Hampton Roads Bridge Tunnel Expansion

Project Update:

Hampton City Council

July 11, 2018

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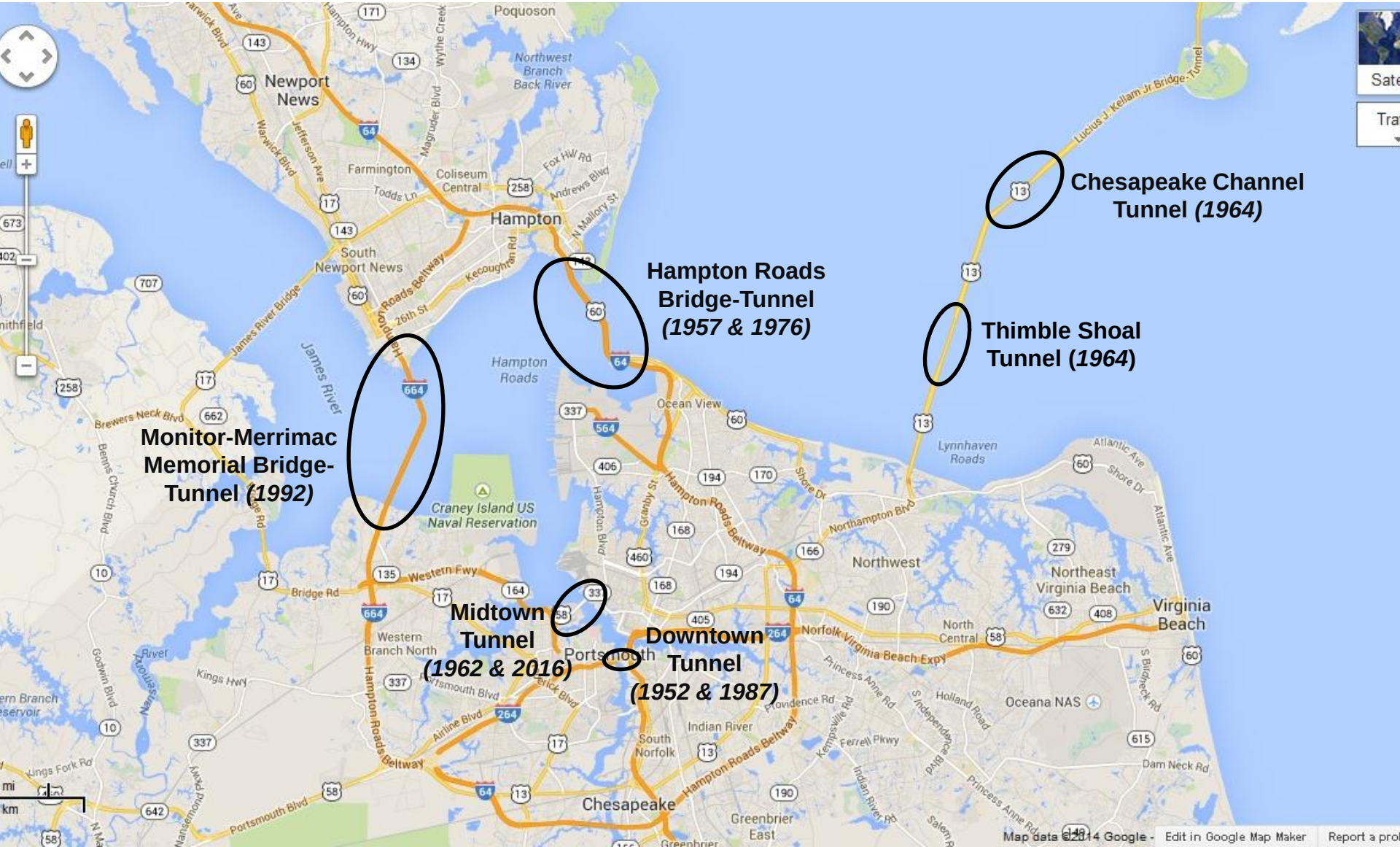
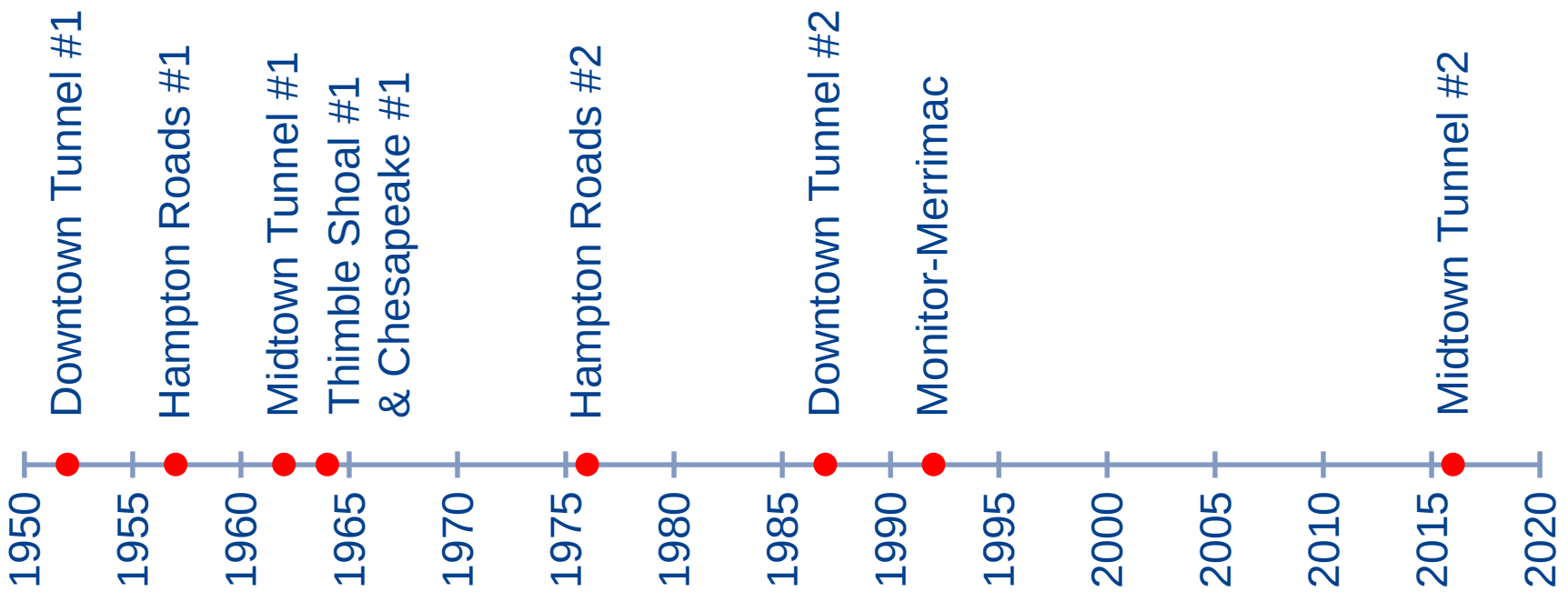
Virginia Department of Transportation

