

Baltimore & Potomac Tunnel Project



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AGENDA



- Project Background
- Project Purpose & Need
- Alternatives Evaluated & Screening Process
- Alternatives Carried Forward
- Next Steps

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Background - Existing Tunnel

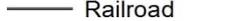


- A 1.4 mile two-track rail tunnel built in 1873
 - Located on the Northeast Corridor (NEC) between Baltimore Penn Station and West Baltimore MARC Station
- Owned and maintained by Amtrak and currently used by over 140 trains per day
 - 85 Amtrak intercity trains
 - 57 MARC commuter trains
 - 1 to 2 Norfolk Southern freight trains

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B&P TUNNEL LOCATION MAP



- | | | | |
|---|-----------------------|---|-----------------|
|  | Existing B&P Tunnel |  | Light Rail Line |
|  | B & P Tunnel Openings |  | Railroad |
|  | Light Rail Station |  | Interstate |
|  | Metro Station |  | Parks |
|  | Metro Line | | |



Amtrak vs. CSX Tunnel



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What is the B&P Tunnel Project?

- \$60 million planning study funded by the Federal Railroad Administration (FRA)
- Study consist of two components
 - National Environmental Policy Act (NEPA) documentation
 - 30% preliminary engineering (PE) plans

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PROJECT TEAM



U.S. Department of Transportation
Federal Railroad Administration

Grantor/NEPA Lead



*Maryland Department
of Transportation*

Grantee



Tunnel Owner



Project Partner

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U.S. Department of Transportation
Federal Railroad Administration



*Maryland Department
of Transportation*

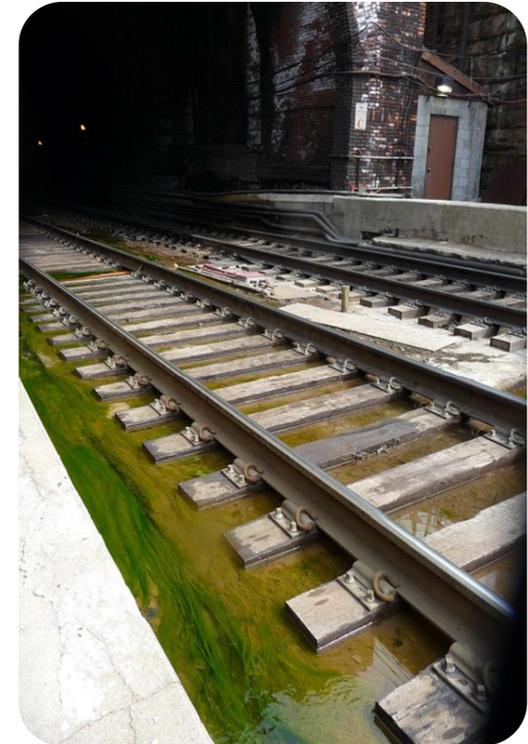


PROJECT PURPOSE



The primary purpose of the project is to **address the structural and operational deficiencies** of the existing B&P Tunnel which:

- **Is approaching the end of its useful life**
- **Does not provide enough capacity** to support current and projected demands
- **Is not suited for modern high-speed usage** due to tight clearances and sharp curves, which limit train speeds through the tunnel to 30 mph



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The B&P Tunnel Project is intended to:

- Improve travel time
- Accommodate existing and projected travel demand for passenger rail services (regional and commuter)
- Eliminate impediments to existing and projected operations along the NEC
- Provide operational reliability
- Take into account the value of the existing tunnel as an important element of Baltimore's rail infrastructure

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ALTERNATIVES CONSIDERED



INITIAL SCREENING



- The project team evaluated the 16 project alternatives using screening criteria developed to help evaluate if an alternative met the project Purpose and Need and if it was constructible based upon engineering evaluation
- Based upon the data collected during this process and in conjunction with public and stakeholder input, four alternatives were carried forward for further evaluation in the Alternatives Report

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ALTS. CARRIED FORWARD



- **Alternative 1: No-Build**
- **Alternative 2: Restore/Rehabilitate Existing Tunnel**
- **Alternative 3: Great Circle Passenger Tunnel**
 - Wide arc alignment north of existing tunnel
 - Total gradual curve permits higher train speed
 - Location in deep rock minimizes environmental impacts
 - Satisfies project termini, engineering, and operational criteria
- **Alternative 11: Robert Street South**
 - Gradual curves between proposed north and south portals
 - Improves travel time
 - Accommodates existing and projected demand
 - Provides operational reliability
 - Meets existing Amtrak service requirements

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ALTS. CARRIED FORWARD



Legend

- Alternative 2 (Green dashed line)
- Alternative 3 (Orange solid line)
- Alternative 11 (Purple solid line)
- Existing B&P Tunnel (Green dashed line)
- Light Rail Station (LR icon)
- Metro Station (M icon)
- Light Rail Line (Purple solid line)
- Water (Blue area)
- Parks (Green area)

