

Spring 2020

# HRBT EXPANSION

## Magazine



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## Message from Jim Utterback

As the largest project in VDOT history, the HRBT Expansion Project is the long-awaited improvement to a major chokepoint in Hampton Roads. We've assembled a world-class team of experts in bridge and tunnel construction. We are currently working in the design phase with construction anticipated in Summer 2020. In the meantime, the team is working on utility relocations and other preparation activities to support construction. While much of the work (tunnel) will be happening underwater, there is still a lot of marine works and interstate widening as part of the project. By 2021, construction will be well underway, so please drive safely and be mindful of crews working along the interstate. We are committed to delivering the HRBT Expansion Project on-time and on-budget.

**James S. Utterback**  
*HRBT Expansion Project Director*

**“ We are committed  
to delivering the  
HRBT Expansion  
Project on-time  
and on-budget.”**

## ABOUT THE PROJECT DIRECTOR

James S. Utterback was named Project Director for the Hampton Roads Bridge-Tunnel (HRBT) Expansion Project in January 2018. Previously, Utterback served as District Administrator of the Virginia Department of Transportation's (VDOT) Hampton Roads District for five years. During that time, he led the development and delivery of one of VDOT's largest district construction programs with a total contract value exceeding one billion dollars. Utterback has been with VDOT for over 20 years. In addition to his state service, he served in the U.S. Air Force and U.S. Air Force Reserves for 26 years, retiring in 2010 at the rank of Lieutenant Colonel.

*Assembling A Team  
of Bridge-Tunnel  
Experts:*



## ABOUT THE PROJECT TEAM



### Secretary of Transportation

Shannon Valentine



### VDOT Executive Committee

Stephen Brich: Commissioner

Robert Cary: Deputy Commissioner  
Barton Thrasher: Chief Engineer



### HRBT Project Management

James Utterback: Project Director

Peter Reilly: Deputy Project Director

### Project Development and Delivery



## PROJECT PARTNERS



HRCP brings high-profile project experience, technical expertise and essential resources to deliver this complex project. The team includes an assembly of local, regional, national and international construction and engineering firms with proven track records of delivering safe, high-quality,

and cost-effective projects of similar scope, cost and complexities to the HRBT Expansion. This world-class team is committed to balancing construction efficiency while maintaining traffic safety and mobility with minimal impact on nearby communities.

DRAGADOS USA

64 HDR | MOTT MACDONALD  
Design Joint Venture

DODIN  
CAMPENON  
BERNARD

FLATIRON

VINCI  
CONSTRUCTION

### Project Financing

**HRTAC**  
Hampton Roads Transportation Accountability Commission



### Commonwealth Transportation Board

## \$3.8 Billion Project is 100% Funded

The HRBT Expansion Project is funded 100% through public funds. As the largest design-build project in Virginia history, 95% of the project is being funded with regional money through the Hampton Roads Transportation Fund, which is managed by the Hampton Roads Transportation Accountability Commission (HRTAC). The remainder of the project is funded through state and federal dollars. HRTAC Executive Director Kevin Page calls the HRBT Expansion Project, “a major milestone for the region, which is solving our transportation problems together and moving projects forward through sensible planning and prioritization.”



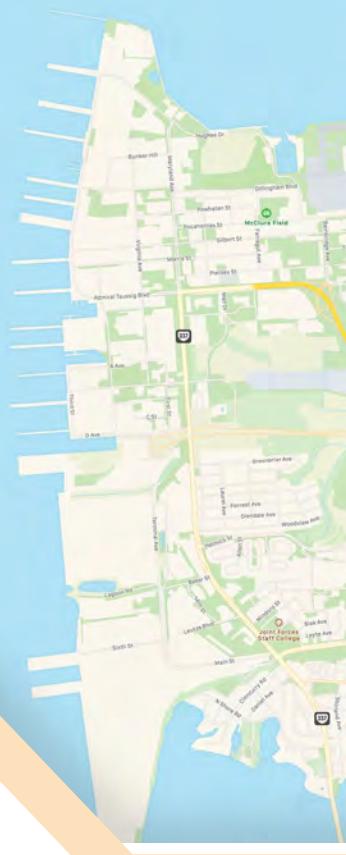
**SIGNING OF THE LARGEST DESIGN-BUILD PROJECT IN THE STATE.** In April 2019, the Commonwealth of Virginia signed a comprehensive agreement with Hampton Roads Connector Partners JV, the design-build contractor for the project.

