



I-64 Southside Widening and High Rise Bridge

Initial Financial Plan

September 19, 2017

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C501, B662-B670, D637, D638
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1. PROJECT DESCRIPTION

The I-64 Southside Widening & High Rise Bridge Project is located on Interstate 64 in the City of Chesapeake beginning near Rotunda Avenue approximately 0.6 miles east of the I-264 interchange at Bowers Hill and ending approximately 0.9 miles east of the I-464 interchange. VDOT will deliver the I-64 Southside improvements as defined in the I-64 / High Rise Bridge Corridor Study and Draft Environmental Assessment (dated October 21, 2014) in two independent projects. The Phase 1 Project consists of widening the interstate from four lanes to six lanes as described below. The Phase 2 Project will be developed and constructed in the future and will consist of widening the interstate from six lanes to eight lanes. The Phase 1 Project will be the primary focus of this Initial Financial Plan. Detailed project and financial information is provided for the Phase 1 Project throughout this document, whereas more generalized information is provided for the Phase 2 Project.

The Phase 1 Project includes widening of the existing interstate from 4 lanes to 6 lanes from the point east of the I-264 interchange where the existing lanes reduce from 6 lanes to 4 lanes to the point near I-464 where the existing lanes increase from 4 lanes to 6 lanes. The widening will accommodate one High Occupancy Toll (HOT) lane and two general purpose (GP) lanes, with an outside shoulder that can accommodate hard shoulder running in the eastbound direction; in the westbound direction the widening will accommodate one HOT lane and two general purpose lanes, with an outside shoulder that can accommodate hard shoulder running. The hard shoulder running in the eastbound and westbound directions will be roughly between George Washington Highway (Route 17) and Great Bridge Blvd (Route 190).

Phase 1 Project highlights include the following:

- Addition of one HOT lane in each direction on the median side of the existing interstate. HOT lanes would be available free of charge to high-occupancy vehicles (HOV 2+). Non-HOV 2+ vehicles could use the HOT lanes by paying a variable fee that is adjusted in response to travel demands.
- New high-level High Rise Bridge over the Elizabeth River with a fixed-span built to the south of the existing bridge. The new bridge will carry the three I-64 WB lanes and the existing bridge will be reconfigured to accommodate 1-way traffic (the I-64 EB lanes).

The Phase 1 Project is being delivered as a design-build project.

Highlights of the future Phase 2 Project include the following:

- Addition of one HOT lane in each direction.
- Replacement of the existing High Rise Bridge with a new high-level High Rise Bridge over the Elizabeth River with a fixed-span built on the same alignment as the existing bridge. The new Phase 2 bridge will carry the four I-64 EB lanes and the bridge built in Phase 1 will carry the I-64 WB lanes.

- Modifications to the I-264, Military Highway, Route 17, and I-464 interchanges to accommodate the new widening and additional capacity.

History and Environmental Process

Several transportation studies completed in the last 20 years highlighted the critical role that I-64 plays as part of the interstate system in the Hampton Roads region. A 1995 Hampton Roads Congestion Management System Planning Study recommended adding one General Purpose (GP) lane in each direction of I-64. Other notable studies conducted by VDOT (in 1996, 1997, 1999 and 2007) evaluated a range of alternatives for improving the capacity, geometric, safety and operational features of the corridor and the High Rise Bridge.

In March 2013 the Hampton Roads Long-Range Transportation Plan was amended to include an environmental study for the improvement of the Interstate I-64 corridor from I-464 to I-664/264, including the High Rise Bridge. The purpose of the environmental study was to develop alternative solutions to address insufficient transportation capacity and correct roadway and bridge deficiencies throughout the corridor.

The study area for the 2013 I-64/High Rise Bridge Corridor Study was located in the southwestern quadrant of the Hampton Roads Beltway, which is formed by a loop of I-64 and I-664 (see **Figure 1**).



Figure 1 – Location Map

The corridor study area encompasses approximately eight miles of I-64, consisting of two travel lanes in each direction, between the I-464 Interchange and I-664/I-264 interchanges at Bowers Hill. This section of I-64 carries approximately 86,000 vehicles per day (2013), and it includes four interchanges at Route 13, Route 17, Route 190 (partial interchange), and I-464. The Treacle Memorial Bridge (High Rise Bridge), a mile-long bridge with a double-leaf bascule span across the Southern Branch of the Elizabeth River, also is included in the study area. The I-64/High Rise Bridge Corridor study area is shown in **Figure 2**.

Due to the loop that I-64 follows through the Hampton Roads region of Virginia, I-64 WB travels in an easterly direction and I-64 EB travels westerly through the study area. Throughout this document I-64 is described in terms of the road name and not the direction of the road.