Alignment widths not shown to scale

U.S. Department of Transportation
Federal Railroad Administration

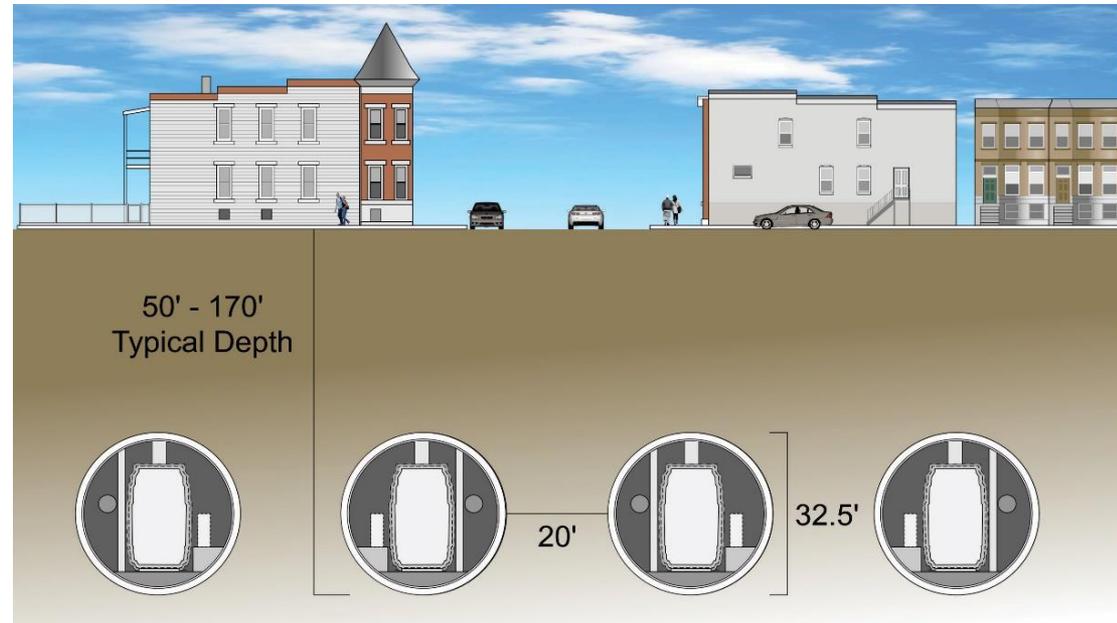
Maryland Department of Transportation

- The project team refined the Alternatives Carried Forward for detailed study and determined that:
 - Four (4) tracks would be required to meet the project Purpose and Need
 - Each track would be placed in an individual bore to help with traffic operations
 - Options to the two build alternatives (3 and 11) could help improve operations and avoid or minimize impacts to the community

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Why are four tracks being proposed?

- To accommodate future high-frequency passenger train service on the Northeast Corridor (NEC).
- To support train capacity requirements
- To allow operational flexibility for conflict-free operations.