# HAMPTON



## KEY PROJECT ELEMENTS

- **New Twin 2-lane bored tunnels**
- **28 bridges replaced or rebuilt**
- **1 mile of Interstate widening in Hampton**
- **4 miles of Interstate widening in Norfolk**
- **2 General Purpose Lanes (Free Lanes) plus a HOT Lane and a driveable shoulder in each direction**



## PROJECT OVERVIEW

### A Closer Look At The HRBT Expansion

Connecting two of Coastal Virginia's thriving port communities, the Hampton Roads Bridge-Tunnel has long been one of the region's most congested corridors. In order to reduce congestion, the Commonwealth Transportation Board approved the expansion of the HRBT in December 2016.

The Hampton Roads Bridge-Tunnel Expansion Project will span 10 miles of interstate from Hampton to Norfolk. With an expected completion date of November 2025, the project will add a third lane and a driveable shoulder to I-64 from Settlers Landing Road in Hampton to the I-564 Interchange in Norfolk. The addition of twin two-lane bored tunnels west of the existing tunnels will accommodate four lanes of traffic for a total of eight lanes of capacity across the water. Upon completion, the new twin tunnels will carry all eastbound traffic and the existing east and westbound tunnels will carry westbound traffic.

**4 LANES Existing  
8 LANES Proposed**

**4 LANES Existing  
6 LANES Proposed  
+ Driveable Shoulder**

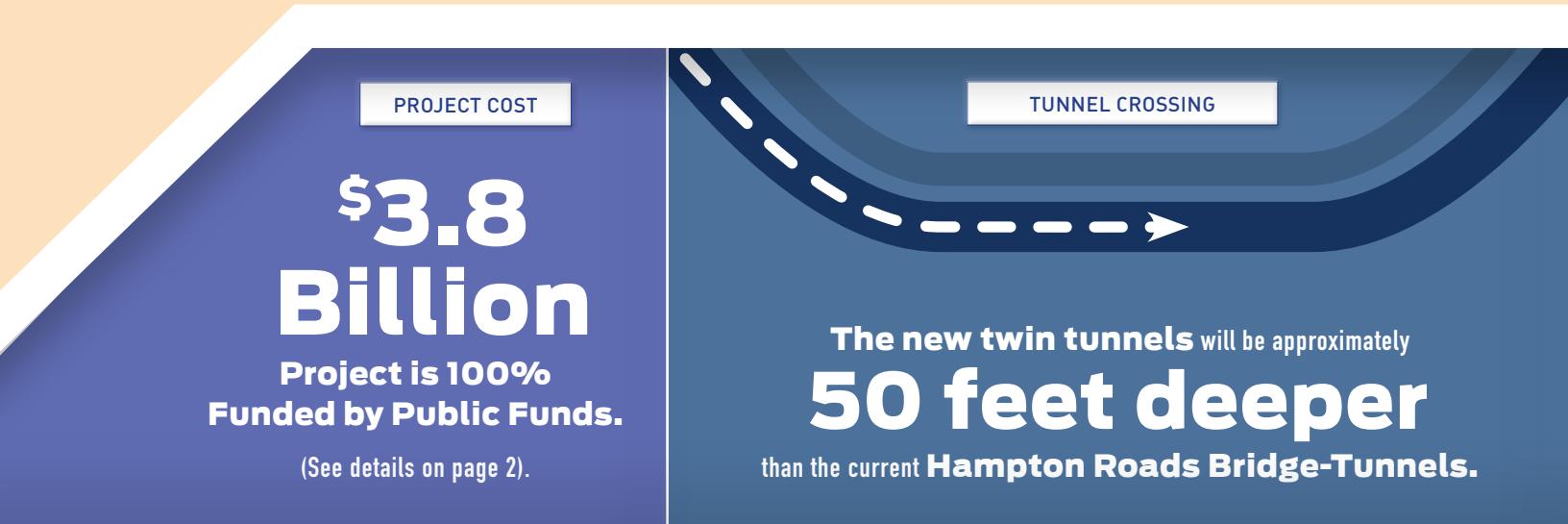
**Project Limits**

# NORFOLK



### PROJECT BENEFITS

- **Increase capacity**
- **Ease major congestion**
- **Increase safety - enhance travel time reliability**
- **Support emergency evacuation readiness**
- **Bring in more than \$4.6 billion in investment**
- **Create 28,000 jobs over the life of the project**



