I-64 Gap Widening

Initial Financial Plan

August 31, 2023

State Project # 0064-063-623; 0064-063-624; 0064-047-771; 0137-099-019
Federal # NHPP-064-3(545); STP-064-3(549); CRP-5B03(374)
UPC # 122805; 123831; 123129; 123832
Financial Plan Data Date: May 31, 2023

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1. PROJECT DESCRIPTION

The Virginia Department of Transportation has been aggressively pursuing the widening of the I-64 corridor to three lanes in each direction between Exits 205 and 234. Adjoining segments of the interstate between these two areas are six lanes or greater and summertime congestion on this stretch of the interstate is notorious and continues to grow – disrupting one of Virginia's most important thoroughfares.

The I-64 Gap Widening project will widen I-64 from four to six lanes from mile marker 204.9 in New Kent County to mile marker 233.3 in York County. The proposed improvements include the 2" milling and 5" paving of the two existing lanes and outside shoulders, the addition of one 12 foot-wide travel lane and one 10 foot-wide paved inside shoulder in both directions. The widening will take place in the median of I-64 within the existing right-of-way. Adding a third lane and 10 foot-wide shoulders in each direction will improve congestion and safety and will enhance connectivity between Richmond and Hampton Roads, growing the economy, supporting tourism, and providing an important link to the Port of Virginia and the military. The I-64 Gap Widening project is broken into Segments A, B and C.

UPC 122805 I-64 Gap Widening – Segment A is located in New Kent County. The limits of the Project are from approximately mile marker 204.9 (west of Route 33, Bottoms Bridge / Quinton (Exit 205)) to mile marker 215.6 (east of Route 155, New Kent Court House / Providence Forge (Exit 214)).

UPC 123831 I-64 Gap Widening – Segment B is also located in New Kent County. The project limits will start at mile marker 215.6 (east of Route 155, New Kent Court House / Providence Forge (Exit 214)) and will end at mile marker 224.3 (New Kent/James City County Line).

UPC 123129 I-64 Gap Widening – Segment C is located in James City County and York County. The project limits will begin at mile marker 224.3 (New Kent/James City County Line) and go to mile marker 233.3 (1.15 miles west of Route 199). This segment includes child UPC 123832 I-64 Gap Widening – Segment C - Park & Ride. This will be part of the Segment C Design-Build project to pave the Lightfoot Park and Ride to accommodate 65 vehicle parking spaces and 10 bicycle parking spaces.

Figure 1.1 shows the project limits and Figure 1.2 shows the proposed typical sections.

