
# Amtrak Susquehanna River Rail Bridge Project

December 6, 2022

HNTB

AMTRAK®

# Introductions

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Pete Mazzeo

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# Safety and Security Briefing

## Emergency Preparation

Our physical address is _____

Who will call 911, and who is their backup?

Who is CPR/AED qualified?

Emergency equipment location

Evacuation plan


## Evacuation

Communicate the need to evacuate

Follow facility evacuation plan

Assist those who may need help evacuating

Wait for permission to re-enter the facility

## Situational Awareness

Proactively identify and mitigate hazards

Always be aware of surroundings

Follow rules and policies

## Health and Welfare

Wellness is a priority

Take seasonal precautions

Isolate if sick

## Security

See something, say something: call 800-331-0008 / text 27311

Active Shooter: Flee, Hide, Fight

Display and verify proper ID on Amtrak property

## Cybersecurity

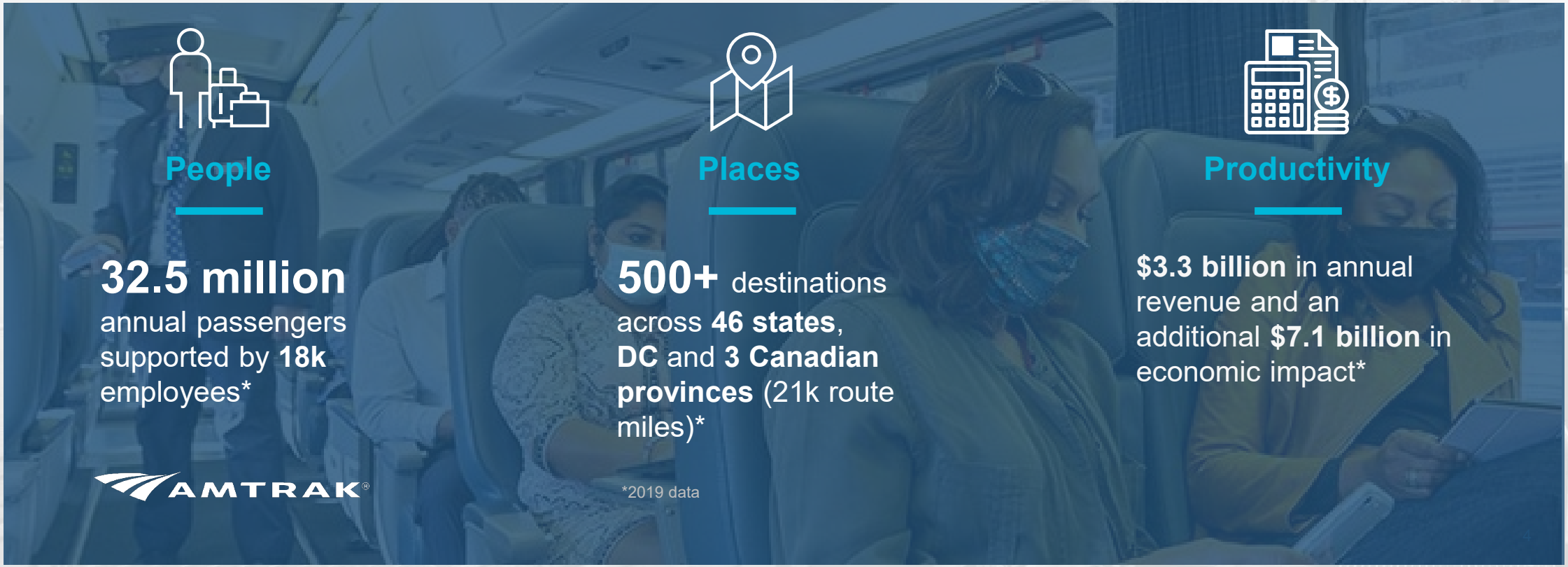
Pay attention to phishing traps in emails

Don’t click on links or attachments from unknown sources

Report all suspicious email and cyber incidents

# America's Railroad ®

- Congress created Amtrak in 1970, and the company began operations in 1971



### People

**32.5 million** annual passengers supported by **18k** employees*

### Places

**500+** destinations across **46 states**, **DC** and **3 Canadian provinces** (21k route miles)*

*2019 data

### Productivity

**$3.3 billion** in annual revenue and an additional **$7.1 billion** in economic impact*

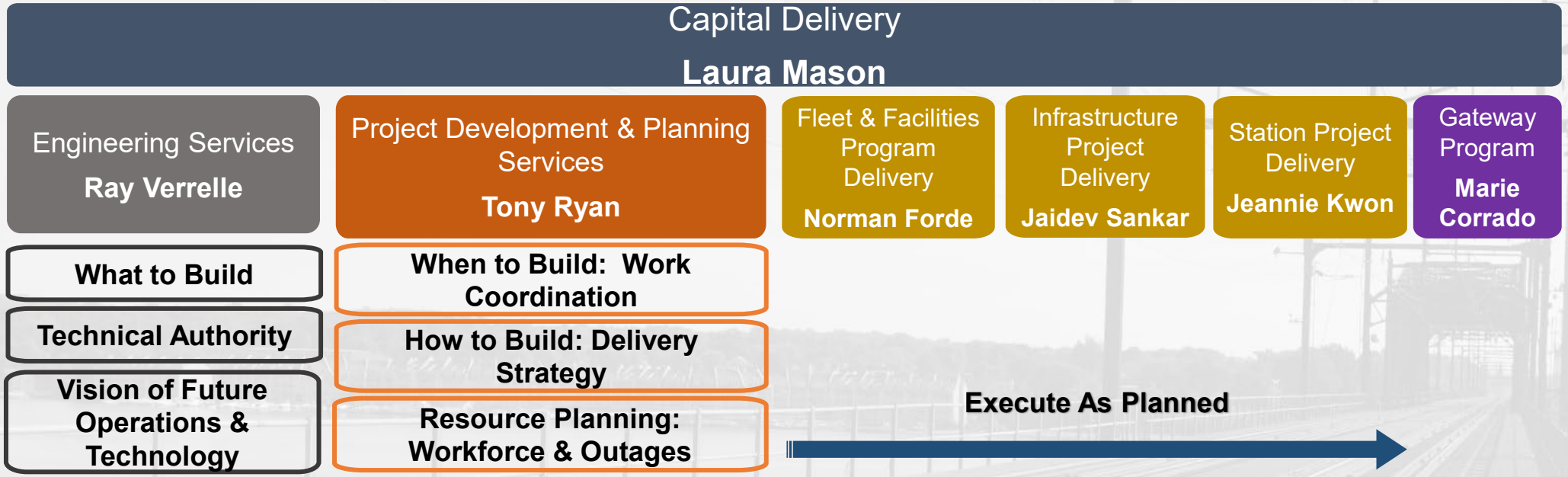
# Opportunity for Generational Investment

- The Infrastructure Investment and Jobs Act (IIJA) provides **$66 billion over five years** in advance appropriations for intercity passenger and freight rail, including:
- **$22 billion for grants to Amtrak for new rolling stock; ADA stations; eliminating deferred capital backlog**
  - $6 billion for Amtrak's Northeast Corridor (NEC) grant
  - $16 billion for Amtrak's National Network grant
- **$36 billion for new FRA Federal-State Partnership for intercity passenger rail (IPR) grants**
  - Not more than $24 billion for NEC projects (to support CONNECT NEC 2035)
  - At least $12 billion for non-NEC capital projects (to expand or establish new intercity passenger rail service, including high-speed service; to achieve / maintain a state of good repair; or to improve performance)
- **$8 billion for broad rail program for passenger, freight, and safety**
  - $5 billion for Consolidated Rail Infrastructure and Safety Improvements (CRISI) grants
  - $3 billion for a new Railroad Crossing Elimination grant program

**Amtrak has two major goals for using increased funding:**

1. Address our backlog of capital projects and build the infrastructure required for America's *future* transportation needs
2. Expand our network to help fight climate change and offer more equitable transportation access to underserved communities

# Opportunity for Generational Investment



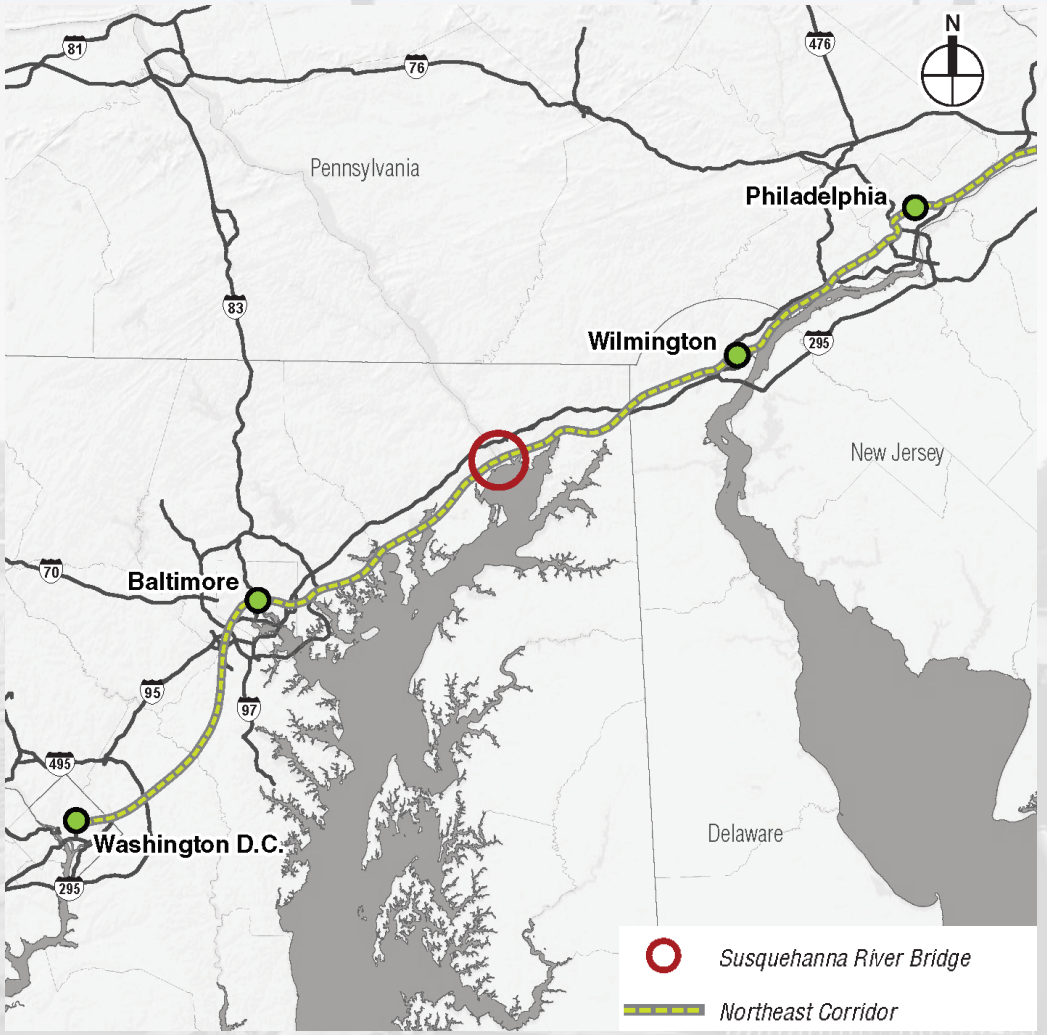

- New Department established with core "business" of capital project delivery
  - Build world class delivery capability and credibility
  - Holistic approach to *effectively* and *efficiently* planning and execution of $6.5 billion average annual program
  - Improve project outcomes: *safely* deliver *quality* assets *as planned*
  - Increase visibility and accountability through enhanced processes and expertise
  - Expand Competition to Optimize Implementation Solutions

# Agenda

- Project Description/Background
  - Operations: existing/proposed
  - Benefits
  - Considerations
  - Community/Stakeholders
  - Environmental/Permits
  - Constraints
- Project Scope/Schedule
  - Early Action Packages
  - Main Project (Phases 1 and 2)
- Utilities/ROW/Workzones
- Design/Construction Considerations
- Procurement Schedule

# Project Description

- Future Rail Infrastructure
  - Five route miles including three interlockings
  - Replaces existing double track bridge with two new double track bridges
  - Upgrades 15 short-span bridges
  - Modernizing track, catenary and signals
  - 21st century safety and security



# Project Background

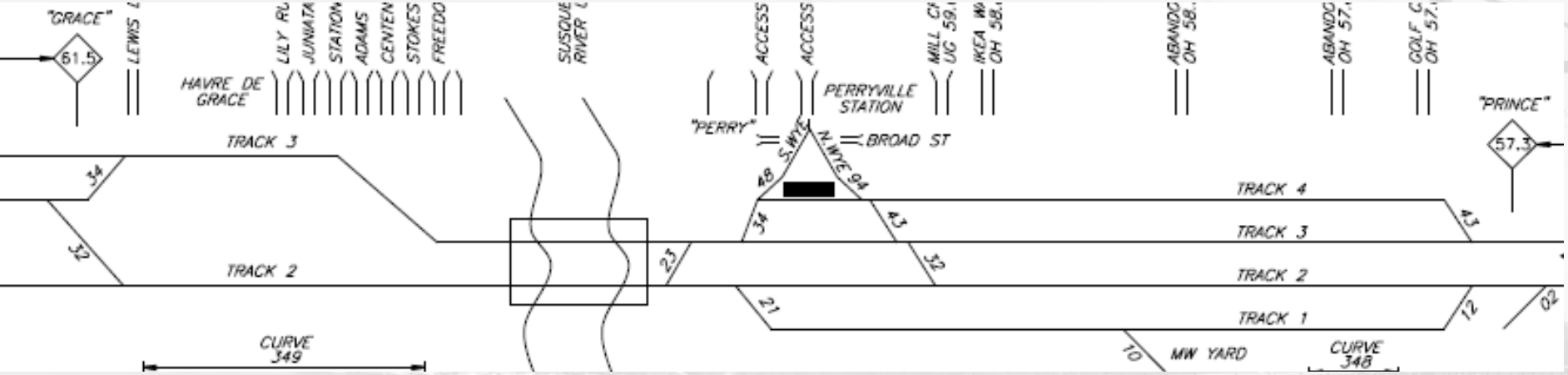
- Current Conditions
  - 1906 original double track structure
  - Movable swing bridge
  - Limits speed to 90 mph
  - Functionally obsolete
  - Escalating maintenance costs
  - Inefficient operational costs
  - Marine traffic openings delay train service

# Existing Operations

- Supports 3 Railroads
  - Amtrak – 80 to 90 trains per day
  - MARC – 12 to 14 trains per day
  - Norfolk Southern – 8 to 10 trains per day
  - CSX has operational rights

