



**I-64 Capacity Improvements –
Segment II**
Financial Plan Annual Update

October 30, 2018

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EXECUTIVE SUMMARY

This Design Build project is Segment II of the planned I-64 Capacity Improvements on the Peninsula. The project limits are from MM 241.30, 1.05 miles west of Route 199 (Humelsine Parkway/Marquis Center Parkway, Exit 242) to where the Segment I project ends at MM 248.35, 0.54 miles east of Route 238 (Yorktown Road, Exit 247). The 7.1 mile long project lies in the City of Newport News, James City County, and York County.

The project is currently under construction and is still anticipated to finish by the original planned completion date of May 24, 2019. Current project activities are:

- Completing I-64 traffic shifts onto new inside lanes, all sections
- Completing bridge deck placements for all bridges
- Preparing to install noise wall foundations

The current total project cost estimate is \$175,832,897 and decreased from the previous Financial Plan estimate of \$189,707,675 due to the lower construction cost. Five work orders have been negotiated to date equaling a negative total amount of \$499,373. There is no risk at this time of exceeding the project contingency.

The project is fully funded from non-federal sources.

1. PROJECT DESCRIPTION

This project is Segment II of the planned I-64 Capacity Improvements on the Peninsula. The project limits are from MM 241.30, 1.05 miles west of Route 199 (Humelsine Parkway/Marquis Center Pkwy, Exit 242) to where the Segment I project ends at MM 248.35, 0.54 miles east of Route 238 (Yorktown Rd, Exit 247). The 7.1 mile long project lies in the City of Newport News, James City County, and York County. I-64 is functionally classified as an Urban Interstate. The VDOT geometric design standard that will be utilized for I-64 will be GS-5 (Urban Principal Arterial – Freeway) with a minimum design speed of 70 mph east of Route 199 (Exit 242) and 75 mph west of Route 199 (Exit 242). VDOT has initiated this proposed widening project to provide immediate congestion relief to the roadway corridor.

VDOT determined that the use of Design-Build contracting will expedite delivery. The Design-Builder will be able to perform final design, right of way acquisition, and utility relocation and some construction activities concurrently. This project contributes to the Preferred Alternative and contributes to the Purpose & Need elements outlined in the Final Environmental Impact Statement (FEIS). The project will incorporate context sensitive design where practical and in accordance with the resolution of the Transportation Planning Organization (TPO).