Ten Hampton Roads Tunnels



65 Years of Tunneling in Hampton Roads



- **9 tunnels are steel-shell immersed tubes**
- **1 tunnel is concrete-box immersed tube**
- **Future tunnel #11 at Thimble Shoal will be bored tunnel**

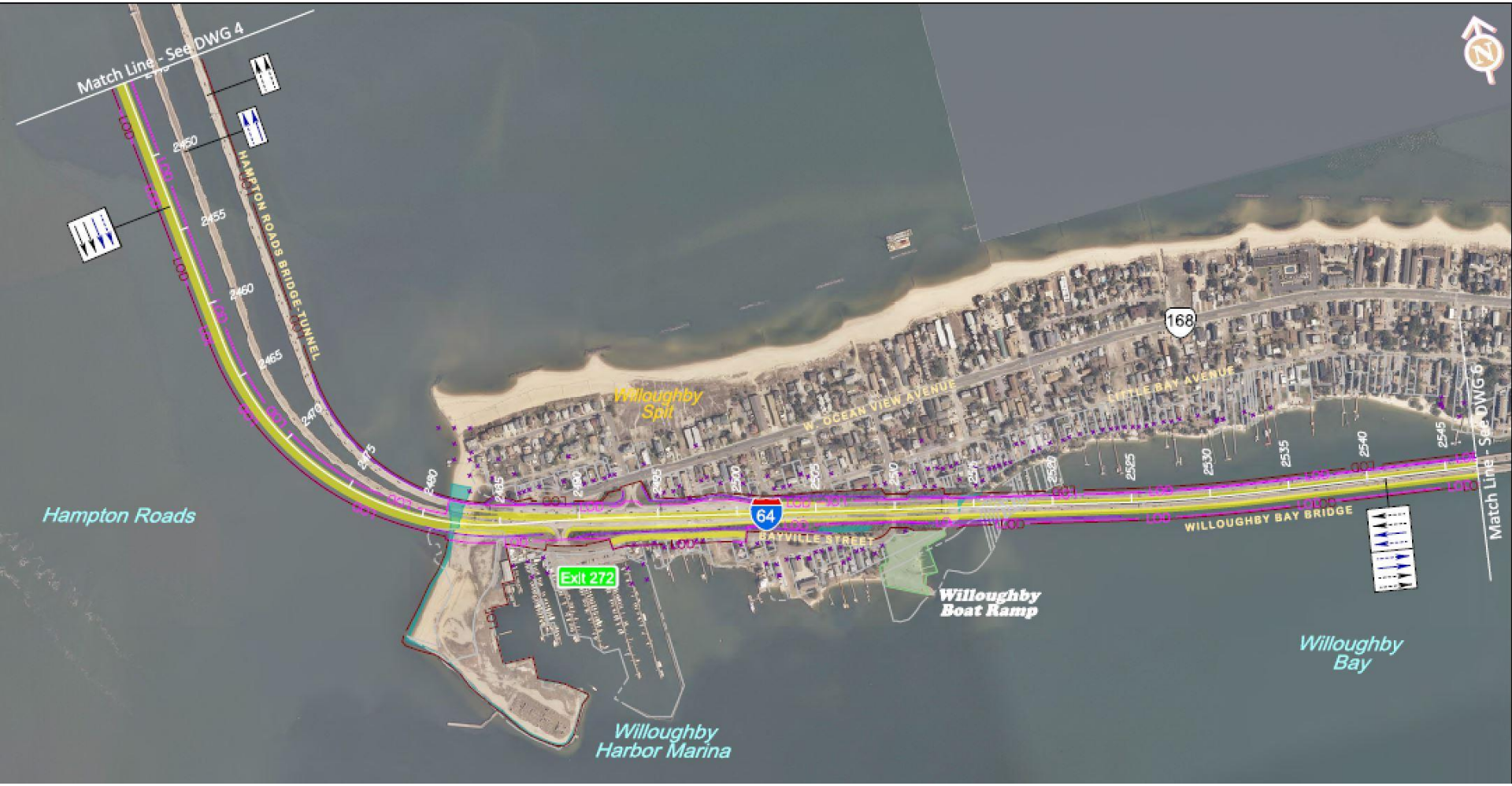
HRBT Expansion - Scope of Work

- Between Settlers Landing in Hampton and I-564 in Norfolk
- Improvements in I-64 including the construction of a new 4 lane HRBT tunnel
- New 4 lane HRBT tunnel will serve Eastbound traffic
- 2 existing HRBT tunnels will serve Westbound traffic

Proposed Bridge and Tunnel Alignment (Hampton Side)

