

NORTHEAST MAGLEV

A photograph of a white and blue Shinkansen train on a track. The train is positioned on the left side of the frame, moving towards the right. To the right of the train is a large, textured stone retaining wall. In the background, there are green hills and a fence. The sky is overcast.

PROJECT UPDATE | MAY 2019

COALITION FOR SUSTAINABLE
TRANSPORTATION

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Maglev Development Program

- Established by Congress to encourage the development/construction of maglev technology.
- The Federal Railroad Administration (FRA) conducted a nation-wide competition to identify states to identify candidate corridors for maglev
- **Baltimore –Washington DC was selected for continued evaluation and project development.**
- In 2015, FRA issued a Notice of Funding Availability for development of maglev project between Baltimore and Washington DC;
- **MDOT/BWRR were selected to deploy Superconducting Magnetic Levitation technology**

Proven Technology



1.5 MILLION MILES
Over 1.5 million miles traveled in development



50+ YEARS OF DEVELOPMENT
SCMAGLEV research and development began in 1962



RECORD BREAKING
Holds the Guinness record for the world's fastest train



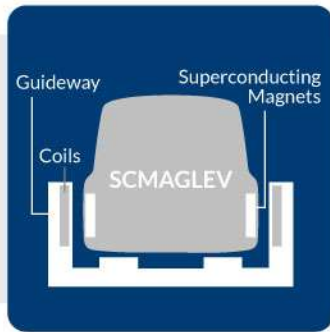
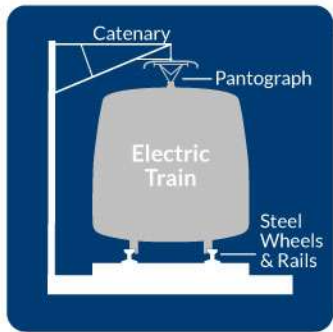
UNDER CONSTRUCTION: THE CHUO SHINKANSEN Revenue service SCMAGLEV line



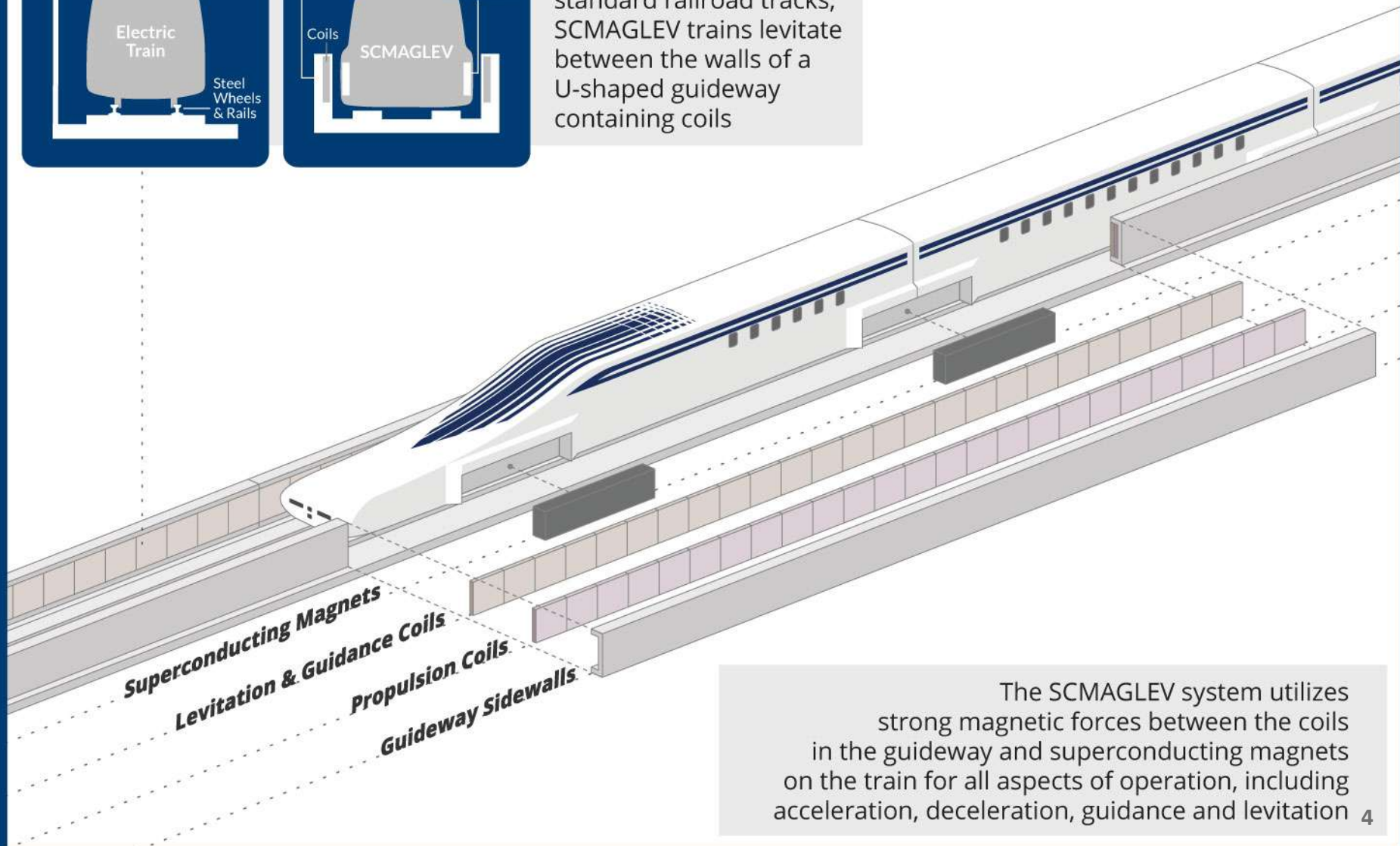
- 1962: Technology Development begins
- 1997: Non-Revenue Operations begin
- 2011: Technological Standards enacted
- 2012: SCMAGLEV approved for Public Use
- 2014: EIS for Line Extension approved
- Late 2014: Extension Construction started
- 2017: Public Revenue Service Begins



How SCMAGLEV Works



Instead of running on standard railroad tracks, SCMAGLEV trains levitate between the walls of a U-shaped guideway containing coils



