



# **I-64 Hampton Roads Bridge-Tunnel Expansion Project**

## **Annual Financial Plan Update**

**March 31, 2020**

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## EXECUTIVE SUMMARY

The I-64 Hampton Roads Bridge-Tunnel (HRBT) Expansion Design-Build project addresses one of the region's most significant chokepoints by adding more capacity to the HRBT and adjacent segments of the I-64 corridor. The new tunnels and their approach bridges will accommodate four lanes of traffic for a total of eight lanes of capacity across the water. Across the water, the concept design proposes new tunnels just west of the existing crossing. The new facility will carry eastbound general-purpose and High Occupancy Toll (HOT) traffic. The existing eastbound tunnel is being converted to carry westbound HOT traffic. This project will also add new trestles, and replace the existing trestles connecting the tunnels to the landside improvements. In addition to the new tunnels, the project will widen the landside four-lane sections of I-64 in Hampton between Settlers Landing and the Phoebus shoreline, as well as the four-lane sections of I-64 in Norfolk between the Willoughby shoreline and the I-564 interchange. These segments will be expanded to 6 full-time lanes (4 will be free general-purpose lanes and 2 will be variably-priced High Occupancy Toll (HOT) lanes) plus 2 part-time shoulder lanes that can be used for periods of extremely heavy congestion.

VDOT released the Final Request for Proposals (RFP) on September 27, 2018, and the project was awarded for construction by the Commonwealth Transportation Board (CTB) April 3, 2019 to the Hampton Roads Connector Partners (HRCP). The HRCP team is comprised of Dragados USA, Flatiron, Dodin-Campenon-Bernard, Vinci Construction, and the Design Joint-Venture of HDR and Mott MacDonald.

The Design-Build phase of the project began in April 2019 with the execution of the Comprehensive Agreement and the Design-Builder Limited Notice to Proceed One (LNTP1). The project is in the design and permitting stage. Designs have been advanced to support permit applications, TBM procurement, and launch pit construction. The Joint Permit Application (JPA) was submitted on August 30, 2019. Additional information was provided to the agencies on December 23, 2019. Early works construction for the South Island Launch Pit is planned and on schedule to begin Spring of 2020. Construction Final Completion and VDOT Acceptance remains unchanged from the Initial Financial Plan and is scheduled for November 1, 2025.

The current total project cost estimate is \$3,891,997,227, which reflects an increase of \$107,997,227. The net increase in the total project cost estimate is due to three factors:

1. The as-bid design-build contract amount resulted in a \$17,997,227 increase from the original estimate for the design-build contract
2. Early completion incentives were added to the final design-build contract increasing the potential total costs \$90,000,000

There are currently no negotiated work orders in place, and the Scope Validation process is ongoing. The project is fully funded with a combination of HRTAC funds, GARVEE Bond proceeds, SmartScale and other dedicated State funding. The project received federal authorization on December 11, 2019.

## 1. PROJECT DESCRIPTION

The I-64 Hampton Roads Bridge-Tunnel Expansion Project is located on Interstate 64 in the Cities of Hampton and Norfolk beginning approximately 0.177 miles west of Settlers Landing Road (Western Terminus) and ending approximately 0.289 miles east of Little Creek Road (Eastern Terminus) at the Interstate 64/Interstate 564 interchange (see **Figure 1**).

The project addresses one of the region's most significant chokepoints by adding more capacity to the HRBT and adjacent segments of the I-64 corridor. The new tunnels and their approach bridges will accommodate four lanes of traffic for a total of eight lanes of capacity across the water. Across the water, the concept design proposes new tunnels just west of the existing crossing. The new facility will carry eastbound general-purpose and High Occupancy Toll (HOT) traffic. The existing eastbound tunnel is being converted to carry westbound HOT traffic. Other alignments and configurations for the crossing are also possible, as long as they are consistent with the project's environmental commitments.

In addition to the new tunnels, this project will also add new trestles, and replace the existing trestles connecting the tunnels to the landside improvements. The project will widen the landside four-lane sections of I-64 in Hampton between Settlers Landing and the Phoebus shoreline, as well as the four-lane sections of I-64 in Norfolk between the Willoughby shoreline and the I-564 interchange. These segments will be expanded to 6 full-time lanes (4 will be free general-purpose lanes and 2 will be variably-priced High Occupancy Toll (HOT) lanes) plus 2 part-time shoulder lanes that can be used for periods of extremely heavy congestion. To accommodate the roadway widening, the project will rehabilitate or rebuild 30 interstate bridge structures. Additional improvements along the project corridor include new sound barrier walls, lighting, and drainage. This project is being delivered as a design-build project under the Public-Private Partnership Act of 1995.

See following page for Figure 1, Location Map

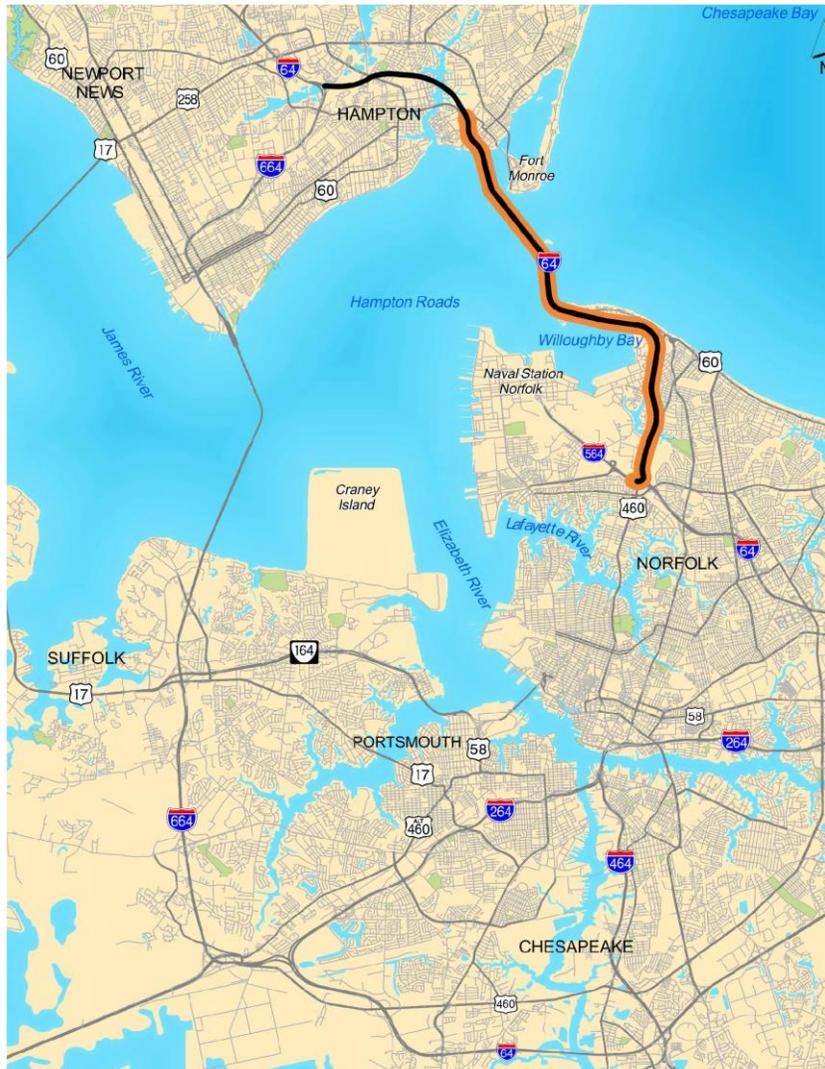


Figure 1 – Location Map

## HISTORY AND ENVIRONMENTAL PROCESS

The Intermodal Surface Transportation Act of 1991 allocated funds for highway projects demonstrating innovative techniques of highway construction and finance. The Interstate 64 (I-64) crossing of Hampton Roads was included as one of the innovative projects. A Major Investment Study (MIS) of the I-64 crossing of Hampton Roads was completed in 1997. The MIS documented an initial review of alternatives to reduce congestion at the I-64 crossing. Following the MIS, the Hampton Roads Crossing Study (HRCS) Draft Environmental Impact Statement (DEIS) and Final EIS (FEIS) were published in 1999 and 2001, respectively, documenting the preferred alternative. The Federal Highway Administration (FHWA) issued a Record of Decision (ROD) in 2001, completing the NEPA process. Other studies were completed to further evaluate potential Hampton Roads crossing improvements. In 2003, FHWA and the Virginia Department of Transportation (VDOT) completed a re-evaluation of the FEIS that analyzed implementing a portion of the preferred alternative. That re-evaluation validated the previous decisions. In 2011,