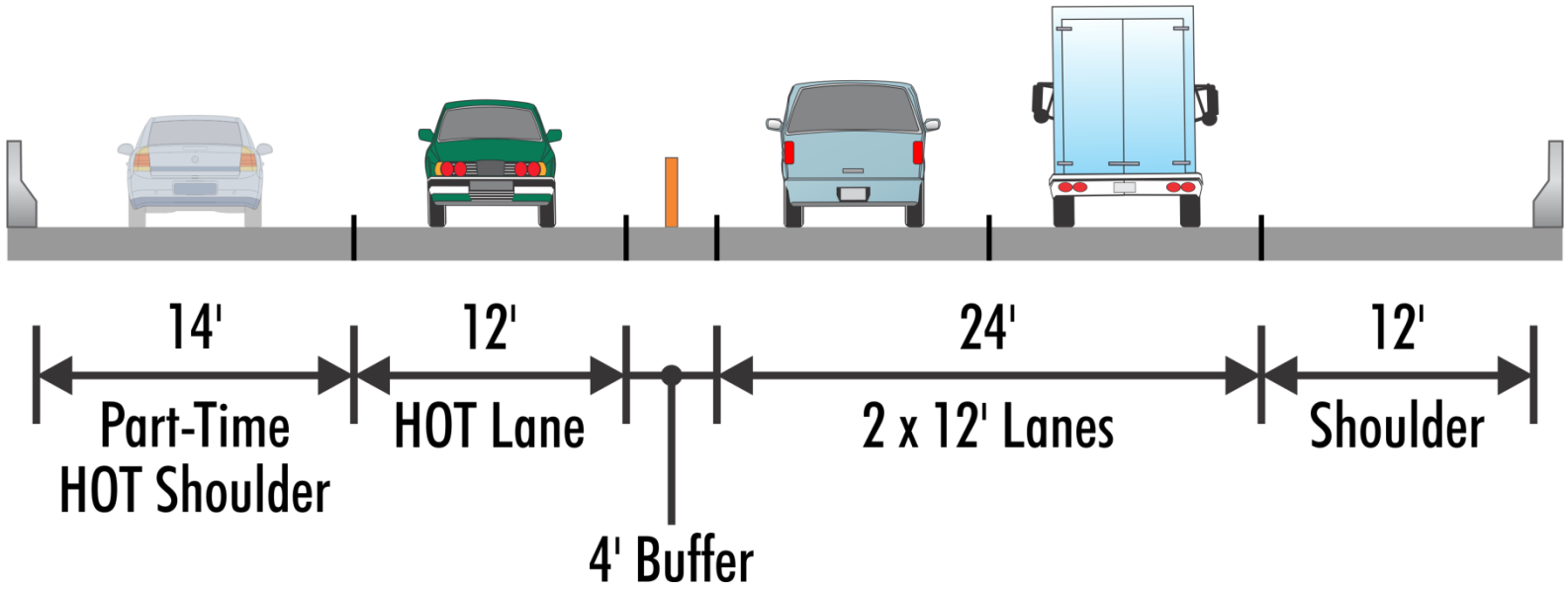
Proposed Bridge and Tunnel Alignment (Federal Channel)

Proposed Bridge and Tunnel Alignment (Norfolk Side)



Proposed Lane Configuration for Tunnel and Approach Bridges

- **2+1+1 concept in each direction:**
  - **2 free General Purpose lanes**
  - **1 full-time HOT lane**
  - **1 peak-hour HOT lane on left shoulder**



