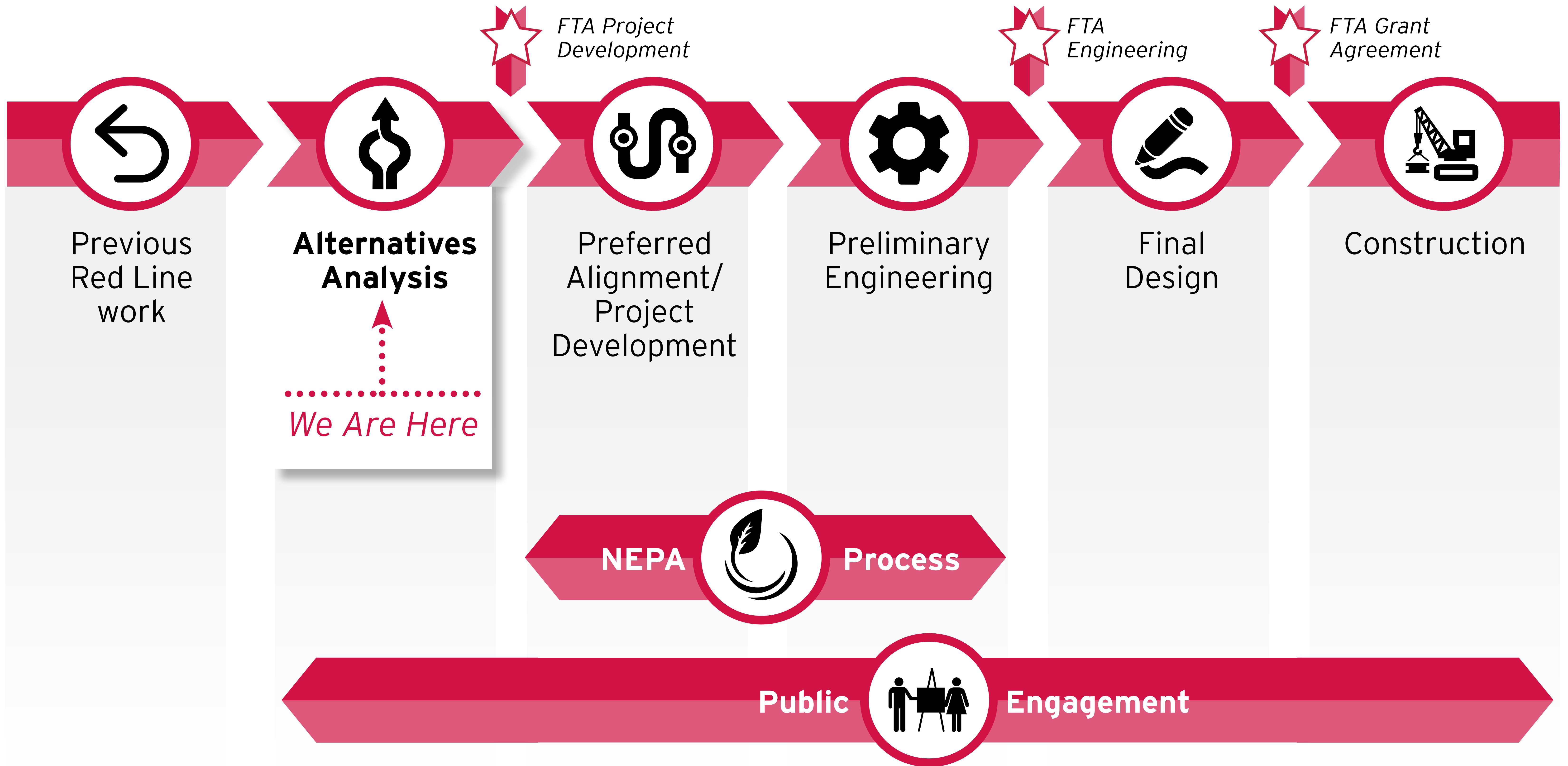
 **2A**  **2B**  
(LRT-Surface North) (LRT-Surface South)