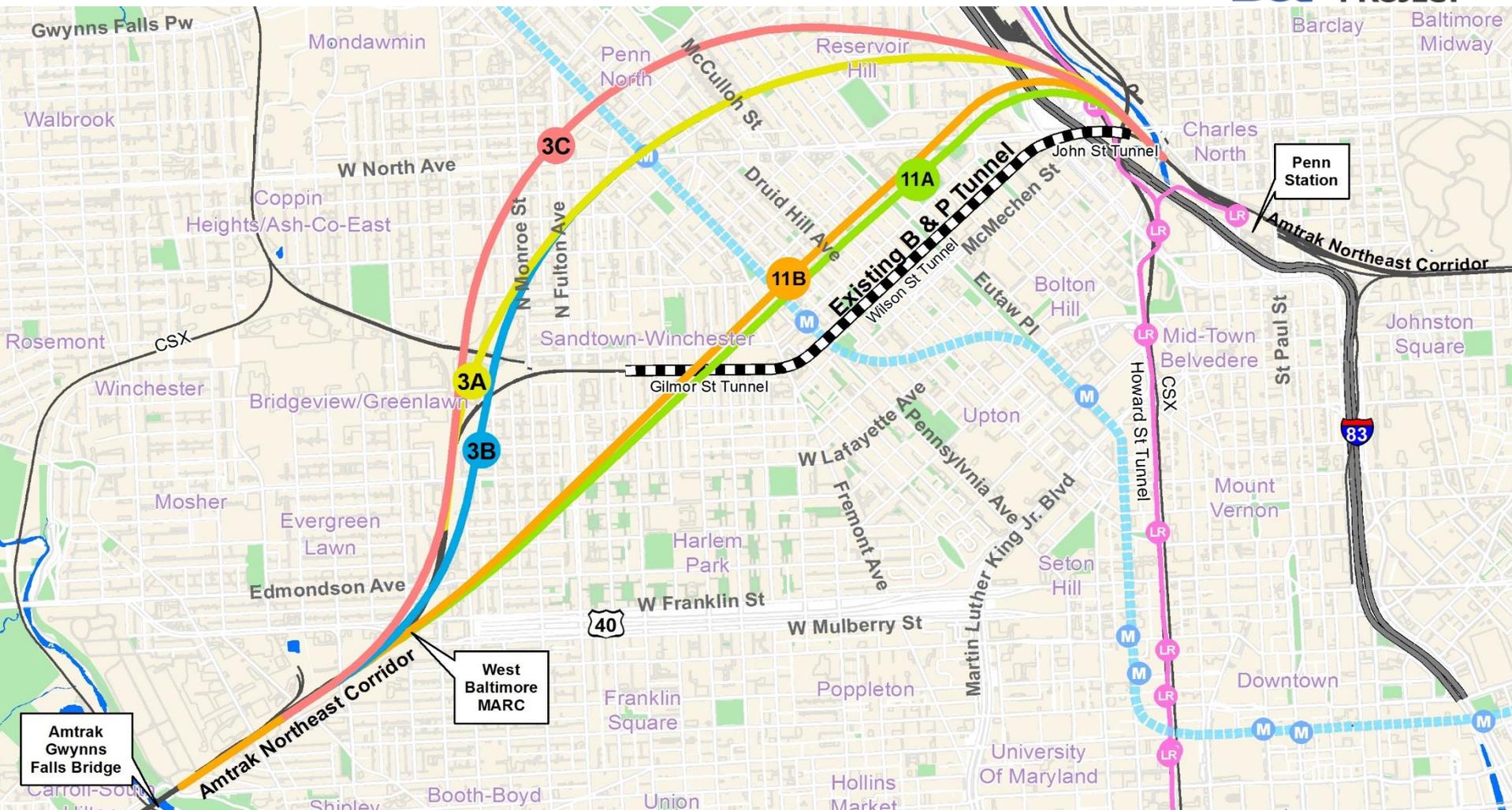


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- The design team began looking in further detail at the remaining Build Alternatives. Options were developed for Alternatives 3 and 11 in order to:
 - Avoid or minimize impacts caused by initial alignment
 - Provide opportunities to better meet the project Purpose and Need
 - Improving the curves that affect travel times, especially at or near the West Baltimore MARC Station

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OPTIONS TO ALTS 3 & 11



Alternative 3 Option A	Existing B&P Tunnel	Metro Line
Alternative 3 Option B	Light Rail Station	Light Rail Line
Alternative 3 Option C	Metro Station	Interstate
Alternative 11 Option A	Railroad	Water
Alternative 11 Option B		Parks