FHWA and VDOT issued an Environmental Assessment (EA)/Re-evaluation of the HRCS FEIS covering the segments of the preferred alternative including what is now referred to as the I-664 Connector, the I-564 Connector, and the VA 164 Connector. While the EA was completed, no NEPA decision was issued due to fiscal constraints and the project did not advance. In 2012 FHWA and VDOT published the Hampton Roads Bridge-Tunnel (HRBT) DEIS. The DEIS evaluated options for improvements to I-64 between Hampton and Norfolk. The DEIS found that the Retained Alternatives would result in high impacts to historic and private properties. High impacts, along with lack of public and political support, led FHWA to rescind the Notice of Intent (NOI) for the project. In 2013, the 2011 EA was revised but the FHWA never made a NEPA decision on the document.

In 2014 the Hampton Roads Transportation Accountability Commission (HRTAC) included the HRCS in its list of priority projects, which led FHWA and VDOT to the development of a Supplemental Environmental Impact Statement (SEIS) to evaluate options for this crossing. This SEIS was prepared in part due to the time that has lapsed since the 2001 Record of Decision (ROD). Environmental regulations and conditions in the Hampton Roads region had changed substantially during the fifteen years that passed since the ROD was issued, resulting in the need for a thorough reevaluation. In December 2016, the Commonwealth Transportation Board (CTB) approved "Alternative A" as the preferred alternative for this study, laying the groundwork to complete the SEIS. FHWA issued a ROD on June 12, 2017 identifying Alternative A as the Selected Action. The ROD included environmental commitments that also were made by the CTB. The ROD allowed VDOT to advance with more detailed design activities, using more advanced engineering and other analyses. The advanced engineering and analyses sought to refine the Selected Action, for which the U.S. Army Corps of Engineers (USACE) found no reason to disagree it appeared to be the preliminary Least Environmentally Damaging Practicable Alternative (preliminary LEDPA).

On January 10, 2018, the CTB approved the designation of HOT lanes on I-64. Since the time that approval was made, VDOT has worked to determine how HOT lanes would be accommodated and function within the I-64 corridor. VDOT and FHWA indicated in the Final SEIS and ROD that improvements considered with the HRCS could be implemented and operated as a managed lane, but the management option was not specifically designated as such at the time the ROD was issued. Traffic and associated air quality and noise analyses in the SEIS did account for the potential to include managed lanes.

In June 2018 FHWA issued a Re-evaluation for the HRCS Final SEIS. The Re-evaluation considered refinements proposed by VDOT to the Selected Action documented in FHWA's June 12, 2017 ROD and was informed by environmental analyses completed since the ROD was issued. In order to accommodate the HOT lanes and improvements to existing bridge-tunnel structures, the planning-level Limit of Disturbance (LOD) was widened along the mainline and surrounding the I-64/I-564 interchange. The detailed engineering and analyses that have occurred since the ROD have also identified additional property to be acquired as part of the project to accommodate future construction staging activities. The Re-evaluation also identified the potential for a new direct connection between the proposed HOT lanes and I-564. The Re-evaluation documented

these changes and updated the project’s estimated impacts that had been previously identified in the ROD. On October 23, 2018, following a public comment period on the EA, FHWA issued a Finding of No Significant Impact (FONSI) for the Re-evaluation, incorporating the refinements to the Selected Action into the project.

The corridor study area for the 2018 Re-evaluation of the HRCS consists of the I-64 corridor, including interchanges, from just west of the Settlers Landing Road interchange in Hampton to the interchange with I-564 in Norfolk. The study area includes the approach/departure bridges and tunnel area of the Hampton Roads Bridge-Tunnel (see **Figure 2**).



**Figure 2 – Corridor Study Area**

**DESIGN-BUILD PROCUREMENT**

The VDOT Office of Public Private Partnerships, the Alternative Project Delivery Division, along with VDOT leadership were responsible for reviewing the project for consideration for DB delivery under the Virginia Public Procurement Act (vs. under the Public Private Procurement Transportation Act of 1995, as amended (PPTA)).

On the basis of a screening report and Public Sector Analysis and Competition (PSAC) conducted by the VDOT Office of Public Private Partnerships, and as indicated in the Commissioner's Finding of Public Interest dated January 2018, the Department concluded that procuring the Project under the PPTA afforded the Department the flexibility necessitated by the size and complexity of the Project.

**DETAILED SCOPE OF THE PROJECT**

The Department will deliver the I-64 HRBT improvements as defined in the I-64/Hampton Roads Crossing Study Final SEIS. The preferred alternative from the Environmental Impact Statement was the basis for the Project development. In the RFP, the HRBT improvements project consists of widening and reconfiguring the interstate to eight lanes—including provisions for High Occupancy Toll (HOT) lanes as described below.

The anticipated scope of work to be undertaken by the Design-Builder under their agreement for this project shall include, but is not limited to: (a) survey; (b) developing and completing the design through the Department approval process; (c) acquiring the necessary environmental permits, including United States Coast Guard (USCG) permit and approval; (d) acquiring right-of-way, permanent and temporary easements; (e) coordinating and performing, or causing to be performed, required utility relocations, additions, and adjustments; (f) coordinating and cooperating with the Department existing tunnel operations; (g) roadway construction and widening; (h) tunnel and tunnel systems design and construction; (i) reconstruct portions of existing mainline travel lanes, shoulders, and ramp acceleration/deceleration lanes; (j) bridge demolition and bridge construction; (k) bridge repair and rehabilitation; (l) overall Project management and coordination with other active construction projects in the vicinity. The detailed scope is defined in the contract documents and other project agreements.

The Project includes widening and reconfiguration of the existing interstate to accommodate two (2) general-purpose (GP) lanes, one (1) HOT lane, and one (1) part-time shoulder lane in the eastbound and westbound directions; two (2) new tunnels that can accommodate four (4) lanes of traffic. The proposed improvements include, but are not limited to: two (2) new HRBT tunnels; new trestle(s); removal and replacement of the existing tunnel approach trestles; expansion of the existing north and south islands of the HRBT; pavement widening to accommodate new lane configurations; full depth shoulder lanes for part time use; outside shoulders; retaining walls; sound barrier walls; full depth construction on mainline roadway pavement where indicated in the RFP Concept Plans, milling and asphalt overlay where indicated in the RFP Concept Plans; removal and replacement of the overpass bridge at South Mallory Street including any necessary improvements or realignment of Mallory Street; bridge widening, repair, and replacement; entrance/exit ramp modifications; installation of storm drain pipes and stormwater management (SWM) facilities; roadway signing, both ground mounted and overhead; pavement

marking, pavement markers, and delineators; roadway lighting; relocation of existing and installation of new ITS infrastructure and equipment; and traffic signals.