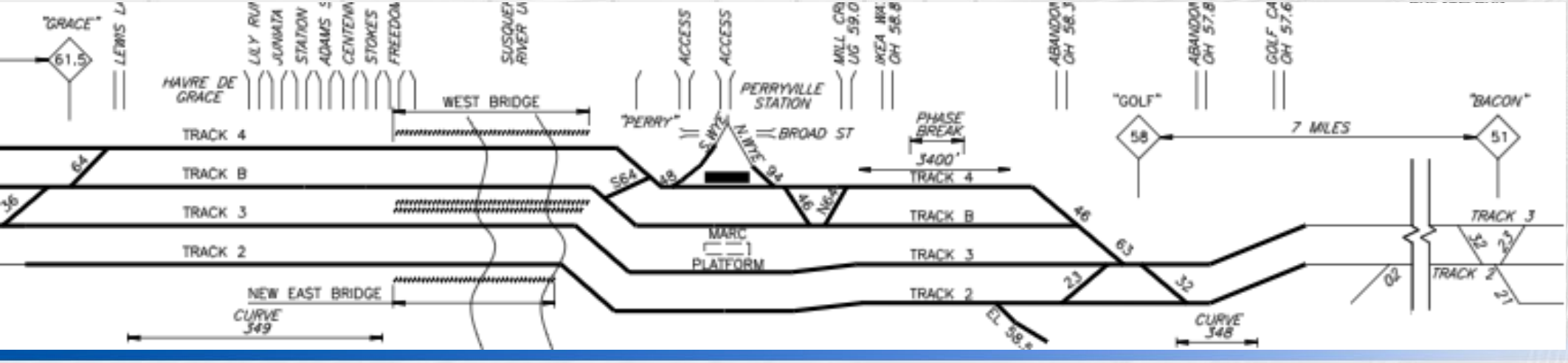
# Operations

## *Existing*




- Tracks shared (commuter/freight/AMTRAK) throughout
- 4 tracks in Perryville
- 2 tracks across bridge
- 3 tracks in Havre de Grace

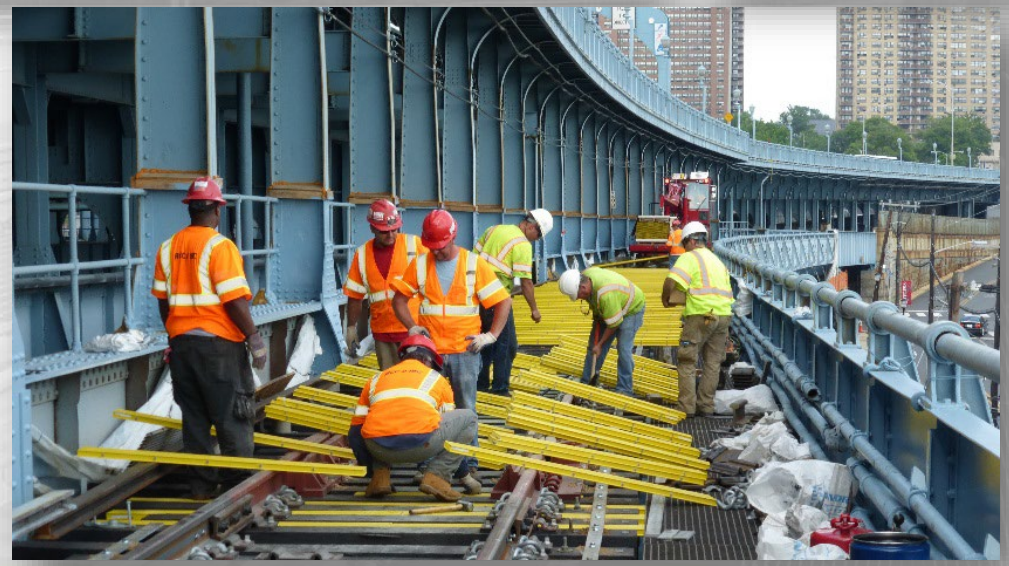
## *Proposed*




- 2 tracks dedicated to commuter/ freight and Perryville Station
- 2 tracks dedicated to Amtrak

# Project Benefits

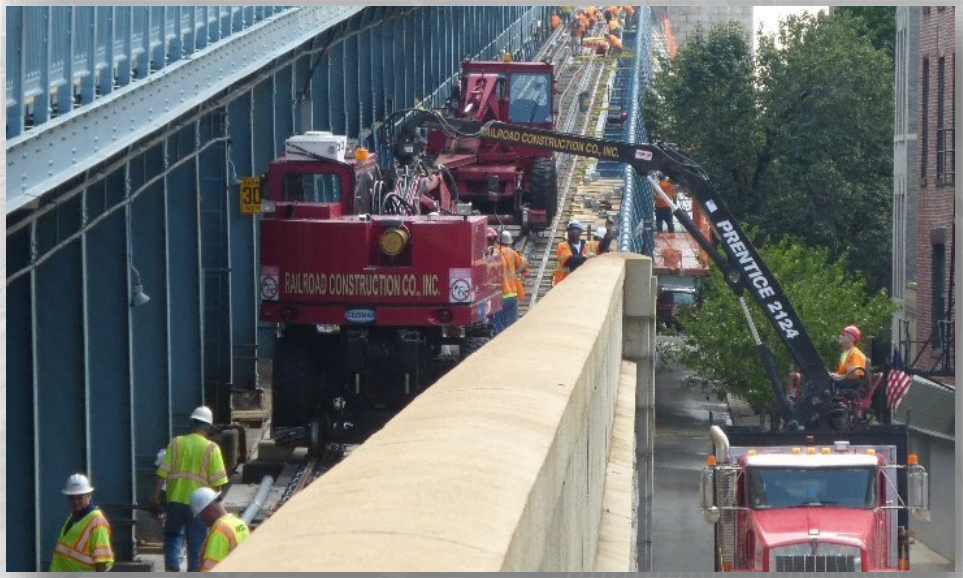
- Improves
  - Reliability
  - Passenger comfort
  - Trip times and frequency
- Reduces
  - Operating costs
  - Maintenance costs
- Provides future increased capacity for both passenger and freight



# Project Benefits

- Aligns with NEC Futures Program/Next Gen HSR
- Separates MARC/freight (100 mph) on two dedicated tracks
- Provides high-speed tracks for Amtrak (160 mph) on two dedicated tracks
- Greater flexibility for river traffic
- Regional job growth
  - 14,700 Direct/Indirect Jobs*
  - 9,200 Induced Jobs*

**Based on APTA Fact Book*

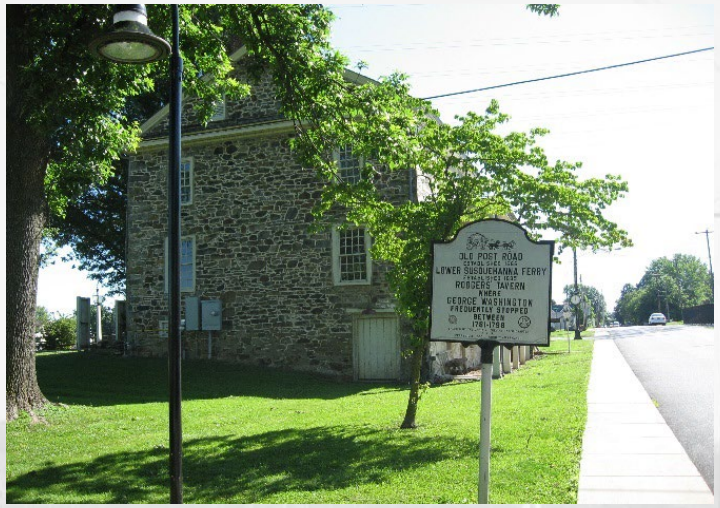


# Project Considerations – the Railroad

- Maintain rail operations (staging)
- Working near active, electrified tracks (work windows)
- Contractor - force account integration
- Early packages/long lead items
- Track Profile for freight

# Project Considerations – Community

- Property acquisitions
- Parkland
- School Property
- Roadway Impacts
- Marine Traffic





# Project Considerations – Stakeholders

## Local Stakeholders

- Town of Perryville Mayor and Commissioners
- City of Havre de Grace Mayor and Council
- Harford County Public Schools
- Adjacent Property Owners
- General Public
- Emergency Service Providers

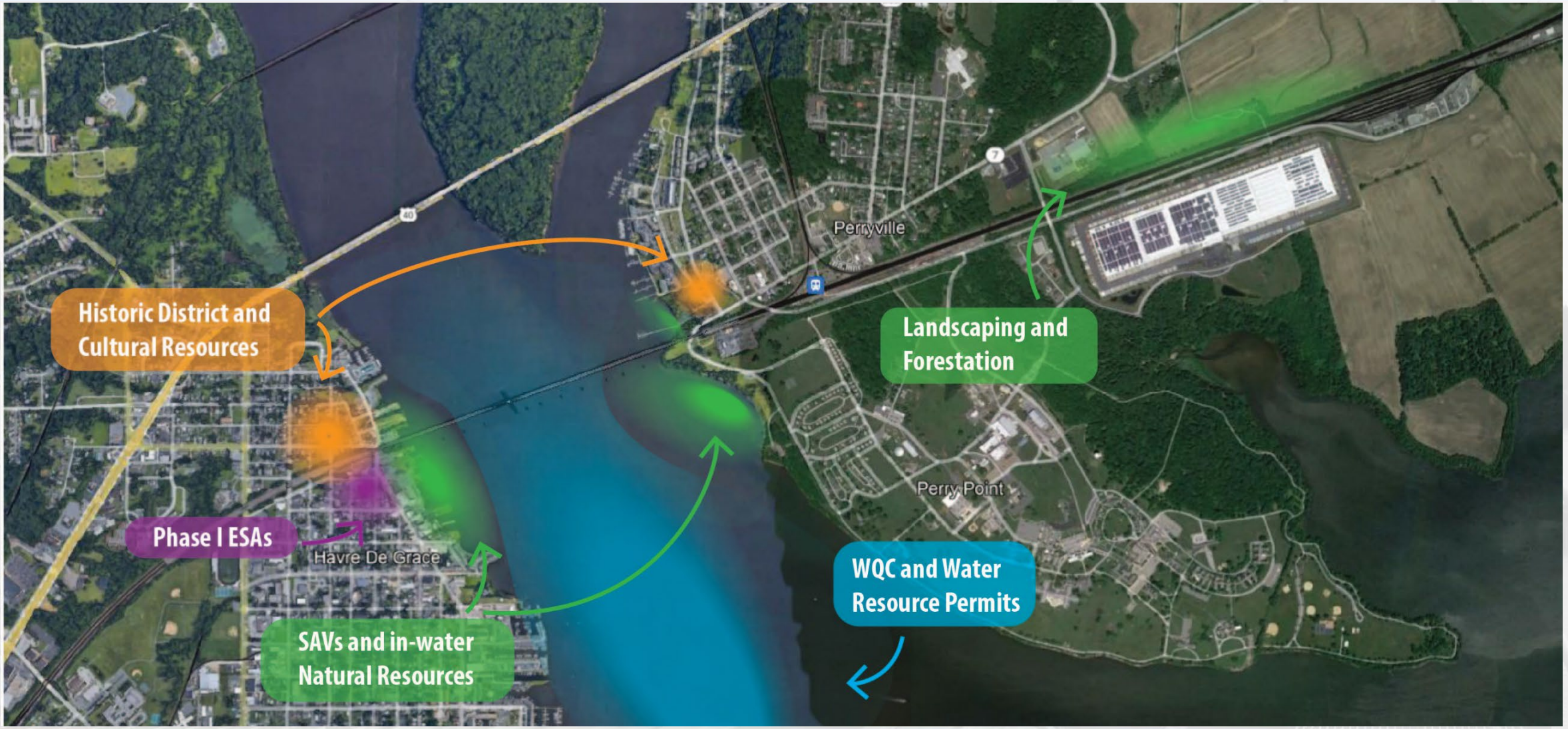
## State/Federal Stakeholders

- Harford & Cecil Counties
- Federal/State Regulatory Agencies
- Federal/State Elected Officials

## Transportation Stakeholders

- Transportation Agencies: MDOT, MARC
- WILMAPCO
- Norfolk Southern
- CSX

# Project Considerations – Environmental



# NEPA

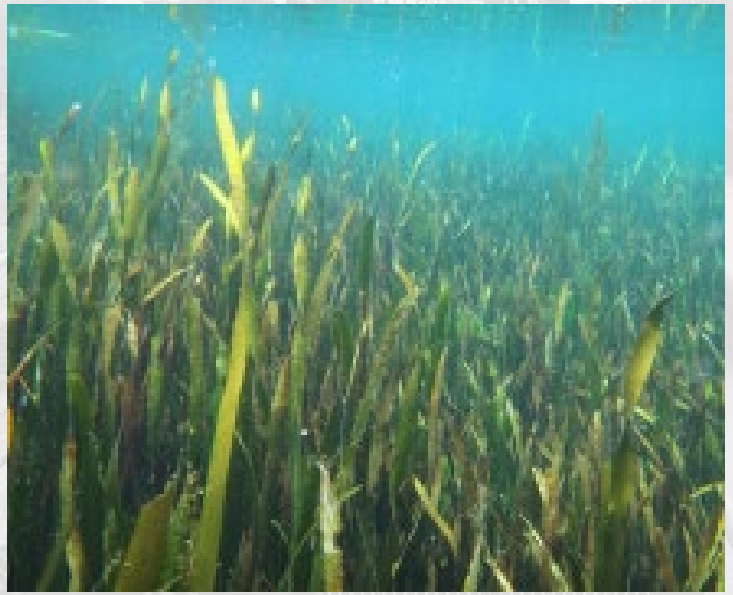
- 2011 – FRA selects MDOT for $22MM High-Speed Intercity Passenger Rail grant to begin NEPA process.
- March 2017 – FRA and MDOT prepared an Environmental Assessment to evaluate the potential impacts of the Project.
- April 2017 – 30% design completed.
- May 2017 – FRA identified Alternative 9A as the Preferred Alternative and published a FONSI.
- April 2017–March 2020 – Ongoing design efforts following FONSI (limited funding).
- March 2020 – Project paused due to COVID.
- Oct 2021 – Project restarted.
- Oct 2022 – NEPA Re-Evaluation prepared and submitted to FRA

# Overall Bridge Replacement Permits

- Joint Permit Application with MDE & USACE
  - Work in tidal wetlands
- USACE Section 10 & 404 Permits
- MDE 401 Water Quality Certification and alteration of navigable waterways
- US Coast Guard Section 9
  - Construction of a bridge over navigable waters
- Timeline
  - Anticipated permit submissions Q3 2023
  - Anticipated approval in 2024

# Constraints

- Time-of-Year (TOY) Restrictions for Rare, Threatened and Endangered (RTE) Species
  - February 15th – June 15th
    - MDE TOY Restriction for Anadromous fish
  - November 1st – April 1st
    - Department of Natural Resources (DNR) TOY Restriction for hibernating Map Turtles
  - April 1st – October 15th
    - TOY Restriction for impacts to Submerged Aquatic Vegetation (SAV) beds
- Mitigation required to allow limited work to take place during TOY periods.