B&P Tunnel Project Project Alternatives

0 0.125 0.25 0.5 Miles

NORTH

EVALUATION MATRIX



ENGINEERING

	Criterion	Measure	Alt 1 (2 Tracks)	Alt 2 (2 Tracks)	Alt 3A (4 Tracks)	Alt 3B (4 Tracks)	Alt 3C (4 Tracks)	Alt 11A (4 Tracks)	Alt 11B (4 Tracks)	
Operations	1. Travel Time Between Penn Station and Gwynns Falls Bridge (SB/NB)	Minutes: Seconds	<u>Amtrak Acela</u> 5:43/6:10 <u>Amtrak Regional</u> 5:50/6:19 MARC 5:50/6:14	<u>Amtrak Acela</u> 5:43/6:10 <u>Amtrak Regional</u> 5:50/6:19 MARC 5:50/6:14	<u>Amtrak Acela</u> 3:59/4:02 <u>Amtrak Regional</u> 4:19/4:19 MARC 4:56/4:17	<u>Amtrak Acela</u> 3:24/3:25 <u>Amtrak Regional</u> 3:43/3:34 MARC 4:22/3:56	<u>Amtrak Acela</u> 3:27/3:27 <u>Amtrak Regional</u> 3:46/3:37 MARC 4:33/4:04	<u>Amtrak Acela</u> 3:16/3:11 <u>Amtrak Regional</u> 3:31/3:25 MARC 4:09/3:25	<u>Amtrak Acela</u> 3:20/3:16 <u>Amtrak Regional</u> 3:34/3:29 MARC 4:16/3:28	
	2. Travel Time Savings over Alternative 1 (SB/NB)	Minutes: Seconds	Not Applicable	<u>Amtrak Acela</u> 0:00 <u>Amtrak Regional</u> 0:00 MARC 0:00	<u>Amtrak Acela</u> 1:56 <u>Amtrak Regional</u> 1:46 MARC 1:26	<u>Amtrak Acela</u> 2:32 <u>Amtrak Regional</u> 2:26 MARC 1:53	<u>Amtrak Acela</u> 2:30 <u>Amtrak Regional</u> 2:23 MARC 1:44	<u>Amtrak Acela</u> 2:43 <u>Amtrak Regional</u> 2:37 MARC 2:15	<u>Amtrak Acela</u> 2:39 <u>Amtrak Regional</u> 2:33 MARC 2:10	
	3. Value of Time Savings for All Passengers ¹	Dollars per year	Not Applicable	\$0 per Year	\$32.5 Million per Year	\$43.4 Million per Year	\$42.3 Million per Year	\$46.8 Million per Year	\$45.5 Million per Year	
	4. Lowest Design Speed within the Alignment	MPH	30 mph	30 mph	50 mph	50 mph	50 mph	50 mph	50 mph	
	5. Maximum Design Speed along the Alignment	MPH	75 mph	75 mph	100 mph	100 mph	100 mph	110 mph	110 mph	
	6. Average Operating Speed (SB/NB)	MPH	<u>Amtrak Acela</u> 35/34 mph <u>Amtrak Regional</u> 34/34 mph MARC 34/34 mph	<u>Amtrak Acela</u> 35/34 mph <u>Amtrak Regional</u> 34/34 mph MARC 34/34 mph	<u>Amtrak Acela</u> 54/56 mph <u>Amtrak Regional</u> 50/52 mph MARC 44/52 mph	<u>Amtrak Acela</u> 63/66 mph <u>Amtrak Regional</u> 57/63 mph MARC 49/57 mph	<u>Amtrak Acela</u> 65/68 mph <u>Amtrak Regional</u> 59/65 mph MARC 49/57 mph	<u>Amtrak Acela</u> 60/65 mph <u>Amtrak Regional</u> 56/60 mph MARC 47/60 mph	<u>Amtrak Acela</u> 59/64 mph <u>Amtrak Regional</u> 55/60 mph MARC 46/60 mph	
	7. Operational Flexibility and Reliability	High Medium Low	Low – only two tracks in common bore	Low – only two tracks in common bore	High – four tracks in individual bores and the ability to platform at West Baltimore from two different tunnel tracks	High – four tracks in individual bores and the ability to platform at West Baltimore from two different tunnel tracks	High – four tracks in individual bores and the ability to platform at West Baltimore from two different tunnel tracks	High – four tracks in individual bores and the ability to platform at West Baltimore from two different tunnel tracks	High – four tracks in individual bores and the ability to platform at West Baltimore from two different tunnel tracks	Medium – four tracks in individual bores; can only platform at West Baltimore from one tunnel track
	8. Meets Projected Year	Yes/No	No – two tracks does not	No – two tracks does not	Yes	Yes	Yes	Yes	Yes	

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ALTERNATIVE ELIMINATION



- The project team evaluated the four project alternatives based upon a series of criteria and compiled the information in an Evaluation Matrix
- Two alternatives were recommended to be dropped based upon the data collected
 - **Alternative 2** – Restore/Rehabilitate Existing Tunnel
 - **Alternative 11** – Robert Street South (both options)