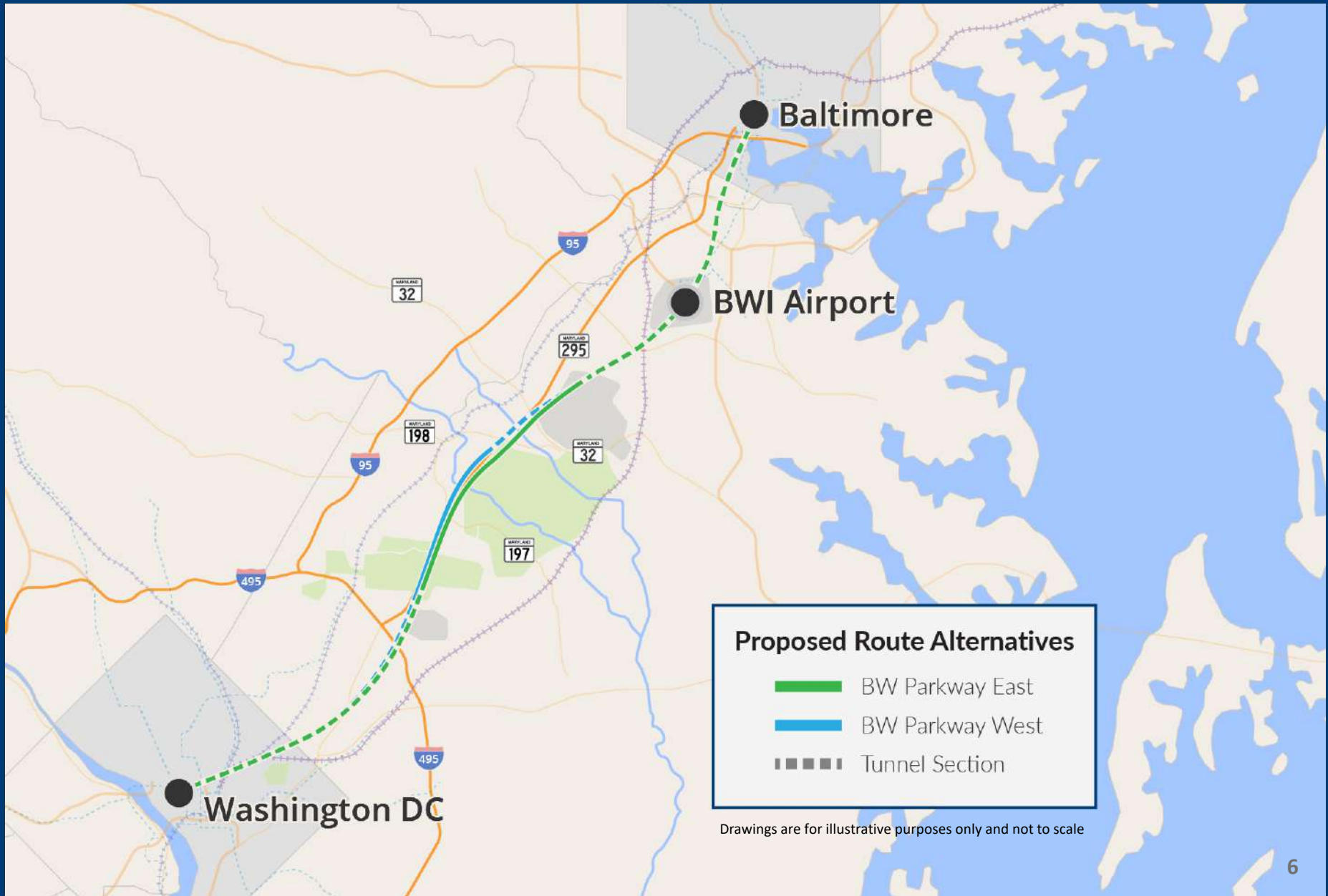
The SCMAGLEV system utilizes strong magnetic forces between the coils in the guideway and superconducting magnets on the train for all aspects of operation, including acceleration, deceleration, guidance and levitation

Our Vision: Fastest Train in the World



DC TO NEW YORK
in
ONE HOUR
at
311 MPH

Route Alternatives

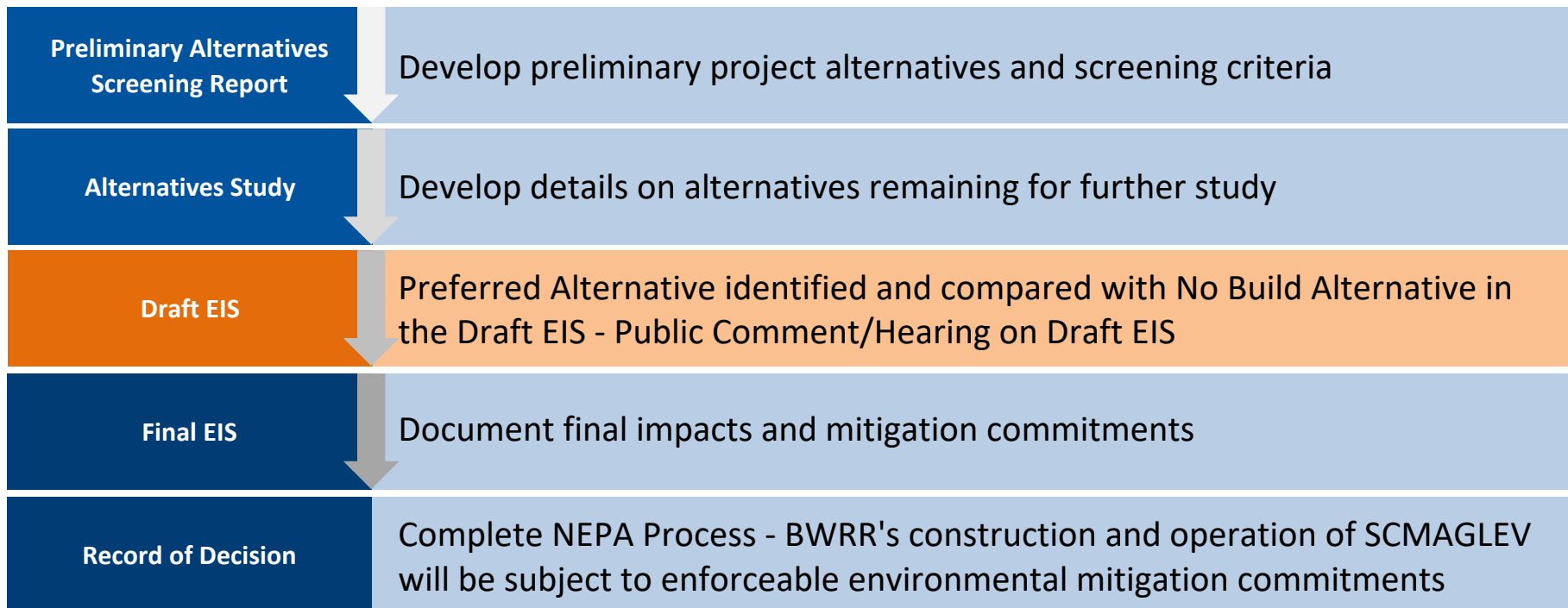


Environmental Impact Statement Process

FRA-led Process provides 'hard look' at project impacts providing full disclosure through publishing environmental impact statement (EIS)