Figure 1.1: Project Limits

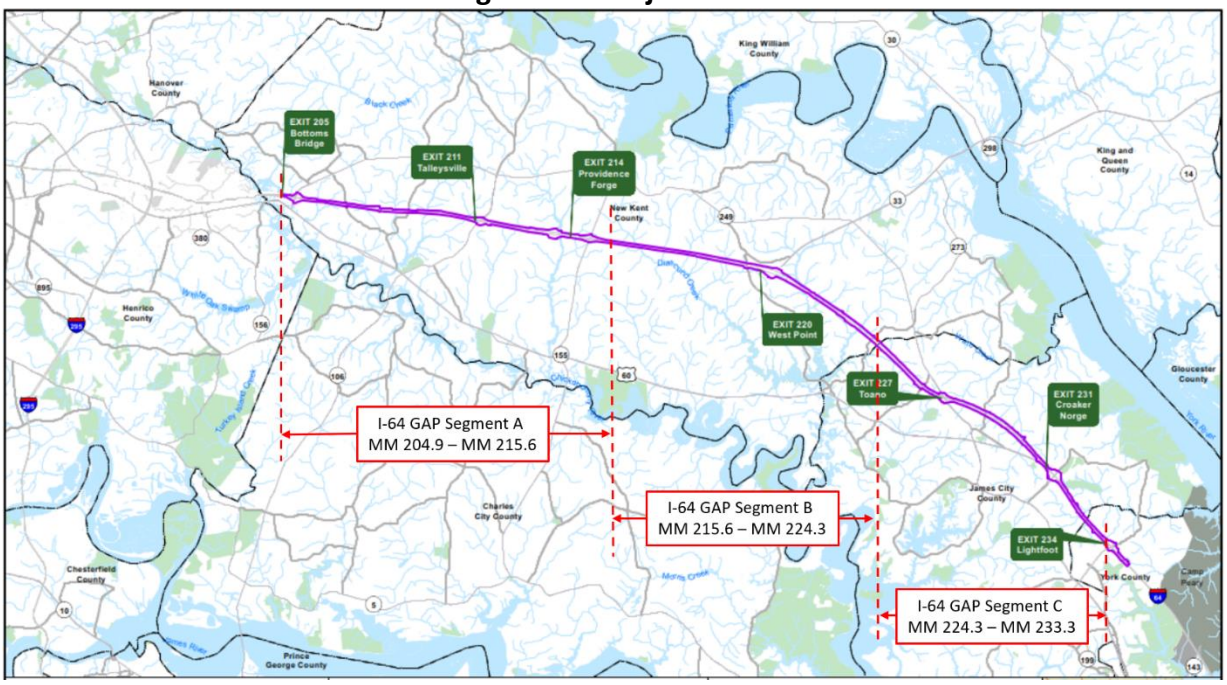
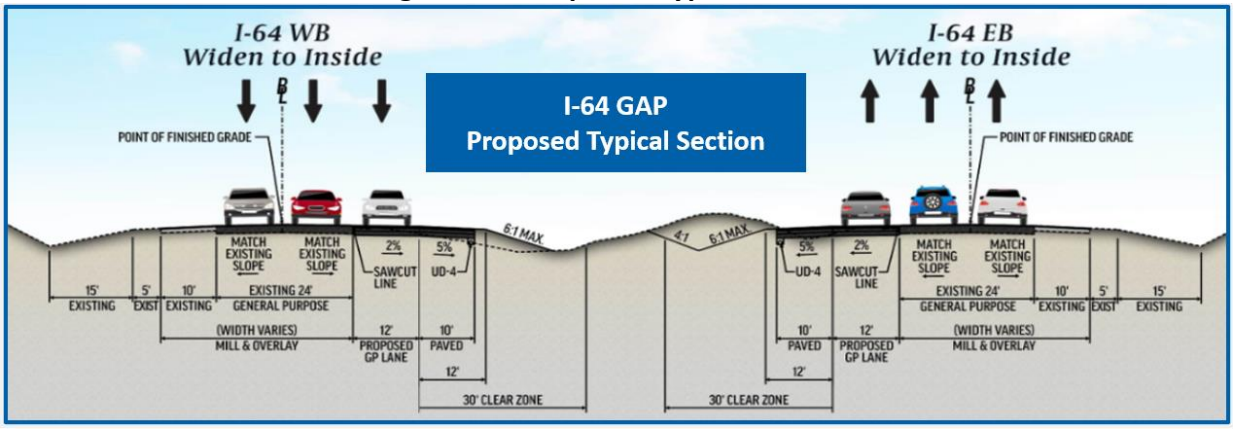


Figure 1.2: Proposed Typical Section



VDOT determined that the use of Design-Build contracting would expedite delivery for all three segments. The Design-Builder will perform the final design, right of way acquisition, utility relocation, and some construction activities concurrently.

The following Design Exception (DE) and Design Waiver (DW) are approved for this project:

- (DE) Inside Shoulder Width (at Exit 205 interchange at underpass) – Segment A
- (DW) Design Speed – Segment A, B, and C

Environmental Review/NEPA Document

The FHWA Virginia Division Office approved the NEPA document, a Categorical Exclusion (CE), on November 29, 2022. The CE documents the analysis of potential social, economic, and environmental impacts resulting from the proposed improvements. Resources considered:

- Natural resources: wetlands and streams, and threatened and endangered species
- Noise
- Air quality
- Cultural and historic resources
- Socioeconomics and land use
- Hazardous materials
- Environmental justice
- Traffic
- Indirect and cumulative effects

PROJECT WEBSITE

Additional information on the I-64 Gap Widening project can be found on the project websites at the following links:

I-64 Gap Segment A Widening Website

https://www.virginiadot.org/projects/richmond/i-64-gap-segment-a-widening.asp

I-64 Gap Segment C Widening Website

https://vdot.virginia.gov/projects/hampton-roads/i-64-gap-c.asp

I-64 OpportUNITY Connecter Federal Grant Website

https://www.virginiadot.org/projects/hampton-roads/i-64-opportunity-connector-federal-grant.asp

The website provides additional information regarding project description, purpose, location map, implementation schedule, cost, contact information, etc.

2. SCHEDULE

As indicated the project is broken into three segments. Segment A is scheduled to be delivered first due to the higher existing traffic volumes and the congestion at Exit 205. Segment C is scheduled second due to higher traffic volumes and to complete the improvements in the Hampton Roads District. Segment B will be third and last segment to complete the project. Each segment's schedule is outlined as follows:

Segment A
The Request for Qualifications (RFQ) was advertised on December 16, 2022. The Request for Proposals (RFP) was released on March 22, 2023. Technical Proposals were received on June 23, 2023, and Price Proposals were received on August 3, 2023.