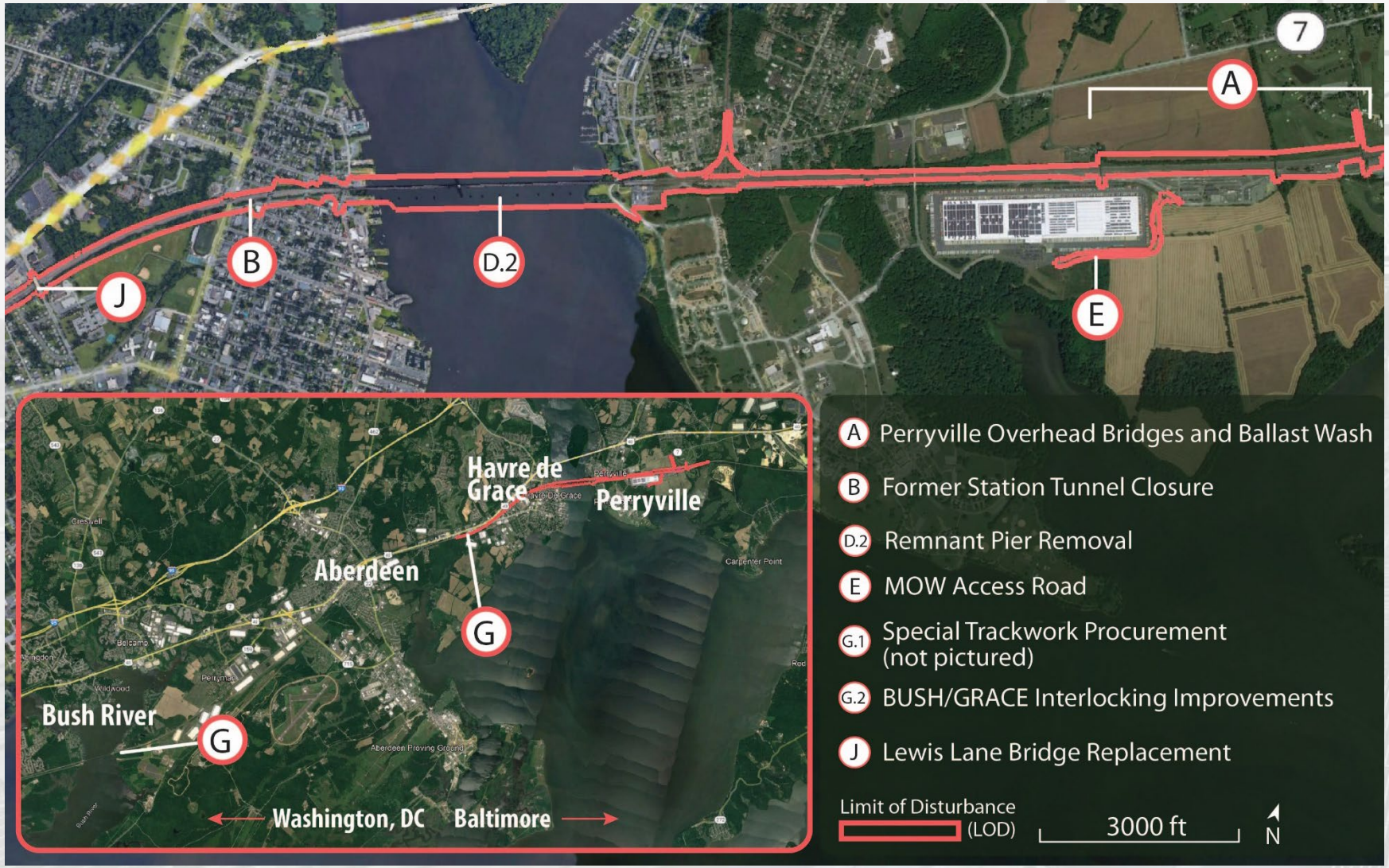


# Project Scope

- Potential Early Action Projects
  - Package A – Perryville Overhead Bridges
  - Package B – Former Station Tunnel Closure
  - Package D.2 – Remnant Pier Removal
  - Package E – MOW Access Road
  - Package G.1 – Special Trackwork Procurement
  - Package G.2 – BUSH/GRACE Interlocking Improvements
  - Package J – Lewis Lane Bridge Replacement

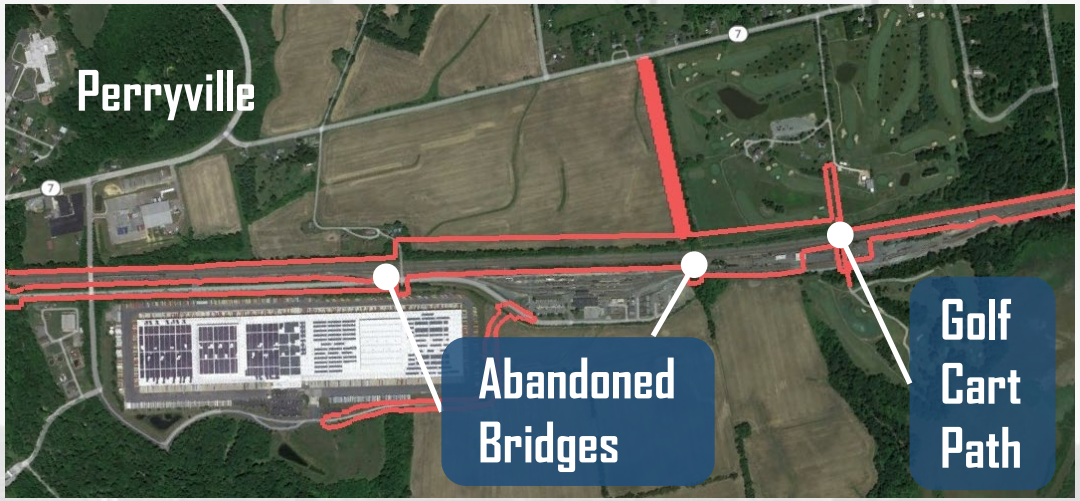
- Main Project Phase 1 – West Bridge, Existing Bridge Demo and Approaches
- Main Project Phase 2 – East Bridge and Approaches

# Early Action Packages - Overview



# Package A - Overhead Bridges

- Perryville Overhead Bridges
  - Demolition of two existing abandoned bridges
  - Raising Golf Cart Path Bridge
  - Ballast Wash system installation
  - Associated rail systems work

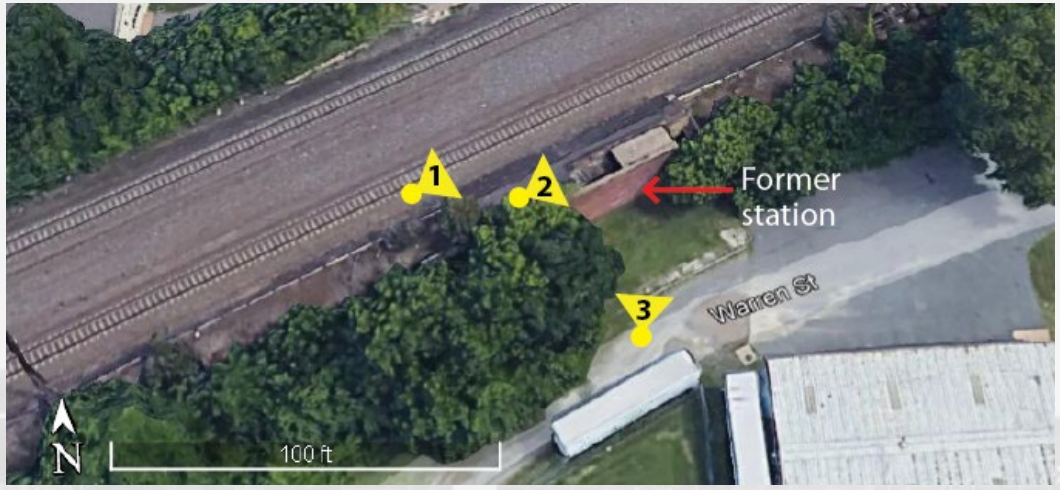



Abandoned Bridge

Abandoned Bridge

Golf Cart Path

# Package B - Former Station Tunnel Closure

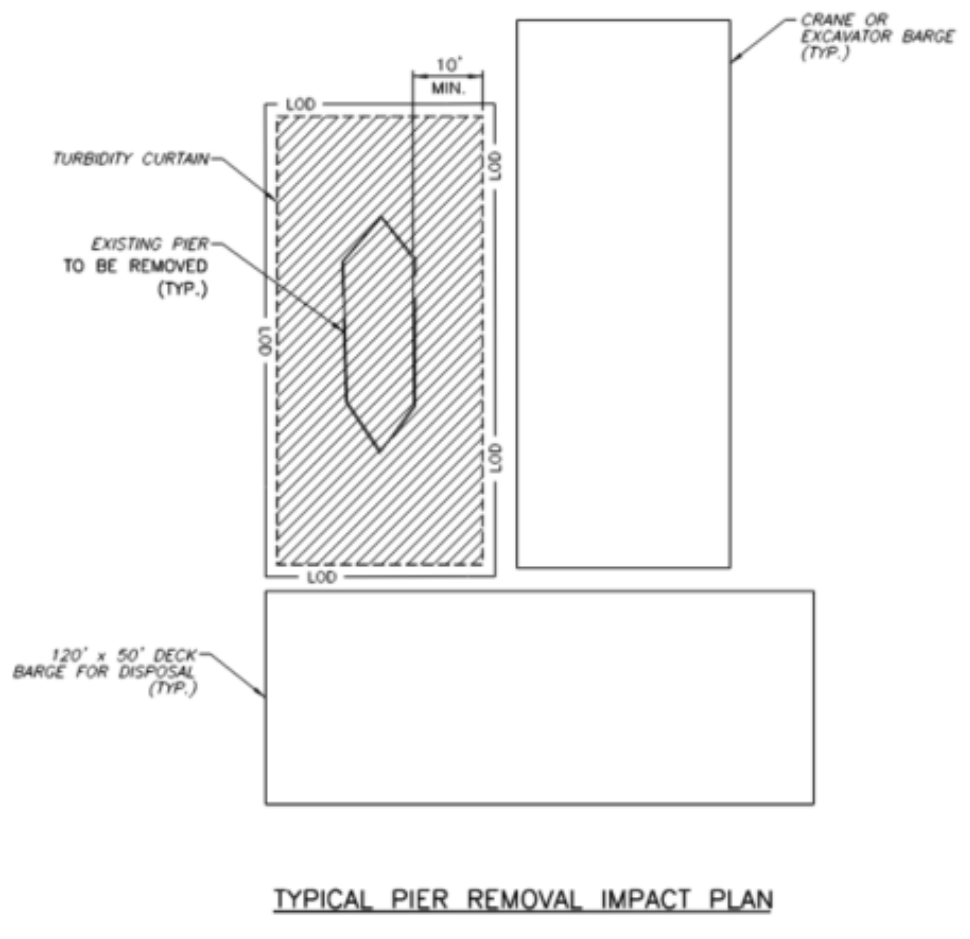







- Former Station Tunnel Closure
- Fill Abandoned Tunnel
- Construct Permanent Closure walls

# Package D.2 - Remnant Pier Removal

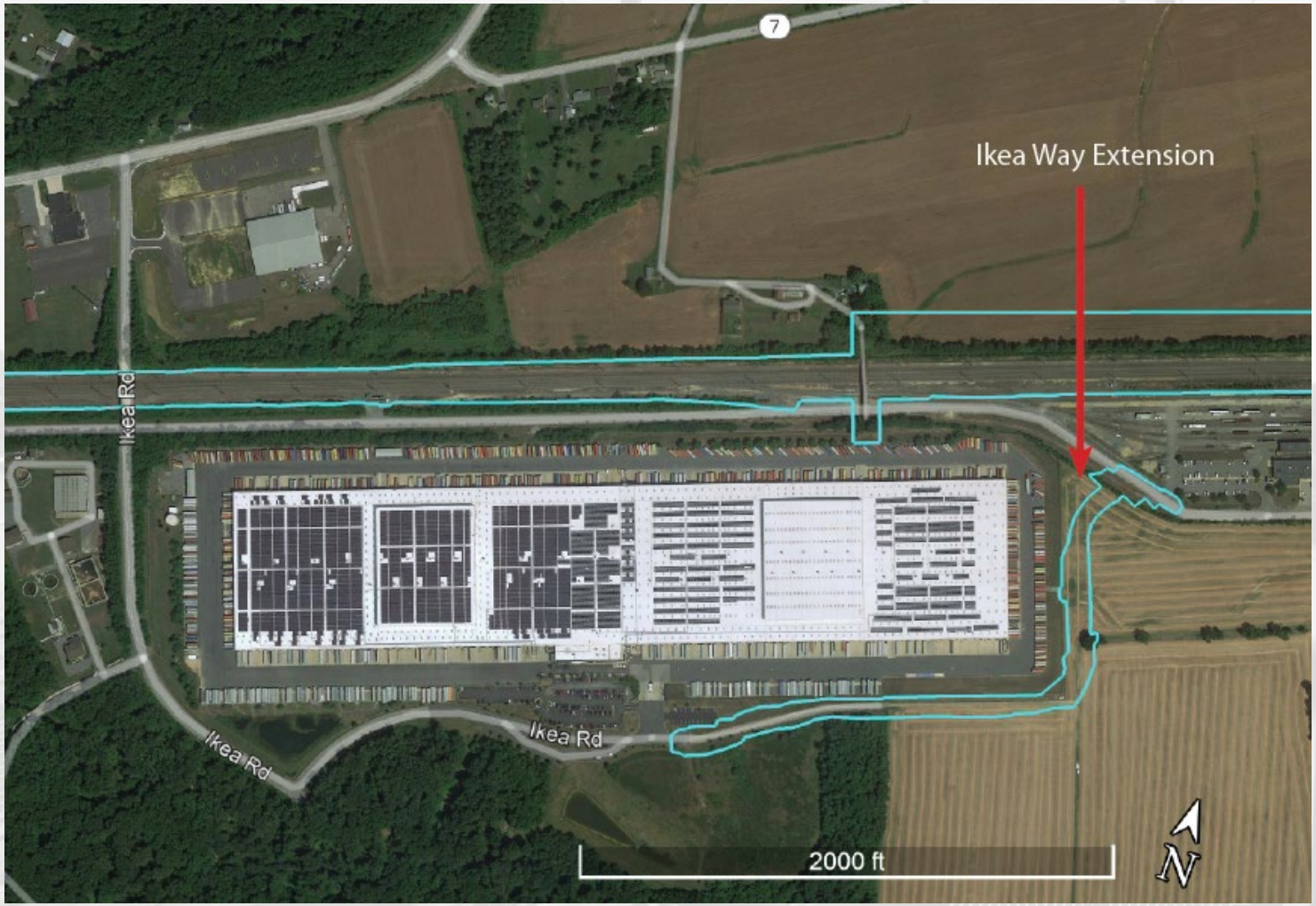



TYPICAL PIER REMOVAL IMPACT PLAN

- Demolition and removal of 10 remnant piers from the 1866 railroad bridge.
- Work to take place between June 15 – Oct 30 for eight of the ten piers.
- Work to take place between Oct 1 – Oct 30 for remaining two piers.
- Removal of piers closest to shoreline to be demolished within a cofferdam.
- Joint Permit Application (JPA) with Maryland Department of the Environment (MDE) & US Army Corps of Engineers (USACE)