It is noted that the description and length are approximate and are based on the RFP Concept Plans shown in the RFP Information Package. The final project length may vary depending on the Design-Builder's final design; however, any change in the project limits requires approval by the Department.

The conceptual design contained in the RFP Information Package reflects a basic line, grade, typical sections, minimum pavement structures, major cross drainage structures, potential locations of SWM ponds, conceptual bridge and retaining wall locations, and general length and location of sound barrier walls. These elements are the basic project configuration and not all elements and requirements of the project are illustrated within. The Design-Builder is responsible for final design in accordance with their agreement and the technical requirements.

The general scope of the Project is shown graphically in **Figure 3**. A project website has been established and is available at the following link - [www.hrbtexpansion.org](http://www.hrbtexpansion.org).



**Figure 3 – General Scope of Project**

## 2. SCHEDULE

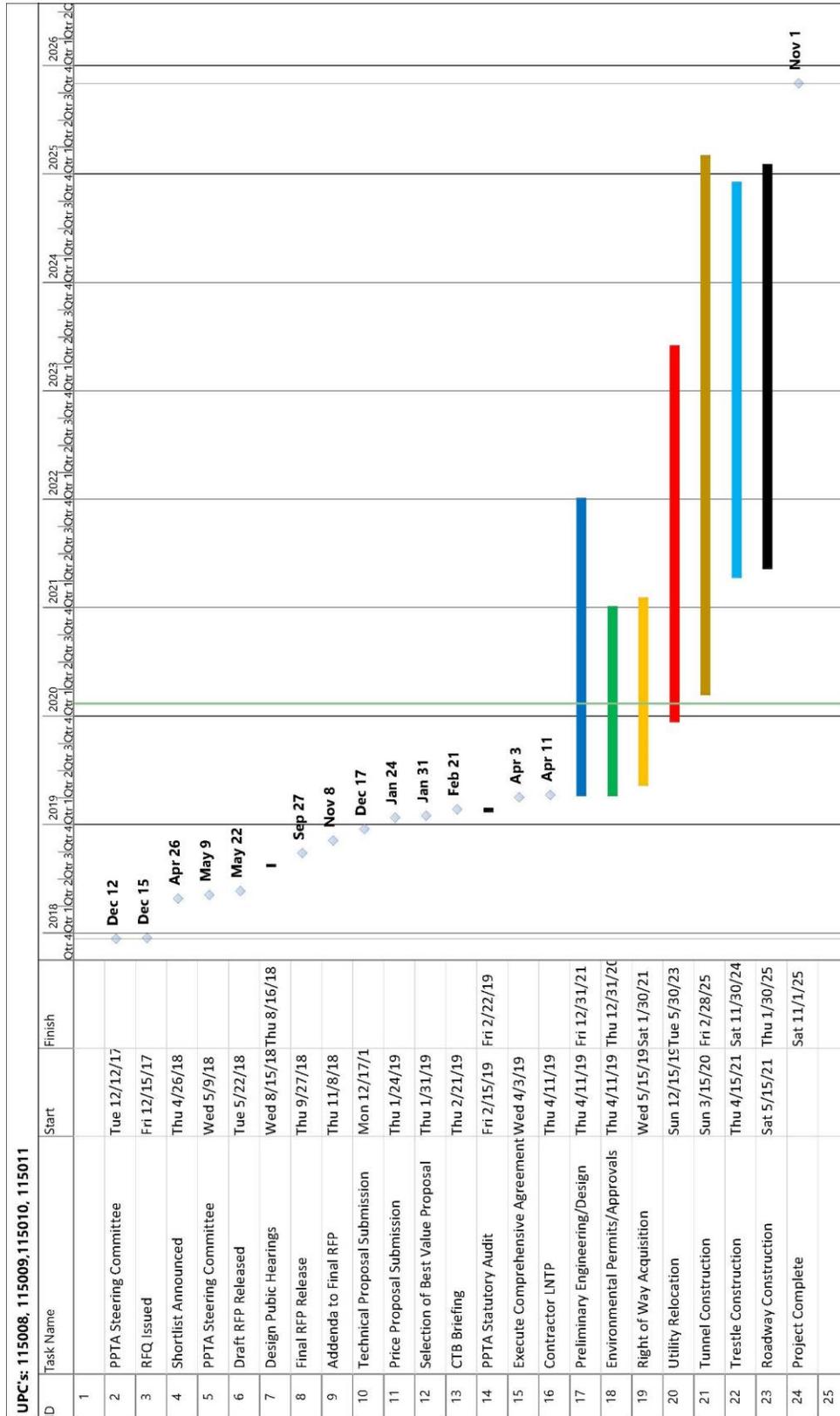
The design-build contract development and procurement phase of the project commenced in December 2017 with the PPTA Steering Committee and included the RFQ, RFP, technical proposal submissions, price proposal submissions, and selection of the best value proposal. The design-build phase of the project began in April 2019 with the execution of a comprehensive agreement and the Design-Builder Limited Notice to Proceed One (LNTP 1) and will end no later than November 1, 2025 with the final completion. The LNTP 1 and Final Completion dates are unchanged from the Initial Financial Plan. A summary of schedule changes based to the design and construction activities includes:

<b>Work Activity</b>	<b>Initial FP</b>	<b>FP Update</b>	<b>Change (months)</b>
Preliminary Engineering/Design	7/2021	12/2021	+5
Environmental Permits/Approvals	5/2020	12/2020	+7
Right of Way Acquisition	10/2019	1/2021	+3
Utility Relocation	11/2020	5/2023	+30
Tunnel Construction	9/2024	2/2025	+5
Trestle Construction	8/2025	11/2024	-15
Roadway Construction	7/2025	1/2025	-6

The utility relocations are being spread out by the Design-Builder over a much broader span of time to align with other targeted construction activities. The environmental permits and tunnel construction remain the primary critical path activities. Even though they have longer durations, they have not impacted the final completion date. The trestle and roadway construction activities' scheduled durations have been reduced by the Design-Builder.

Based on the Design-Builder's schedule, they plan to achieve Substantial Completion by July 18, 2025. This would qualify them for an early completion incentive of \$13,700,000. A project schedule showing key activities and major milestones for the Project is presented in **Figure 4** on the next page. The schedule has been updated to reflect the Design-Builder's baseline schedule at the time of this update.

Figure 4 – Project Schedule



### 3. PROJECT COST

#### PRE-COST ESTIMATE REVIEW (CER) ENGINEER'S ESTIMATE

The pre-CER engineers cost estimate was a planning level cost estimate that has been superseded by the CER cost estimate and more recently the Design-Builder's contract amount. The information on the pre-CER cost estimate has been superseded and can be found in the Initial Financial Plan dated March 31, 2019.

#### COST ESTIMATE REVIEW (CER) RESULTS AND INITIAL FINANCIAL PLAN ESTIMATE

A FHWA Cost Estimate Review workshop was conducted on November 5 and 6, 2018. The CER results were reviewed and updated December 12, 2018 to reflect additional review of risk impacts. The goal was to conduct an unbiased risk-based review to 1) verify the accuracy and reasonableness of the current total engineer's cost estimate and project schedule and 2) to develop a probability range using a Monte Carlo simulation for the cost estimate that represents the project's current stage of development.

The risk register for the project was updated prior to the workshop. During the workshop, 37 risk items (34 Threats, 3 Opportunities) were modeled in the software for the project. After further risk analysis and coordination with FHWA, 38 risk items (34 Threats, 4 Opportunities) were included in the final model of December 12, 2018.