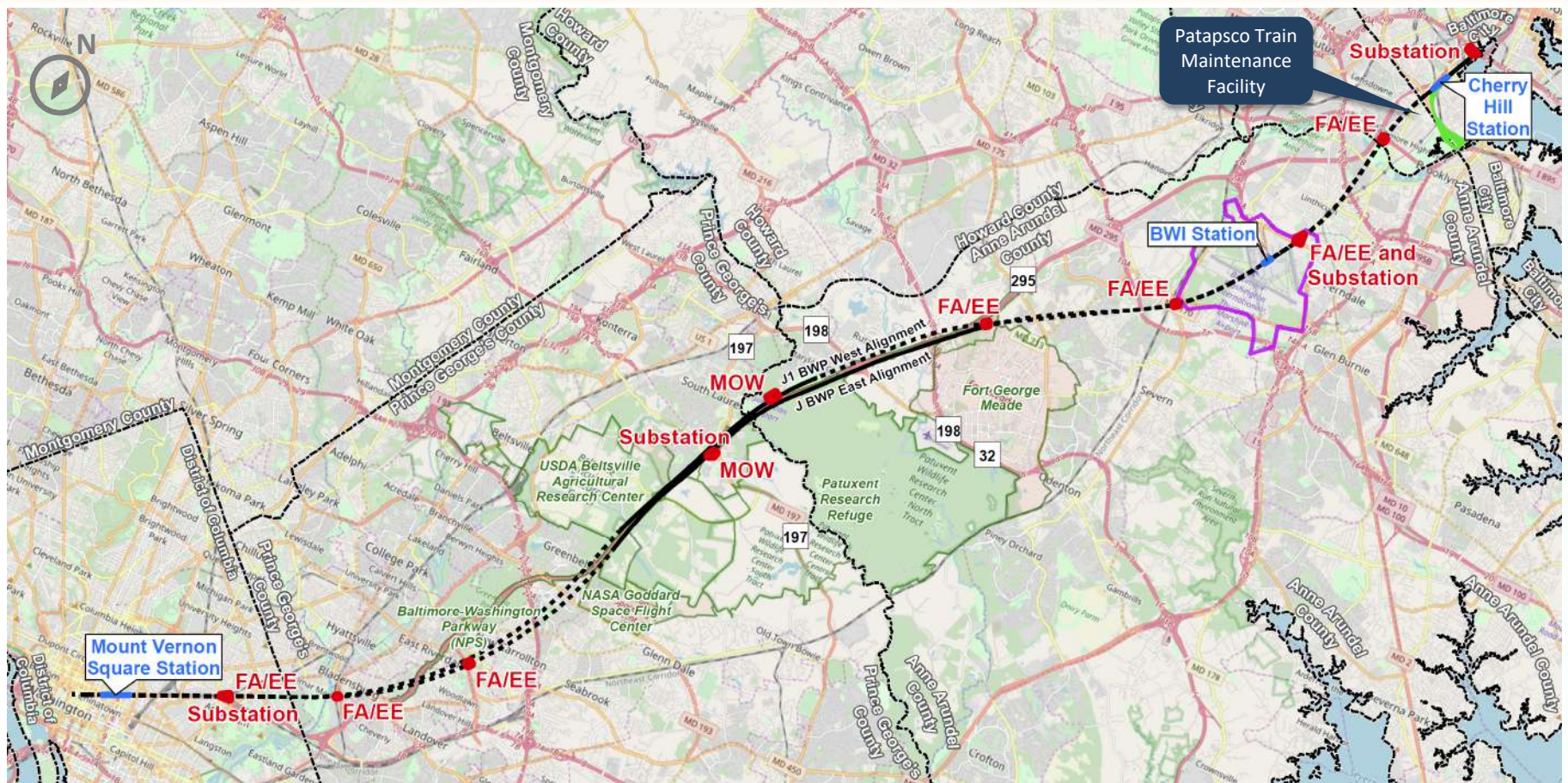
EIS process investigates Route Alternatives and includes:

- Investigations/Studies (communities, residences, businesses, cultural, parks, natural resources, noise/vibration, emf, traffic, etc.)
- Public Involvement
- Agency Coordination