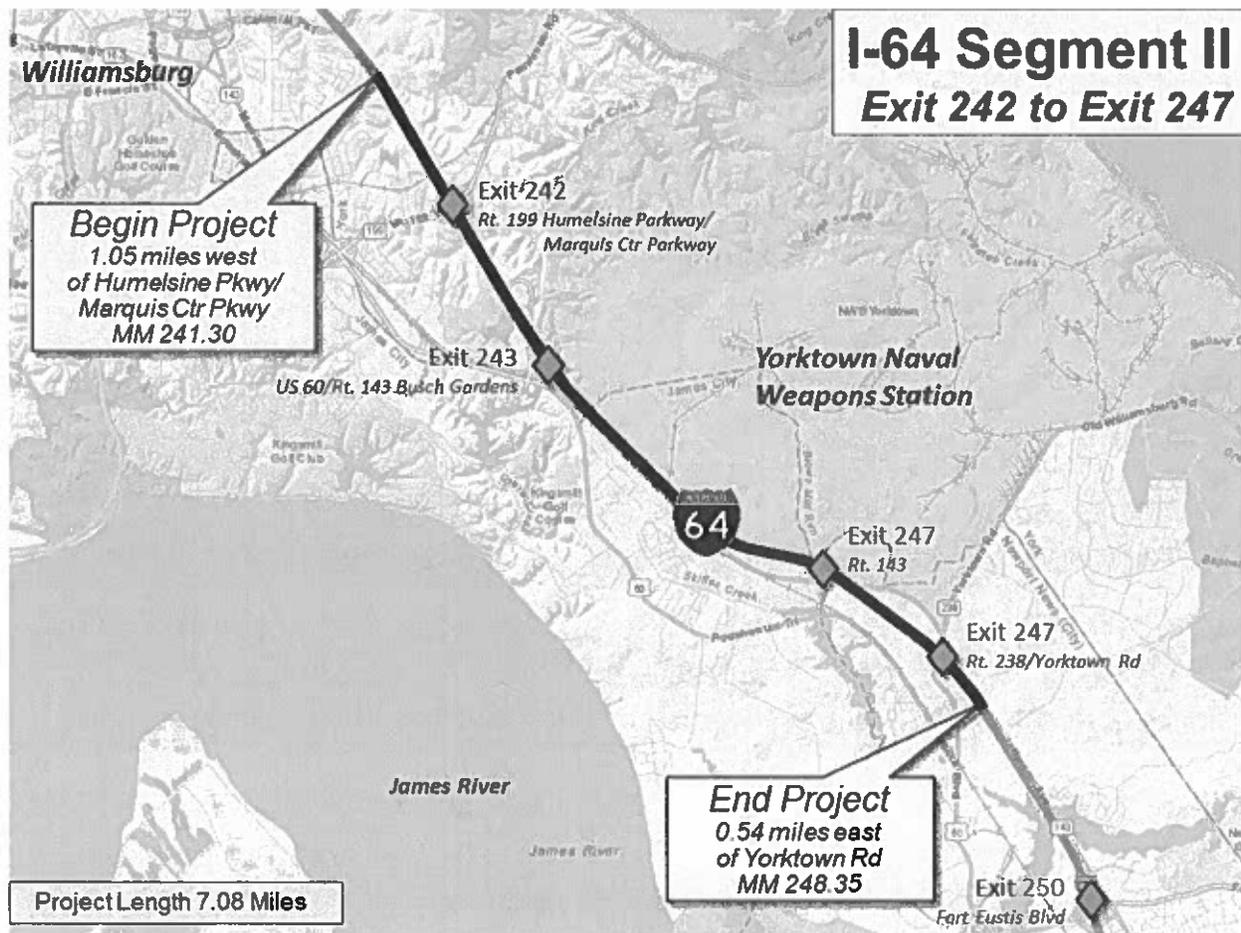


Figure 1: Project Limits

Under the terms of the design-build contract awarded by the Commonwealth Transportation Board (CTB) in January 2016, the design-builder will construct the widening of I-64 from a 4 lane divided interstate to a 6 lane divided interstate from state milepost 241.30 to state milepost 248.35. The proposed improvements include the addition of one 12-foot-wide travel lane and one 12-foot-wide shoulder in each direction. On the eastern end, this 4-lane section of I-64 ties into the 6-lane widening project, I-64 Capacity Improvements – Segment I, which ties into an 8-lane interstate system to the east. The widening is expected to occur in the median of the existing interstate, limiting the amount of right of way required to construct the project and avoiding impacts to existing interchanges. These improvements will increase capacity, minimize geometric and structural deficiencies, provide more lanes for evacuation and improve safety by reducing congestion and improving vehicular level of service.

Nine existing bridges within the corridor will be widened to the inside to accommodate the same typical section as the roadway. Six major box culverts will also be extended due to the interstate widening. The existing concrete travel lanes, acceleration/deceleration lanes and outside shoulder will be demolished and reconstructed as part of the project.

This section of I-64 includes the following improvements:

- Two (2) additional travel lanes (one in each direction) within the existing median area. The typical section includes one (1) additional 12' wide thru lane in each direction to provide a six (6) lane typical section and minimum 12' wide paved shoulders in the median in each direction.
- Outside shoulder widening from 10' to 12' will take place west of Exit 243 due to the higher truck volume on this section of interstate. All deficient ramp lengths will be lengthened except for two loop ramps at the Rte. 199 interchange. These loop ramps will not be lengthened due to the need to reconfigure the interchange.
- Improvements to existing median crossovers for emergency response and maintenance use, paving of all cross overs, and upgrades to comply with current VDOT and AASHTO requirements.
- Construction of one warranted and approved noise barrier, based upon the final noise study.
- Included are the necessary safety improvements including guardrail and signage.

This project will fix non-compliant cross slopes, superelevations and roadway alignments.