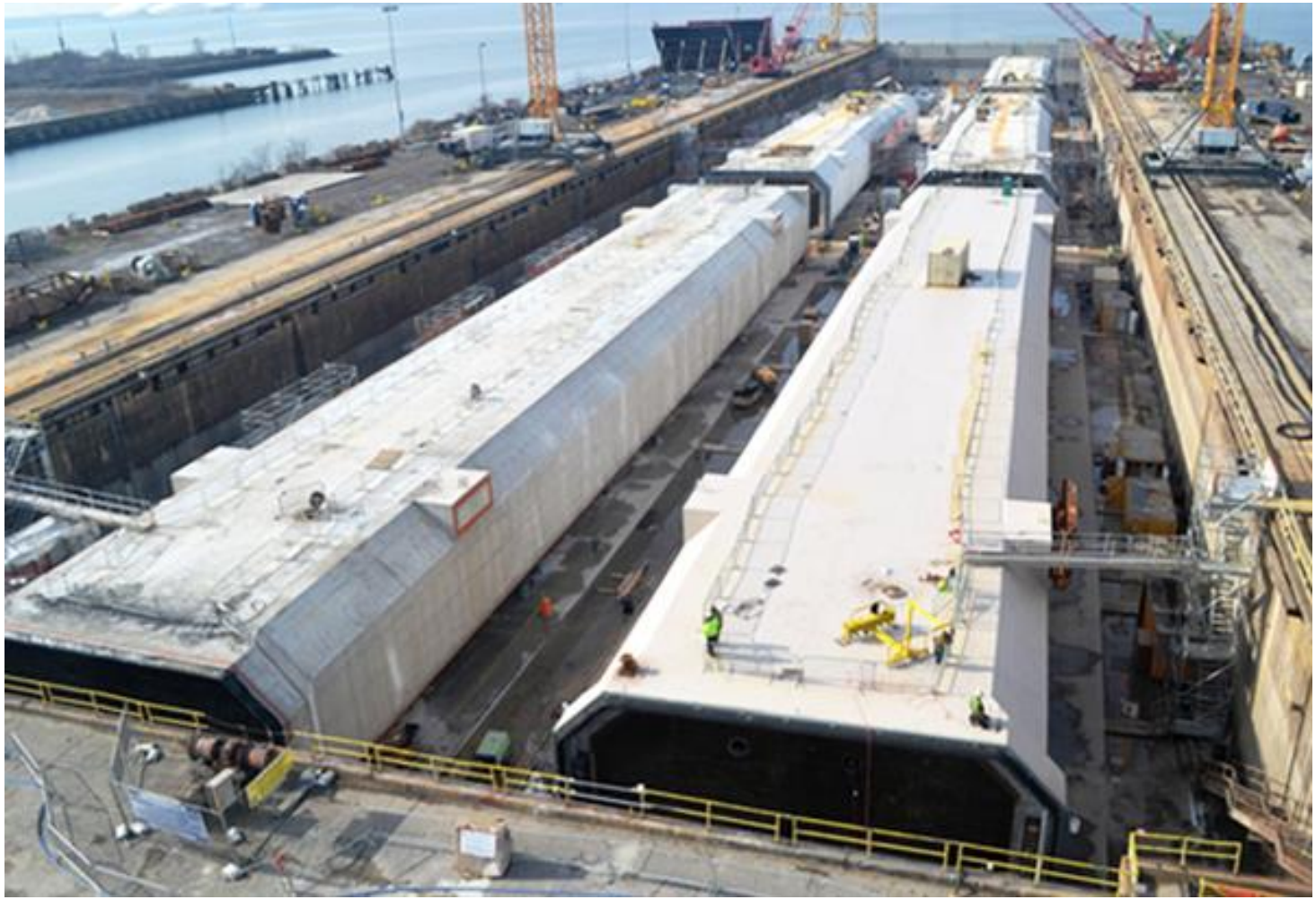
Landside Construction Considerations

- Landside work is broken into two parts - Hampton and Norfolk
- Environmental, Right of Way and Maintenance of Traffic provide biggest challenges for construction in both Cites
- Hampton
  - I-64 Interchange at Mallory Street to be reconstructed
  - Construction of roadway to approach bridges will require phasing
  - Cultural Resources include Federal Cemetery, Hampton University and Phoebus
- Norfolk
  - Constraints at Bayville Interchange and Willoughby Bay Bridges
  - Four interchanges impacted (Bayville, 4th View, Bay Ave, New Gate)
  - Naval Air Station borders western side I-64 (vertical & horizontal)

Marine Construction Considerations

- Marine bridges have risks but are largely conventional
- Tunnel work is less conventional and will generate greatest risks from cost and schedule standpoint
- This is a rare location where both immersed-tube and bored-tunnel construction methods are feasible
  - All ten Hampton Roads tunnels to date have been immersed tubes
  - Until recently, bored tunnels were not feasible in soft soils
  - But recent advances in technology now make bored tunnels possible in soft soils
- Both tunnel methods were directly compared in the nearby CBBT - Thimble Shoal Tunnel procurement in 2015
  - Received Bored Tunnel proposals only