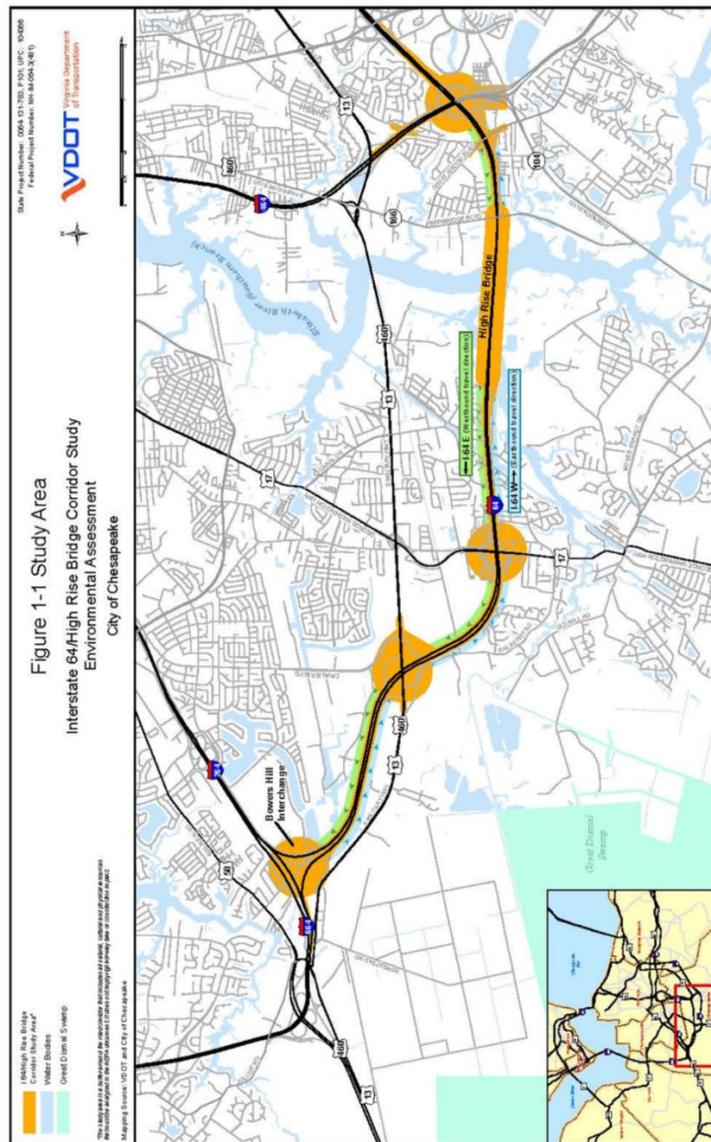


Figure 2 – Corridor Study Area

In September 2013, a Citizen’s Information Meeting was held, the Draft Environmental Assessment (EA) was approved by FHWA in October 2014, and a Location Public Hearing was held in November 2014. In March 2015 the Commonwealth Transportation Board (CTB) approved Candidate Build Alternative 2 – the addition of two managed lanes in each direction including the construction of a new bridge and replacement of the existing bridge – with a decision regarding the management option to be made at a later date. In its resolution, the CTB encouraged the Hampton Roads Transportation Planning Organization (HRTPO) and the Hampton Roads Transportation Accountability Commission (HRTAC) to work with VDOT to identify funding for inclusion in the HRTPO planning documents and to determine the appropriate management option(s) for the corridor.

On July 15, 2015 VDOT submitted a Revised Environmental Assessment (REA) to FHWA. Due to lack of fiscal constraint documented in the Hampton Roads Long Range Transportation Plan, FHWA was unable to issue a Finding of No Significant Impact (FONSI) that would have completed the study process and allowed the project to advance to detailed design and procurement. Subsequently in the same month, VDOT embarked on a phasing study to determine how best to deliver the project in operationally independent phases. VDOT evaluated cost and schedule risks with the phased construction approach that would enable construction to begin on the I-64 High-Rise Bridge. The Hampton Roads Transportation Planning Organization endorsed the study's findings and made the decision to build the project in two phases:

- Phase 1 Project: Will widen the corridor from 4 lanes to 6 lanes, including the construction of the new bridge located south of the existing bridge.
- Phase 2 Project: Will widen the corridor from 6 lanes to 8 lanes in the future, including the replacement of the existing High Rise Bridge and the necessary interchange work to properly tie-in to the widened facility.

Preliminary Design and Design-Build Procurement

In February 2016, VDOT started development of a design-build contract for the Phase 1 Project, which would become known as the **I-64 Southside Widening and High Rise Bridge Phase 1 Project. As mentioned above, the Phase 1 Project is the focus of this Initial Financial Report.** It is an operationally independent phase of the overall final build described in the EA, which can operate effectively until the Phase 2 Project is built in the future. The Hampton Roads Transportation Accountability Commission allocated right-of-way and construction funding for the project at its June 16, 2016 Regular Meeting.

A Revised Environmental Assessment (REA), to include the project phasing, was completed in July 2016, and on August 22, 2016, the Federal Highway Administration issued a FONSI for the entire project. This concluded the National Environmental Policy Act process and allowed the project to be advanced to more detailed levels of design.

The Request for Qualifications (RFQs) from design-build contractors for the Phase 1 Project was issued in August 2016. The Request for Proposals (RFPs) from qualified design-build contractors who were short-listed was issued in December 2016. The selection process for the design-build contractor will be completed in September 2017. The anticipated Contract Award date is October 23, 2017 and the notice to proceed (NTP) for the design-build contractor is scheduled for November 17, 2017. The final construction completion date is scheduled for July 30, 2021.

Detailed Scope of the Phase 1 Project

The scope of work for the Phase 1 Project includes, but is not limited to: (a) completing project development activities; (b) developing the design; (c) acquiring all environmental permits, regulatory approvals, implementing environmental commitments from NEPA documents and ROD; (d) acquiring the US Coast Guard permit for the new High Rise Bridge; (e) acquiring right-of-way; (f) identifying and performing and/or coordinating all required utility relocations and adjustments; (g) coordinating and obtaining required permissions for railroad impacts and agreements; (h) performing roadway, bridge, structures, tolling and operations construction; (i) demolition and removal of existing structures as needed; (j) providing quality assurance and quality control for the project; (k) providing overall project management. The detailed scope is defined in the contract documents and other project agreements.