The following Design Waivers (DW) have been approved:

- (1) DW: The existing bridge outside shoulder width for the I-64 mainline bridges over Penniman Road (Route 641) do not meet VDOT Structure and Bridge Manual 06.02-1 Requirements. This DW is not required per Allan Myers technical proposal.
- (2) DW: The existing and proposed vertical bridge clearance of I-64 Eastbound over Jefferson Avenue (Route 143) does not meet the VDOT Structure and Bridge Manual 06.02-08 Requirements.
- (3) DW: The proposed inside shoulder cross slope for I-64 in both eastbound and westbound directions does not meet VDOT Road Design Manual GS-11 Standards.
- (4) DW: To use deck extensions at the four bridges on I-64 with skews less than 30 degrees. These are for the pair of structures over Rte. 238 Yorktown Road, and the pair of structures over Rte. 641 Penniman Road.
- (5) DW: To allow for an exemption of the requirement to pre-boreholes in fills for precast prestressed (PC/PS) concrete friction piles, for all nine bridges that are being widened.

The Virginia Transportation Research Council (VTRC), the research division for the Virginia Department of Transportation (VDOT), is conducting research on Segment II of the I-64 Widening Project. The research includes studying the performance of two pavement recycling techniques by placing instrumentation sensors during construction. The sensors will allow researchers to observe the pavements' performance during its service life and quantify the response to truck loading. By confirming the performance of these sections during the service life, rather than waiting until deterioration begins to develop, VDOT can more quickly implement these recycling techniques on other projects.

The pavement design used on Segment II includes two pavement recycling techniques: Full-Depth Reclamation (FDR) and Cold Central-Plant Recycling (CCPR). FDR is used to create a solid foundation for the pavement while the CCPR process will create a base layer on top of the FDR. VDOT has experience with these processes from other pavement rehabilitation projects (including a project completed in 2011 on I-81 in Augusta County) and pavement test facilities.

The primary advantages to using pavement recycling techniques include the potential for cost reductions, reductions in green-house gas emissions, and reduced construction time. Previous studies

completed by VDOT and other highway agencies have shown that pavement recycling techniques can reduce costs by 30-50% and reduce green-house gas emissions by more than 50%. Reusing existing paving materials result in these savings. VDOT estimates that using the recycling techniques on Segment II will save approximately \$10 million. In terms of materials reductions, more than 180,000 tons of existing milled pavement will be reused and more than 4,500 tons of asphalt binder will not be needed. The new pavement has a 30 year design life (VDOT MOI) and we expect to do some form of re-surfacing in 12 to 15 years.

Project History

On June 8, 2015, the Federal Highway Administration (FHWA) issued a Record of Decision (ROD) for the second operationally independent section to be advanced from the FEIS. This section is approximately seven miles with the termini located east of Exit 247 (Yorktown Road/Route 238) in the east and west of Exit 242 (Marquis Parkway/State Highway 199) in the west. These locations provide logical termini, as improvements will tie back into the existing facility and not extend beyond or impact the existing interchanges. Exits 247, 243, and 242 are the only interchanges located within this section. The ROD was issued for full build condition which added one lane in each direction.

Current Activities

Current Phase 2 project activities include completing the construction of and traffic shift to the new inside lanes. Also continuing construction of the outside lanes and completing the bridge deck placements for all bridges. The Virginia Center for Transportation Innovation and Research (VCTIR) will be installing instrumentation in the right wheel path of the right lane to measure long-term performance of the reconstructed pavement section in October 2018.

UPC 106665 Project Website:

http://www.virginiadot.org/projects/hamptonroads/i-64_widening_project.asp

The Environmental project website is also available for the public:

http://www.virginiadot.org/projects/hamptonroads/i-64_peninsula_study.asp

2. SCHEDULE

The overall sequencing of the major phases of the construction work is as follows:

Project Schedule:

- Notice to Proceed Date February 17, 2016
- Begin PE – Design, RW/Utilities, and Construction activities February 17, 2016
- Begin Phase 1 Construction October 26, 2016
- Begin Phase 2, Part 1, Construction on Inside Lanes December 19, 2016
- Begin Phase 2, Part 2, Construction on Outside Lanes April 28, 2018
- Substantial Completion of all Sections December 2018
- Final Date Completion/Accept of all work May 24, 2019