## PROJECT TIMELINE

### Construction Happening Concurrently To Expedite Delivery

The HRBT Expansion Project will be completed in November 2025. Due to the ambitious scope of the project, you will see work simultaneously on the tunnel, bridges and interstate to minimize long-term disruption to the region.

PHOTO RIGHT: Project Director Jim Utterback takes Secretary of Transportation, Shannon Valentine, on a tour of the South Island in March 2020 to view the early works on the HRBT Expansion Project.



#### WORKS: Over 55 Month Duration

#### 1-64 WIDENING

TBM Assembly & Mining

Interior Works Tunnels

2022

2023

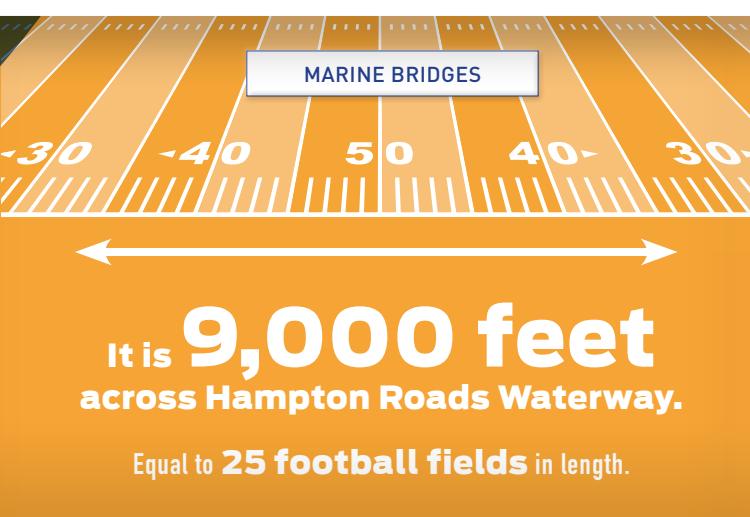
2024

2025

SUMMER  
Substantial  
Completion

SEPTEMBER  
Contract  
Substantial  
Completion  
Deadline  
9/1/25

NOVEMBER  
Contract  
Completion  
Deadline  
11/1/25  
**FINAL**



#### TUNNEL CONSTRUCTION

The diameter of each new tunnel will be approximately **46 feet**, creating the second largest tunnel opening for a Tunnel Boring Machine in North America.



### Bridging Distance To Connect A Region

Prior to the construction of the original Hampton Roads Bridge-Tunnel, the only way to cross the channel from Hampton to Norfolk was by way of ferry which took roughly 30 minutes each way.

In 1957, the original Hampton Roads Bridge-Tunnel opened with two-lanes of bi-directional traffic. The HRBT connected the Southside and Peninsula, bringing the Hampton Roads area together as one cohesive region. Travel time to cross the harbor was reduced to just seven minutes.

An engineering marvel at the time it was constructed, the original HRBT

was the world's longest immersed-tube tunnel at 7,479 feet. It was also the first to be constructed from two artificial islands. At a cost of \$44 million and construction timeline of three years, the HRBT consisted of 23 double-shell steel tube sections. The 23 separate tubes were welded together and laid into a trench in the Hampton Roads harbor to form more than a mile of continuous steel tube.