The proposed improvements include, but are not limited to: a new fixed-span High Rise Bridge south of the existing bridge with 100-foot vertical clearance over the Elizabeth River; realignment of the existing westbound I-64 lanes immediately adjacent to the new High Rise Bridge; sound barrier walls; asphalt overlay over the existing pavement; the addition of new asphalt or concrete 12-foot-wide travel lanes with 4-foot buffers and shoulders west of the High Rise Bridge; the addition of new asphalt 12-foot-wide travel lanes with 4-foot buffers and shoulder east of the High Rise Bridge; emergency pull-offs within the limits of hard shoulder running; replacement of the overpass bridge at Great Bridge Boulevard with a parallel bridge and associated realignment of Great Bridge Boulevard; widening of 6 existing I-64 bridges over Military Highway, Yadkin Road and Shell Road; extension of 2 box culverts and 14 pipe culverts; reconfiguration of traffic control devices on the existing High Rise Bridge to accommodate one-way traffic; installation of storm drain pipes and stormwater management facilities; civil infrastructure for the new HOT lanes; and Intelligent Transportation Systems (ITS). Widening of the existing roadway and bridges is expected to occur mostly in the median of the existing interstate, avoiding impacts to existing interchanges and minimizing impacts to right-of-way.

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 stormwater management ponds, conceptual bridge and retaining wall locations, and general length and location of sound barriers. These elements are considered to be the basic project configuration. The Design-Builder is responsible for final design in accordance with the Contract Documents.

The general scope of the Phase 1 Project is shown graphically in **Figure 3**. A project website has been established and is available at the following link - www.64highrise.org.