 **3**  
(BRT-Tunnel)

 **4A**  **4B**  
(BRT-Surface North) (BRT-Surface South)

<b>Average daily total projected trips</b>	33,000 - 35,500	29,500 - 31,500	28,500 - 30,000	17,500 - 24,000	12,000 - 16,500	11,500 - 16,000
<b>Average daily projected trips from zero-car households</b>	12,000 - 13,500	11,500 - 12,500	11,000 - 12,000	6,000 - 8,000	4,500 - 6,000	4,000 - 6,000
<b>Access to transit critical populations</b> (within 1/4 mile of stations)	136,000	151,000	143,000	136,000	151,000	143,000
<b>End to end travel time</b> (min)	44 - 47	55 - 58	56 - 59	45 - 48	56 - 59	57 - 60
<b>Percent dedicated guideway</b>	95 - 100%	90 - 95%	90 - 95%	95 - 100%	90 - 95%	90 - 95%
<b>Years to implement project</b>	9 - 12	7 - 9	7 - 9	9 - 11	6 - 8	6 - 8
<b>Capital costs</b> (2023 \$, Billions)	\$5.9 - \$7.2	\$3.4 - \$4.6	\$3.2 - \$4.3	\$4.1 - \$5.7	\$2.0 - \$2.7	\$1.9 - \$2.6
<b>Annualized capital cost per trip</b> (\$/trip)	\$21	\$14	\$14	\$26	\$18	\$18
<b>O&amp;M costs</b> (2023 \$, millions)	\$46	\$39	\$39	\$26	\$19	\$19
<b>Connections to rail stations within 1/4 mile</b>	4	6	5	4	6	5
<b>Connections to frequent bus</b>	35	46	44	35	46	44

# Next Steps



# 4 Your Voice Matters!

MTA is developing and analyzing a range of alternatives to advance for further study, including decisions around mode, alignment, and extent of tunneling. It is also possible to combine different elements of the Preliminary Alternatives.



As we evaluate the technical analysis results, it is important that we also hear from the public to understand your priorities and preferences.