FHWA requires development of the Year-of-Expenditure (YOE) results at the 70th percentile (P70) as well as a range of probable project costs from 10% to 100% confidence levels based on the various risks evaluated. For the model, finalized December 12, 2018, the following results were determined for FHWA CER purposes:

- Total Design-Build Contract Project Cost – YOE-P70                   \$ 3,282,000,000
- Total VDOT Project Cost – YOE-P70   \$ 524,000,000
- Overall Project Cost – YOE- P70   \$ 3,784,000,000

The Overall Project Cost for comparative purposes in the Financial Plan update is \$3,784,000,000. The construction cost was derived by adding the Total Design-Build Contract Project Cost of \$3.282 billion to the \$335 million contingency from the FHWA CER for a total construction cost of \$3.617 billion. At the time of the FHWA CER specific financial incentives had not been determined for the project.

## DESIGN-BUILDER CONTRACT AMOUNT AND CURRENT COSTS

As a result of the Design-Build procurement phase initiated in December 2017 a comprehensive agreement was executed with the Design-Builder in April 2019. The maximum compensation for the agreement for the design and construction scope of services was \$3,299,997,227. The Preliminary Engineering, Right of Way and construction contingency costs have not changed since the Initial Financial Plan. The construction cost is the Design-Builder's contracted maximum compensation (\$3,299,997,227) added to the construction contingency (\$335,000,000) added to the potential construction incentives (\$90,000,000) for a construction cost of \$3,724,997,227.

## COMPARISON OF INITIAL FINANCIAL PLAN COSTS AND CONTRACTED AMOUNT PROJECT COSTS

The Initial Financial Plan Total Project Costs was \$3.784 billion. Based on the contracted amount of the comprehensive agreement, the Total Project Costs are \$3,891,997,227. This represents less than a 3% increase from the Initial Financial Plan pre-bid estimate. The increase in the budgeted Total Project Costs is primarily due to early Substantial Completion schedule incentives (\$90 million) included in the Comprehensive Agreement with the Design-Builder that potentially increases the construction cost if the early completion milestones are achieved. A small portion of the increase is due to an increase in the Design-Build contract cost. The Design-Build construction contract cost increased from \$3,282,000,000 at the CER stage to \$3,299,997,227 as contracted. This represents only a 0.55% increase from the CER estimate. The contracted project costs will be utilized for the purposes of financial planning for the HRBT project.

**Table 3: Project Costs by Project Phase**

UPC	Phase	Initial Financial Plan Estimate	Current Estimate	Current Expenditures as of 12/31/2018	Current Expenditures as of 12/31/2019	Balance to Complete
110577	PE	\$30,000,000	\$30,000,000	\$23,508,696	\$28,800,287	\$1,199,713
115008/ 115009/ 115010/ 115011	PE	\$122,000,000	\$122,000,000	\$0	\$6,247,303	\$115,752,697
	RW	\$15,000,000	\$15,000,000	\$0	\$6,355,219	\$8,644,781
	CN	\$3,617,000,000	\$3,724,997,227	\$0	\$159,173,245	\$3,565,823,982
<b>TOTAL</b>		<b>\$3,784,000,000</b>	<b>\$3,891,997,227</b>	<b>\$23,508,696</b>	<b>\$200,576,054</b>	<b>\$3,691,421,173</b>

#### 4. PROJECT FUNDS

The I-64 HRBT Expansion Project was identified as one of the Hampton Roads Regional Priority Projects by HRTAC and the Hampton Roads Transportation Planning Organization (HRTPO) in March 2016. The project was included in HRTAC's Initial Financial Plan adopted March 17, 2016. On March 16, 2017, HRTAC executed an Interim Project Agreement for Funding and Administration with VDOT, which authorized an initial \$25,000,000 of funding in support refinement of the preferred alternative and procurement of this project. An additional \$5,000,000 was authorized for FY 2019. These planning and procurement costs have been excluded from evaluation for the Financial Plan update. An additional \$3,562,000,000 was identified in the HRTAC 2045 Long Range Plan of Finance for Priority Projects and was authorized prior to a Design-Build Offeror being selected and the final design and construction ready to commence. HRTAC will fund costs from the Hampton Roads Transportation Fund (HRTF) and other revenues.

On July 21, 2016, HRTPO approved the 2040 Long Range Transportation Plan. The plan identified the Hampton Roads Bridge-Tunnel Widening Project related to the Hampton Roads Crossing and Regional Connectors Study as a "Regional Priority Project." The project was shown as being funded by the HRTF and other HRTAC revenues.

On June 19, 2018, the Commonwealth Transportation Board (CTB) approved the FY2019-2024 Six-Year Improvement Plan (SYIP), which included the HRBT project. On June 19, 2019, the CTB approved the FY2020-2025 SYIP which approved \$200,000,000 of SmartScale allocations and updated the funding allocations to align with the actual contracted costs and the Design-Builder's Maximum Cumulative Compensation Amount schedule in the Comprehensive Agreement.

On April 2, 2019 the Project Agreement for Funding and Administration (PAFA) was executed between HRTAC and the VDOT. The PAFA identified \$3,753,469,581 of HRTAC funds (including \$200,000,000 of SmartScale funds) and \$108,527,646 of federal/state funds for the project. A summary of current and planned funding is summarized in **Table 4** by funding source on the next page.

Table 4 – Summary of Funding by Source and Year\*

Funding Source		Fiscal Year							TOTAL
		Previous	2021	2022	2023	2024	2025	2026	
UPC 110577	HRTAC AR Funds	\$30,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$30,000,000
UPC 115008	HRTAC AR Funds	\$250,000,000	\$1,076,175,698	\$657,026,122	\$495,010,086	\$368,828,395	\$157,528,950	\$0	\$3,004,569,251
UPC 115009	HRTAC AR Funds	\$191,063,852	\$52,818,643	\$56,577,245	\$50,653,641	\$52,817,383	\$133,501,765	\$11,467,801	\$548,900,330
UPC 115010	HB1887 – HPP (2): GARVEE – High Priority	\$0	\$0	\$0	\$0	\$110,000,000	\$90,000,000	\$0	\$200,000,000
UPC 115011	CTB Formula: CTB Bridge HIP – Federal	\$5,505,286	\$0	\$0	\$0	\$0	\$0	\$0	\$5,505,286
	CTB Formula: CTB Bridge HIP – Soft Match	\$1,376,321	\$0	\$0	\$0	\$0	\$0	\$0	\$1,376,321
	CTB Formula: CTB Formula – Bridge State	\$23,773,688	\$0	\$0	\$0	\$0	\$0	\$0	\$23,773,688
	HB1887- SGR: SGR Bridge Federal NHPP	\$0	\$81,653	\$3,970,319	\$1,594,214	\$192,000	\$7,616,559	\$0	\$13,454,745
	HB1887- SGR: SGR Bridge Soft Match NHPP	\$0	\$20,413	\$992,580	\$398,555	\$48,000	\$1,904,141	\$0	\$3,363,689
	HB1887- SGR: SGR Nat. Freight Pgm -Bridge Federal	\$0	\$0	\$0	\$0	\$13,026,136	\$6,759,208	\$0	\$19,785,344
	HB1887- SGR: SGR Nat. Freight Pgm -Bridge Soft Match	\$0	\$0	\$0	\$0	\$3,256,534	\$1,689,802	\$0	\$4,946,336
	HB1887- SGR: SGR STP STWD Bridge Federal	\$0	\$0	\$0	\$0	\$1,277,198	\$0	\$0	\$1,277,198
	HB1887- SGR: SGR STP STWD Bridge Soft Match	\$0	\$0	\$0	\$0	\$319,299	\$0	\$0	\$319,299
	HB1887- SGR: SGR Bridge State	\$0	\$516,980	\$749,307	\$1,367,109	\$266,818	\$6,927,908	\$24,897,618	\$34,725,740
	TOTAL	\$30,655,295	\$619,046	\$5,712,206	\$3,359,878	\$18,385,985	\$24,897,618	\$24,897,618	\$108,527,646
<b>GRAND TOTAL</b>		<b>\$501,719,147</b>	<b>\$1,129,613,387</b>	<b>\$719,315,573</b>	<b>\$549,023,605</b>	<b>\$550,031,763</b>	<b>\$405,928,333</b>	<b>\$36,365,419</b>	<b>\$3,891,997,227</b>

### FEDERAL FUND SOURCES AND SPECIAL FUNDING TECHNIQUES

The HRTPO has included the HRBT project in its Long-Range Transportation Plan. All project activities are included in the HRTPO's FY19-22 TIP and the Commonwealth's FY19-22 Live STIP under UPC's 115008, 115009, 115010 and 115011. Preliminary engineering, right of way, and construction associated with this project was authorized by FHWA on December 11, 2019 under federal project number NHPP-5A03(992). Information concerning federal fund sources and special funding associated with the project authorization is provided in **Table 5** on the next page.