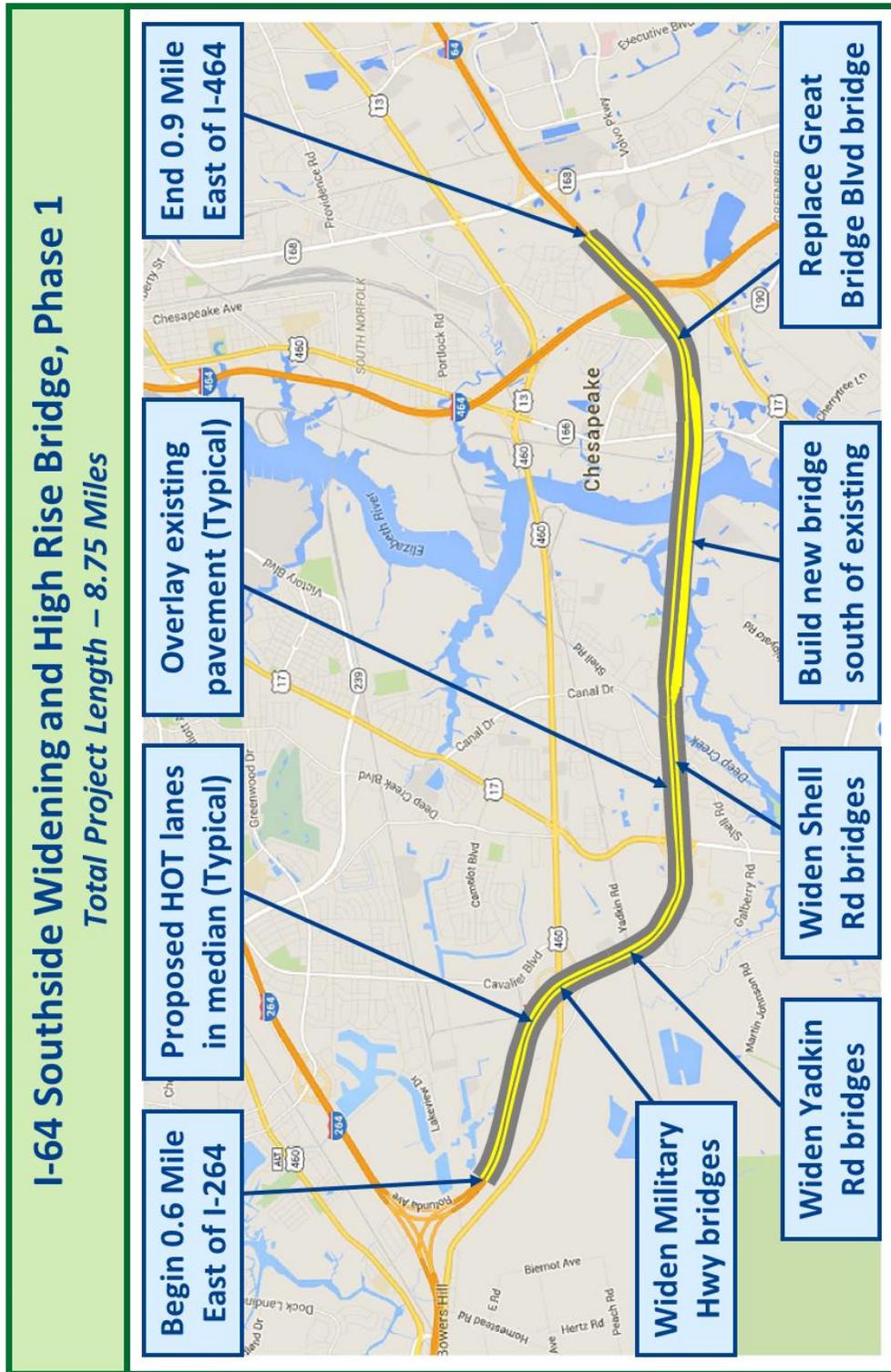


Figure 3 – General Scope of Phase 1 Project

2. SCHEDULE

As mentioned above, the design-build contract development and procurement phase of the Phase 1 Project commenced in February 2016, and includes the preliminary design, RFQ, RFP, and design-builder selection and contracting activities. The design-build phase of the project will begin in November 2017 with the Design-Builder Notice to Proceed (NTP), and will end in July 2021 with the project completion. A project schedule showing key activities and major milestones for the Phase 1 Project is presented in **Figure 4**.

A detailed delivery schedule for the Phase 2 Project is presently not certain and, therefore, its activities are not included in Figure 4. However, the Hampton Roads Transportation Planning Organization (HRTPO) has identified the Phase 2 Project in its 2040 Financially Constrained Long-Range Plan. For the purposes of this Initial Financial Plan, a mid-point construction year of 2030 is assumed, which corresponds to approximate project start and final completion dates of July 2028 and July 2032, respectively.

3. PROJECT COST

Engineer’s Estimate

This Initial Financial Plan uses a Data Date of June 19, 2017. The current engineer’s cost estimate for the Phase 1 Project, which was calculated on the Data Date, is **\$599,856,096**. This cost estimate is based on the final RFP and RFP conceptual plans. It includes costs for preliminary engineering, right of way acquisition, utility relocations, VDOT construction oversight and management, public communications, external 3rd party work, final design and construction (Design-Builder cost), contingencies, escalation, and early completion incentive. The engineer’s cost estimate is shown in **Table 1**, which depicts the VDOT Alternative Project Delivery (APD) Cost Finance Summary for the project.

Table 1 – Total Engineer’s Cost Estimate for Phase 1 Project

Cost Finance Summary

I-64 Southside Widening and High Rise Bridge, Phase 1
UPC 106692

19-Jun-17
Prepared by Rick Correa

	Expended to Date	PE - including Stipend	VDOT Oversight & Review - CEI	R/W & UT, Direct Costs	Design/Build Costs	Contingency (10%)	TOTAL (Less Contingency)
Preliminary Engineering							
Conceptual Roadway/Bridge Design (Consultant & VDOT)	\$ 9,645,006	\$ 354,994					
Procurement of D/B (Add'l services not included above)		\$ 200,000					
Stipend/Pre-Proposal Activities		\$ 950,000					
Design Subtotal	\$ 9,645,006	\$ 1,504,994					\$ 11,150,000
Right of Way & Utilities							
RW Admin				\$ 50,000			
RW Allowance				\$ 13,563,433			
UT Admin				\$ 50,000			
UT PreAward Cost (DVP Transmission Line Relocation)				\$ 4,637,149			
Norfolk Southern Railroad Force Account				\$ 275,011			
Norfolk And Portsmouth Beltline Force Account				\$ 150,000			
RW & UT Subtotal			\$ -	\$ 18,725,593	\$ -		\$ 18,725,593
Construction							
Final Design (By Dber)					\$ 19,472,919		
Mobilization					\$ 16,919,610		
Environmental Permitting					\$ 500,000		
RW Admin					\$ 250,000		
UT Admin					\$ 250,000		
Utilities					\$ 7,064,090		
Public Communications Plan					\$ 1,000,000		
Constr./Project Management/Design Review			\$ 11,683,752				
Early Completion Incentive			\$ 9,600,000				
State Police			\$ 1,040,000				
Construction - Bridges					\$ 207,893,674		
Construction - Roadway					\$ 164,645,105		
QA/CIP (2% for VDOT; 7.5% for Dber)			\$ 7,789,168		\$ 29,209,379		
Subtotal			\$ 30,112,919		\$ 447,204,778	\$ 44,720,478	\$ 477,317,698
Design-Build Risk (5%)					\$ 19,472,919		\$ 19,472,919
Price Adjustments - Fuel, Asphalt, Steel (2.5%)					\$ 9,736,460		\$ 9,736,460
2018 Ad/Mid Year Inflation (4.81% - From PCES)					\$ 18,732,949		\$ 18,732,949
TOTAL	\$ 9,645,006	\$ 1,504,994	\$ 30,112,919	\$ 18,725,593	\$ 495,147,106	\$ 44,720,478	\$ 555,135,618

VDOT Oversight Percentage: 8.3%

Total Cost With Contingency \$599,856,096

BREAKOUT

Design Builders Bid	\$495,147,106	CN
Contingency	\$44,720,478	
State Police	\$1,040,000	
CEI (VDOT ONLY)	\$29,072,919	
RW & UT	\$18,725,593	RW
PE, including Stipend &	\$11,150,000	PE
Total	\$599,856,096	

The current programming-level cost estimate for the future Phase 2 Project is \$1.4 Billion. The Hampton Roads Transportation Accountability Commission (HRTAC) has allocated \$600 Million for the Phase 1 Project and \$1.4 Billion for the Phase 2 Project. These allocations are reflected in HRTPO's 2040 Financially Constrained Long-Range Plan.