# Package E - MOW Access Road

- New access road connection to Amtrak's Maintenance Facility in Perryville
- Provides direct access to Maryland Route 7 and US Route 40
- Accommodates large semitrailer trucks up to 100' long
- Scope of work:
  - +/- 2,500' of new paved roadway
  - 32' paved width, 2' stone shoulders
  - Roadside swales w/ stone check dams

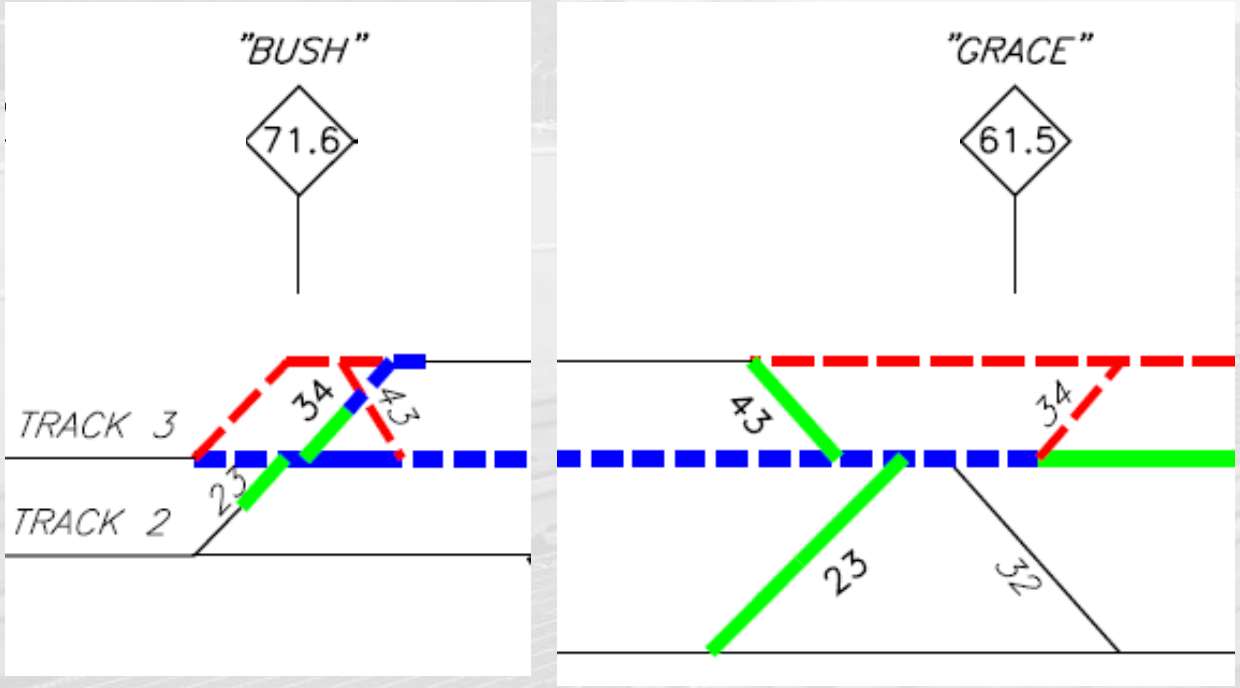


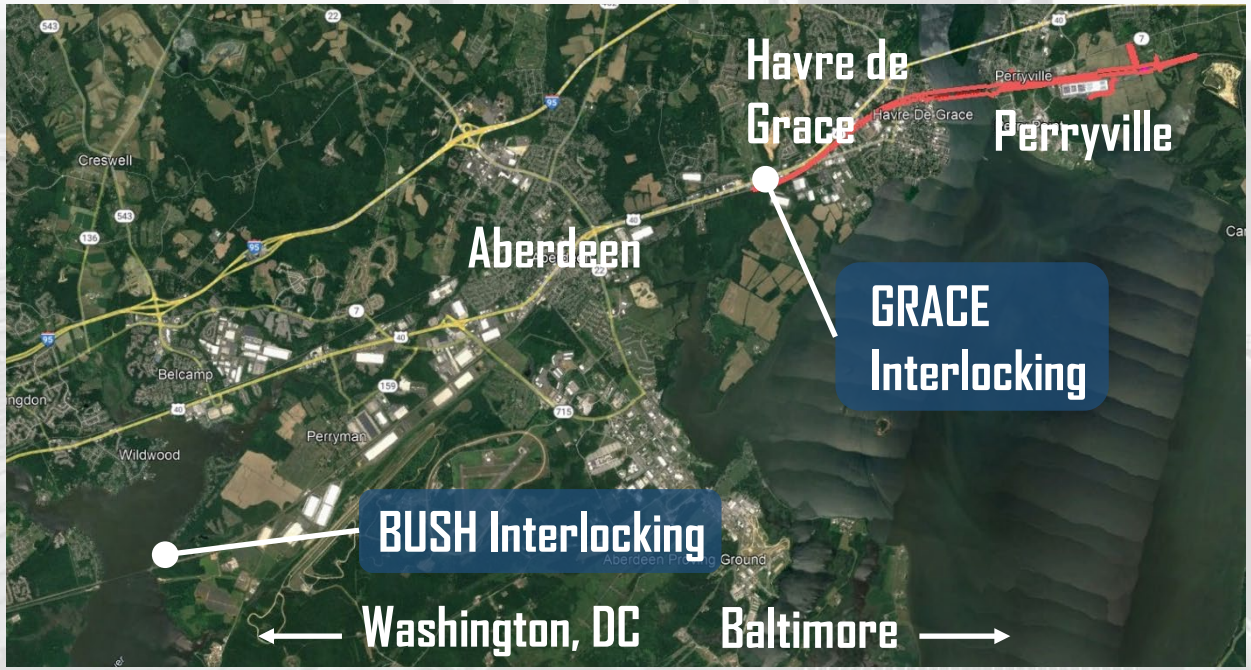
# Package G.1 - Special Trackwork Procurement

- Procurement of Long-lead material
  - Turnouts
  - Signal Equipment
  - Communications Equipment

# Package G.2 - BUSH/GRACE Interlocking Improvements

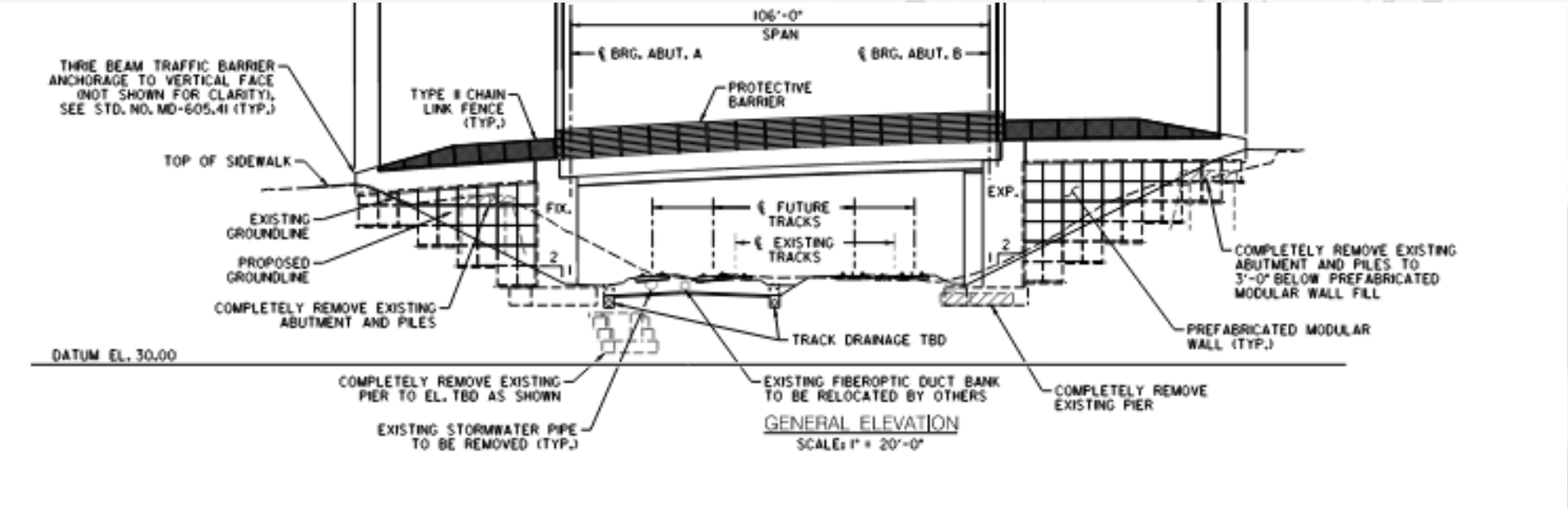
- BUSH Interlocking Improvements
  - Removing three #32.7
  - Installing three #24
  - New supporting signal and OCS infrastructure
- GRACE Interlocking Improvements
  - Removing one #32.7
  - Installing three #32.7
  - New supporting signal and OCS infrastructure



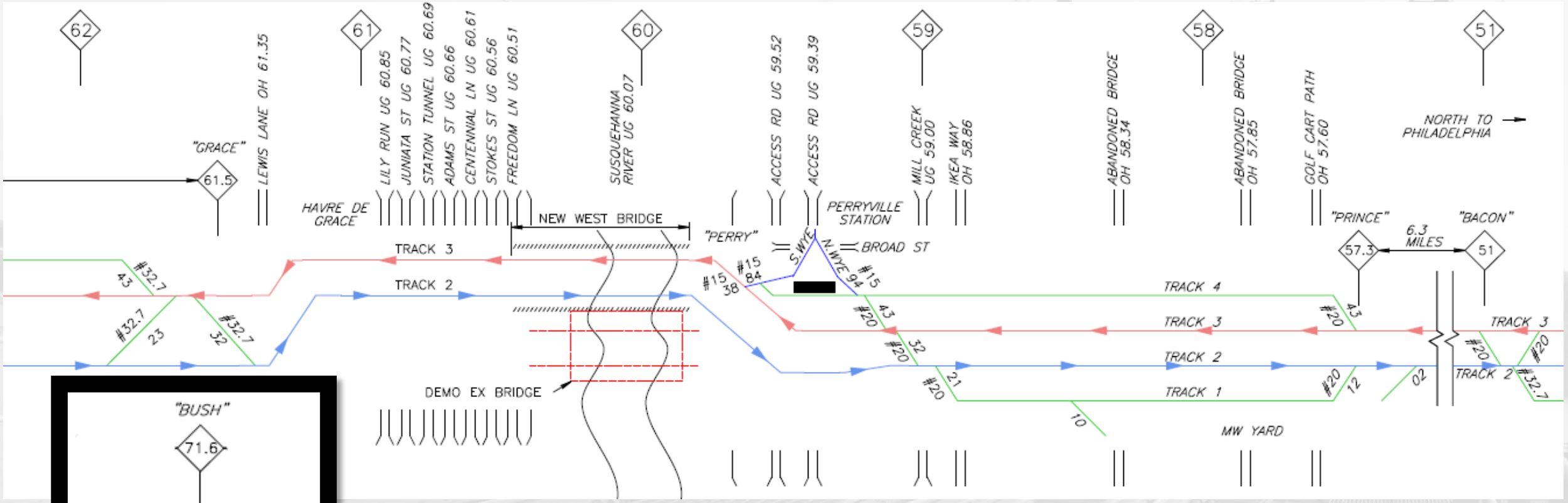



# Package J - Lewis Lane Bridge Replacement

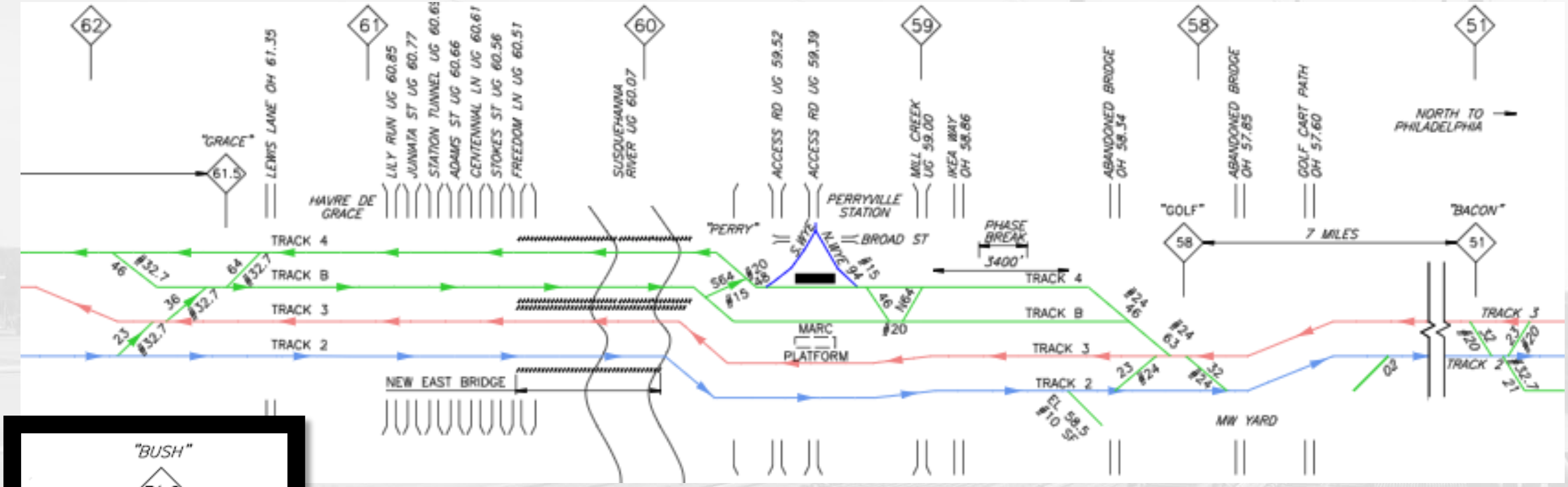
- Overhead Bridge Replacement
  - Demolition of 3-span bridge
  - Construct 1-span bridge
- Procurement through MDSHA



# Main Project - Phase 1



# Main Project - Phase 2



# Main Project - Phase 1 and 2 - Quantities

- Phase 1
- Structures
  - Structural Steel ~30M Lbs.
  - Reinforcing Bar ~13M Lbs.
  - Concrete 49k CY
  - Drilled Shafts ~8k LF
  - Retaining Walls ~65k SF
- Track/Rail System
  - Track ~31k LF
  - 7 Turnouts
  - Catenary 82 structures