With unprecedented population growth, traffic surpassed initial predictions and prompted the need for a second tunnel. In 1976,

a second tunnel was opened to carry eastbound traffic, and the original tunnel became the westbound tunnel. Over the years, Hampton Roads has grown to a population exceeding 1.7 million. With that immense population growth, congestion has increased at the HRBT.

More than 100,000 vehicles use the HRBT crossing each day during peak summer months, often resulting in regular travel back-ups of 6.3 miles. The long-awaited HRBT Expansion will improve congestion and connectivity across the region.

**“With this bridge tunnel,  
we have destroyed distance  
and conquered time.”**

— General James Anderson, State Highway Commissioner, Circa 1957

3



4



5



6





1

1 The Hampton Roads Bridge-Tunnel provided a direct connection between the Southside and Peninsula, eliminating a ferry trip and cutting travel time from 30 minutes to just seven minutes.



2

2 A segment of the immersed tube is being floated to its final destination at the HRBT. The tunnel was comprised of 23 segments and welded together to form more than a mile of continuous steel tube.



7

3 The trestle, or bridge, section of the HRBT comprises the longest portion of the span.

4 Crews excavate and build up walls to form the tunnel entrance.

5 A view of the nearly completed North Island. VDOT constructed this man-made island with approximately 130,000 tons of heavy stone to build the island's seawalls.

6 Concrete segments were used to reinforce the walls of the tunnel entrance.

7 The interior of the steel tube shows forms used for placement of the two-lane roadway slab atop supporting haunches.

## DID YOU KNOW?

- The original tunnel was lined with about two million 4½-inch tiles.

- At its deepest point, the road in the original tunnel tube, which now serves westbound traffic, is 105 feet below the water surface.

- Construction of the 23 segments of the original tunnel used more than 137,000 cubic yards of concrete. At the time that was enough to build a two-lane highway for 47 miles.

# STAFF SPOTLIGHT

## Environmental Specialists Drive Progress on Permits

Many view a groundbreaking as the start of a construction project, but a lot of work is required before that can happen. The bigger the project, the more people and moving parts are involved. Two instrumental people who have helped to get the HRBT Expansion Project ready to start construction are Scott Smizik and Larissa Ambrose. The HRBT Expansion Project includes three and a half miles of water crossing, as well as more than six miles of interstate widening over wetlands and streams. Additionally, there are a number of historic properties within the narrow project corridor, adding to the project's complexity.

As with any project involving U.S. waterways, water quality permits are required by the U.S. Army Corps of Engineers, Virginia Department of Environmental Quality and Virginia Marine Resources Commission. Since these agencies protect our nation's waterways, no impacts are authorized and virtually no work can begin without the permits. A project of this scope and complexity could easily take the better part of two years to obtain permits but thanks to the environmental work led by Smizik and Ambrose, the Joint Permit Application (JPA) process has been expedited so that permits can be obtained more quickly.

Smizik managed the study of alternatives and environmental impacts that laid the foundation for the HRBT Expansion project. Early on, Smizik scheduled monthly coordination meetings with the permitting agencies to facilitate open dialogue and discussion, which allowed the agencies to stay informed on the JPA progress. Ambrose's background provided insight into the perspective of the permitting agencies during the VDOT's review of the JPA to ensure that all elements of the application were covered.

Thanks to these two, permits are expected to be issued this summer and construction will soon start on the largest project in the history of the Commonwealth.



### SCOTT SMIZIK, AICP

*Project Manager, VDOT Environmental Division*

Since 2013, Scott has managed environmental studies across the Commonwealth. He leads the environmental efforts for the HRBT Expansion Project. Prior to VDOT, Scott was an Environmental Scientist providing National Environmental Policy Act (NEPA) reviews, compliance and planning services with the U.S. Army Corps of Engineers and federal and state departments.