The funding and financing of the Phase 1 Project will be managed under 2 UPCs in iPM. UPC 106692 is the "parent" UPC for the project. UPC 108990 (a "child" UPC) was set up to track the \$100 Million of Smart Scale allocations that were applied to the project.

Cost Estimate Review (CER) Results

A Consultant-Led CER workshop was conducted on August 9 and 10, 2017. 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 CER was performed for the entire project, which includes both the Phase 1 and 2 projects.

The risk registers for the Phases 1 and 2 projects were updated prior to the workshop. During the workshop, 18 major risk items were modeled in the *@risk* software for the Phase 1 Project, and a base variability of plus or minus seven percent was added. Because the Phase 2 design has only been developed to a programming level, only one risk (construction contingency) was modeled for the Phase 2 Project.

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. During the workshop, the following results were determined for FHWA CER purposes:

- Total Project Cost – Phase 1 YOE P70 \$ 558M
- Total Project Cost – Phase 2 YOE P70 \$2.483B
- Overall Project Cost \$3.041B

The cost probability forecast demonstrates that VDOT's engineer's estimate for the Phase 1 Project is within a reasonable range. The Phase 2 Project costs are expected to have high variability due to uncertainty in design, delivery date and economic variables. Phase 2 risks and assumptions will be re-evaluated as that project develops.

A summary of the cost estimate used in the CER broken down by cost elements as defined in the FHWA Major Project Guidance is given in **Table 2**. The costs in the table reflect the "Pre-CER Cost Estimate" that was evaluated in the CER to calculate the YOE P70 cost.

Table 2 – Pre-CER Cost Estimate

FHWA Cost Element	MAJOR PROJECTS GUIDANCE PROGRAM COST ELEMENT	TOTALS (Millions)
1	PRELIMINARY ENGINEERING	\$32.72
2	RIGHT-OF-WAY	\$13.31
3	EXTERNAL THIRD PARTY	\$7.40
4	TRANSPORTATION DEMAND MANAGEMENT (TDM)	\$11.29
5	CONSTRUCTION ESTIMATE	\$412.27
6	CONSTRUCTION CONTINGENCY	\$68.16
7	CONSTRUCTION ADMINISTRATION	\$51.43
8	PUBLIC OUTREACH	\$1.00
	MAJOR PROJECTS COST ESTIMATE TOTAL	\$597.58

Cost Estimating Methodology

The engineer’s cost estimate for the project focused on eight major areas: Demolition, Roadway & Incidentals, Drainage, Structures, Traffic, Right of Way, Utilities, and Administration. A description of the approach for these major areas is included below:

- **Demolition:** Most non-structural demolition items are not included in PCES tool. Therefore, the quantities and units costs were determined for: demolition of pavement, guardrail removal, drainage removal, overhead sign and lighting removal, milling, and in-plan utility demolition. Removal and disposal of bridge elements are accounted for in the PCES tool.
- **Roadway & Incidentals:** Paving and general grading are accounted for in the PCES tool and assume relatively balanced earthwork and guardrail for less than 5% of the project length. Quantities and unit costs were determined for: earthwork beyond 10% of balance, guardrail in excess of 5% of the project length, permanent concrete barrier, fencing, soundwalls as shown in the Environmental Assessment (EA), reconstructed pavement and overlays.
- **Drainage:** General drainage and erosion & sediment control items are accounted for in the PCES tool. Quantities and units costs were determined for: culverts and pipes greater than 60” in diameter or 20 sf of opening. The number of potential stormwater management facilities was determined that may be needed based on the affected pavement and a cost per facility was estimated. Major outfalls were assumed to require riprap outfall protection. Quantities and unit costs were developed for the outfalls and locations where scour protection is assumed to be needed. Wetland/stream mitigation costs were estimated based on unit costs for mitigation credits at a 2:1 ratio for impacted wetlands and streams.
- **Structures:** The PCES tool allows entering up to 24 separate bridges. Quantities and unit costs were developed for items not included in the PCES tool such as: approach slabs,

retaining walls, and bridge rehabilitation. Costs were also assessed for complex aspects such as height, use of coffer dams, drilled shafts, and access restrictions.

- **Traffic:** The PCES tool accounts for pavement markings, ground mounted signage, lighting and temporary traffic control and channelization during construction. Quantities and unit costs were developed for overhead signs, major ITS and toll collection components/equipment.
- **Right of Way:** The right of way worksheet in the PCES tool was used. Based on preliminary construction limits the number of impacted parcels and impacted areas were determined. The PCES unit costs were compared with local unit costs developed based on comparable sales data and the higher of the two unit costs were used. A general assessment was made of potential relocations and damages for input to the tool. A 50% contingency was applied based on FHWA practices for this level of estimate.
- **Utilities:** Based on existing utility records, potential utilities impacted by the construction were assessed. Potentially impacted water and sanitary lines were assumed to be in-plan. The impacted length multiplied by a factor of 1.5 was entered in the PCES tool to account for rerouting, fittings and appurtenances. Unit costs for other potentially impacted utilities were developed. The impacted length was used as the quantity and a factor of 1.5 was applied to account for rerouting of the utility. No assessment of easements was performed.
- **Administration:** The PCES tool computes costs for Preliminary Engineering (PE) and Construction Administration costs based on historical percentages. The PE estimate was increased by 10% to account for additional complexity and delivery method. A contingency of 10% of construction cost was used to account for the level of detail and unknowns. For the design/build delivery approach a margin cost of 7.5% of construction cost will be added to account for contractor risk assumptions.