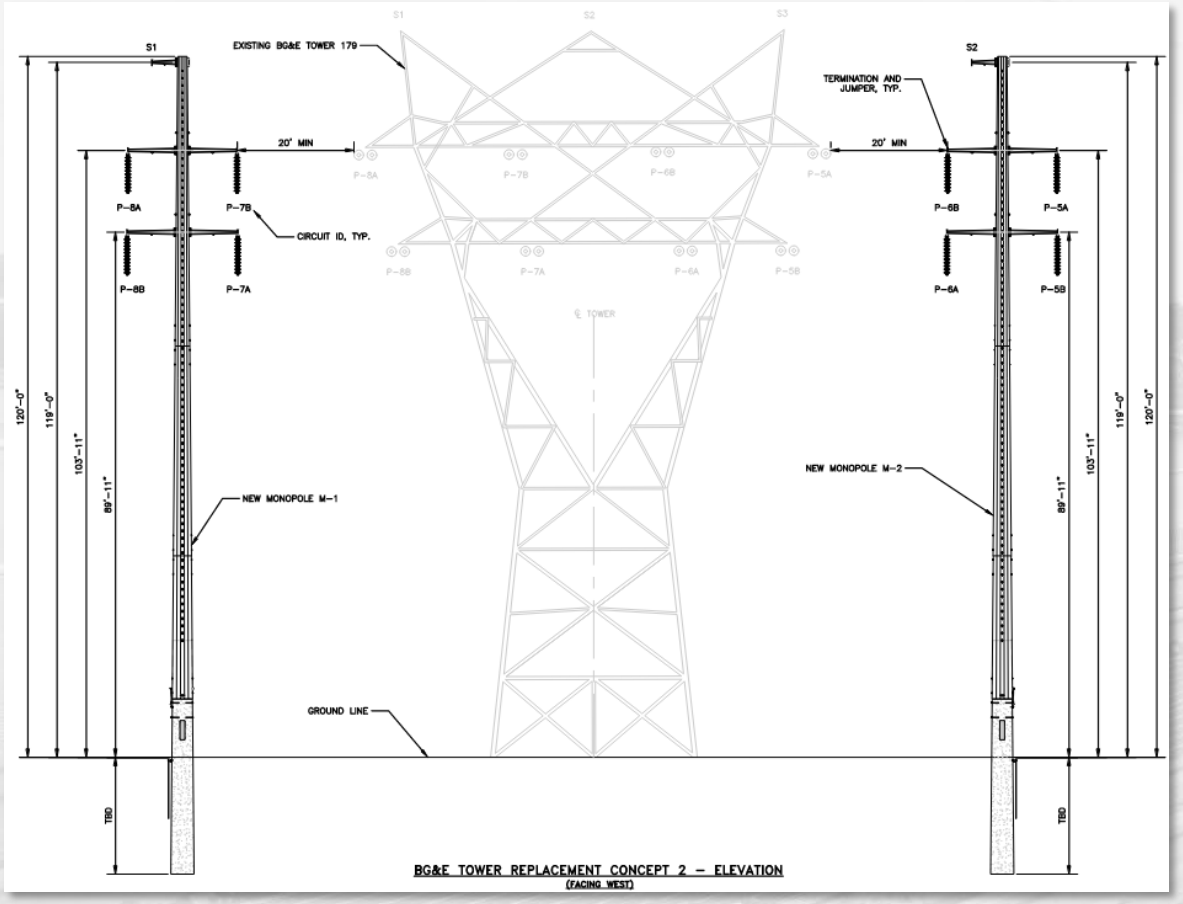
- Phase 2
- Structures
  - Structural Steel ~30M Lbs.
  - Reinforcing Bar ~15M Lbs.
  - Concrete 56k CY
  - Drilled Shafts ~8k LF
  - Retaining Walls ~92k SF
- Track/Rail System
  - Track ~92k LF
  - 22 Turnouts
  - Catenary 83 structures

# Utilities Summary

- Amtrak C&S Relocations/Improvements
- 3rd Party Fiber Optic Cable Relocations
  - Zayo (co-mounted to catenary poles)
  - Verizon MCI
  - CrownCastle
  - Lumen
- Public Utility Relocations
  - Delmarva Electric
  - BG&E Gas & Electric
  - Harford County Water Main
  - City of Havre de Grace Water
  - Golf Course Water Main
- Phasing
  - Utility relocations to occur early in Phase I where possible

# Utilities Summary

- BG&E Tower 179 Replacement (Design & Construction by BG&E)




# ROW Summary

- Right-of-Way Acquisition = 3.95 ac.
  - Anticipate 2 total takes, more than 15 partial/strip takes
- Permanent Easements = 8.60 ac.
  - Anticipate more than 20 easements of varying types needed, including Utility, Drainage, Access, Slope, etc.
- Temporary Construction Easements = 17.20 ac.
  - Anticipate more than 25 parcels affected
- Phasing
  - Goal: Right-of-Way & Easements for both phases to be acquired prior to Phase 1

# Workzone Summary


## *Havre de Grace, MD – MP 60 to MP 62*

1. Remnant Pier Demolition
2. Living Shoreline Restoration
3. MD Route 7A Realignment
4. 138kV Termination Structures
5. Undergrade Bridge Replacements
6. Harford County School Ball Fields
7. Lewis Lane Bridge Replacement
8. GRACE Interlocking

# Workzone Summary


## *Perryville, MD – MP 57 to MP 60*

1. PRINCE Interlocking
2. Golf Cart Path Bridge Replacement
3. New Ballast Wash Structure
4. OH 57.85 Abandoned Bridge Demo.
5. OH 58.34 Abandoned Bridge Demo.
6. New MOW Access Road
7. UG 59.00 Mill Creek Bridge Extension
8. PERRY Interlocking & Historic Tower Relocation
9. UG 59.39 MARC Tunnel Extension
10. UG 59.52 Access Tunnel Closure
11. BG&E Tower 179 Replacement
12. Broad St (MD-7)/Avenue A Realignment
13. Existing Structure & Swing Span Demolition

# Basic Structural Design Criteria

- Cooper E80 loading
- 160 mph for east bridge
- 125 mph for west bridge
- 100-year design life
- Deflection limits for passenger comfort on high-speed tracks

# Basic Bridge Design Considerations

- Cost
- Constructability
  - Maintain safe and consistent track operations
  - Minimize roadway impacts
  - In-water work
- Staging and accessibility
- Span length & pier configuration
- Structural depth
- Public/stakeholder support – NEPA

# Network Tied Arch – Channel Span

- 400-ft span over navigable channel
- Combined advantages of arch and truss system
- Elegant and economical for span length
- Stiff structure
  - Passenger comfort at high speeds
  - Reduced maintenance costs
- Higher degree of redundancy
- Meets navigational clearances
- Strong public support

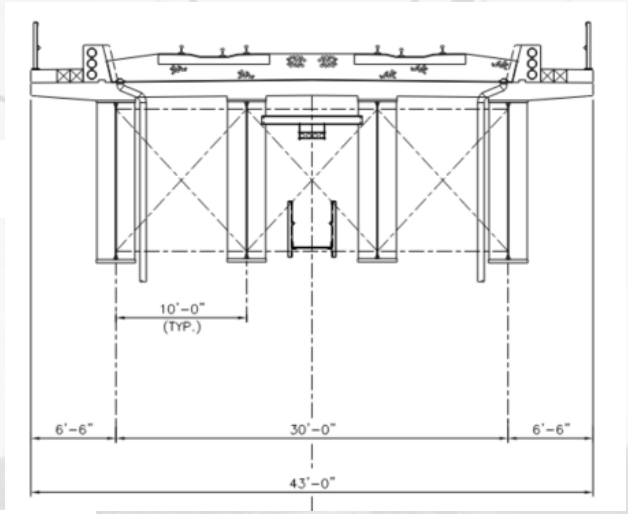
# Plate Girders – Approach Spans

- Most economical
- 170′ typical span
- Span range compatible with catenary
- Redundant
- Smaller environmental footprint
- Slender members & better viewscape
- Improved security
- Familiar maintenance

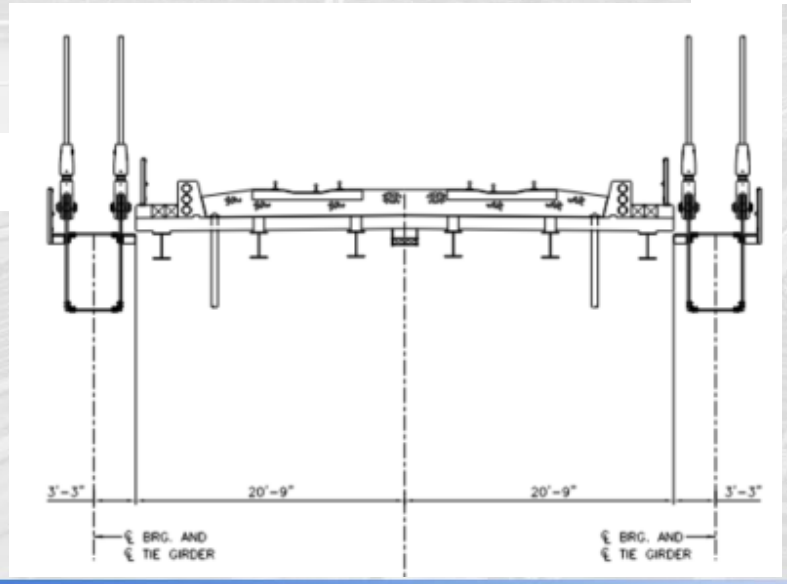
# Bridge Design Features

- Ballasted track on bridges
- Maintenance access
- Catenary aerial
- Power, signals, third-party conduits

Girder Spans




Arch Spans



# Subsurface

## Havre de Grace

- Coastal plain deposits, clay, silts, sands and Gravels
- Firm to dense
- Varying Depth to Bedrock

## Susquehanna River

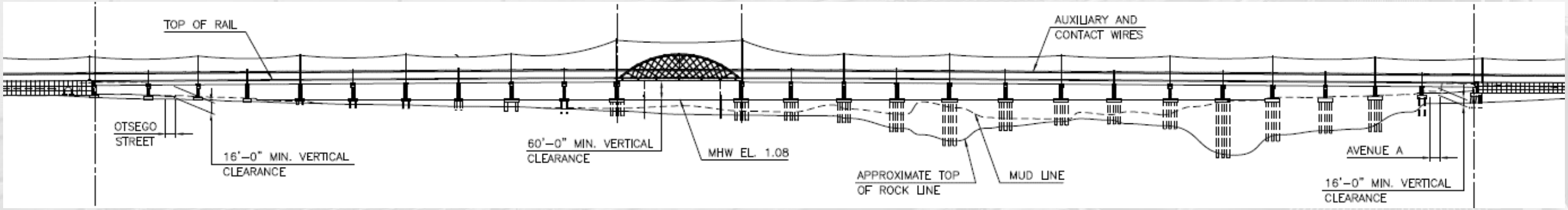
- Deposit of clay and silt on the south
- Deposit of clay, silt, sand and gravels on the north side
- Rock underlies the overall project site (ground surface on the south, as deep as 120 ft within the river)

## Perryville

- Coastal plain deposits, clay, silts, sands and Gravels
- Firm to dense

Havre de Grace

Perryville



# Subsurface

Ongoing boring program:

## Havre de Grace

114 boring (5,225 total LF)

- 25 OCS
- 34 Bridge
- 25 Retaining Walls
- 30 Embankments

## Susquehanna River

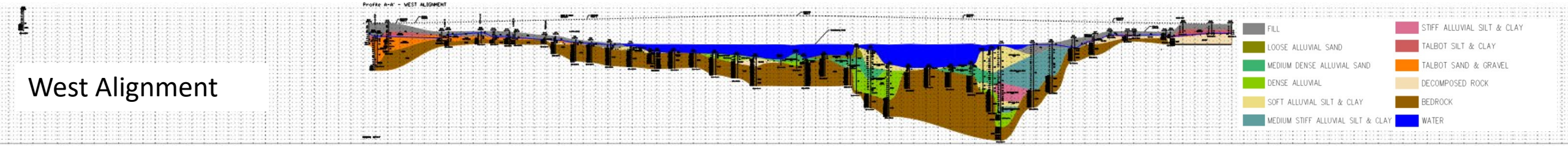
69 boring (6,410 total LF)

- 4 Fender
- 57 Piers
- 8 Abutments

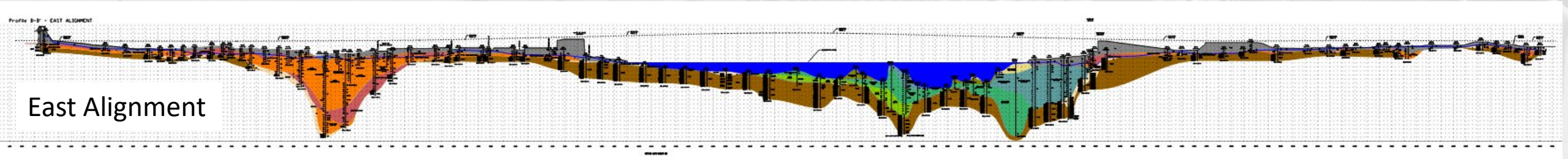
## Perryville

96 boring (2,880 total LF)

- 39 OCS
- 11 Bridge
- 33 Retaining Walls
- 13 Embankments




West Alignment




East Alignment

# Foundation Types

## Havre de Grace

- Arches and culverts – Spread Footings/ Micropiles
- Girder bridges – Micropiles

## Susquehanna River

- Perryville Abutment – Drilled Shafts
- Havre de Grace Abutment – Drilled Shafts
- River Piers – Spread Footings and 7 or 10 ft dia. Drilled Shafts
- Fenders – Drilled Shafts
- All Drilled Shafts Socketed in the Bedrock

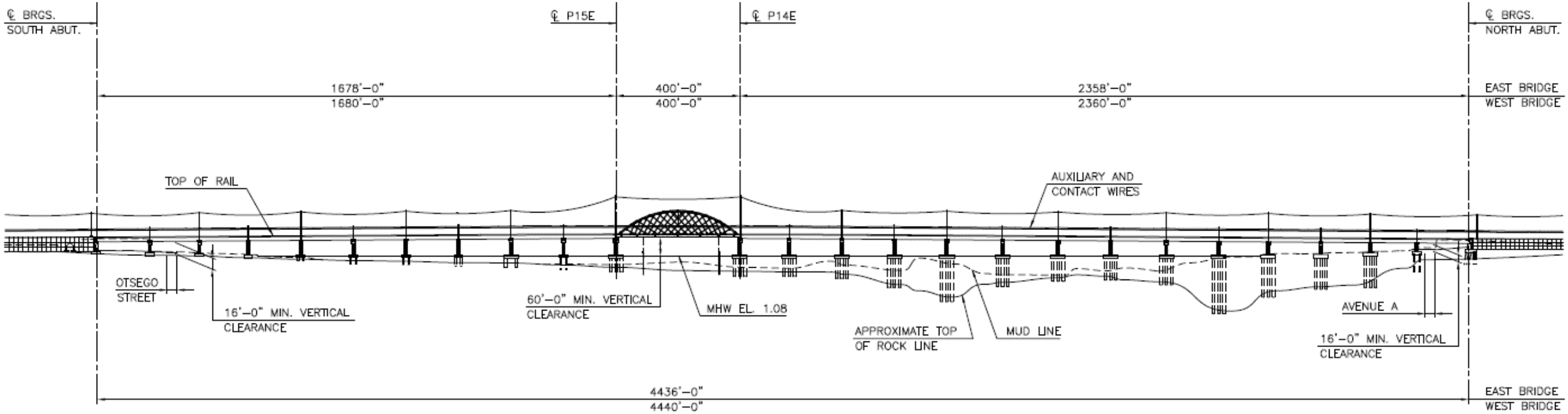
## Perryville

- Arches and culverts – Micropiles
- Golf Cart Path Bridge - Micropiles
- Slope Stabilization by Golf Cart Bridge – Soil Nails