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ALTS. CARRIED FORWARD



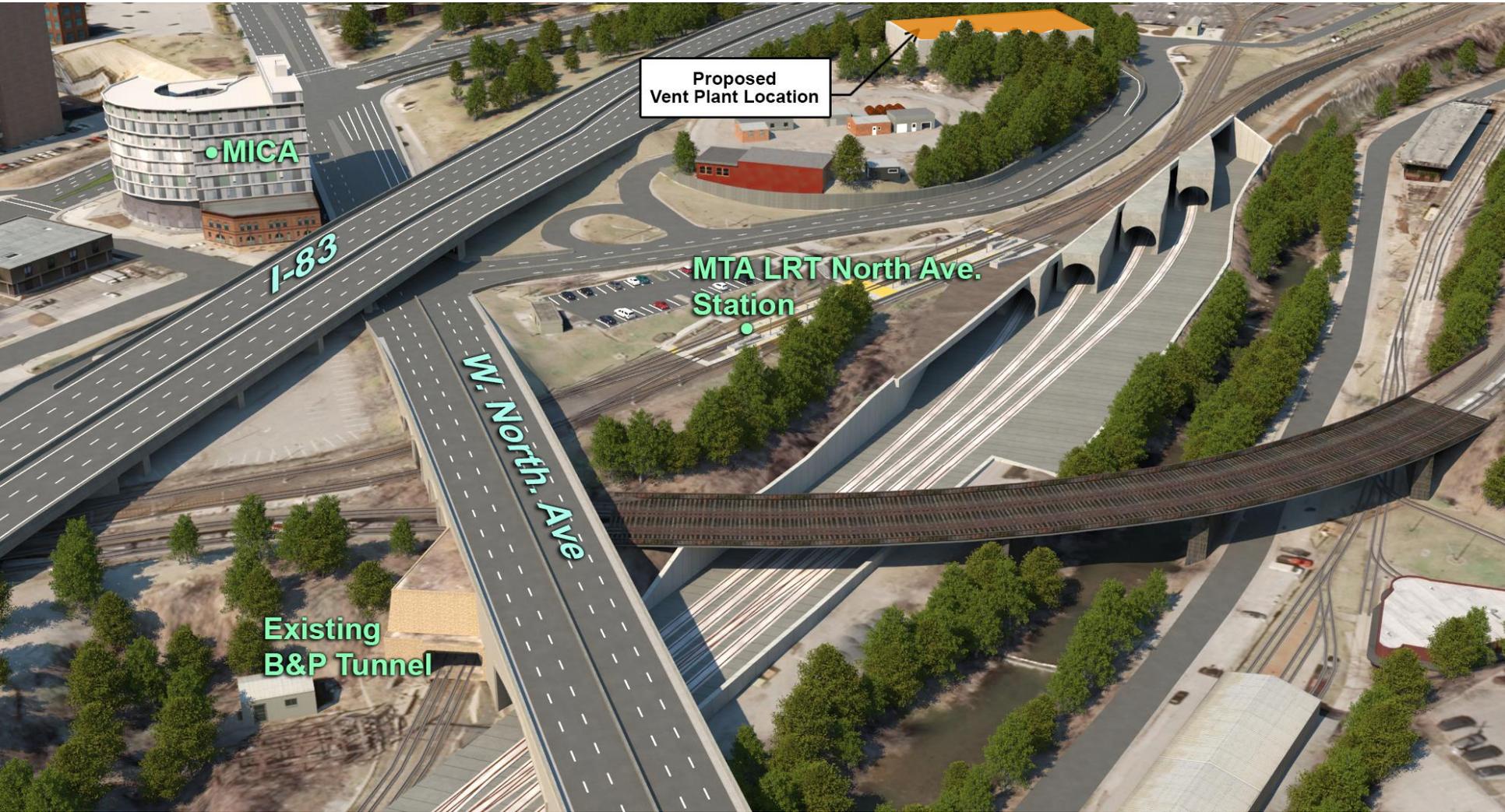
- **Alternative 1: No-Build**
- **Alternative 3 Option A: Great Circle Passenger Tunnel**
 - Wide arc alignment north of existing tunnel
 - Gradual curve improves train speeds relative to existing B&P Tunnel
 - Would not improve curve at West Baltimore MARC Station to allow for installation of high-level platforms
- **Alternative 3 Option B: Great Circle Passenger Tunnel**
 - Similar to Alternative 3, Option A with south portal shifted further east
 - Improves curvature over Alternative 3, Option A and existing B&P Tunnel and allows for installation of high-level platforms
- **Alternative 3 Option C: Great Circle Passenger Tunnel**
 - Wide arc alignment north of existing tunnel
 - Similar to Alternative 3A with south portal shifted further west
 - Improves curvature over Alternative 3A and existing B&P Tunnel and allows for installation of high-level platforms