Summary of VDOT Cost Estimate and Expenditures

The cost estimate of the Phase 1 Project as programmed in the VDOT iPM system was last updated in May 2017 (prior to the FHWA CER). The estimated budget is based on an engineer's cost estimate developed at the beginning of the development and procurement phase. The programmed costs for Preliminary Engineering (PE), Right-of-Way (RW), and Construction (CN) phases of the project, along with the remaining costs-to-complete are presented in **Table 3**. The table depicts the estimated project expenditures as of June 19, 2017 (the Data Date). This Data Date was used because it was the source of the "Expended to Date" value that was used in the Cost Finance Summary shown in Table 2 above which was submitted to VDOT's APD Division for the development of the design-build contract provisions.

Table 3 – Phase 1 Project Costs by Project Phase

Phase	Estimate/Budget	Expenditures as of 6/19/2017	Balance to Complete
PE	\$20,000,000	\$9,645,006	\$10,354,994
RW	\$42,000,000	\$0	\$42,000,000
CN	\$538,000,000	\$0	\$538,000,000
TOTAL	\$600,000,000	\$9,645,006	\$590,354,994

4. PROJECT FUNDS

The “I-64/High Rise Bridge Project” was identified as one of the Hampton Roads Regional Priority Projects by HRTAC and HRTPO in March 2013. On April 16, 2015, HRTAC executed an Interim Project Agreement for Funding and Administration with VDOT which authorized \$20,000,000 of funding in support of this project. On November 9, 2016, a Standard Project Agreement between VDOT and HRTAC was executed authorizing the remaining \$580,000,000 of funding for the Phase 1 Project. The contract assumes that HRTAC would fund costs out of the Hampton Roads Transportation Fund (HRTF) on a “pay as you go” basis. That approach is consistent with the initial funding plan approved by HRTAC.

On July 21, 2016 HRTPO approved the 2040 Long-Range Transportation Plan. The plan identified both the Phase 1 and Phase 2 Projects related to the I-64/High Rise Bridge Project as “Regional Priority Projects”, and both projects were shown fully funded by the HRTF.

In June 2017, the Commonwealth Transportation Board (CTB) approved the FY2018-2023 Six-Year Improvement Plan (SYIP) which allocated \$100 Million of VDOT Smart Scale funds to the Phase 1 Project. Therefore, the VDOT FY2018-2023 SYIP shows \$700 Million of total funding allocation to the project. However, the HRTPO will process a Transportation Improvement Plan (TIP) amendment in their September 2017 meeting to reallocate \$100 Million of HRTF funds, which will reduce total allocations back down to \$600 Million - \$500 Million from the HRTF and \$100 Million from Smart Scale funds (formally known as HB2 funds).

Funding currently allocated to the Phase 1 Project is summarized in **Table 4** by fund source and year. The table does not account for the pending reallocation of \$100 Million mentioned above.

Table 4 – Summary of Funding by Source and Year

Funding Source	Fiscal Year							TOTAL
	Previous	2018	2019	2020	2021	2022	2023	
HB1887-HPP(2): GARVEE - High Priority (CNB296) (Project UPC 106692)	\$32,133,168	\$16,664,038	\$3,404,718	\$40,381,657	\$7,249,715	\$166,704	\$0	\$100,000,000
Accounts Receivable: HRTAC AR Funds (CNRH22) (Project UPC 108990)	\$20,000,000	\$76,000,000	\$170,000,000	\$170,000,000	\$164,000,000	\$0	\$0	\$600,000,000
TOTAL	\$52,133,168	\$92,664,038	\$173,404,718	\$210,381,657	\$171,249,715	\$166,704	\$0	\$700,000,000

Federal Fund Sources and Special Funding Techniques

The HRTPO has included all phases of the project in its Long Range Transportation Plan. The PE, RW and CN phases of the project are included in HRTPO’s TIP as well as the Commonwealth’s FFY15-18 STIP. The HRTPO will process a TIP amendment at their September 2017 meeting to update planned obligations on the project which includes planned debt service obligations for principal associated with the GARVEE Bond Proceeds; additionally, the HRTPO will process a TIP amendment to add GARVEE Debt Service project UPC 111982 which includes planned debt service obligations for interest associated with the GARVEE Bond Proceeds allocated to the project.

Preliminary engineering associated with this project was authorized by the Federal Highway Administration (FHWA) on February 13, 2015 under federal project number NHPP-064-3(488). The authorization did not include any federal funds. Detailed information concerning federal fund sources and special funding techniques associated with the project authorization is provided in **Table 5** below.

Table 5 – Project Authorization Details as of June 19, 2017

Federal Project Number NHPP-064-3(488) UPC 106692 PE				
Program Code	Total Cost	Federal Funds Obligated	AC Funds	Soft Match
M001	\$20,000,000	\$0	\$16,000,000	\$0
TOTAL	\$20,000,000	\$0	\$16,000,000	\$0

5. FINANCING ISSUES

With the successful Smart Scale application award of \$100 Million, VDOT will be issuing GARVEE Bonds over the five years to fund its obligation to the project. Based on the current spend plan shown in **Table 6** below, GARVEE bond proceeds will be available with no financing issues anticipated at this time. 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. Table 6 shows that 17% of the funding will be VDOT/Federal and 83% will be HRTAC funding.