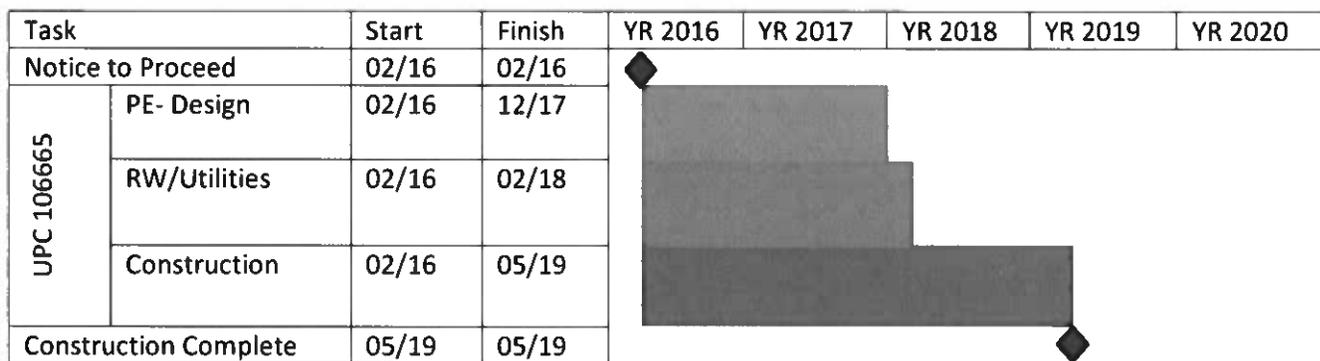
Phase 1: Along both I-64 Eastbound and Westbound, strengthen outsides shoulders, place temporary pavement markings and shift traffic towards the outside to allow placement of temporary traffic barrier service adjacent to the median widening.

Phase 2, Part 1: Construct median widening along both I-64 Eastbound and Westbound, demolish and construct first phase of bridges. Upon completion, shift traffic towards the newly constructed median widening.

Phase 2, Part 2: Begin pavement replacement of the outside lanes and Stage 2 of the bridges. Noise wall construction will also take place in this phase.

Chart 1 below is the graphical representation of the anticipated schedule from the selected design-build team:

Chart 1: Project Schedule Overview



3. PROJECT COST

VDOT’s Project Cost Estimating System (PCES) is the official source for all cost estimate information. The current total project cost estimate is \$175,832,897.

In January 2016, this project was awarded to Allan Myers based on their Design-Build construction proposal of \$138,747,777. Table 3.1 below shows the initial and current total project cost estimate for the I-64 Capacity Improvements – Segment II project.

Table 3.1: Project Cost Estimates by Phase

Phase	Initial Financial Plan Estimate	Estimate 07/31/2017	Current Estimate 07/31/2018
PE	\$6,000,000	\$6,170,000	\$6,000,000
RW	\$1,511,548	\$1,511,548	\$1,511,548
CN	\$206,081,305	\$182,026,127	\$168,321,349
Total	\$213,592,853	\$189,707,675	\$175,832,897

Cost Estimating Methodology

Work elements associated with the I-64 Capacity Improvements – Segment II project can be summarized in two components: (1) work to be carried out under the design-build contract by the design-builder and (2) work outside of the design-build contract for which VDOT is responsible or has already accomplished throughout the development of the project.

Design-Build Contract: The awarded design-build contract for the I-64 Capacity Improvements - Segment II project is lump sum and includes the following major work elements to be provided by the design-builder: final design; right-of-way acquisition services; utility coordination; utility relocations; construction; and construction QA/QC. The initial estimated cost for the design-build contract was developed using the RFP Plans. The design-build contract is a fixed price, lump sum contract, with contractor payments based upon the project physical percent of completion.