**Table 5 – Project Authorization Details as of December 31, 2019**

<b>Federal Project Number NHPP-064-3(507)</b>						
<b>UPC 110577</b>						
<b>PE</b>						
<b>Program Code</b>	<b>Total Cost</b>	<b>Federal Funds Obligated</b>	<b>AC Funds</b>	<b>Soft Match</b>		
Z001	\$25,000,000	\$0	\$20,000,000	\$0		
<b>TOTAL</b>	<b>\$25,000,000</b>	<b>\$0</b>	<b>\$20,000,000</b>	<b>\$0</b>		
<b>Federal Project Number NHPP-5A03(992)</b>						
<b>UPC 115008, 115009, 115010, 115011</b>						
<b>PE, RW, CN</b>						
<b>UPC</b>	<b>Program Code</b>	<b>Phase</b>	<b>Total Cost</b>	<b>Federal Funds Obligated</b>	<b>AC Funds</b>	<b>HRTAC</b>
115009	Z240	PE	\$118,472,054	\$0	\$0	\$118,472,054
115011	Z005	PE	\$3,527,946	\$0	\$3,527,946	\$0
115009	Z240	RW	\$15,000,001	\$0	\$0	\$15,000,000
115009	Z240	CN	\$90,000,001	\$0	\$0	\$90,000,000
115009	NA	CN	\$325,428,277	\$0	\$0	\$325,428,276
115008	Z240	CN	\$3,004,569,252	\$0	\$0	\$3,004,569,251
115010	Z001	CN	\$268,285,004	\$0	\$268,285,008	\$0
115011	Z005	CN	\$104,999,696	\$0	\$104,999,696	\$0
	<b>TOTAL</b>		<b>\$3,930,282,231</b>	<b>\$0</b>	<b>\$376,812,650</b>	<b>\$0</b>

On January 18, 2018, HRTAC issued its Preliminary Official Statement (POS) and Road Show to market the HRTAC Senior Lien Revenue Bonds Series 2018 A backed by the Hampton Roads Transportation Fund.

## 5. FINANCING ISSUES

The overall project cost based on the contracted amount is \$3,891,997,227. The total funding for the HRBT project based on the executed PAFA identifies \$3,783,469,581 of HRTAC funding (including SmartScale) and has identified \$108,527,646 of federal/state funding. The project is scheduled to end in late 2025. Identified HRTAC funding is based on collection of tax revenues and other revenues. These revenues can vary year-to-year. HRTAC monitors market and interest rates and if any issues arise with funding timing, HRTAC-issued bond sale expectations may be changed year-to-year to provide additional flexibility in the funding schedule. The current spending plan is based on the existing forecasted funding and is summarized in **Table 6**.

**Table 6 – Project Spending Plan (in thousands of dollars)**

Expenditure Item	Previous	FY21	FY22	FY23	FY24	FY25	FY26
Preferred Alternative Refinement	\$30,000	\$0	\$0	\$0	\$0	\$0	\$0
VDOT Project Delivery	\$26,840	\$24,400	\$24,400	\$18,300	\$18,300	\$7,320	\$2,440
Right of Way	\$15,000	\$0	\$0	\$0	\$0	\$0	\$0
Design-Build Contract	\$250,000	\$1,088,176	\$692,026	\$530,010	\$492,256	\$247,529	\$0
Incentives	\$0	\$0	\$0	\$0	\$0	\$90,000	\$0
Contingency	\$150,000	\$30,328	\$36,393	\$36,394	\$36,394	\$36,393	\$9,098
TOTAL Spending	\$471,840	\$1,142,904	\$752,819	\$584,704	\$546,950	\$381,242	\$11,538
Cumulative Spending	\$471,840	\$1,614,744	\$2,367,563	\$2,952,267	\$3,499,217	\$3,880,459	\$3,891,997

VDOT anticipates issuing GARVEE Bonds over two years to fund its obligation to the project. VDOT anticipates no financing issues with the GARVEE bond proceeds. If any issues arise with funding timing, GARVEE bond sale amounts can be changed year-to-year to provide additional flexibility in the funding schedule. The total estimated debt service for the project is \$268,285,004 [\$200,000,000 principal and \$68,285,004 financing costs (issuance costs, interest, etc.)] with an estimated interest rate of 4%.

## 6. CASH FLOW

The HRBT Project’s annual cash expenditures have been updated since the Initial Financial Plan and are currently based on the updated baseline project schedule dated December 15, 2019. The annual cash expenditures in the Initial Financial Plan were developed by the VDOT project design team. The cash flow analysis for the project is summarized in **Table 7**. It shows the comparison of previous and projected expenditures by fiscal year against the total annual allocations. The table will be updated annually as actual expenditures are incurred.

**Table 7 – Cash Flow Analysis for HRBT Project (in thousands of dollars)**

Allocation/Expenditure	Previous	FY21	FY22	FY23	FY24	FY25	FY26
Annual Expenditures	\$471,840	\$1,142,904	\$752,819	\$584,704	\$546,950	\$381,242	\$11,538
Annual Allocations	\$501,719	\$1,129,613	\$719,316	\$549,024	\$550,032	\$405,928	\$36,365
Cumulative Expenditures	\$471,840	\$1,614,744	\$2,367,563	\$2,952,267	\$3,499,217	\$3,880,459	\$3,891,997
Cumulative Allocations	\$501,719	\$1,631,332	\$2,350,648	\$2,899,672	\$3,449,704	\$3,855,632	\$3,891,997
<b>Allocation Surplus or (Deficit)</b>	<b>\$29,879</b>	<b>\$16,588</b>	<b>(\$16,915)</b>	<b>(\$52,595)</b>	<b>(\$49,513)</b>	<b>(\$24,827)</b>	<b>\$0</b>

## 7. P3 ASSESSMENT

The Public-Private Transportation Act of 1995, as amended (PPTA), is the Commonwealth of Virginia enabling legislation for the development and operations of transportation projects utilizing the private sector. The VDOT Office of Public Private Partnerships, the Alternative Project Delivery Division, along with VDOT leadership were responsible for reviewing the project for consideration for P3 delivery.