Table 6 – Project RW/CN Spend Plan

Funding Source	Fiscal Year				TOTAL
	2018	2019	2020	2021 & 2022	
VDOT/Federal	\$54,197,206	\$3,404,718	\$40,381,657	\$2,016,419	\$100,000,000
HRTAC	\$21,802,794	\$166,595,282	\$129,618,343	\$161,983,581	\$480,000,000
TOTAL	\$76,000,000	\$170,000,000	\$170,000,000	\$164,000,000	\$580,000,000

6. CASH FLOW

The Phase 1 Project’s annual cash expenditures are based on the project schedule 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 expenditures are incurred. The allocations in the table reflect the total allocations in the VDOT FY2018-2023 SYIP, including the extra \$100 Million that will be removed with the pending TIP amendment mentioned above.

Table 7 – Cash Flow Analysis for Phase 1 Project

Activity	Fiscal Year							TOTAL
	Previous	2018	2019	2020	2021	2022	2023	
Annual Expenditures - PE	\$9,645,006	\$1,354,994	\$0	\$0	\$0	\$0	\$0	\$11,000,000
Annual Expenditures - RW	\$0	\$21,000,000	\$21,000,000	\$0	\$0	\$0	\$0	\$42,000,000
Annual Expenditures - CN	\$0	\$15,000,000	\$140,000,000	\$174,000,000	\$174,000,000	\$44,000,000	\$0	\$547,000,000
Total Annual Expenditures	\$9,645,006	\$37,354,994	\$161,000,000	\$174,000,000	\$174,000,000	\$44,000,000	\$0	
Cumulative Expenditures	\$9,645,006	\$47,000,000	\$208,000,000	\$382,000,000	\$556,000,000	\$600,000,000	\$600,000,000	\$600,000,000
Annual Allocations	\$52,133,168	\$92,664,038	\$173,404,718	\$210,381,657	\$171,249,715	\$166,704	\$0	
Cumulative Allocations	\$52,133,168	\$144,797,206	\$318,201,924	\$528,583,581	\$699,833,296	\$700,000,000	\$700,000,000	\$700,000,000
Allocation Surplus of (Deficit)	\$42,488,162	\$97,797,206	\$110,201,924	\$146,583,581	\$143,833,296	\$100,000,000	\$100,000,000	\$100,000,000

7. P3 ASSESSMENT

The VDOT Alternative Project Delivery Division was responsible for reviewing the project for consideration for P3 delivery. As mentioned in Section 4 above, the project was identified as one of the Hampton Roads Regional Priority Projects by HRTAC and HRTPO in March 2013. Since then the HRTPO and the HRTAC have been committed to seek a plan to fund the project through the HRTF. Also mentioned in Section 4 is the approval in July 2016 of the 2040 Long-

Range Transportation Plan that identified both the Phase 1 and Phase 2 Projects related to the I-64/High Rise Bridge Project as fully funded by the HRTF. Having full funding, the project does not need a P3 delivery.

In August 2016 VDOT completed a Finding of Public Interest (FOPI) for the Phase 1 Project that evaluated the design-build project delivery method against the traditional design-bid-build delivery method. The FOPI demonstrated that the design-build method would enable a higher quality product, a greater control of cost (with a larger portion of project risks transferred to the design-builder), and allow the project to be completed about 2.5 years earlier than with the design-bid-build method. Therefore, it was determined that the design-build process was in the best interest of the Commonwealth of Virginia. The FOPI was submitted to the Commissioner’s office and on August 11, 2016 he authorized the use of the design-build procurement process for the development of the project.

8. RISK AND RESPONSE STRATEGIES

It is anticipated that the project’s contingency budget included in the Phase 1 Project estimate will mitigate the project risks.

A risk register for the project was originally developed in October 2015 for the original “I-64/High Rise Bridge Project” (combined Phases 1 and 2 projects). The risk register has been a working document throughout the project development and it has been updated as follows:

- In May 2016 after the May 4th & 5th risk analysis workshop that was conducted for the Phase 1 Project
- In November 2016 after the RFP conceptual plans for the Phase 1 Project were completed
- In July 2017 to prepare for the FHWA CER for the project

Some of the more significant risks that have been identified that could impact the design-build cost estimate and schedule are listed in **Table 8**.

Table 8 – Significant Project Risks

Risk	Response
COST	
An increase in demand for materials in the region	Accommodate with appropriate contingency in baseline estimate
Due to labor shortages and lack of expertise, a labor crunch may occur	Include appropriate contingency in baseline estimate