# Span Arrangement

Havre de Grace

Perryville

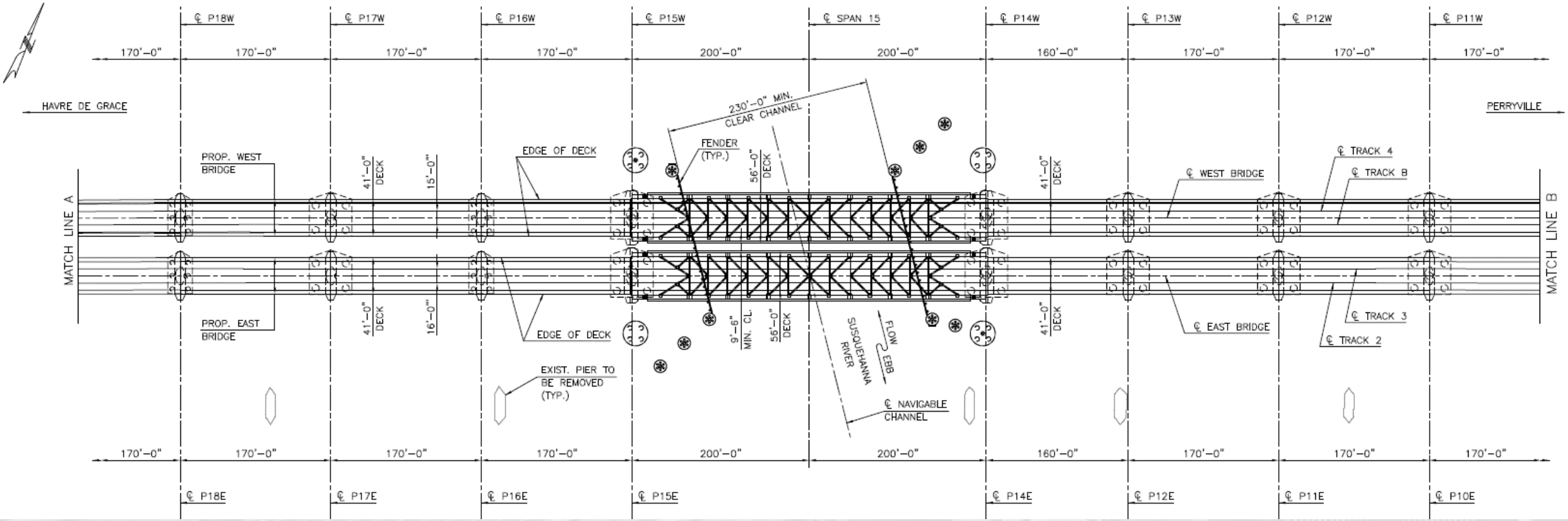



Typical Span Length = 170 ft
Channel Span = 400 ft

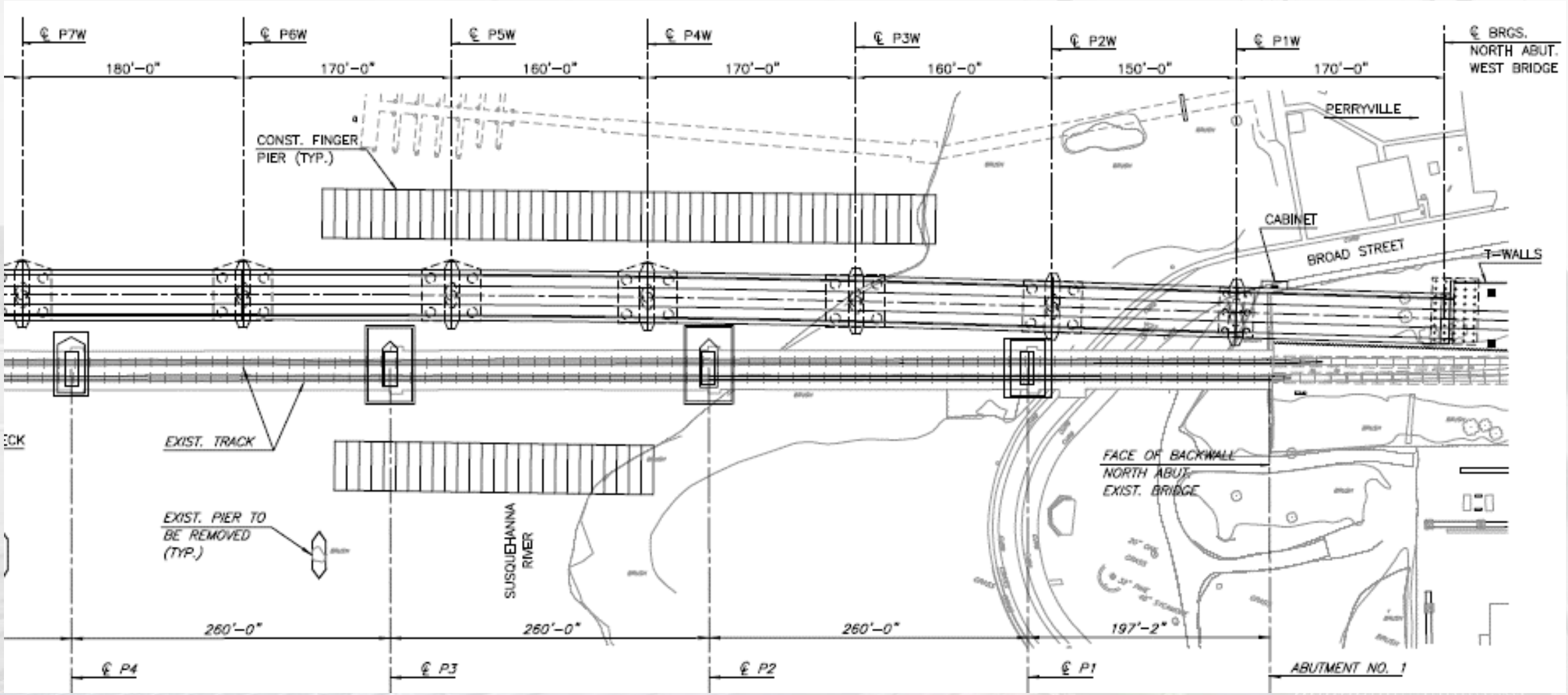
# Span Arrangement

Havre de Grace

Perryville

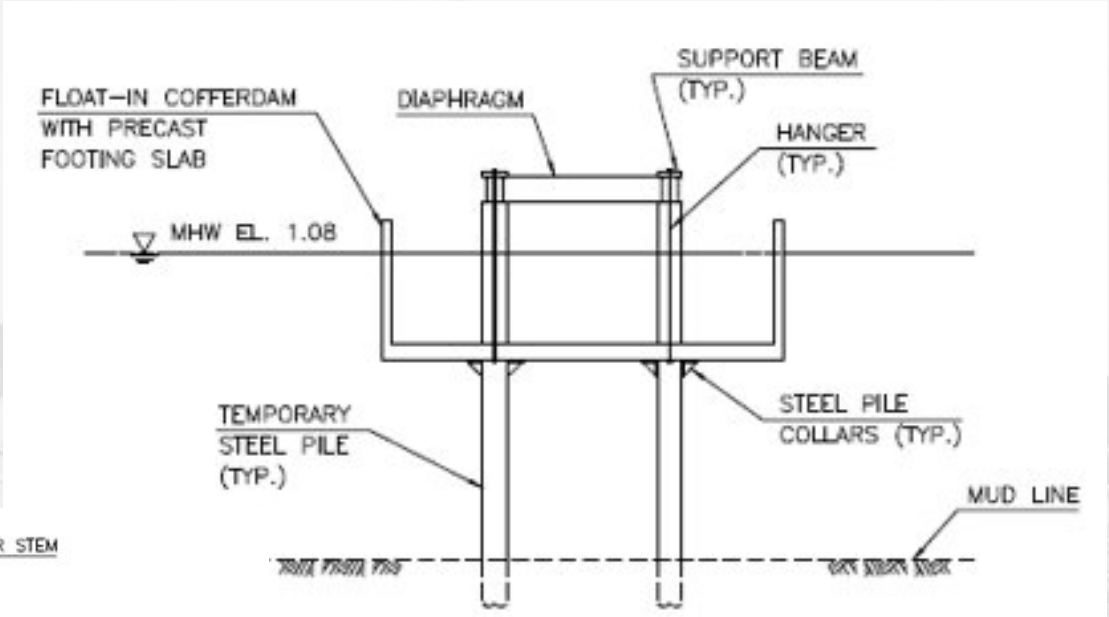


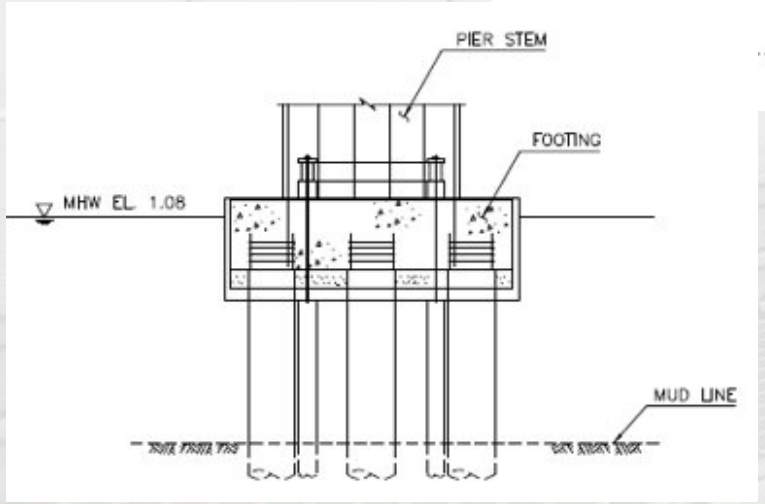
# Construction Trestles



# Cofferdams

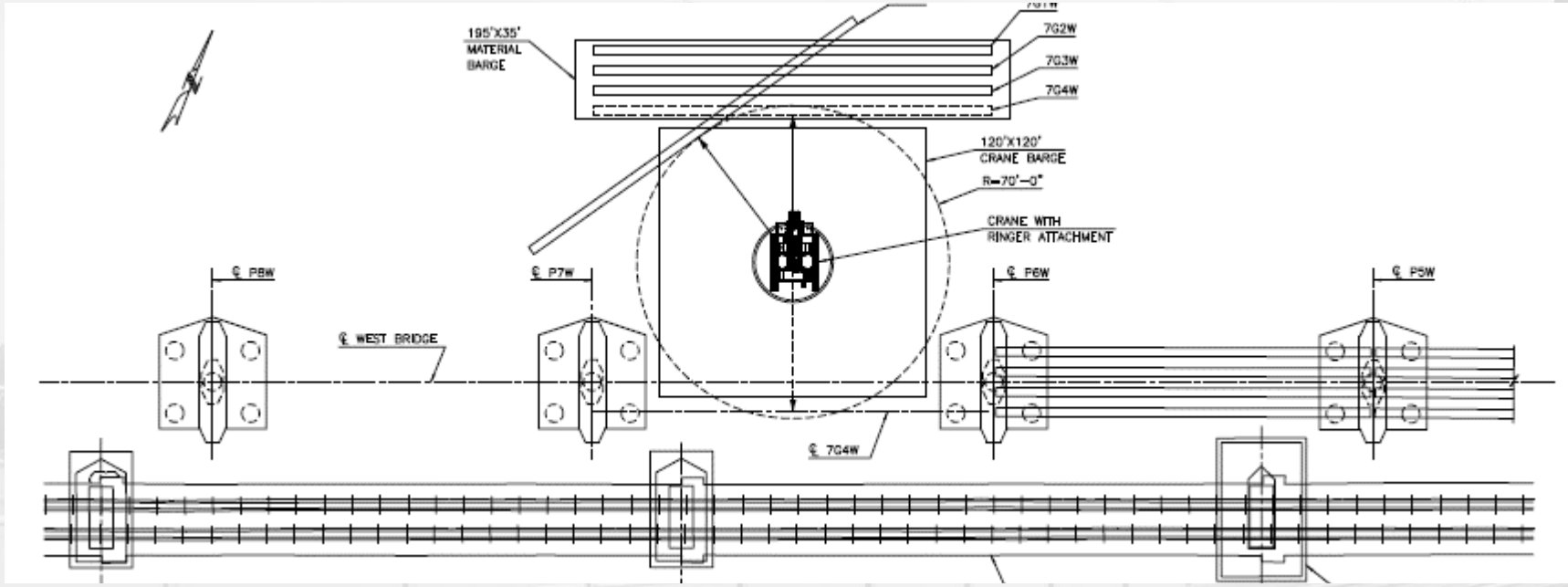
## Precast Float-in Cofferdams

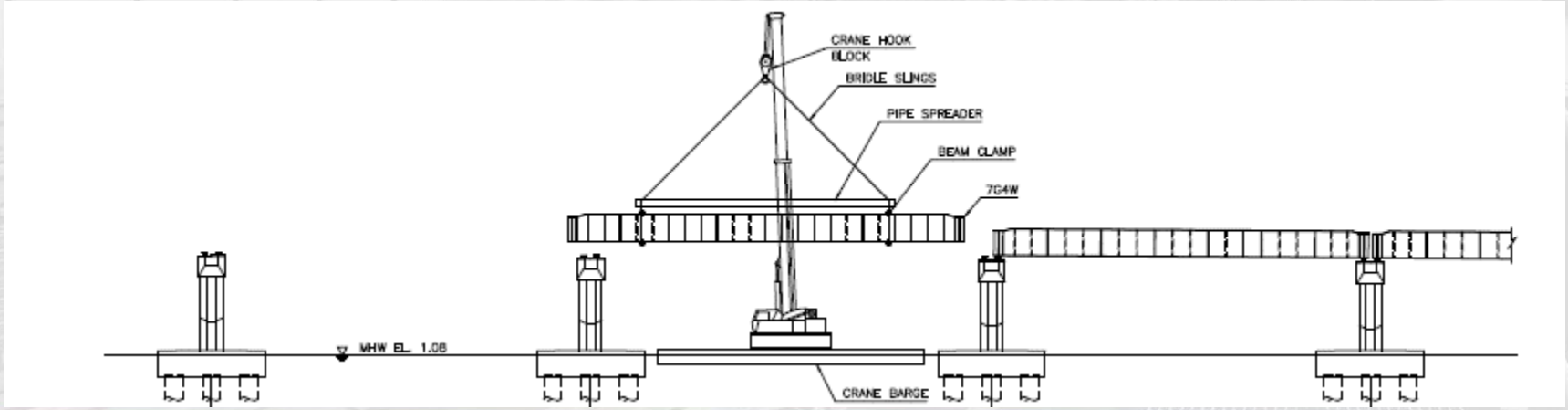


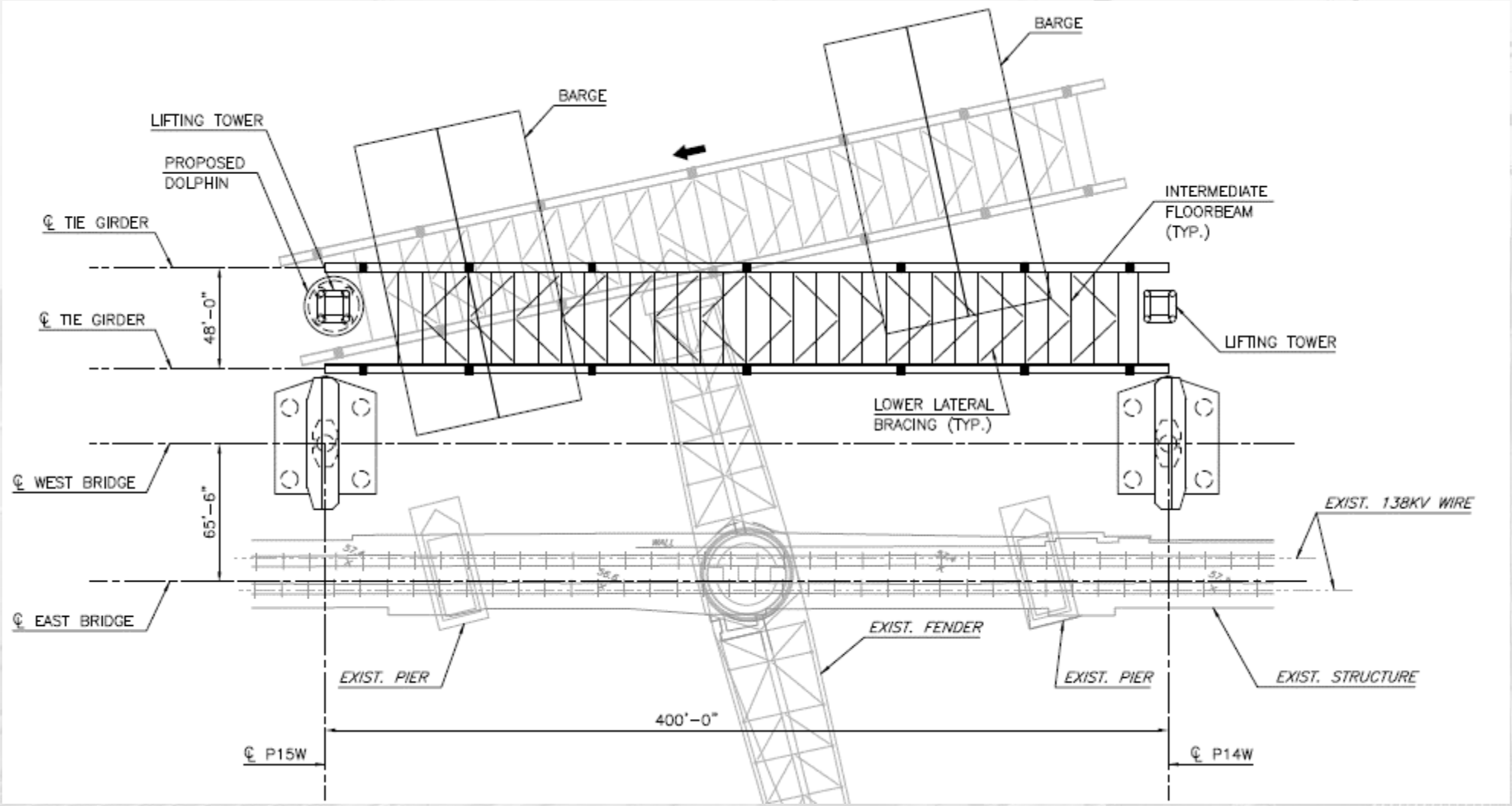

## Open Cofferdams

# Plate Girder Erection

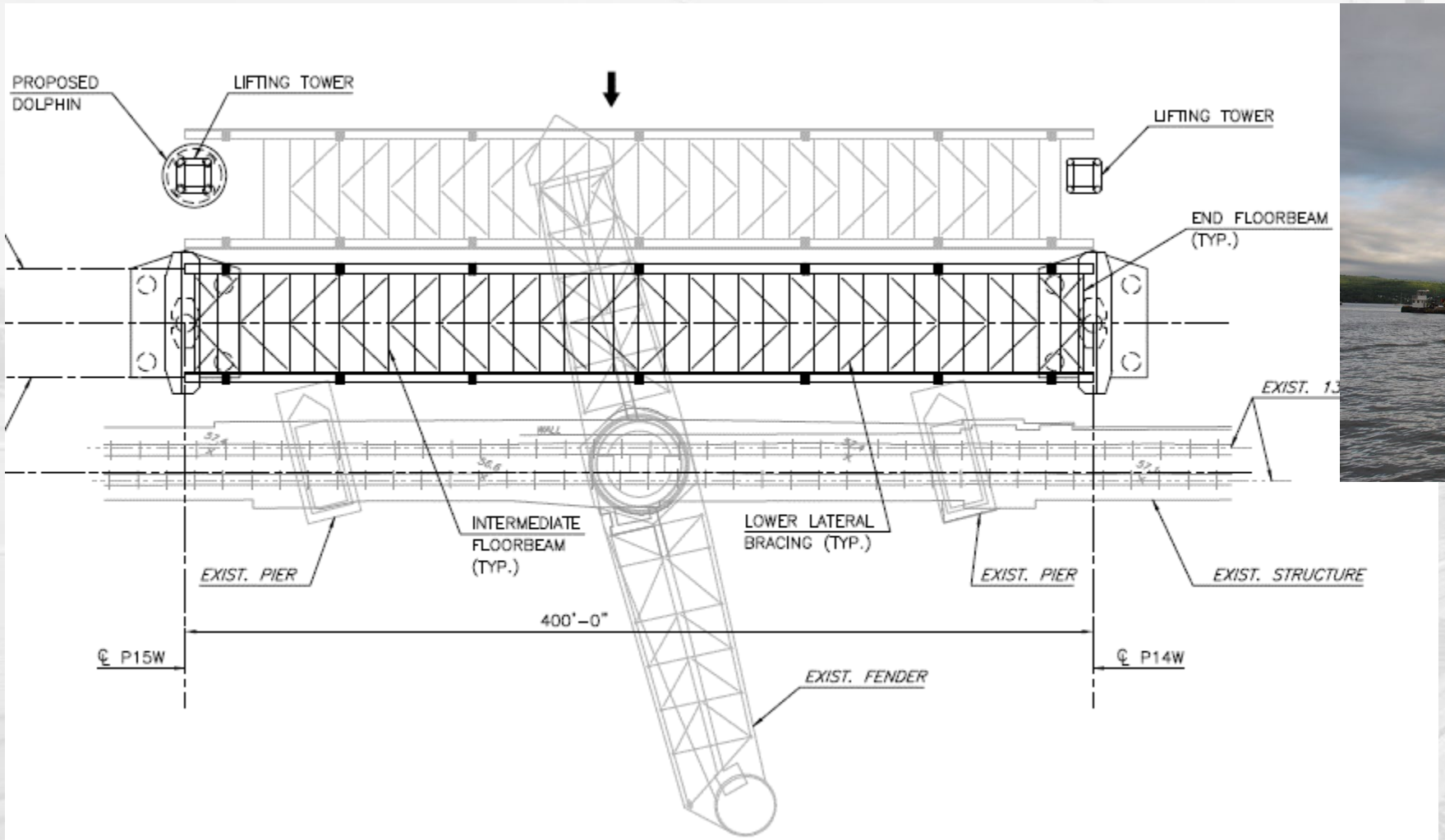


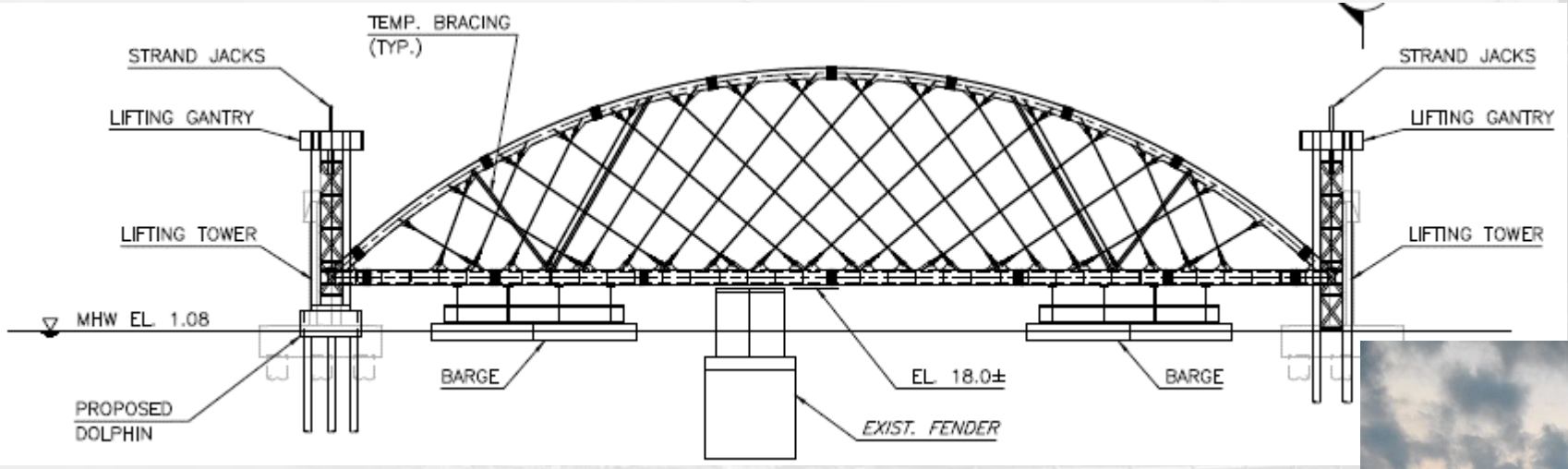
# Network Tied Arch – Conceptual 1

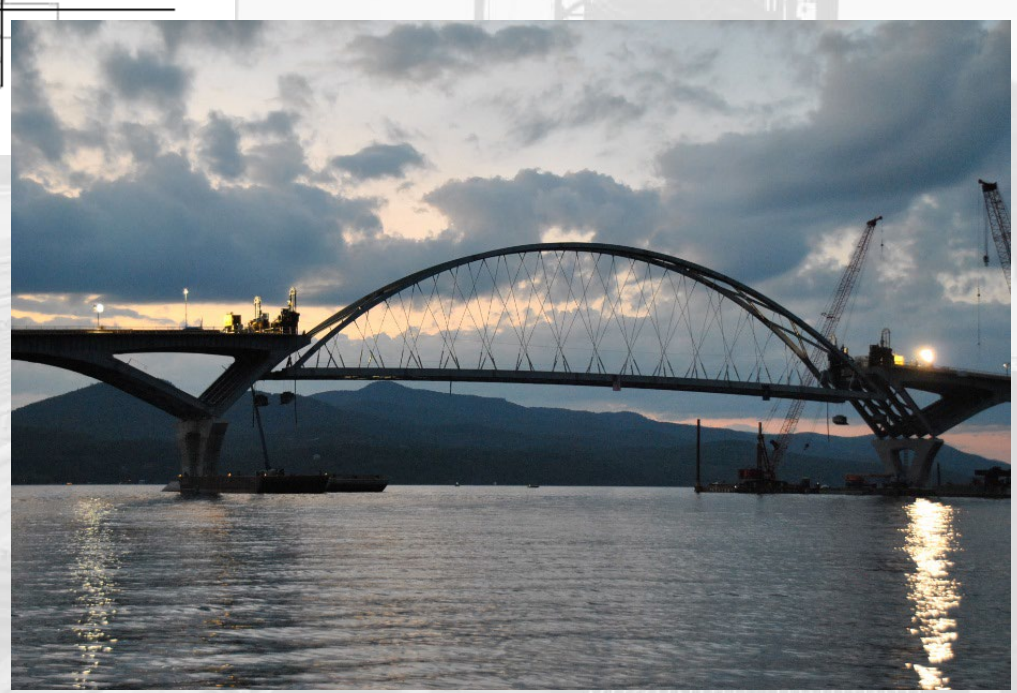


# Network Tied Arch – Conceptual 2

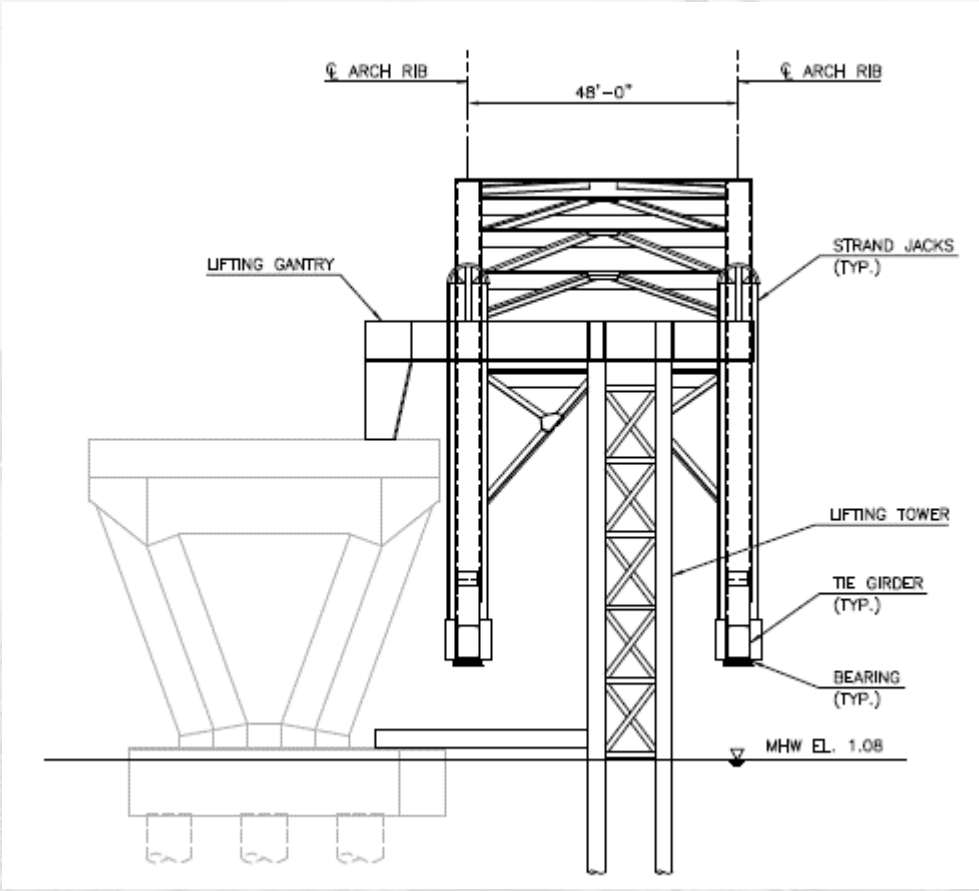



# Network Tied Arch – Conceptual 3

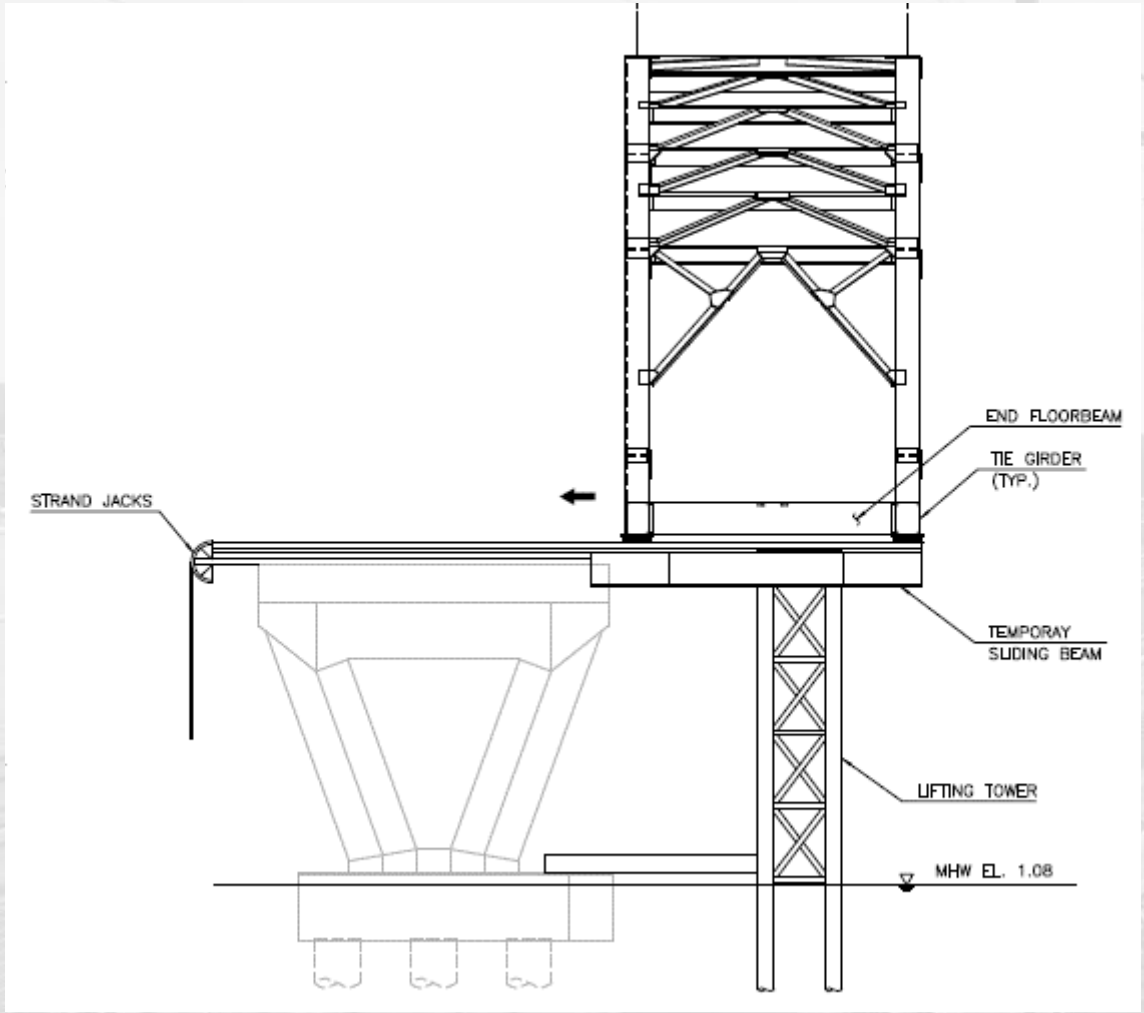


# Network Tied Arch – Conceptual 4



# Network Tied Arch – Conceptual 5

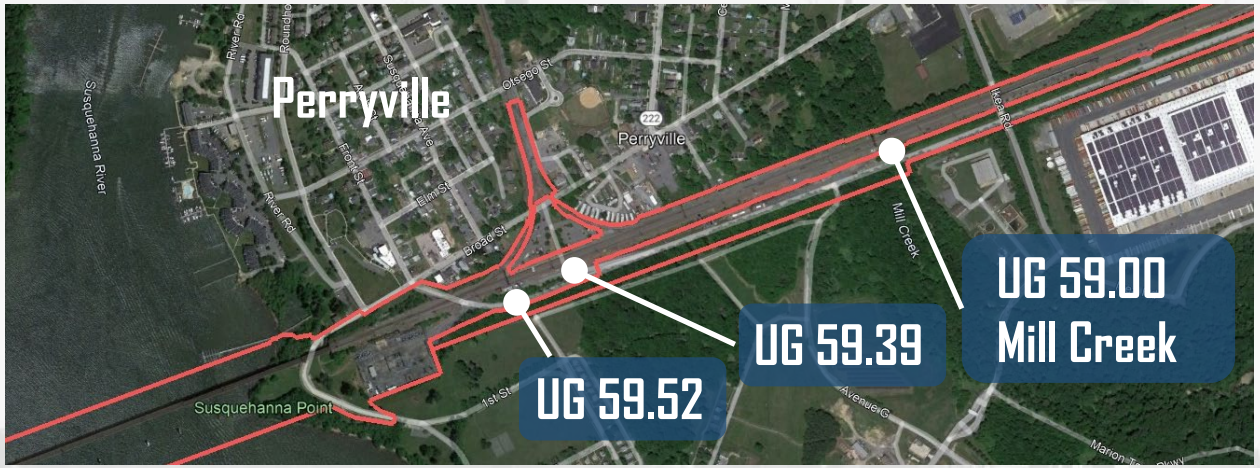


# Bridge Piers & Span Configuration

- 170’ spans (Typical)
  - Conventional fabrication dimensions
  - Upper limit of railroad bridge standards
- Pier Design
  - Tapered edges
  - Wide “keyhole” design to improve viewshed

# Approach Bridges - Perryville

- Undergrade Bridges
  - Mill Creek – precast arch extension
  - UG 59.39 – Access Road – cast-in-place concrete arch extension
  - UG 59.52 – Access Road – to be filled in and buried




UG 59.00 – Mill Creek

UG 59.39 – Access Road

UG 59.52 – Access Road