### LARISSA AMBROSE

*Environmental Manager,  
VDOT HRBT Expansion Project*

Since June 2019, Larissa has provided environmental oversight on the HRBT Expansion Project, including assisting with the water quality permit applications and reviewing design plans to ensure compliance with environmental regulations. Previously, Larissa worked for the Virginia Department of Environmental Quality (DEQ).

# Opportunities For Small Businesses

To enhance business opportunities and level the playing field so that all businesses can participate, the HRBT Expansion Project has goals for small, women, and minority-owned (SWaM) and disadvantaged businesses (DBE). Certified SWaM/DBE subcontractors and consultants represent a fundamental component of HRCP's project success by adding strength, talent, experience and local resources. As of February

2020, there are 103 Virginia SWaM and DBE and DBE firms contracted on the project with awards of \$29 million. DBE and SWaM firms who are interested in working on the project are encouraged to learn more at [www.hamptonroadsconnector.com](http://www.hamptonroadsconnector.com).



# HRBT EXPANSION: An Economic Boost For The Region

In addition to reducing traffic congestion at one of the busiest corridors in Hampton Roads, the HRBT Expansion Project is set to be a significant generator for economic activity for the region and the state. Based on a study conducted by economic analysis firm Chmura, the total economic impact to Hampton Roads is estimated to be an influx totaling \$4.6 billion from 2019 to 2025 when the project will be completed.

Of the total economic impact, \$2.9 billion is estimated to be

direct spending within Hampton Roads, with direct cumulative jobs amounting to 16,008 from 2019 through 2025 (or 2,287 per year). The cumulative indirect impact in Hampton Roads is estimated to be \$899.2 million that can support 5,714 cumulative jobs (or 816 per year) in industries related to construction, such as architecture and engineering services, sitework and road maintenance, and truck transportation. The cumulative induced impact is expected to total

\$864.7 million with 7,108 cumulative jobs (or 1,015 per year) in the region; these jobs will be concentrated in consumer service-related industries such as restaurants, hospitals, and retail stores.<sup>1</sup>

**TABLE BELOW:** Virginia Department of Transportation (VDOT) engaged Chmura Economics & Analytics (Chmura) to provide an analysis of the economic impact of the construction phase of the project. Table 1 presents the estimated economic impact from the construction of the Hampton Roads Bridge-Tunnel expansion project from 2019 through 2025 in Hampton Roads MSA and Virginia.

## Economic Impact of Hampton Roads Bridge-Tunnel Expansion Project Construction

			DIRECT	INDIRECT	INDUCTED	TOTAL IMPACT
Hampton Roads	CUMULATIVE	Spending (Million)	\$2,866.6	\$899.2	\$864.7	\$4,630.4
	(2019-2025)	Employment	16,008	5,714	7,108	28,830
	ANNUAL AVERAGE	Spending (Million)	\$409.5	\$128.5	\$123.5	\$661.5
	(2019-2025)	Employment	2,287	816	1,015	4,119
Virginia	CUMULATIVE	Spending (Million)	\$3,091.3	\$1,153.5	\$1,139.5	\$5,384.3
	(2019-2025)	Employment	17,405	6,812	9,121	33,338
	ANNUAL AVERAGE	Spending (Million)	\$441.6	\$164.8	\$162.8	\$769.2
	(2019-2025)	Employment	2,486	973	1,303	4,763