Orange color denotes current phase

Facilities Overview

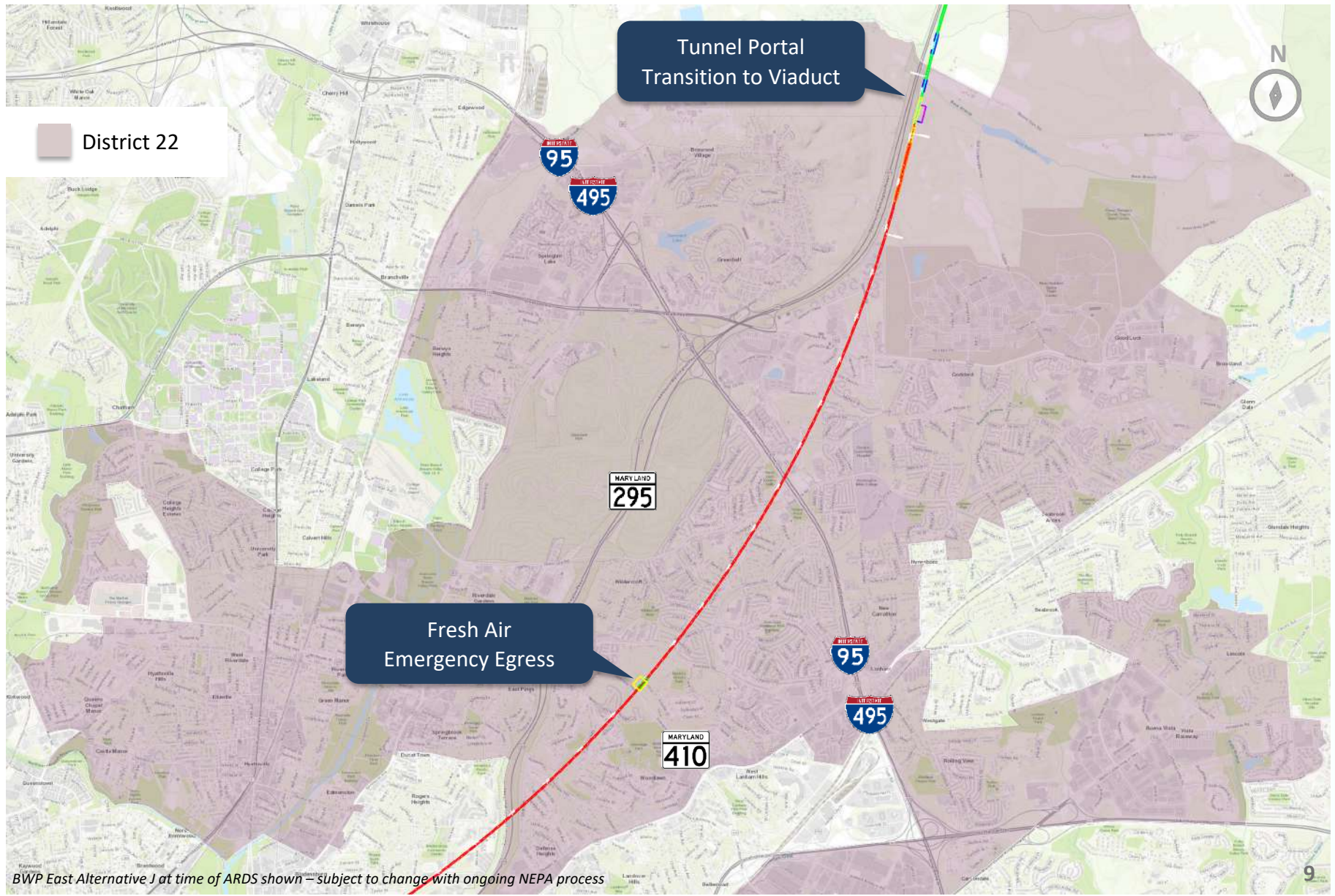


FA/EE – Fresh Air & Emergency Egress

Substation – Provides electrical power for all systems

MOW – Maintenance of Way facility (equipment for guideway maintenance and safety checks)

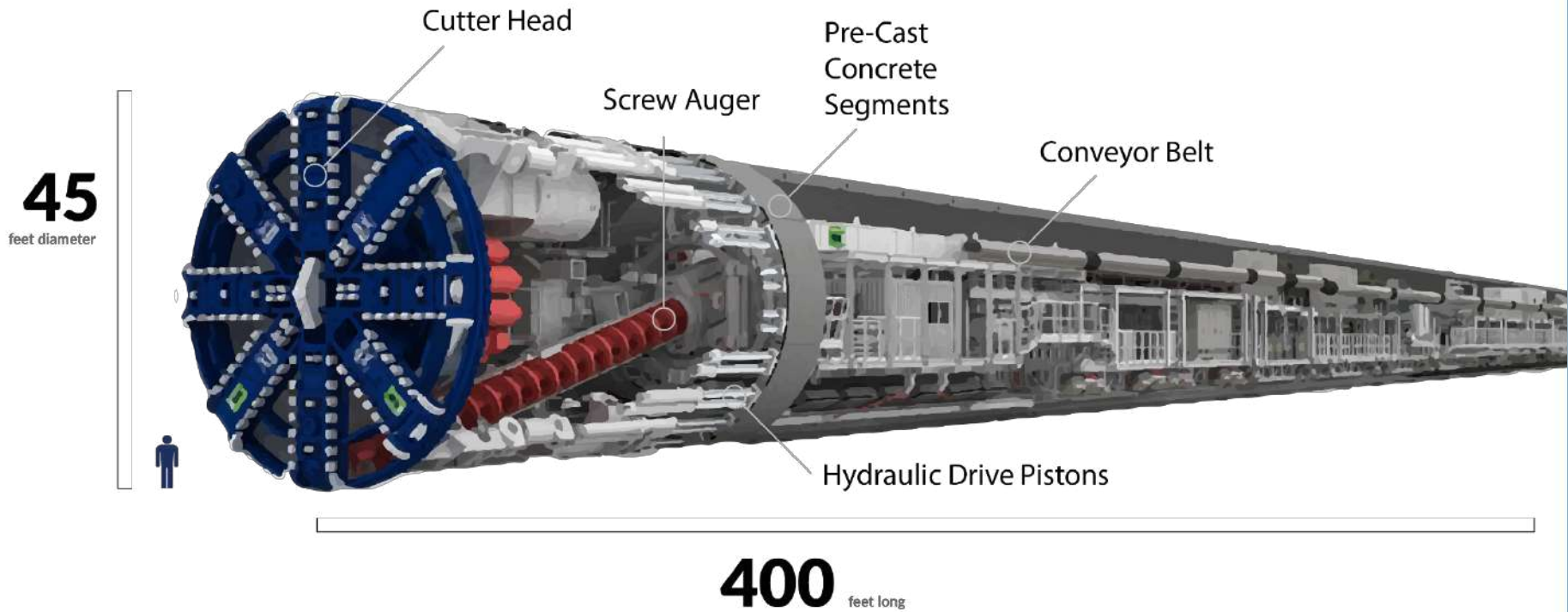
District 22 Overview



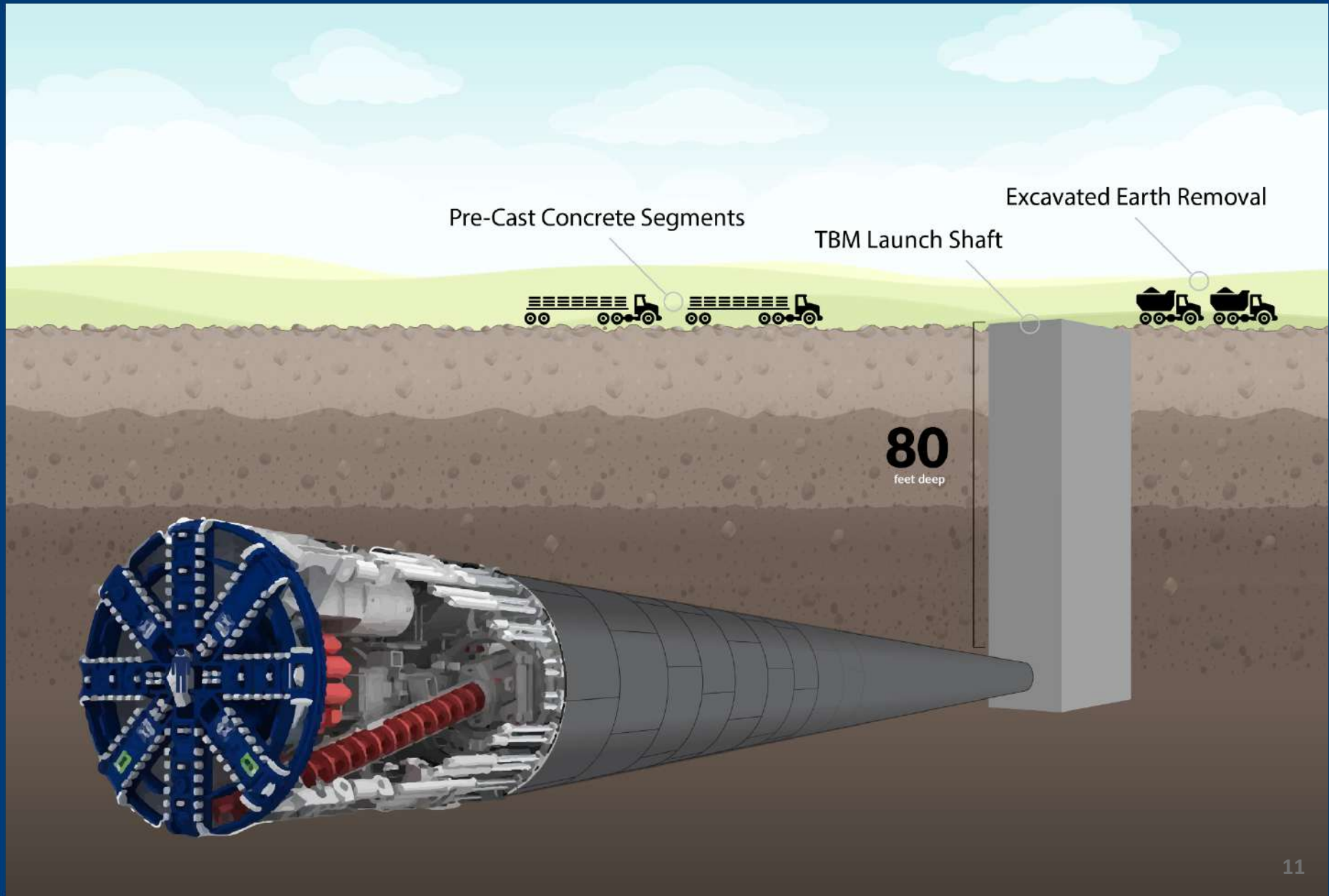
BWP East Alternative J at time of ARDS shown – subject to change with ongoing NEPA process