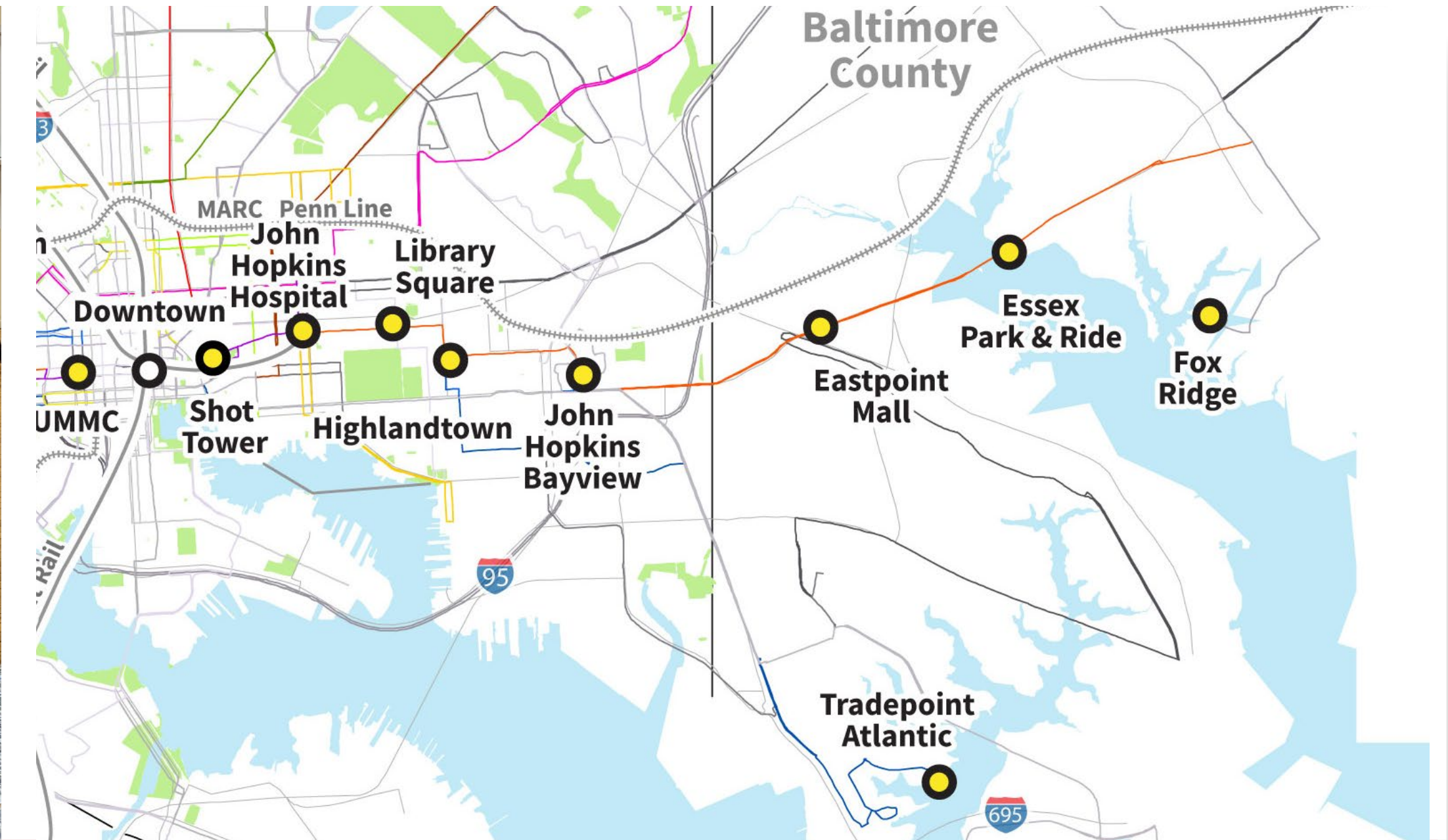
# Parallel Efforts & Investments in the Project Area