In 2017, the VDOT P3 Office of Public Private Partnerships undertook a screening process, and assessed the viability of several delivery models including the Design-Build (DB), Design-Build-Finance-Operate-Maintain (DBFOM), and the Design-Build-Operate-Maintain (DBOM). As indicated in the High-Level Screening Report dated June 12, 2017 and the Project Screening Report dated November 7, 2017, the Department concluded that DB was the most viable project delivery model. The DB method would enable a higher quality product and a greater control of cost. A DBOM model was excluded based on preliminary analysis and industry feedback; whereas a DBFOM model was excluded because it was projected that toll revenue could not be significantly leveraged to cover capital costs. Further, the Department found that procuring the Project under the Public-Private Partnership Act of 1995, as amended (PPTA), instead of the Virginia Public Procurement Act, afforded the Department the optimal flexibility to customize contracting terms to fit the project’s complexities and achieve best value. Specifically, the PPTA provides flexibility through an iterative contract development process that gives VDOT the ability to refine key procurement documents through feedback from potential proposers. Efficiencies would also be gained in pursuing the project using the DB method through optimal risk transfer to the private sector of design and construction risks (including permitting and innovation through alternative technical concepts (ATC)). The ATC approach allows contractors to draw upon their experience and expertise to develop innovative techniques for increasing efficiencies,

reducing construction durations, reducing risks, and reducing costs. A Limited Notice-to-Proceed (LNTP) process has also been used to limit the public's exposure to risk in the permitting process and increase the likelihood of project delivery by not allowing the contractor to proceed past certain milestone points until the United States Army Corps of Engineers (USACE) issues the Joint Permit. The results of the screening process were further confirmed by a Public Sector Analysis and Competition (PSAC) conducted by the VDOT Public Private Partnership Office.

Consistent with VDOT practice, the VDOT P3 Office of Public Private Partnerships managed the project during the procurement phase, after which a dedicated project office would oversee the design and construction phase.

As mentioned in Section 4 above, the project was identified as one of the Hampton Roads Regional Priority Projects by HRTAC and HRTPO. Since then the HRTPO and the HRTAC have been committed to seek a plan to fund the project. Also mentioned in Section 4 is the approval of the HRTAC 2045 Long Range Plan of Finance for Priority Projects which included the HRBT project for identified funding through the HRTF. It was determined that although funding for the project was identified there were financial and schedule benefits to procure the project using the PPTA regulations using a DB delivery without any private investment. The access to and cost of capital is not applicable because this project has no element of private financing.

On the basis of the results of the screening process, the Commissioner, in his Finding of Public FOPI, determined that it was in the public's best interest to pursue the Project as a DB under the PPTA, and to solicit proposals under either or both an Immersed Tube Tunnel and Bored Tunnel construction methodology. The FOPI was submitted to and concurred by the Secretary of Transportation.

The Transportation Public-Private Partnerships Screening Committee ("Steering Committee") affirmed the Commissioner's FOPI and concurred with the PSAC on December 12, 2017 and May 9, 2018; thereby, allowing the Department to initiate procurement.

On December 15, 2017, the Department issued a Request for Qualifications (RFQ) culminating in the short-listing of Hampton Roads Capacity Constructors, Hampton Roads Connector Partners, and the Skanska-Kiewit Joint Venture as qualified Offerors. Subsequently, Skanska-Kiewit Joint Venture decided to discontinue its pursuit of the Project. On May 22, 2018, the Department issued a draft Request for Proposals (RFP). The draft RFP was further modified on June 29, 2018 and August 24, 2018, based on public comment, feedback from the remaining Offerors and other Project stakeholders. A final RFP was issued on September 29, 2018. Technical Proposals were due on January 15, 2019; while Financial Proposals were due on February 8, 2019. The Department entered a Comprehensive Agreement with the successful Offeror in April 2019, along with a re-affirmation by the Commissioner to the Governor and General Assembly that his FOPI is still valid, a briefing to the Commonwealth Transportation Board and undertaking a statutory audit required by the PPTA. The Department briefed the Steering Committee on June 5, 2019.

Market conditions were monitored throughout the procurement process through activities such as Proprietary/ ATC meetings, a risk workshop, and one-on-one meetings with private sector teams.

A qualitative risk register for the project was developed at a joint workshop with FHWA in October 2018. During the workshop the qualitative risk register was used as a basis for evaluation of risks during the CER and population of the risk register module within the model for threats and opportunities. A post-CER qualitative risk register was developed based on the collaboration and results of the CER. The qualitative risk register will continue to be a working document throughout project development and delivery. It will be updated at key milestones and at a minimum quarterly.

VDOT will remain responsible for routine operations and maintenance (O&M) and major maintenance of the entire facility which, upon completion of the Project, will be comprised of the existing HRBT, the new bridge and tunnels, and additional highway lanes. Efficiencies will be gained by having the entire facility responsibilities under the control of one entity rather than multiple entities.

## 8. RISK AND RESPONSE STRATEGIES

An internal risk workshop was conducted in October 2019. Project risks were identified and scored based on a scale of 1-3 Severity and Probability. The product of the Severity and Probability scores was used to rank the identified risks. The risks were categorized and consolidated to eliminate duplication and group like or overlapping risks. All the contractual mitigation strategies identified in the Initial Financial Plan were implemented in the Contract and Technical Requirements.

The Initial Financial Plan identified 68 project risks. The risks were grouped in 11 major categories. For the Financial Plan update 18 of the original risks were significantly reduced or consolidated with similar risks and not included. There were 2 new risks added. The Financial Plan update has 52 risks listed in the same 11 major categories. A summary of the changes in each category includes:

**ROW** – Risks due to limited right of way width were greatly reduced based on additional engineering and the Design-Builders Technical Proposal including confirmation of staying within the right of way.

**Design** – Design-Builders concept design will require an Interchange Modification Report (IMR) only at EB Bayville Street/13<sup>th</sup> View Street Interchange. This design activity has over 300 days of float in their current schedule eliminating the potential delay risk that could have created.

**Utilities** – Risk of impacting secret utilities and unknown island utilities were consolidated with the risk of discovering unknown utilities, and the risk of public utility service delays was consolidated with the third-party utility service delay risk.

**Third-Party Stakeholders** – Requirements for Maritime stakeholder coordination have been implemented successfully so the coordination risk has been significantly reduced. Complaints by adjacent properties for noise and light impacts was added.

**Environmental** – Risks of impacts outside of study limits were greatly reduced based on additional engineering and the Design-Builders Technical Proposal including confirmation of staying within the study limits. Disposal locations have been identified and secured eliminating disposal site risk.

**Geotechnical** – Encountering hazardous materials consolidated with similar Environmental risk.

**Construction** – The Technical Requirements were modified to help reduce the stainless-steel material shortage risk. Design-Builder’s preliminary design confirms demolition of marine bridges will not create obstructions for new bridge construction. The risk of an errant vessel hitting a new or existing bridge was added.

**Procurement/Contracting** – Execution of the Comprehensive Agreement and end of protest and audit periods resulted in elimination of four risks for 1. Protest delay, 2. Increased contingency for toll provider procurement, 3. Statutory Audit findings, and 4. Final completion date risks.

**Operations/Maintenance** – No changes to risks.

**Permits** – The stakeholder coordination and permit applications have proceeded on schedule, greatly reducing the risk of the Design-Builder’s unfamiliarity with processing the needed permits. Delays due to the NW6 and Section 408 permits did not create a delay risk for scope validation.

**Security** – No changes to risks.

The risks that had a product of 4 or greater are listed in **Table 8** starting on the next page.