Modern Tunnel Boring Machine - TBM

“Self Contained Tunnel Factory”



Deploying TBM Technology to Build Route



Examples of Deep Tunneling



Sound Transit – High Density Floating Slabs

Sound Transit Project

- Mined successfully beneath residences, historical churches, and University of Washington with historic buildings and sensitive electronic equipment
- 60 – 140 feet deep (avg: 100')



Barcelona Metro – Line 9 Tunnel with unique two-level design

Barcelona Metro – Line 9 Extension

- Longest automatic train operation metro line in Europe. Successfully mined under University of Barcelona, historic gardens, and hospital facilities
- 80 – 215 feet deep (avg: 150')

Examples of Deep Tunneling



Crossrail – Canary Wharf Station

Crossrail Project

- Mined successfully beneath historical buildings, sensitive structures, existing infrastructure, residences, businesses, and schools
- 80 – 130 feet deep (avg:105')



DC Clean Rivers – TBM Nannie

DC Clean Rivers Project

- 18 miles of deep tunnel throughout Washington, DC, passing under residences, churches, schools, and sensitive facilities
- 80 – 120 feet deep (avg:100')

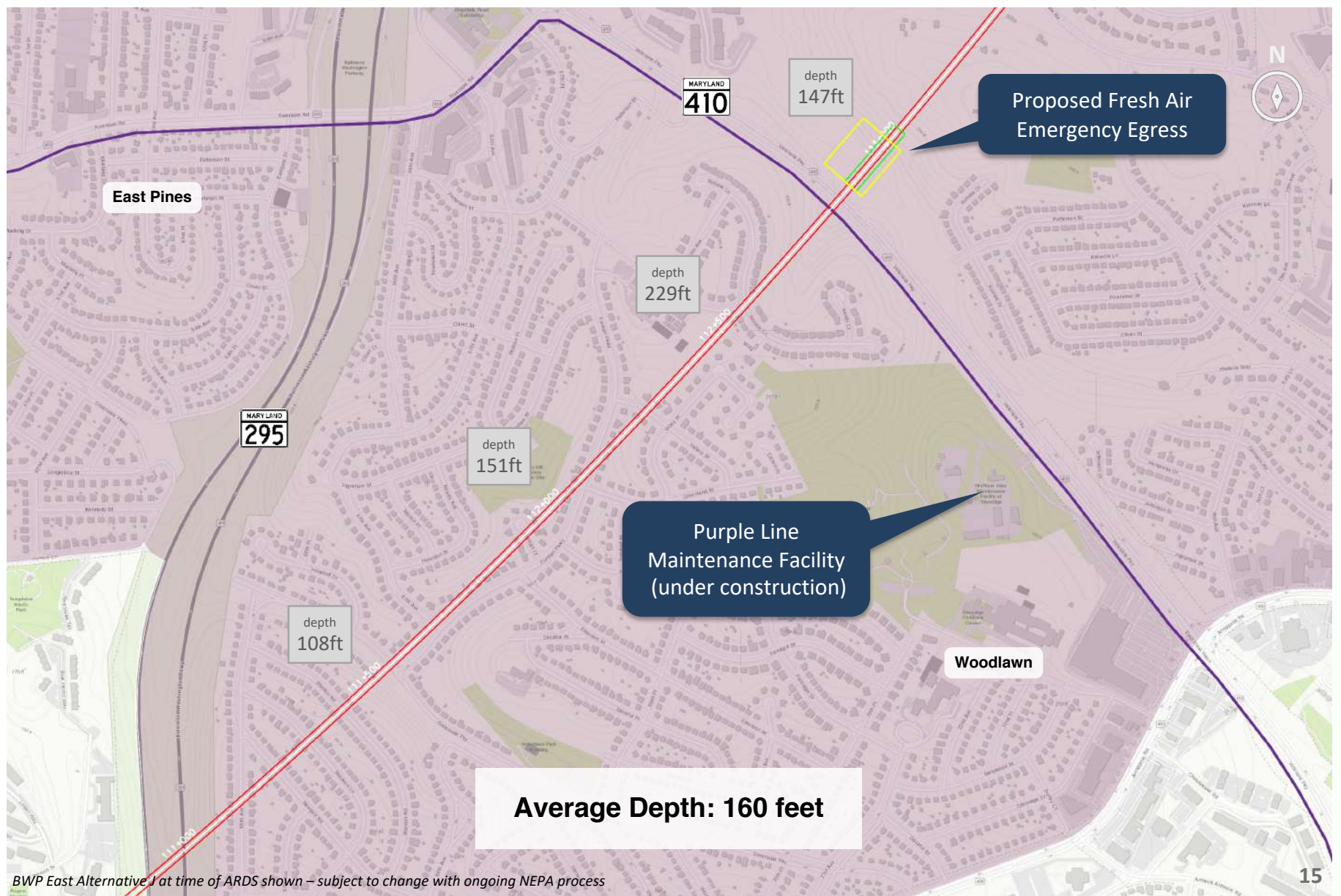


Monitoring for Tunneling Noise/Vibration

- Work proactively with property owners
- Noise and vibration limits are set in the contract specifications
- Monitored with trigger levels set to allow vibration and noise to be mitigated.
- Softer the ground, the less vibration-prone conditions