# Approach Bridges – Havre de Grace

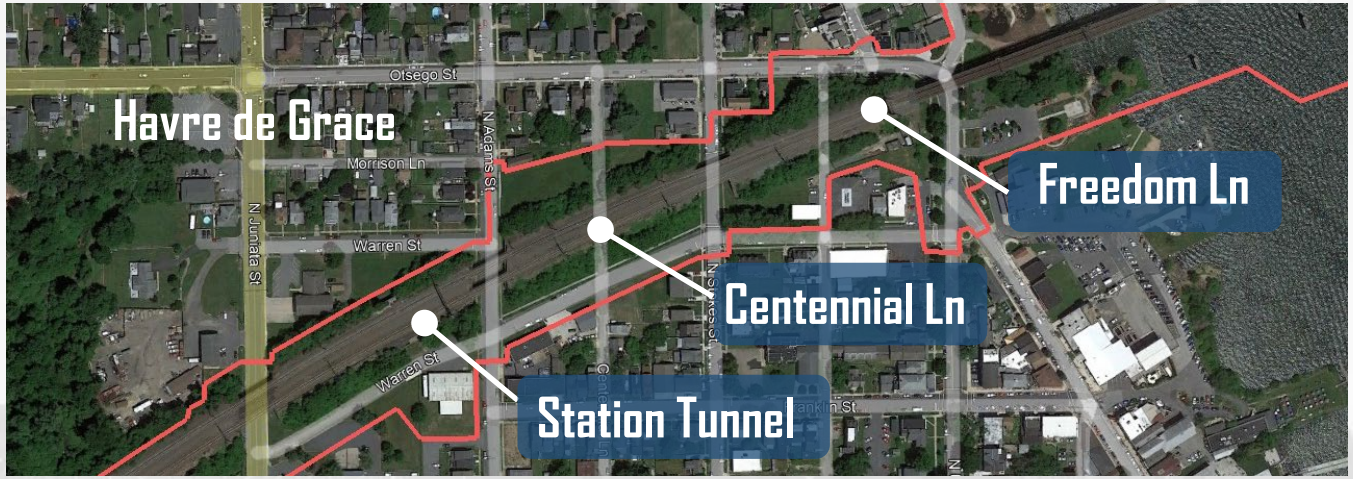
- Existing Undergrade Girder Bridges
  - Skewed, 20 – 30 degrees
  - Single span over each road
  - Deck girder superstructures on stone masonry abutments
- Proposed work
  - 2 new bridge superstructures over each road
    - Two tracks per bridge
  - Maintain rail operations during staging
  - Reuse of existing stone masonry abutments
  - Abutment extensions
  - Improve vertical clearance

# Approach Bridges – Havre de Grace

- Existing Undergrade Arches
  - Skewed, 20 – 30 degrees
  - Substandard vertical clearance over roadways
  - Stone masonry arches
- Proposed work
  - Fill or Extend arches at each opening
  - Reuse of existing stone masonry arches
  - Match or improve existing vertical clearance
  - Tie into proposed retaining walls (due to widened track alignments)
  - Maintain rail operations during staging

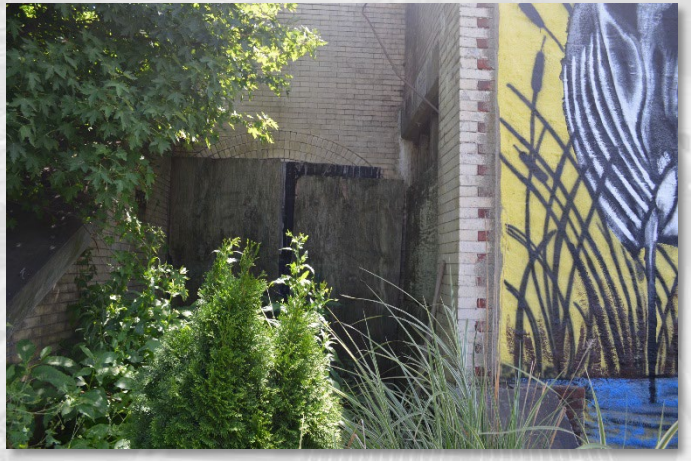
# Approach Bridges – Havre de Grace

- Undergrade Arches and Culverts
  - Freedom Lane – Fill
  - Centennial Lane – CIP arch extensions
  - Station Tunnel – to be filled in and buried




Freedom Lane

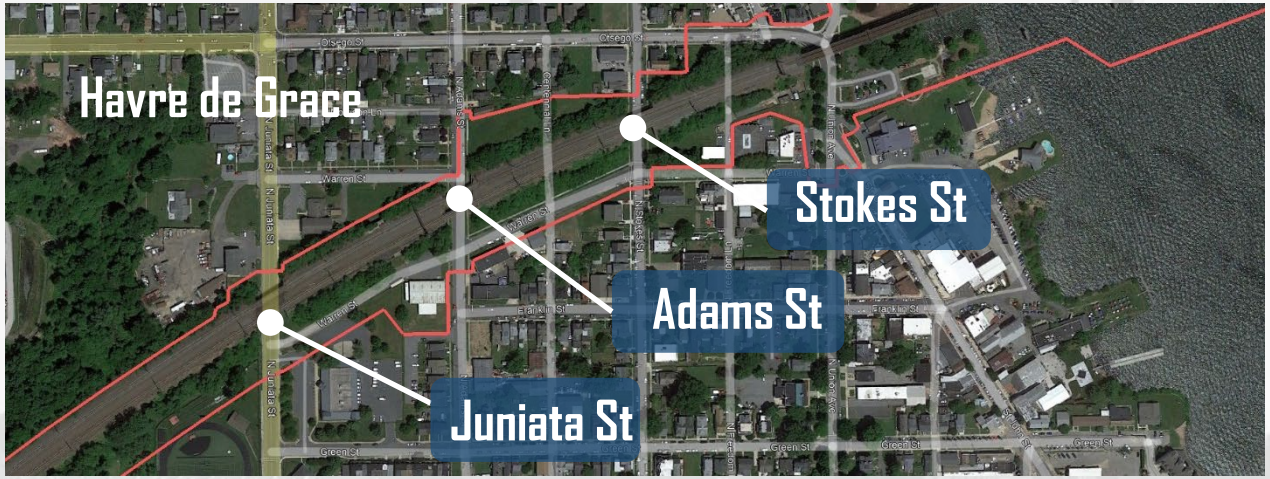
Centennial Lane



Station Tunnel

# Approach Bridges – Havre de Grace

- Undergrade Girder Bridges
  - Stokes Street – bridge replacement
  - Adams Street – bridge replacement
  - Juniata Street – bridge replacement




Adams Street

Stokes Street

Juniata Street

# Approach Bridges – Havre de Grace

- Undergrade Culverts
  - Lilly Run – CIP culvert extension