Table 8 – Project Risks

Risk Description	Mitigation Approach
<b>ROW</b>	
Impacts/Damage during Construction Phase to protected features at Hampton National Cemetery and Hampton University could cause cost for remediation and operation shutdown.	VDOT has Programmatic Agreements which prohibit Contractor from impacting these properties
Potential sound barrier wall at Willoughby Bay may impact view-shed value. (If Noise Wall is not installed there is a cost savings to the Project.	If Sound Barriers Walls on the Willoughby Bay bridge structures are needed, residents will vote whether they want the SBW or not. If they want, then they are accepting the resulting view shed impacts.
Additional ROW to allow for stormwater / drainage needs beyond those identified in the FEIS/ROD.	Monitoring of SWM needs and implementation of innovative methods in lieu of large facilities that require additional ROW. Partnering with localities to develop SWM facilities to address water quality requirements. Can buy credits for quality.
<b>Design</b>	
Uncertainty in scope of existing bridge repairs could cause cost increases and schedule impacts to bridges and MOT.	Technical Requirement (TR) reduces risk to VDOT by limiting liability to aggregate costs instead of individual pay items and individual bridges. VDOT has an option to exercise within the contract for bridge repairs. Option price for cost to repair bridges based on specified quantities in the agreement. Potential opportunity if repairs are later found unnecessary.
Delay to approval (or lack of approval) of Design Exceptions could cause delay to design process or require engineering solutions.	VDOT provided advance coordination for Design Exceptions shown in the Concept Plans and facilitating and limiting additional requests.
<b>Utilities</b>	
Risk of discovery of unknown utilities, including secret government facilities, could delay design or construction depending upon time of discovery. Includes abandoned utilities unclaimed by utility owners.	VDOT has performed preliminary utility identification to identify major unknown utilities. Scope Validation completed and minor unknown utilities discovered. Advance utility marking will be utilized to minimize accidental strikes, unknowns encountered during construction expected to be minor impacts. Coordination taking place with the Navy to avoid secret facilities.
Dominion Energy (Existing Substation & Transfer Relocation) - Risk of delays due to delayed installation/cutover/abandonment of utilities. Risk of delays to installation and connection for temporary TBM power.	Dominion to relocate; coordinate throughout design and construction. Design-Builder has agreement in place with Dominion for temporary power and evaluating estimates to start Dominion's design. Need to have service available at launch pit by TBM arrival.
Third Party and Public Utility Service / Relocations - Risk of delays due to delayed installation/cutover/abandonment of utilities.	Locations and plan relocation have been identified and coordination well underway with utility companies. Using utility approved designers and subcontractors
Delays to cutover and maintenance of power, water, communications on existing structures could delay MOT phase shifts and schedule.	Stage utility construction to ensure completion prior to demo of existing
Tropical/Severe weather events (locally, regionally, or national) could pull away utilities crews working on the project causing delays to utility relocations and overall schedule.	Dominion has dedicated contractor for TBM power that will not get pulled away for storm repairs. Potential delays by utility contractors to address weather event repairs under the utility companies cooperative agreement.

Table 8 (cont.) – Project Risks

Risk Description	Mitigation Approach
<b>Third Party Stakeholders</b>	
Risk that Cities, Hampton University, and US Navy will delay approval process for items under their review, (specifically landscape architecture or noise barriers) or seek architectural enhancements (e.g., bridges).	Address consensus building in Public/Community Outreach Plan; Landscape Arch. Treatments shall be coordinated with Locality
Complaints from adjacent properties due to noise from construction operations or light from night time construction operations	Outreach program for advance warning of operations. Adherence to applicable noise and light ordinances
Navy, USCG, and USACE coordination - Risk of maintaining adequate channel access	Performance requirements defined in TR's 14.3.1 and 14.3.2
<b>Environmental</b>	
Encountering pre-existing (unknown) unexploded ordinance, contaminated or hazardous materials for tunnel, roadway or utility construction	Not anticipated. Desing-Builder doing ground evaluation in advance of TBM operations, VDOT will compensate for unknown hazardous materials.
Section 4(f) / 106 – risk of unknown archeological resources identified that could lead to delay	Avoid changes to the Agreement
Schedule Risk due to Time of Year restrictions and missing windows (Sturgeon fall/early winter), (Anadromous fish spawning (Feb - June), (Oyster May - Sept)	Detailed bird hazing operations being implimented. Noise dampening may ease Time Of Year Restrictions
<b>Geotechnical</b>	
Unforeseen/changed conditions that the Department's geotechnical investigation may not have accounted for	For 3 of the 4 scope validation areas the potential geotechnical issues have been identified. The Department is currently reviewing the potential geotechnical issues identified.
Geotechnical conditions for island expansions are more adverse than anticipated, resulting in additional work to prevent slope stability issues, excessive settlement, schedule impact due to slower rate of consolidation than anticipated, etc. Risk of additional costs and schedule impacts.	Allow tunnel grade at 5% to reduce the amount of expansion needed at the south island. Risk is low at the north island. Additional geotechnical investigations performed to provide design data.
Gas encountered during excavation for tunnel approach structures or bored tunnel at levels that delay construction	TRs require Tunnel Boring Machine (TBM) features to include appropriate temporary ventilation systems for potential gas conditions and gas monitoring equipment in accordance with required Federal safety regulations
Unexploded ordinance (UXO) or obstructions discovered during trestle construction, ground improvement or bored tunneling.	Subsurface surveys have been performed, with no UXO found. Navy process for notification and removal of UXO. Ground monitoring required in advance of TBM operations.
Geotechnical conditions for tunnel approach structure excavation and construction are more adverse than anticipated with respect to issues such as basal stability and/or excessive groundwater inflows. Risk of additional costs and schedule impacts.	Mandatory dewatering, ground improvement and/or water-tight support of excavation walls with sufficient toe-in to preclude basal instability and excessive groundwater inflows.
Geotechnical conditions at breakouts for TBM are more adverse than anticipated with respect to issues such as flowing soil conditions and groundwater inflows. Risk of additional costs and schedule impacts.	Mandatory ground improvement at TBM breakouts
Geotechnical conditions are more adverse than anticipated, resulting in additional work for bored tunnel, including: soft ground that otherwise leads to problems with steering the TBM; abrasive ground causing increased wear on consumables. Risk of additional costs and schedule impacts.	<ol style="list-style-type: none"> <li>1) Mandatory ground improvement of Quaternary deposits below spring line at south end of alignment.</li> <li>2) Requirement for additional geotechnical investigations in advance of tunneling to define problem ahead of time.</li> </ol>

**Table 8 (cont.) – Project Risks**

Risk Description	Mitigation Approach
Encountering buried rock containment dikes, scour protection, and other obstructions interferes with installation of support of excavation walls, tunnel approach structures, ground improvement or bored tunnel.	1) TRs require Design-Builder to detect and remove these obstructions in advance of SOE wall installation and select means and methods of SOE wall installation that can accommodate some obstructions (i.e., not sheet piles). 2) GBR defines limits of potential obstructions and required DBC
Soil conditions encountered by TBM are "stickier" than indicated in the GBR.	GBR defines anticipated soil properties. The Design-Build contract is priced based on GBR. A change in soil stickiness could cause additional cost for changes in methods.
Risks associated with Ground Improvements at Tunnel Islands could increase costs or delay schedule. 1. Containment of Spoils/Effluent and permit requirements 2. Obstructions 3. Access restrictions for boats (small craft that are not restricted to the shipping channel) 4. Time of year restrictions for encroaching into the channel between the islands (Sturgeon)	Coordination with permitting agencies and third parties.
<b>Construction</b>	
Weather delays for bored tunnel option and construction other than tunneling (e.g., ground improvements, island expansion, etc.). Potential for flooding excavations, including tunnel due to storm surge.	Weather Delays are not excusable or compensable per the Agreement. Risk is to schedule but is DB's to mitigate.- TRs require 100-yr elevation +2 ft. for SOE and 100-yr elevation +5 ft. for tunnel structure. DB is required to prevent flooding. Flood above baseline level is Force Majeure
Risk that TBM becomes "muck bound". Site or traffic conditions do not allow prompt removal of material which would cause tunnel excavation to slow or stop.	Provide sufficient storage on site.
Ground improvement for bored tunnel causes environmental contamination adding cost for remediation and schedule delay.	Ensure compliance with regulatory requirements and additives
Schedule delays due to TBM procurement and manufacture delays.	TBM procurement is complete risk of contractor. VDOT has variable LNTP levels to give DB NTP for TBM procurement after LNTP1 complete. TRs include TBM technical and certification requirements
Schedule delays due to tunnel liner segment production	Local precast plant set up for PTST likely to be low cost supplier for HRBTX. Quality Control will be established. Tight QC Requirements in TRs to avoid rejecting segments on-site.
Schedule delays due to breakdown of major TBM component	TRs require state-of-the-art features for TBM.
Potential impact to existing or new islands when slope protection is removed during island expansion	TRs state minimum design storm for temporary conditions
Restrictions on Pile Driving and other construction activities: noise (localities), and adjacent structures/buildings.	Specified in RFP. Leverage lessons learned from other area projects.
Labor or skilled trades shortage - Due to a lot of work in the Tidewater area, labor and skilled crafts may be non-existent or at a premium due to acquisition from outside of the area	Workforce and business outreach to attract more resources to the area