VDOT anticipates that the Design-Builder will commence with tree clearing November 2023. Design and Final Noise Analysis will begin at notice to proceed and initial Construction activities will begin Spring 2024. The final contract completion date is July 2027, or the Offeror's proposed early completion date. Anticipated milestone dates for the design-build contract are as follows:

- Notice of Intent to Award: August 10, 2023
- CTB Approval/Notice to Award: September 2023
- Notice to Proceed: October 2023
- Final Completion: July 2027

Segment C
The Request for Qualifications (RFQ) was advertised on July 31, 2023, and the Request for Proposals (RFP) to be released in November 2023. Anticipated milestone dates for the design-build contract are as follows:

- Notice of Intent to Award: March 2024
- CTB Approval/Notice to Award: May 2024
- Notice to Proceed: May 2024
- Final Completion: November 2027

Segment B
The Request for Qualifications (RFQ) is scheduled to be advertised in February 2024, and the Request for Proposals (RFP) is to be released in June 2024. Anticipated milestone dates for the design-build contract are as follows:

- Notice of Intent to Award: October 2024
- CTB Approval/Notice to Award: December 2024
- Notice to Proceed: December 2024
- Final Completion: April 2028

Chart 2.1 below is an approximate anticipated schedule for the design-build team:

Chart 2.1: Project Schedule Overview

Segment A	Start	Finish	YR 2023	YR 2024	YR 2025	YR 2026	YR 2027	YR 2028
RFQ	Dec-23	Apr-23						
RFP	Apr-23	Aug-23						
Award		Sep-23						
Construction	Oct-23	Jul-27						
Construction Complete		Jul-27						
Segment C	**Start**	**Finish**	**YR 2023**	**YR 2024**	**YR 2025**	**YR 2026**	**YR 2027**	**YR 2028**
RFQ	Jul-23	Nov-23						
RFP	Nov-23	Apr-24						
Award		May-24						
Construction	Jun-24	Nov-27						
Construction Complete		Nov-27						
Segment B	**Start**	**Finish**	**YR 2023**	**YR 2024**	**YR 2025**	**YR 2026**	**YR 2027**	**YR 2028**
RFQ	Feb-24	Jun-24						
RFP	Jun-24	Sep-24						
Award		Dec-24						
Construction	Dec-24	Apr-28						
Construction Complete		Apr-28						

3. PROJECT COST

The current total project cost estimate of all three segments is $753,919,062 in year-of-expenditure dollars. Project costs noted in the estimate below include: preliminary design activities, right of way purchase, utility relocation, environmental and design permits/approvals, survey and geotechnical investigations, and construction.

TABLE 3.1: PROJECT COST ESTIMATE

Phase	Initial Financial Plan Estimate
PE	$50,577,935
RW	$2,100,000
CN	$701,241,127
Total	$753,919,062

COST AND SCHEDULE RISK ASSESSMENT (CSRA) REPORT

The project team worked with FHWA and third-party consultant, Altus Group, to complete the Cost and Schedule Risk Analysis (CSRA) Report required by FHWA for Major Projects that cost over $500 million dollars. A CSRA Workshop was held on August 16 & 17, 2023. FHWA approved the I-64 GAP CSRA Report on September 20, 2023. The analysis shown in the CSRA Report had a 70% confidence level (P70) that the total project cost would be $757,622,027. The cost difference between the current project cost estimate and the P70 cost estimate is less than $4M. VDOT does not plan on seeking additional funding at this time since the cost difference is well within the existing contingency on the project and VDOT will monitor all projects within the plan for possible cost savings.

COST ESTIMATING METHODOLOGY

Work elements associated with the I-64 Gap Widening 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: A separate Design-Build contract will be awarded for each the three segments of the I-64 Gap Widening project. The Design-Build contracts for the I-64 Gap Widening project are 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 quality assurance and quality control (QA/QC). The estimated cost for the Design-Build contract was developed using the Request for Proposals (RFP) Plans and by adjusting a construction quantity estimate developed for those plans to account for anticipated changes to the project. The Design-Build contract payments will be based upon the project physical percent of completion utilizing the 20/80 standard Design-Build payment structure (20% payment when the activity begins / the remaining 80% payment when activity has been completed and accepted).

Work Outside of Design-Build Contract: VDOT is responsible for 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:

- Engineering: VDOT has executed an agreement with a professional services firm to provide engineering and technical support, specifically for reviewing 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.
- VDOT Project Oversight Costs: VDOT post-award costs to manage the project and provide oversight of the project are estimated to be approx. 6% of the Design-Builder's cost. These costs include overall project management, contract administration, and construction oversight.