  - Lewis Run – precast slab on CIP abutments
- Overhead Bridge
  - Lewis Lane – bridge replacement


Lilly Run

Lewis Lane

Lewis Run

# Retaining Walls

- Precast Modular Walls
  - Fill sections
  - Integrate OCS foundations, track, drainage
  - Tallest wall approx. 35'
  - Precast walls reduce construction duration

T-Wall Modular Wall

- Soldier Pile Wall
  - Cut section
  - Support existing embankment

Typical Soldier Pile Wall

# Proposed Construction Schedule

- Early Action Projects 2023 and 2024
- Phase 1
  - 2025 - Begin construction of the West Bridge
  - 2030 - Open West Bridge/Begin demo of existing bridge
- Phase 2
  - 2031 - Begin construction of East Bridge
  - 2036 - Expected completion

# Procurement Schedule

- Overall Project (Phase 1 & 2) Construction Manager At Risk (CMAR)
  - Two Step Procurement
  - RFQ - Dec 2022/Jan 2023
  - RFP – Q2 2023
    - For access to the RFQ contact the Contracting Officer
      - Robert C. Dixon (Robert.Dixon@amtrak.com)
- Overall Project PM/CM
  - RFQ – Early 2023
- Early Work Package D.2 Remnant Pier Removal
  - Design-Bid- Build
  - RFQ – Early 2023

# DBE/SBE

***DBE/SBE***

- Amtrak is committed to providing opportunities to our DBE/SBE partners and will incorporate appropriate goals into each of our procurement efforts.

***Contact***

- For general questions regarding the Susquehanna River Rail Bridge email SRBproject@amtrak.com.

***Key Links***

Supplier Registration: www.amtrak.com/procurement

Information: Procurement Portal https://procurement.amtrak.com/

# Q&A

# Thank You