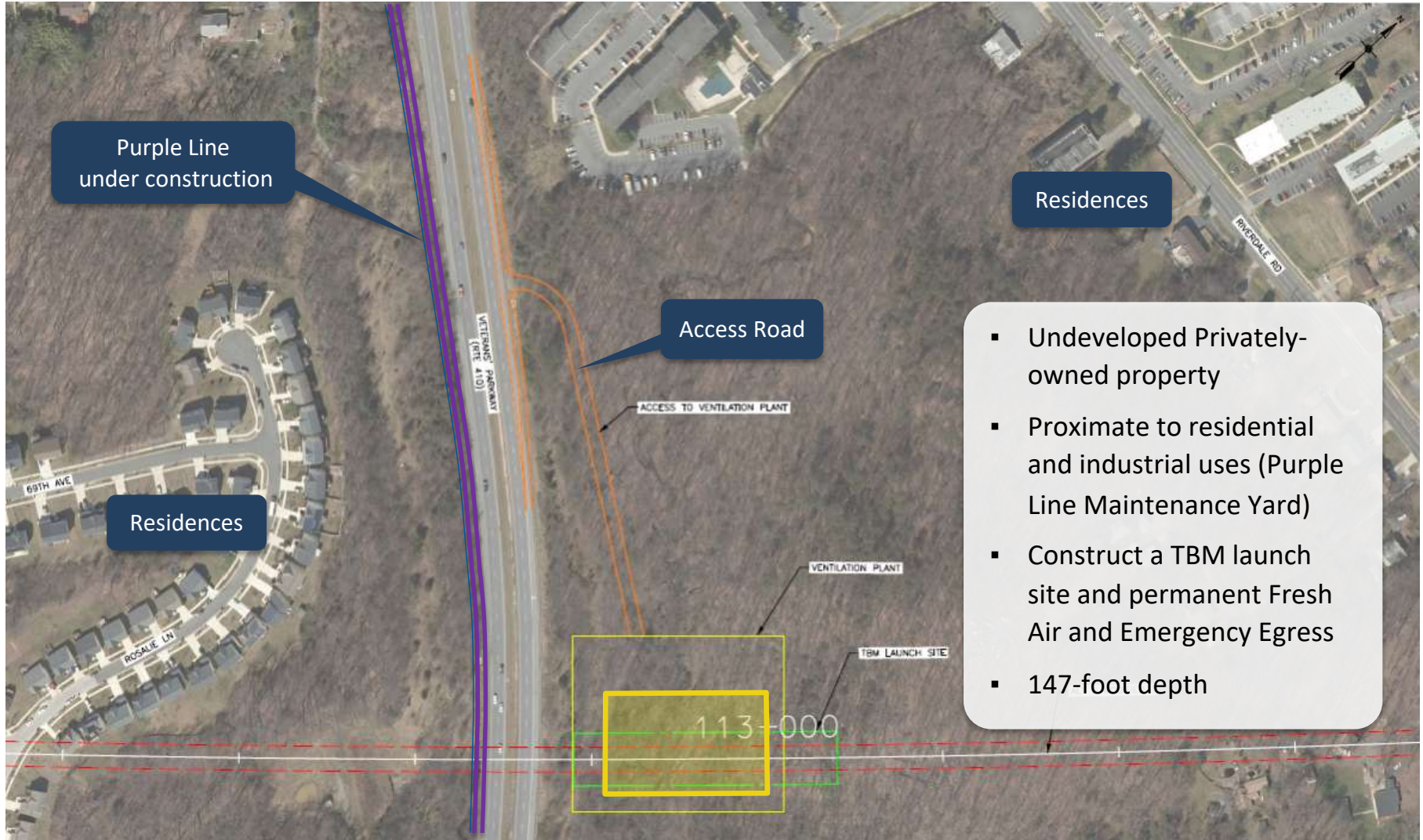
District 22: 295 to Riverdale Road



BWP East Alternative at time of ARDS shown – subject to change with ongoing NEPA process



Fresh Air and Emergency Egress - MD 410



All dimensions are approximate and subject to change, actual location will depend on route selected, J Alternative (as of ARDS) shown.



Fresh Air and Emergency Egress - MD 410

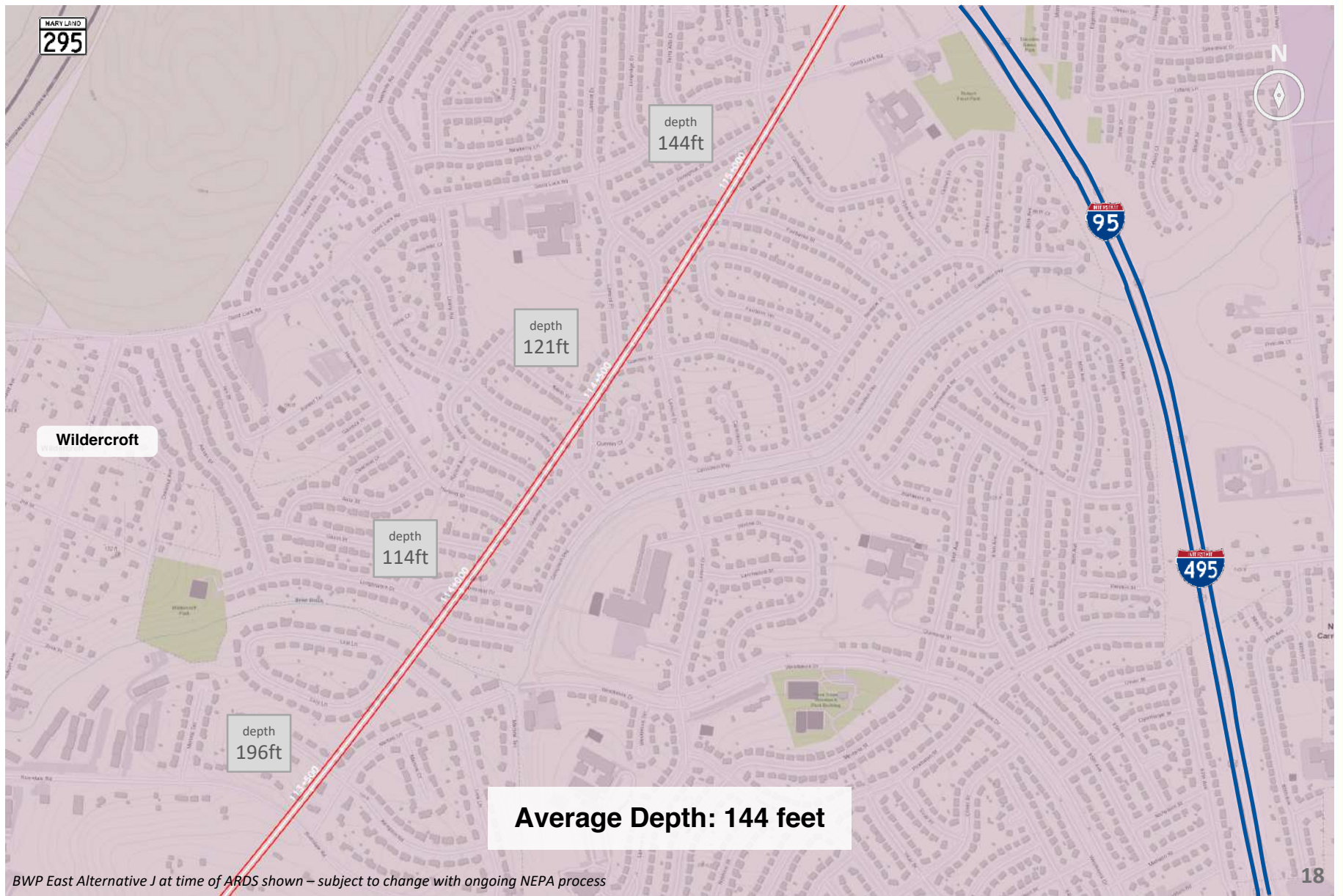
- Provides emergency ventilation of tunnel and emergency exits
- Spaced at approximately every 3 miles
- Repurpose TBM launch shafts
- Site size: 3 acres