Work Outside of Design-Build Contract: VDOT will remain responsible for updating the EIS documentation; preliminary engineering support services; oversight of final design; oversight of right-of-way acquisition services; payment for new right-of-way acquired for the project; landscaping maintenance after project construction; design-build risk contingency; and oversight of construction:

- Preliminary Engineering: VDOT has executed an agreement with a professional services firm to provide engineering and technical support during the design build project execution. Specifically, support for reviewing preliminary and final design submissions.
- Right of Way Purchases: In accordance with the design-build RFP, Part 2, Section 1.5, VDOT remains responsible for the actual cost of the purchase of right-of-way, all easements and miscellaneous fees associated with real estate closings as part of the Project and oversight of the right-of-way acquisition/payment/condemnation process.
- Virginia Department of Transportation Project Oversight Costs: VDOT costs to manage the project and provide oversight of the project are estimated to be \$10,096,299. These costs include overall contract administration and construction oversight.

In addition, other preliminary engineering expenditures associated with project development of the I-64 Capacity Improvements project are reflected in the total project estimate.

Summary of Estimates and Expenditures

Table 3.4 depicts the project expenditures as of July 31, 2018, along with the current project estimate. It shows that the project costs incurred to date are within the project estimate.

Table 3.4: Comparison of Project Estimate and Expenditures

Phase	Current Estimate	Expenditures as of 7/31/18	Balance to Complete
PE	\$6,000,000	\$2,454,783	\$3,545,217
RW	\$1,511,548	\$508,803	\$1,002,745
CN	\$168,321,349	\$111,780,229	\$56,541,120
Total	\$175,832,897	\$114,743,815	\$61,089,082

4. PROJECT FUNDS

This Financial Plan Annual Update includes \$175,832,897 in funding for the I-64 Capacity Improvements – Segment II project.

In April 2015, the Hampton Roads Transportation Accountability Commission (HRTAC) executed an Interim Project Agreement for Funding and Administration with VDOT that authorized \$6 million of funding for PE project costs. On September 17, 2015, the Hampton Roads Transportation Planning Organization (HRTPO) amended its Transportation Improvement Plan (TIP) to add HRTF funds in the amount of \$207,592,853 through state FY 2019. The HRTF funds have been reduced to the current amount of \$175,832,897.

Table 4.1 summarizes the funding allocated to the I-64 Capacity Improvements – Segment II in the Final FY 2018-2023 SYIP by fund source and year.

Table 4.1: Summary of Funding by Source and Year

Funding Source		Previous	2019	2020	2021	TOTAL
UPC 106665	State: HRTAC	\$ 175,832,897	\$0	\$0	\$0	\$ 175,832,897
GRAND TOTAL		\$ 175,832,897	\$0	\$0	\$0	\$ 175,832,897

I-64 Capacity Improvements Project – Segment II is fully funded from non-federal sources.

State Sources

There are currently no state funding sources on this project.

Non-Federal Sources

Hampton Roads Transportation Accountability Commission (HRTAC) Funds: The Final FY 2018-2023 SYIP included \$6,000,000 in Hampton Roads Transportation Funds (HRTF) allocated by the HRTAC. Based on the September 17, 2015, action by the HRTPO, additional funds have been allocated to the project in the amount of \$207,592,853. The HRTF funds have been reduced to the current amount of \$175,832,897.

Table 4.2: Project Authorization Summary

Project Authorization Summary as of June 30, 2018						
Federal Project	UPC(s)	Phase Classification	Cost	Federal Funds	Advance Construction	Status
9655086	106665	PE	\$6,170,000	\$0	\$6,170,000	Active
9655086	106665	RW	\$1,511,548	\$0	\$1,511,548	Active
9655086	106665	CN	\$182,026,127	\$0	\$181,426,127	Active
Total			\$189,707,675	\$0	\$189,107,675	

5. FINANCING ISSUES

There are no financing issues on this project.

6. CASH FLOW

I-64 Capacity Improvements – Segment II project is a high priority for both VDOT and the local area. Allocations are re-evaluated annually through the SYIP update. I-64 Capacity Improvements – Segment II projected annual cash expenditures are based on the project schedule provided by the Design-Builder. A comparison of projected expenditures to allocations by fiscal year is shown in Table 6.1 - Cash Flow Analysis.