Note: Numbers may not sum due to rounding

<sup>1</sup>Source: IMPLAN Pro 2017 and Chmura

**DID YOU  
KNOW?**

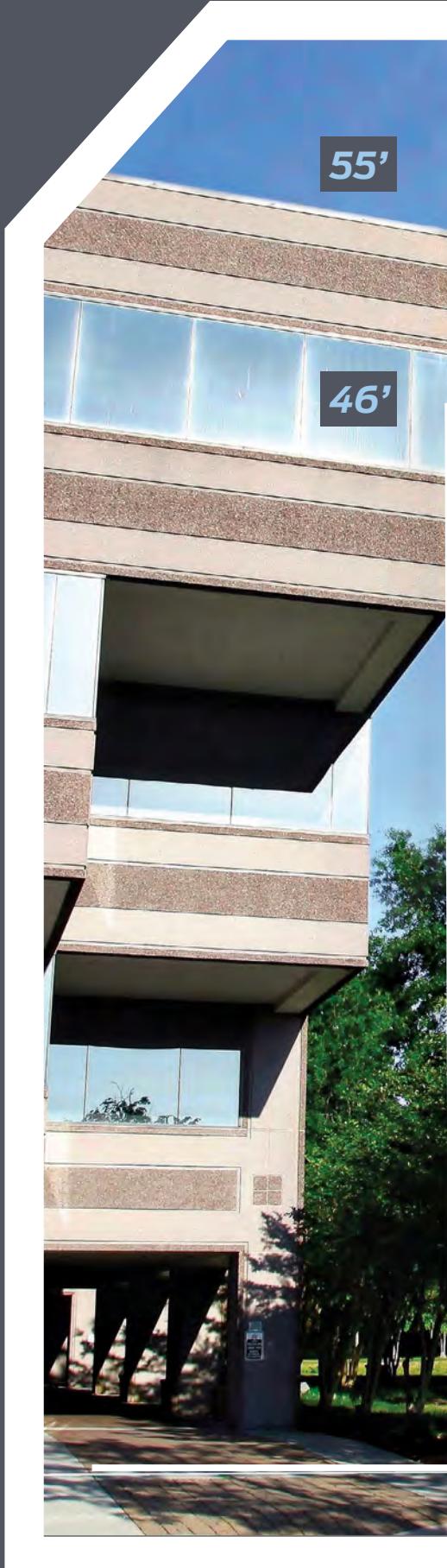
■ *The HRBT Expansion Project is only the fourth bored roadway tunnel in the United States.*

■ *The Chesapeake Bay Bridge-Tunnel Parallel Thimble Shoals project under construction is one of the bored tunnels in the U.S. The other two bored tunnels are in Miami and Seattle.*

■ *The remaining ten tunnels in Hampton Roads are all immersed tube tunnels.*

■ *The HRBT tunnel boring machine will be named. Historically TBMs have been named for women because Saint Barbara was the patron saint of mining and military engineers.*

**PHOTO RIGHT:** The diameter of tunnel boring machine head is roughly the height of a four-story building, almost as tall as the HRBT Expansion Project office, and about the length of a football field.



## BORING TUNNELS

### Excavating Twin Tunnels Is Anything But Boring

#### Technology advancements enables tunnel boring

The new twin tunnels will be constructed using a massive tunnel-boring machine, or TBM, with a rotating cutting head that excavates soil along the tunnel's path. As the cutter head moves through the soil, concrete liners are set in place by a rotating vacuum powered lift, creating the outer shell of the tunnel.

Advantages of this construction method include significantly less environmental impact to marine wildlife than with the immersed-tube approach, which would have required dredging a deep, mile-long trench across the Hampton Roads waterway. Because the tunnel-boring machine excavates from beneath the riverbed, this technology greatly reduces disruption to commercial and military shipping in one of the nation's most important navigation channels. The new tunnels will be approximately 50 feet deeper than the current tunnels and each will be 8,000 feet in length.

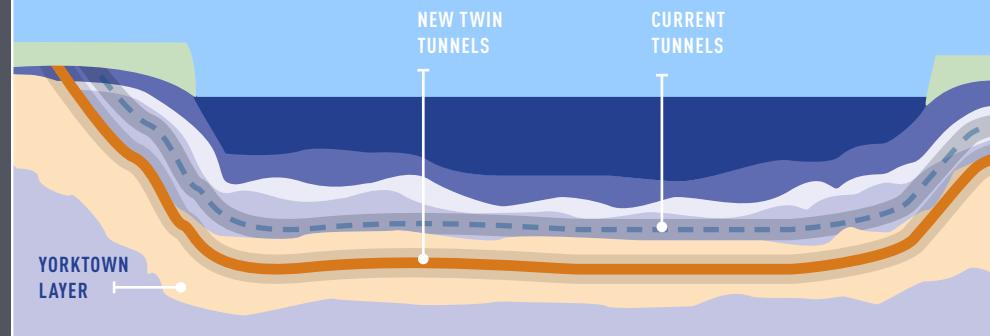
The HRBT Expansion Project will be VDOT's first bored tunnel and only the fourth bored tunnel in the United States. Although the immersed-tube method was used to construct all ten of Hampton Roads' existing crossings – from the original Downtown Tunnel in 1952 to the