Purple Line
Maintenance Facility
(under construction)

Proposed Fresh Air
Emergency Egress

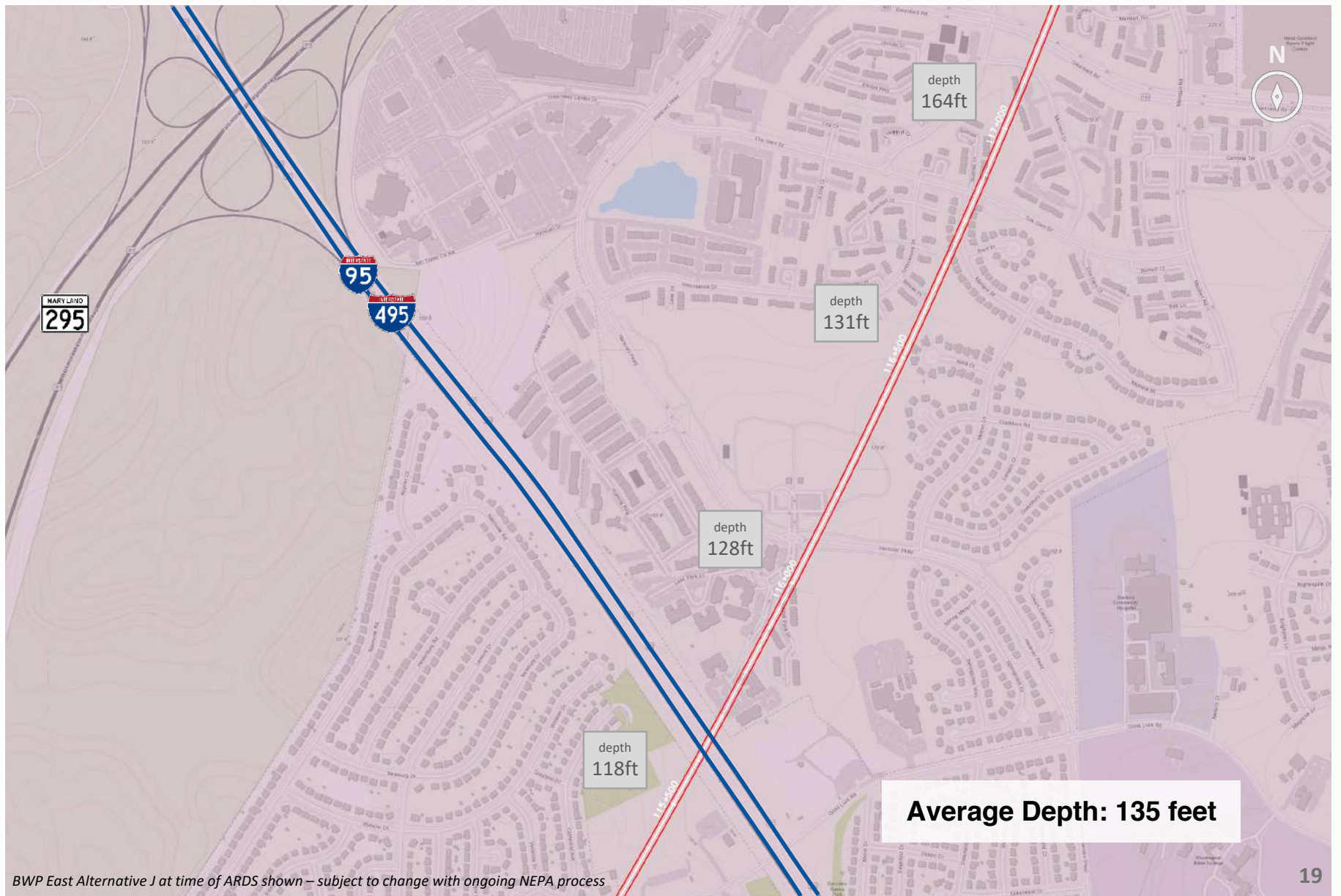


District 22: MD 410 to 495/95



BWP East Alternative J at time of ARDS shown – subject to change with ongoing NEPA process