**Table 8 (cont.) – Project Risks**

Risk Description	Mitigation Approach
<p>Greater than anticipated Material cost due to cost escalation, pricing increases due to tariffs or other taxes/fees, availability of materials, or technical requirements (durability) – This project is going to require a massive amount of materials and can the industry meet the demand in line with the Department’s schedule? Between prestressed concrete materials (with the closure of Bayshore), concrete, reinforcing steel and other items, meeting the compressed schedule may be an issue. Including material price escalation.</p>	<p>VDOT price adjustment provisions share risk for steel, fuel, and asphalt; DB likely to set up precast yard for this project. VDOT could ease durability requirements, such as waiving requirement for stainless steel, which may not be possible due to 100 YR design requirement.</p>
<p>Potential damage to existing VDOT facilities in ROW and adjacent properties. Could cause cost for DB for repairs and delays.</p>	<p>TRs require ground movements and building damage assessments with limitations on damage risk and settlement limits</p>
<p>Errant vessel or barge hits new or existing bridge, other vessel or shoreline structure causing damage and/or injury</p>	<p>TR requirements for vessel tracking. Implementation of robust design-builder safety procedures for marine operations</p>
<p>Coordination with other contractors within and adjacent to the project (specifically tolling contractor) leads to impact on cost and schedule</p>	<p>VDOT to maintain program schedule integrating the toll concession schedule and HRBT schedule.</p>
<p><b>Procurement/Contracting</b></p>	
<p>High DBE / SWaM participation requirements affect labor availability and project quality</p>	<p>Due to the complexity and size of the Project and other significant projects in the Hampton Roads region, this is a real risk to the Design-Builder. VDOT and DB should be working with the local communities to initiate job fairs, establish relationships with local and regional contractors and initiate a campaign to promote job growth, training and growth opportunities for local and regional labor force</p>
<p><b>Operations/Maintenance</b></p>	
<p>Construction, Integration, Testing, Commissioning conflict with VDOT Tunnel Operations</p>	<p>The current Contract Documents address TMP and specifically defines the Design-Builder's role for lane closures, detours, congestion mitigation and other traffic operational issues.</p>
<p>Limitations for access of First Responders (insufficient width for firetrucks, closed shoulders, etc.) could slow response times and cause Public Involvement issues. Political pressure could cause expensive modifications during the construction period.</p>	<p>TMP can mitigate by anticipating incident response needs. Review with first responders.</p>
<p>Traffic Operations - Construction friction impacts current congestion. Increased congestion could impact production rates, delivery of resources, or alter work plans. Work Zone Restrictions can impact traffic congestion.</p>	<p>The current Contract Documents address TMP and specifically defines the Design-Builder's role for lane closures, detours, congestion mitigation and other traffic operational issues.</p>
<p>Incident management requirements are clear in TRs, but level of effort needed to fulfill the requirements is dependent upon unknown number of incidents.</p>	<p>The current Contract Documents address TMP and specifically defines the Design-Builder's role for incident management within the construction limits.</p>

**Table 8 (cont.) – Project Risks**

Risk Description	Mitigation Approach
<b>Permits</b>	
Wetland Compensatory Mitigation - Availability of credits can impact schedule for permit / design approvals.	Design-builder using early engagement of credit banks to secure as many credits as possible to avoid delays
Permitting issues, including JPA impact, the schedule for ground improvements, island expansion, bored tunnel installation (anticipated critical path). Delay to JPA approval - risk of slow permit approval from Corps/VMRC/DEQ/USCG; a greater number of resource impacts to be permitted; new species or species habitat being identified within the project area, especially if a special status species (state/federal threatened or endangered)	Increased engagement of VDOT departments and other stakeholders in drafting TRs before final RFP and preferably before draft RFP. Regulatory agencies more familiar with technology after Thimble Shoal Tunnel permit.
Permit approval delays. If permit reviews greater than 24 months, Delay Event.	Increased engagement of VDOT departments and other stakeholders in drafting TRs before final RFP and preferably before draft RFP. Regulatory agencies more familiar with technology after Thimble Shoal Tunnel permit.
Permit noncompliance during the construction phase causes increased monitoring costs and delays due to shutdowns.	Diligent compliance efforts from DB and VDOT.
<b>Security</b>	
Risk of changes to security requirements; i.e. increase in Homeland Security Advisory Level requiring additional security measures	Not anticipated. Force Majeure may apply for events that directly impact the project.
Air strip / FAA Encroachment - Delay in receiving necessary permits/approvals. Obtaining and complying with permissions could impact cost and schedule.	In TR's 2.5.6. VDOT engagement with US Navy to proactively partner.
Navy Security Zone / Fence +20' - Risk of encroaching in security zone with design elements or physically during the work period (temp easements).	In TR Section 11 Security. DB likely to refine design to avoid security zone where possible.
CII, SSI clearance for contractor workforce - Availability of cleared workers. Unknown how logistics will be handled with deliveries, and cost/production impacts.	While a process exists, security requirements will exacerbate current labor constraints. Create a physical separation of work zones where possible on islands.

## 9. ANNUAL UPDATE CYCLE

The first annual update of the Financial Plan will be submitted by March 31, 2020 and will be based on a data date of December 31, 2019. Future annual updates will be submitted by March 31 of each year using a data date of December 31 of the prior year.

## 10. SUMMARY OF COST CHANGES SINCE LAST YEAR'S FINANCIAL PLAN

The project cost has increased by \$107,997,227.

**Preliminary Engineering:** No changes

**Right of Way:** No changes

**Construction:** 1. Contract cost increased cost \$17,997,227

2. Early completion incentives increased potential cost \$90,000,000

The VDOT project management team continuously implements best project management practices to monitor and control project costs. Potential and actual cost change activities are reported on at daily internal meetings. Weekly meetings are held with the Design-Builder to control and monitor potential cost growth, change activities and actions. Monthly meetings are conducted to review monthly invoicing and progress to control and monitor cost growth.

## **11. COST AND FUNDING TRENDS SINCE INITIAL FINANCIAL PLAN**

The cost increases were not due to any trends in labor, materials pricing, technology, or financing directly impacted project cost and funding since the initial financial plan. The 0.55% increase from the pre-procurement construction cost estimate to the contracted construction cost is well within normal procurement tolerances, and the remaining \$90 million increase was a decision to add incentives for the design-builder. Neither was due to a trend.

## **12. SUMMARY OF SCHEDULE CHANGES SINCE LAST YEAR'S FINANCIAL PLAN**

The completion date has not changed since the last financial plan. The VDOT project management team continuously implements best project management practices to monitor and control the project schedule. Potential and actual schedule change activities are reported on at daily internal meetings. Weekly meetings are held with the Design-Builder to review look ahead schedules and monitor scheduled activities and potential changes. Monthly meetings are conducted to review the monthly schedule update, invoicing and progress for verification and control of schedule changes and growth.

## **13. SCHEDULE TRENDS SINCE INITIAL FINANCIAL PLAN**

No trends were identified that impacted the project schedule since the initial financial plan.