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ALTERNATIVES 3A, 3B & 3C



NORTH PORTAL LOCATION



ALTERNATIVE 3 OPTION A



SOUTH PORTAL RENDERING



ALTERNATIVE 3 OPTION A



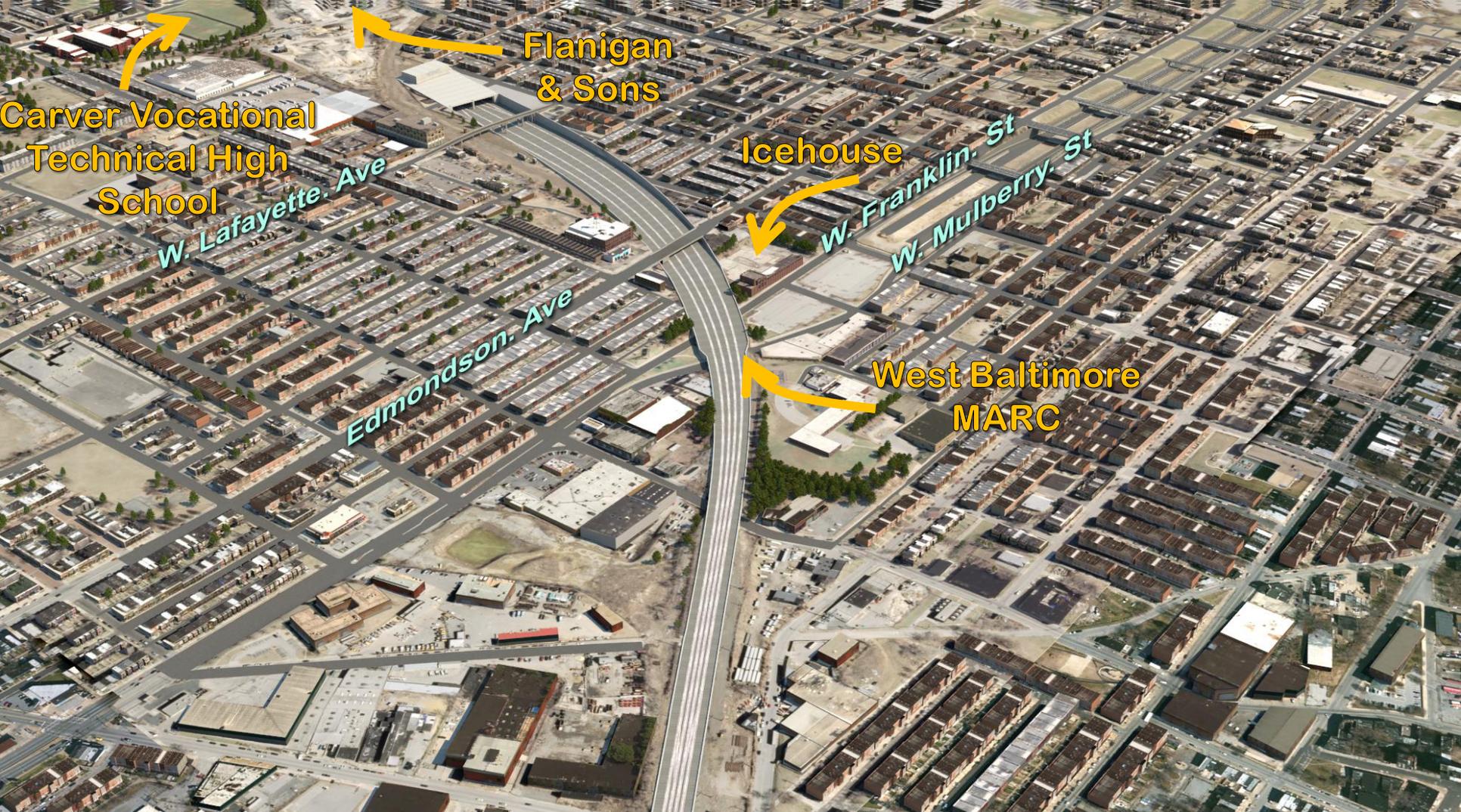
SOUTH PORTAL RENDERING – CLOSE-UP



ALTERNATIVE 3, OPTION B



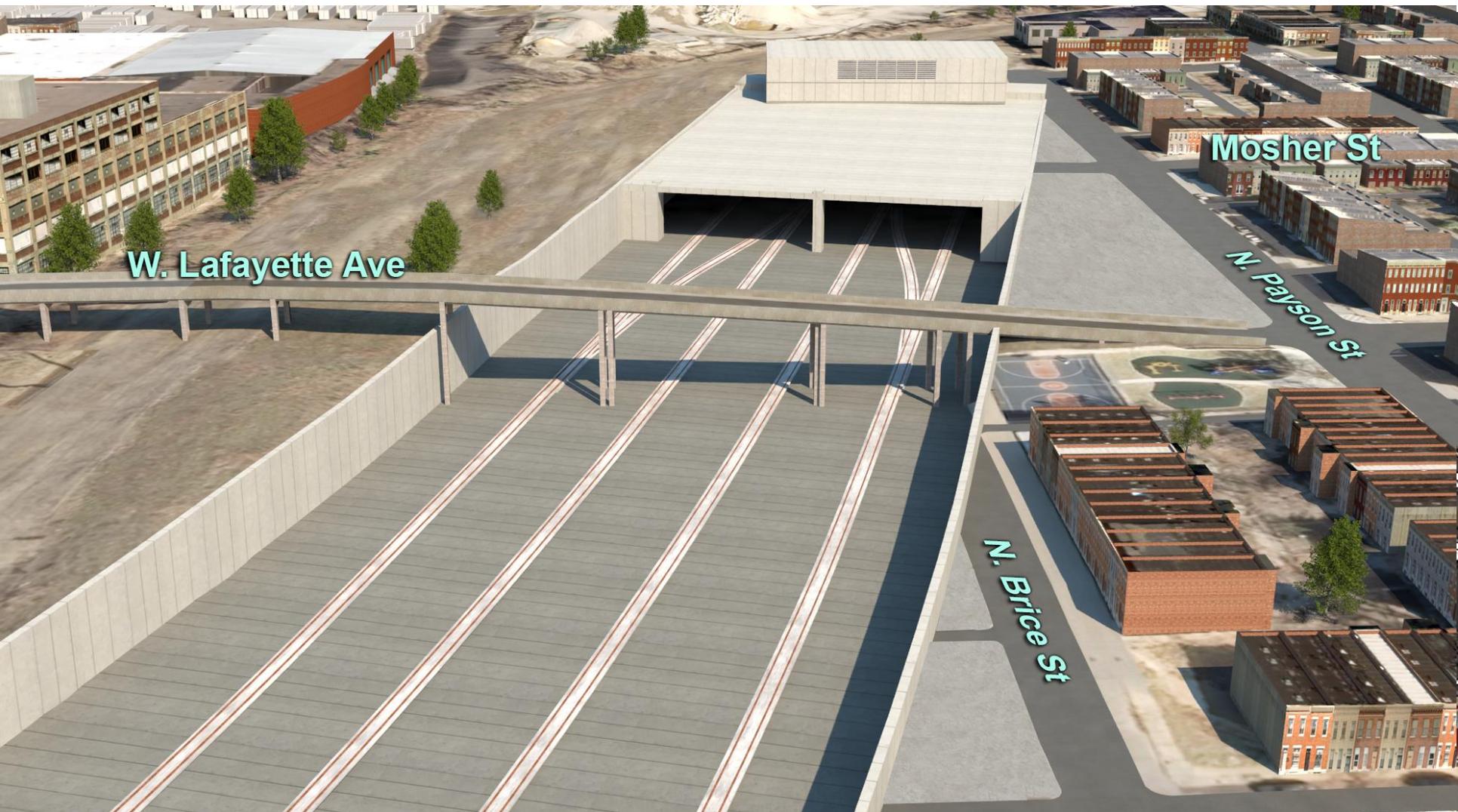
SOUTH PORTAL RENDERING



ALTERNATIVE 3 OPTION B



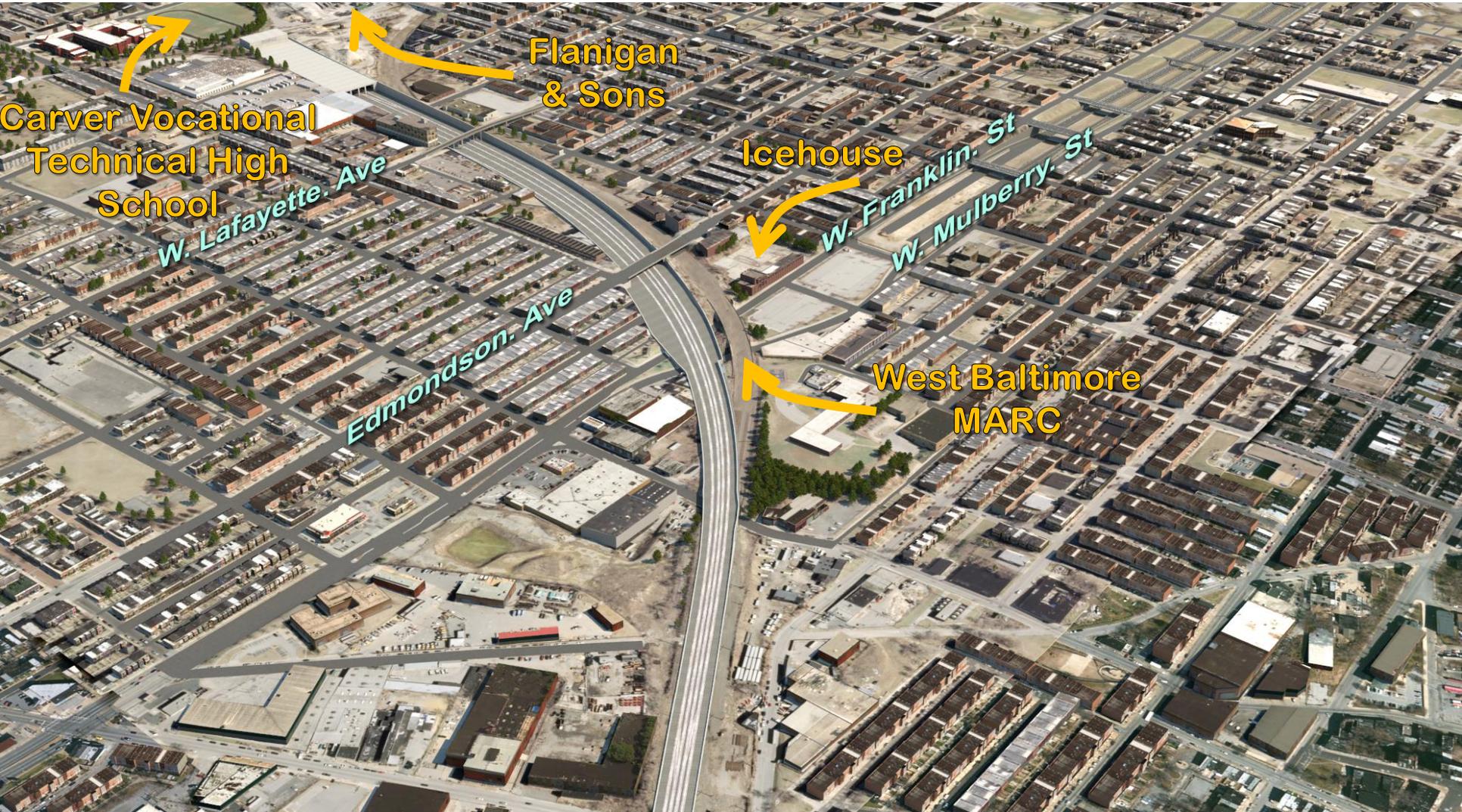
SOUTH PORTAL RENDERING – CLOSE UP



ALTERNATIVE 3, OPTION C



SOUTH PORTAL RENDERING