new Midtown Tunnel in 2016 – recent technology advances have now made bored tunnels feasible in the region's soft soils.

Preliminary construction work will begin in mid-2020 with a 65-foot pit to be excavated on the South Island to accommodate the TBM, which will be assembled on the island. The TBM will tunnel towards the North Island (Norfolk to Hampton) completing the first tunnel in roughly one year. It will take about four months to turn the TBM around and another year to bore a parallel tunnel back to the South Island. Tunnel Construction is expected to begin in February 2022 and will be completed by April 2024.

**The TBM will tunnel through layers of soil to excavate the new twin tunnels, which will be 50 feet deeper than the existing tunnels.**



**1****2****4****6****7****8****9****10**

# 3



# 5



## COMMUNITY OUTREACH

### Community Engagement Provides Valuable Input To The Project

The HRBT Expansion Project Community Outreach effort is based on full transparency and open communications with the community. The HRBT Expansion Project Team partners with local communities to increase awareness about the project. To date, VDOT has participated in over 100 public outreach events and will continue to provide public outreach throughout the project.

### Collaboration Drives Progress

Collaboration and communication are essential to the HRBT Expansion project's success. That's why the project team coordinates regularly with key stakeholders to provide updates and discuss any concerns. With construction that will impact city streets and residents, the HRBT project team works closely with the Cities of Hampton and Norfolk to provide updates and communications to city leaders and staff. These regular meetings ensure that there are no surprises and allow the team to proactively address any concerns. In addition to the city meetings, the project team also meets with Hampton University leadership due to the proximity of the project to the university campus, although there will be no impacts to the University property or to the historic Emancipation Oak.

The project is also located within a very active channel utilized by hundreds of military, commercial and recreational vessels each day. Although much of the tunnel work will happen underground, with 28 bridges to be repaired or rebuilt, there will be a number of barges in the channel to support the project. Open dialogue with the U.S. Navy, Port of Virginia, the U.S. Coast Guard and maritime community allows the project team to understand concerns and coordinate work in the channel.

- 1 Project Director Jim Utterback presents to the Stakeholders Committee, a group of Hampton Roads community leaders who provide critical input and project feedback.
- 2 Communications Manager presents to the Coliseum Central Board of Director.
- 3 The HRBT Expansion Project Team presented at the Governor's Transportation Conference in November 2019.
- 4 Commercial Manager Martha Gross presents to the Downtown Hampton Development Partnership.
- 5 Norfolk Mayor Kenny Alexander and Director of Neighborhood Development Michelle Johnson visit the HRBT Expansion Project Table at Engage Norfolk.
- 6 HRBT Project Team held a school supplies drive for local Norfolk schools.
- 7 Monthly meetings with key stakeholders, such as Hampton University, keep dialogue open and improve collaboration.
- 8 Jim Utterback, Project Director, appearing on the City of Hampton's Round Robin.
- 9 Monthly meetings with key stakeholders, such as Hampton University, keep dialogue open and improve collaboration.
- 10 Paula Miller, Communications Manager, and Yvonnick Rescamps, HRCP's Tunnel Lead, recording Tunnel Talk. Visit the website, [www.hrbtexpansion.org](http://www.hrbtexpansion.org) and listen to the podcast Tunnel Talk to learn more.



**For more project details visit:**

HRBTEXPANSION.ORG | #HRBTEXPANSION |  @HRBExpansion