Table 6.1: Cash Flow Analysis

	Previous	FY 2019	FY 2020	FY 2021
PE	\$2,454,783	\$3,545,217	\$0	\$0
Right of Way	\$508,803	\$1,002,745	\$0	\$0
Construction	\$111,780,229	\$56,541,120	\$0	\$0
Total Annual Expenditures	\$114,743,815	\$61,089,082	\$0	\$0
Cumulative Expenditures	\$114,743,815	\$175,832,897	\$175,832,897	\$175,832,897
Total Annual Allocations	\$175,832,897	\$0	\$0	\$0
Cumulative Allocations	\$175,832,897	\$175,832,897	\$175,832,897	\$175,832,897
Cumulative Allocation Surplus (Deficit)	\$61,089,082	\$0	\$0	\$0

7. P3 ASSESSMENT

This interstate project cannot be tolled and is not a candidate for delivery via the Public Private Transportation Act (PPTA).

8. RISK AND RESPONSE STRATEGIES

The Department’s current estimate in the Six-Year Improvement Program for Fiscal Years 2018-2023 is \$175,832,897 for I-64 Capacity Improvements – Segment II project.

The Design Build team’s low bid proposal has many items that were bid lower than what was anticipated. This poses a risk to the project budget as the Design Build team may seek additional payment through work orders and contract modifications at any opportunity. To mitigate this risk, the project team will manage this project to ensure the contract is enforced and any proposed work orders are clearly vetted through appropriate subject matter experts to ensure necessity and validity.

As project design and construction advance, there may be additional project costs that were not identified in the contract. It is anticipated that the project’s contingency budget included in the project estimate will mitigate this project risk. Beyond the risks associated directly with the design-builders cost proposal, several other risks to project success have been identified and mitigation strategies are in place. These are:

Landscaping: The project budget includes allowances for the landscaping features. This project directly impacts the existing environment on I-64 near Williamsburg/Busch Gardens and involves four localities. Significant input and interest in the ultimate landscaping design is anticipated from the localities. The mitigation strategy for this risk is early and constant communication with the local stakeholders to let

them help formulate the plan forward to avoid re-design costs and also to help ensure that a reasonable solution is reached in terms of aesthetics and cost.

US Navy Coordination: This project constructs improvements to I-64 along the border of the Naval Weapons Station. As such, given global politics and Navy security and safety regulations, any change to the assumptions and information utilized to formulate the RFP could have cost and schedule impacts to the project. The mitigation strategy for this risk is to maintain open communication with the US Navy, sharing plans and information as it is developed. Through communication, significant impacts to plan development and ultimately construction should be able to be avoided.

Fuel and Asphalt Price Adjustments: Given that this project was solicited during a time of relatively low fuel and asphalt prices, there is a risk that increased in prices for these commodities could increase the cost of the project through the price adjustments allowable through the contract. The mitigation strategy is to maintain an awareness of the industry pricing trends and respond appropriately in a timely manner.

9. ANNUAL UPDATE CYCLE

The submission date of the Initial Financial Plan was October 30, 2015. This second annual update is based on a "data as of" date of July 31, 2018. Future annual updates will be submitted by October of that year, with a "data as of" date of July 31 of that year.

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

The current project estimate of \$175,832,897 has been reduced from the initial project estimate of \$189,707,675 by \$13,874,778. Scope Validation is closed. Five work orders have been paid for to date equaling a total amount of \$499,373. There is no risk at this time of exceeding the project contingency.

11. COST AND FUNDING TRENDS SINCE INITIAL FINANCIAL PLAN

Since award, the Design Builder has identified items which they consider outside the scope of the contract for VDOT consideration. The VDOT team continues to work through the contract requirements in assessing these items.

Since the Initial Financial Plan, the project estimate has been reduced by \$37,759,956 and the HRTAC funds in the same amount have been reduced accordingly.

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

The traffic switch from the existing outside lanes to the new inside lanes has proceeded generally on schedule. Construction of the outside lanes is underway. The Construction Completion date of May 24, 2019 has not changed.

13. SCHEDULE TRENDS SINCE INITIAL FINANCIAL PLAN

There are no trends that have impacted the project schedule since the initial financial plan.