ALTERNATIVE 3 OPTION C



SOUTH PORTAL RENDERING – CLOSE UP



VENT - AREAS OF CONSIDERATION



MID TUNNEL SITE



<p>Area of Consideration for Vent Plant</p> <ul style="list-style-type: none">  Alternative 3 Option A  Alternative 3 Option B  Alternative 3 Option C 	<p>Alternative Track Centerlines</p> <ul style="list-style-type: none">  Alternative 3 Options A and B  Alternative 3 Option C  Proposed Vent Plant Location
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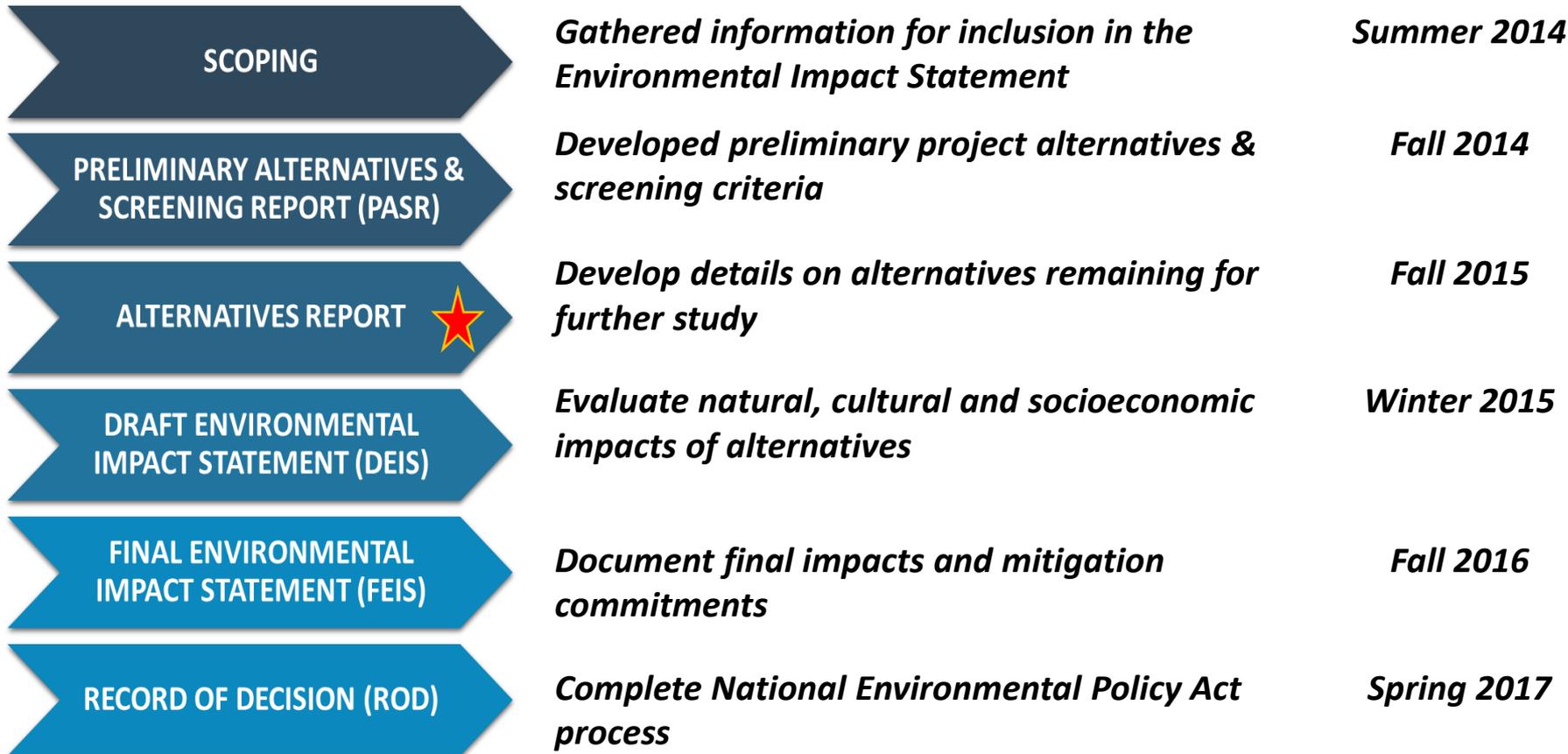
B&P Tunnel Project
Alternatives Report
Alternative 3
Area of Consideration for
Vent Plant Locations

0 125 250 500
 Feet

 NORTH

	 U.S. Department of Transportation Federal Railroad Administration
	Maryland Department of Transportation

NEPA PROCESS & SCHEDULE



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Questions?



Bradley M. Smith, AICP
Director, Office of Freight and Multimodalism
Maryland Department of Transportation
410-865-1097 | bsmith9@mdot.state.md.us

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