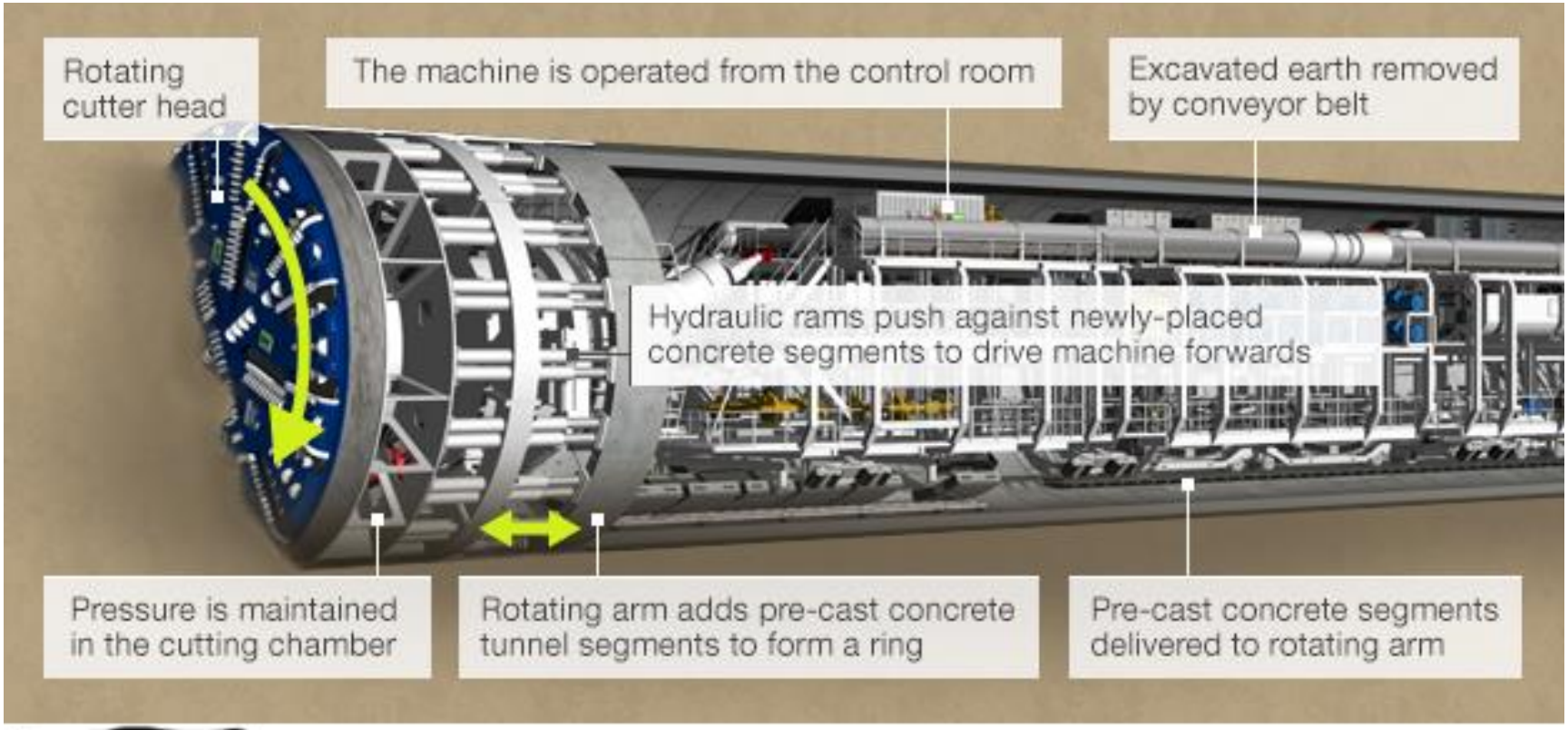
Immersed Tube Elements



Immersed-Tube Tunneling (ITT)

Conceptual Tunnel Section (Immersed)