Fast Forward



East-West RAISE



Eastern Baltimore County Access Study

Reconnecting Communities Pilot

Narrative

## West Baltimore United

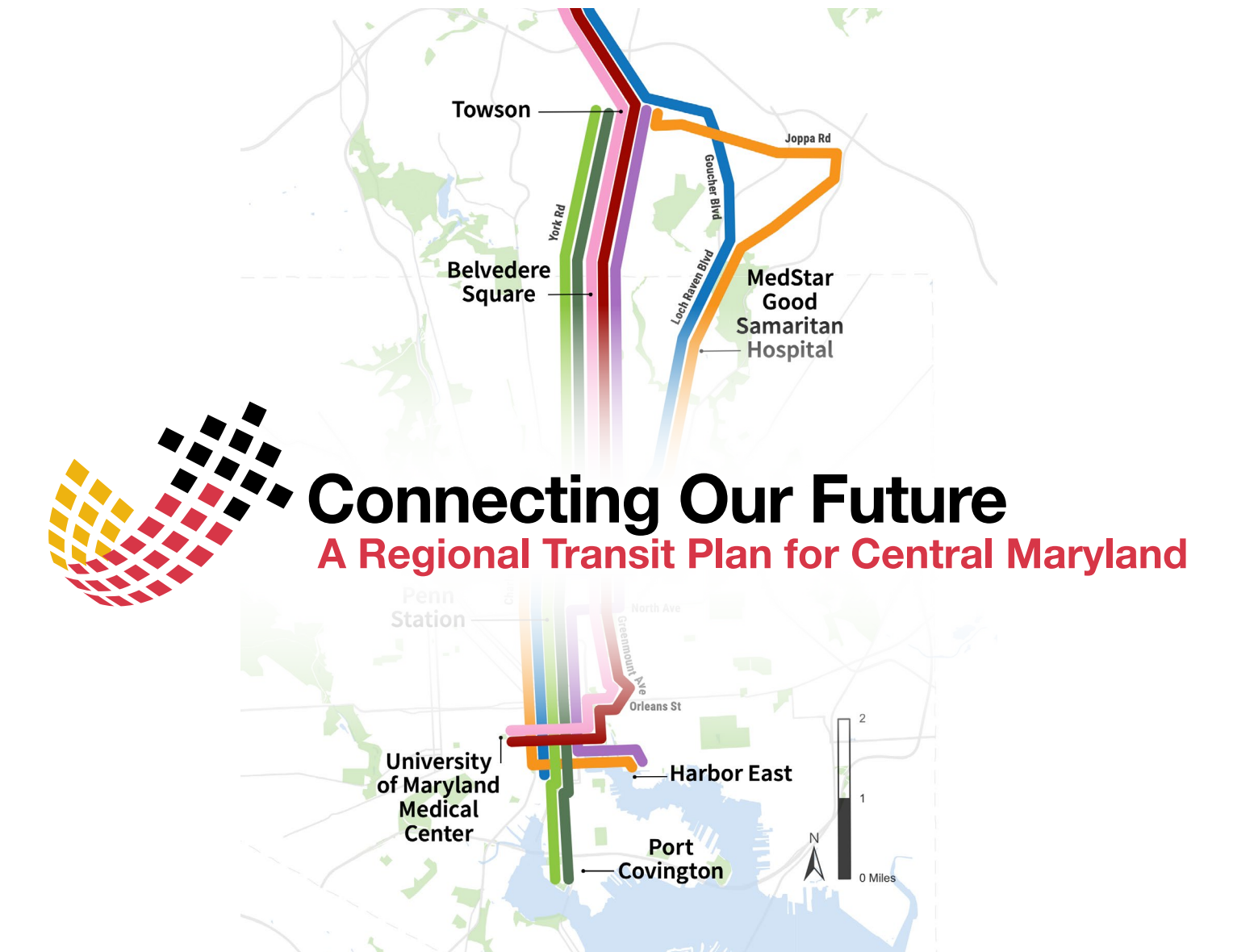
Reconnecting communities impacted by US 40



West Baltimore United



Frederick Douglass Tunnel



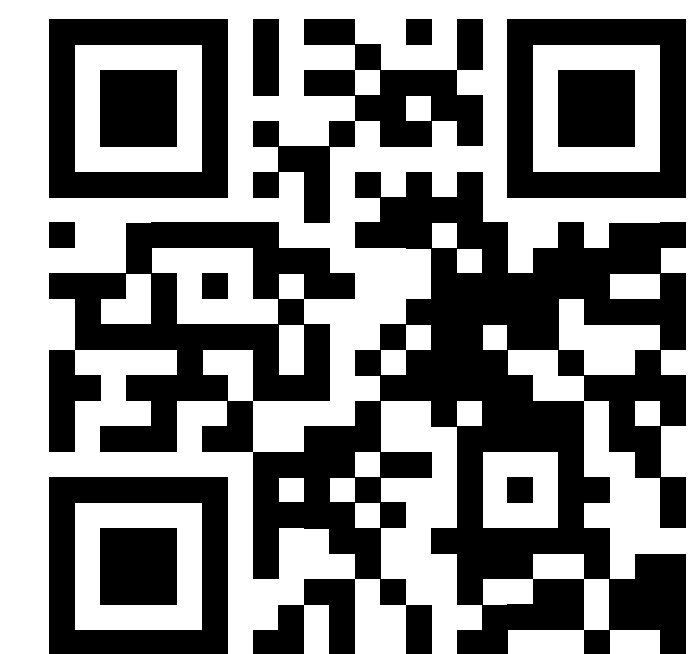
North-South Corridor

# Staying Engaged

## Get More Information!



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