Risk	Response
COST	
The minimum vertical and horizontal clearances at the existing Yadkin road bridges do not meet current RR requirements, which may potentially require redesign and replacement of the existing bridges	<ul style="list-style-type: none"> - Perform advanced design work at Yadkin Road bridge to determine clearance requirements - Accelerate coordination with RRs to determine horizontal and vertical clearance requirements for RFP based on new regulation - Include requirements in the RFP - Installation of a crash wall cushion - Request a waiver from Norfolk-Southern to maintain existing clearances
Wetland permit acquisition requirements and timing to acquire mitigation locations and available bank credits	<ul style="list-style-type: none"> - Confirm that mitigation credits are available from area banks - Existing wetlands have been delineated - A Jurisdiction Determination from the USACE has been obtained for the RFP conceptual design wetland delineation - Continuing early coordinate with the agencies - Communicating advance permit activities with Proposers
The poor or soft soils in the corridor could lead to settlement and stability issues requiring some form of ground improvement to be performed	<ul style="list-style-type: none"> - Performed additional due diligence activities and field investigations - Make reasonable estimates of the potential impact of the soft soil - Supplemented the existing GDR to assess the magnitude of the impact - Evaluated and updated baseline costs after assessment was completed - Including appropriate requirements for the DB to perform the necessary ground improvements
The Project requires fill material and the flat terrain does not present good borrow opportunities, therefore, borrow sites will have to be located	<ul style="list-style-type: none"> - Estimate the required quantity of borrow material to assess impact - Update the current baseline estimate as required. - Solicit industry input during the procurement, and alternative means of transporting material will be considered such as barging via river access - Investigate and identify sources - Include risk premium in baseline estimate
Due to the unique aspects of the project (i.e., coastal location, etc.), there may be insurance needs required by the Design-Builder	<ul style="list-style-type: none"> - Determine appropriate types of coverage and options - Keep open communication on this issue with Proposers
The contractor may encounter differing site conditions on the project, resulting in change requests	<ul style="list-style-type: none"> - Consider risk sharing for differing site conditions - Keep open communication on this issue with Proposers
Phase I design-build estimate of \$495M may not include all project risk contingencies	<ul style="list-style-type: none"> - Assess and quantify project risks early in project development - Advance design and agency coordination and involvement - Prepare a detailed cost estimate with all assumptions and perform a cost risk analysis to determine the probable cost of the project at a given confidence level
ROW condemnations and increasing land costs	<ul style="list-style-type: none"> - Increase in condemnation costs included in current estimate - Continue to identify condemnation potential - Advance design to identify ROW - Have identified 1 full take; no relocations -- Transfer schedule risk to DB - Allow DB firm flexibility to avoid ROW conflicts with innovative/alternative design through the ATC process

Risk	Response
SCHEDULE	
The potential for encountering unidentified hazardous materials (late discovery) after AD would require mitigation/cleanup resulting in a change order and schedule delay.	<ul style="list-style-type: none"> - Performing additional field work - Sealed cofferdams to control hazmat - Determine if there are other potential hazmat locations besides the river bottom - Complete HAZMAT borings in the river upstream from Gilmerton - Perform preliminary Haz Mat investigations and identify issues and show areas in RFP
Modifications to a USACE facility (Federal channel) would require a 408 certification	<ul style="list-style-type: none"> - Coordinate with USACE on facility and requirements - Advanced coordination process to obtain preliminary certification - Transfer responsibility to DB to reduce time/cost impacts to owner
The poor or soft soils in the corridor could lead to settlement and stability issues requiring some form of ground improvement to be performed	<ul style="list-style-type: none"> - Performed additional due diligence activities and field investigations - Supplemented the existing GDR to assess the magnitude of the impact - Evaluated and updated baseline schedule after assessment was completed - Including appropriate requirements for the DB to perform the necessary ground improvements
Delay in determining appropriate tolling and connectivity for HOT lanes for inclusion in the RFP and delay in obtaining CTB approval	<ul style="list-style-type: none"> - Early coordination to determine requirements - Determine toll integrator and DB requirements to include in RFP - Enforcement requirements - Perform modeling analysis to assess capacity requirements and sufficiency of existing ITS backbone to accommodate new ITS/TOLL equipment for additional HOT lanes
An increase in demand for materials in the region	<ul style="list-style-type: none"> - Consider allowing DB to order materials at risk - Rely on competition to maintain competitive pricing
The contractor may encounter differing site conditions on the project, resulting in change requests	<ul style="list-style-type: none"> - Consider risk sharing for differing site conditions - Keep open communication on this issue with Proposers
If the Design-Builder does not comply with environmental regulatory agencies' oversight and approvals, injunction or fines may occur	<ul style="list-style-type: none"> - Transfer alternatives analysis to DB in RFP - Project is on an existing alignment - lower potential for risk - Extensive coordination with regulatory agencies performed and on-going - Transfer schedule risk to DB for items under their control. - Monitor/oversight during construction - Provide an alternatives analysis documentation
ROW condemnations and increasing land costs	<ul style="list-style-type: none"> - Continue to identify condemnation potential - Advance design to identify ROW impacts - Have identified 1 full take; no relocations - Transfer Schedule risk to DB - Allow DB firm flexibility to avoid ROW conflicts with innovative/alternative design through the ATC process
Risk pricing by the contractor may result in protracted negotiations (potential BAFO) resulting in delay to the current procurement schedule	<ul style="list-style-type: none"> - Provide complete package of geotechnical data and clear rehabilitation requirements in the TRs - Remove rehab work from Phase 1 scope - Perform and provide the contractor with preliminary SUE and Haz Mat assessments - Advance design to identify ROW impacts - Have clear plan of action/responsibilities to manage project/RFP development activities

Risk	Response
SCHEDULE	
The presence of certain species during construction could result in schedule delay	<ul style="list-style-type: none">- Peregrine falcon coordination was advanced prior to RFP issuance- Provide coordination and mitigation requirements in the RFP- Specific acoustic survey requirements in RFP- Provide preliminary Threatened and Endangered (T&E) species documentation

9. ANNUAL UPDATE CYCLE

The first annual update of the Financial Plan will be submitted by September 30, 2018 and will be based on a Data Date of June 30, 2018. Future annual updates will be submitted by September 30 of that year using a Data Date of June 30 of that year.