Tunnel Boring Machine



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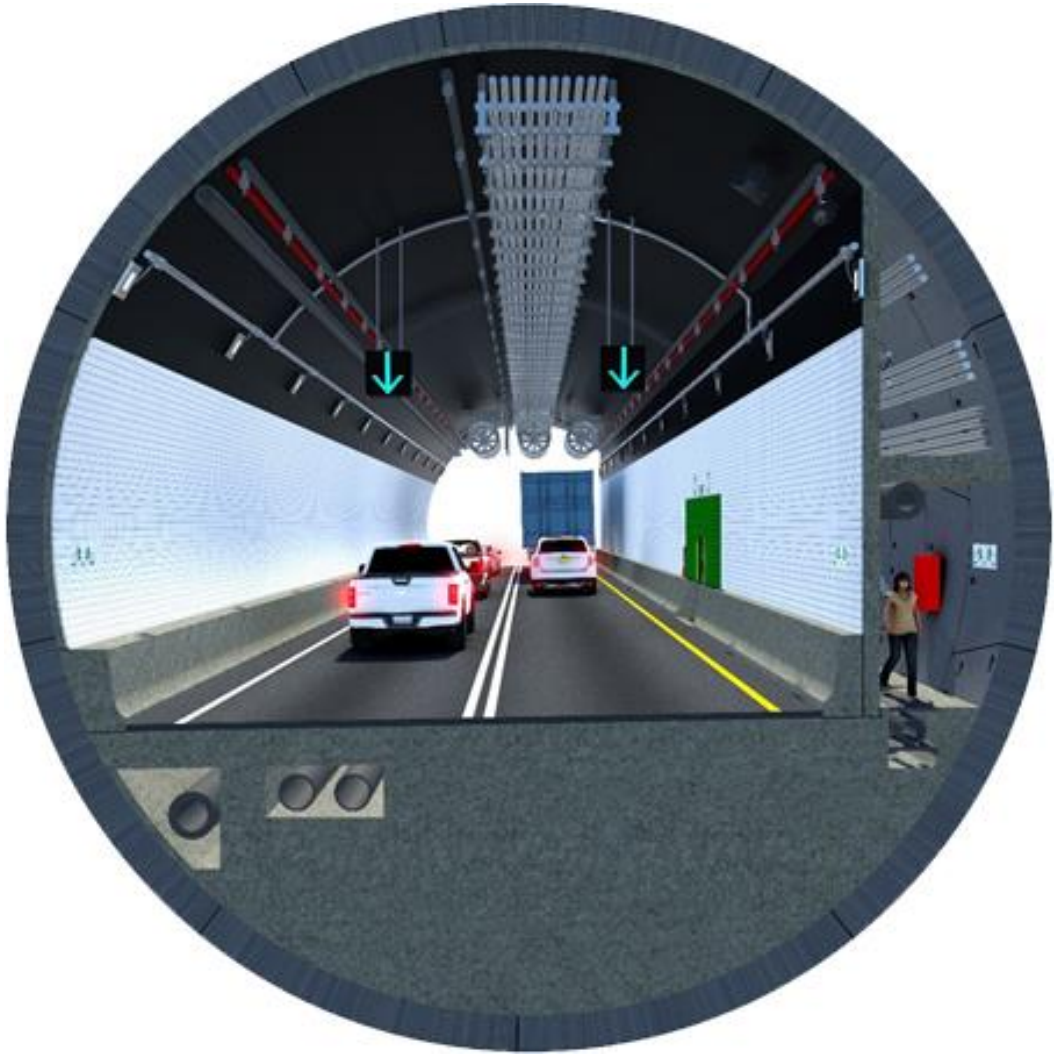
Twin Bore with TBM