District 22: Good Luck Rd to 193

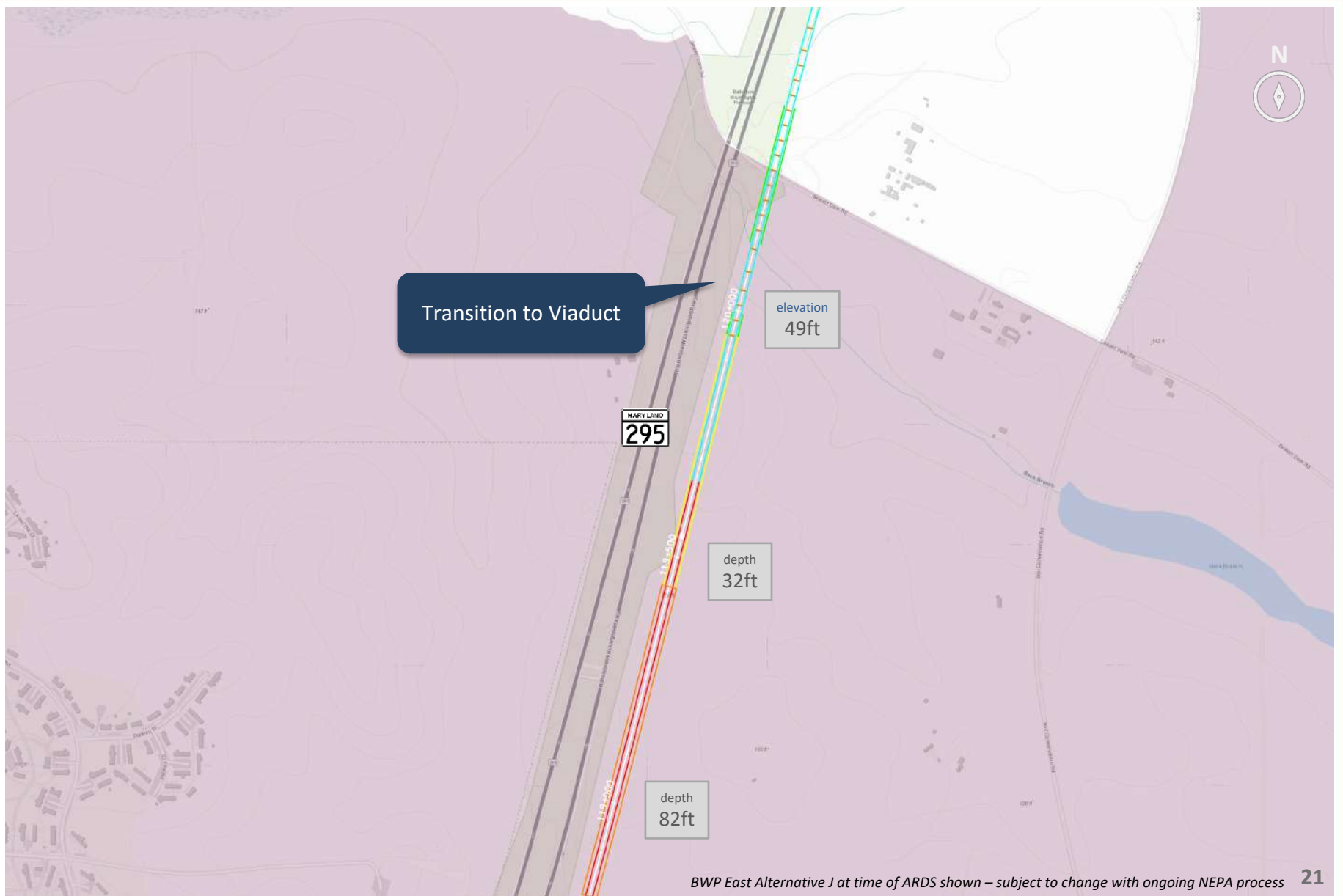


BWP East Alternative J at time of ARDS shown – subject to change with ongoing NEPA process

District 22: 193 to Tunnel Transition



District 22: Transition to Viaduct





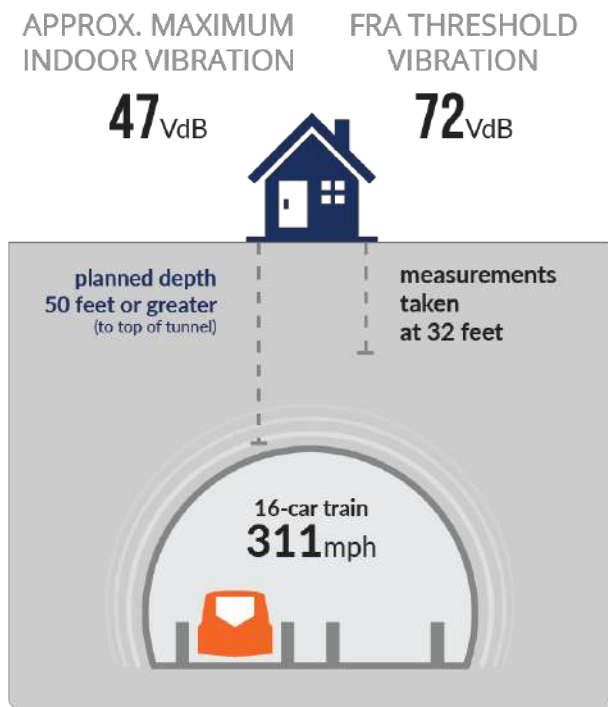
Tunnel Portal at BARC



Vibration | Electromagnetic Fields

VIBRATION

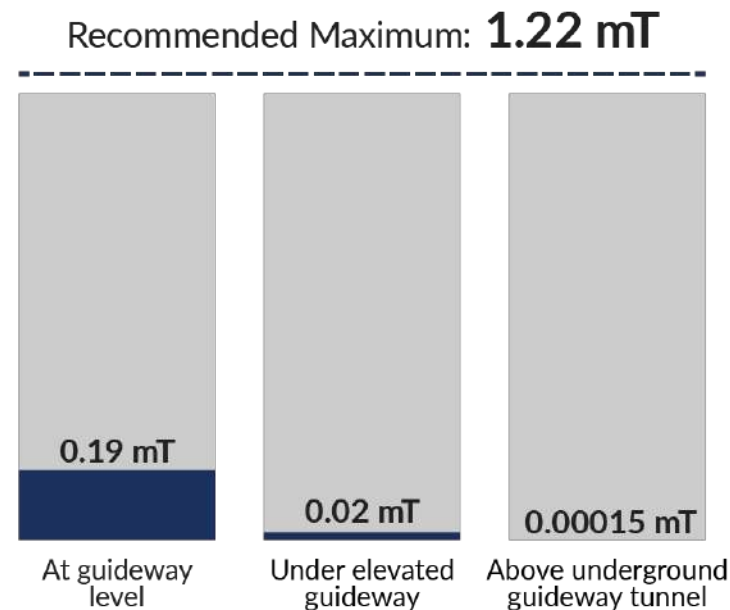
When adjusted for foundation materials and resonance, outdoor measured vibration level of 46 VdB becomes 39 to 47 VdB indoors (depending on construction materials) - **significantly below FRA thresholds** for normal buildings.



Drawings are for illustrative purposes only and not to scale

EMF

The SCMAGLEV system meets all exposure guidelines recommended by the World Health Organization.



International Commission on Non-Ionizing Radiation Protection

Noise



At high speeds, SCMAGLEV makes no contact with the guideway
The only noise comes from displaced air

NOISE



No Steel Wheels Grinding on Rails

At high speeds, SCMAGLEV trains levitate with no physical contact with the guideway



No Squealing Brakes

SCMAGLEV uses magnetic forces for acceleration and deceleration, not physical braking systems



No Diesel Engines

The SCMAGLEV system is powered by incredibly efficient superconducting magnets



High Aerodynamic Shape

The profile of the SCMAGLEV helps to minimize air disturbance noise



U-Shaped Guideway

The cradle design partially encloses the train, helping to minimize noise

At 311 mph, an SCMAGLEV train passes by in a matter of **seconds**



Building to Improve the Future

- SCMAGLEV Technology – refined over decades
- State of the art construction methods – used all over the world
- Process driven by agency coordination and public input
- Thousands of construction and permanent jobs – fair paying
- Air quality benefits – shared by all
- Next Steps:
 - Select Preferred Route and Station Locations (Summer 2019)
 - Hold 5 Corridor wide public hearings (Fall 2019)
 - Record of Decision (Mid 2020)
 - Construction Start (Early 2021)

NORTHEAST MAGLEV

A PROVEN TRANSPORTATION SOLUTION

SCMAGLEV

for more information, visit:
www.northeastmaglev.com
www.bwmaglev.info