Conceptual Tunnel Section (Bored)



Key Differences between Bored and Immersed-Tube Tunneling

- **Alignment**
  - ITT alignment must be further away from existing tunnel (Hampton Roads rule of thumb → about 200 feet)
  - Bored tunnel can be much closer to existing facilities (general rule of thumb → about one diameter ≈ 50 feet)
- **Geotechnical**
  - ITT method has limited concern for soil properties, since soil along tunnel path is dredged out and removed
  - Bored method is specifically tailored to local soil properties
- **Environmental and Permitting**
  - Section 408 coordination with marine stakeholders / federal channel
  - Section 103 concurrence for offshore disposal of ITT spoils
  - JPA permit for disposal of bored-tunnel spoils

D-B Procurement (PPTA vs VPPA)

VDOT has the authority to pursue a Design-Build (D-B) procurement under both the PPTA or VPPA:

- **Current VDOT D-B (VPPA) template was not developed to handle a project of HRBT magnitude**
- **PPTA provides contractual flexibility for complex risk profile (significant construction and geotechnical risk)**
- **PPTA encourages innovation through extensive use of Alternative Technical Concepts (ATCs) process**
- **PPTA provides for iterative process that invites feedback and collaboration from the proposers in order to develop more responsive procurement documents**

Procurement Milestones

ACTIVITY	DATE
PPTA Steering Committee	Dec 12, 2017
RFQ Issued	Dec 15, 2017
Shortlist Announced	Apr 26, 2018
PPTA Steering Committee	May 9, 2018
Draft RFP Release	May 22, 2018
Proprietary/ATC Meetings #1	Jun 11-12, 2018
Proprietary/ATC Meetings #2	Jul 17-18, 2018
Proprietary/ATC Meetings #3	Aug 7-8, 2018
Proprietary/ATC Meetings #4	Sept 5-6, 2018
Final RFP Release	Sept 10, 2018
Proprietary/ATC Meetings #5 (if needed)	Sept 26-27, 2018

Procurement Milestones

ACTIVITY	DATE
Addenda to Final RFP	Oct 26, 2018
Technical Proposal Submission	Nov 30, 2018 at 5:00 PM
Price Proposal Submission	Jan 10, 2019 at 5:00 PM
Selection of Best Value Proposal	Jan 18, 2019
CTB Briefing	Feb 2019
PPTA Statutory Audit	Feb 2019
Execute Comprehensive Agreement	Mar 2019
PPTA Steering Committee	NLT 60 days from execution of CA
Contractor NTP	Mar 2019
Construction Complete	Dec 2024


THE
END