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

SUMMARY OF ESTIMATES AND EXPENDITURES

Table 3.1 includes the current estimate of the total cost of the project and the remaining cost- to-complete in year-of-expenditure dollars. The table below depicts the project expenditures as of May 31, 2023.

TABLE 3.1: PROJECT TABLE 3.1: COST BY PHASE

Phase		Initial Financial Plan Estimate	Current Expenditures as of May 31, 2023	Balance to Complete
122805	PE	$5,000,000	$93,094	$4,906,906
	RW	$100,000	$0	$100,000
	CN	$272,728,078	$0	$272,728,078
Total		**$277,828,078**	$93,094	$272,634,984
123831	PE	$23,323,495	$0	$23,323,495
	RW	$1,000,000	$0	$1,000,000
	CN	$219,975,897	$0	$219,975,897
Total		**$244,299,392**	$0	$244,299,392
123129	PE	$21,754,440	$0	$21,754,440
	RW	$1,000,000	$0	$1,000,000
	CN	$206,237,152	$0	$206,237,152
Total		**$228,991,592**	$0	$228,991,592
123832	PE	$500,000	$0	$500,000
	RW	0	$0	$0
	CN	$2,300,000	$0	$2,300,000
Total		**$2,800,000**	$0	$2,800,000
GRAND TOTAL		**$753,919,062**	$93,094	$753,815,968

4. PROJECT FUNDS

Project funding is demonstrated in Richmond Regional Transportation Planning Organization's (TPO) and Hampton Roads TPO Long Range Transportation Plan and Transportation Improvement Programs (TIP), as well as the Commonwealth's Statewide Transportation Improvement Program (STIP). The Preliminary Engineering (PE), Right of Way (RW), and Construction (CN) phases of the Project are included in the TIP as well as the STIP. Table 4.1 is a summary of the TIP/STIP amendments.

TABLE 4.1: TIP/STIP AMENDMENT SUMMARY

	FY 21-FY24 TIP Amendment	I64 Gap Widening	Phases
Richmond Regional TPO	March 2, 2023	Segment A	RW and CN
	November 3, 2022	Segment A and B	PE
Hampton Roads TPO	July 20, 2023	Segment C	PE, RW and CN
	July 20, 2023	Segment C – Park and Ride	PE and CN

	STIP Amendment	I64 Gap Widening	Phases
VDOT	March 2, 2023	Segment A	PE/RW/CN
	November 15, 2022	Segment B	PE
	November 18, 2022	Segment C	PE
	July 24, 2023	Segment C – Park and Ride	PE and CN

Table 4.2 below shows the current federal authorization on the project.

TABLE 4.2: PROJECT AUTHORIZATION SUMMARY

Project Authorization Summary as of May 31, 2023*						
Federal Project	**UPC(s)**	**Phase Classification**	**Cost**	**Federal Funds**	**Advance Construction**	**Status**
NHPP-064-3(545)	122805	PE/RW/CN	$277,828,079	$8,640,960	$269,187,119	
STP-064-3(549)	123129	PE	$21,754,440	$0	$21,754,440	
TOTAL			$299,582,519	$8,640,960	$290,941,559	

NOTE: On August 18, 2023, federal funds were obligated on 0643545 and advance construction was updated.

SIX-YEAR IMPROVEMENT PROGRAM (SYIP) FUNDING

Table 4.3 summarizes the funding allocated to the I-64 Gap Widening project by fund source and year.

TABLE 4.3: SUMMARY OF FUNDING BY SOURCE AND YEAR*

Funding	Previous	2024	2025	2026	TOTAL
Federal					
Special Grant		$25,000,000			$25,000,000
NHPP		$6,912,768			$6,912,768
NHPP – Soft Match		$1,728,192			$1,728,192
NHPP - Freight		$1,603,052		$5,801,158	$7,404,210
NHPP – Freight Soft Match		$400,763		$1,450,289	$1,851,052
Carbon Reduction		$2,020,713			$2,020,713
Carbon Reduction – Soft Match		$505,178			$505,178
TOTAL Federal		**$38,170,666**		**$7,251,447**	**$45,422,113**
State					
State Grant	$352,500,000	$112,500,000			$465,000,000
HPP – State		$32,979,215	$65,471,453	$45,046,280	$143,496,948
TOTAL State	$352,500,000	$145,479,215	$65,471,453	$45,046,280	$608,496,948
Other					
CVTA Fund**	$100,000,000				$100,000,000
TOTAL Other	$100,000,000				$100,000,000
GRAND TOTAL	**$452,500,000**	**$179,321,809**	**$65,471,453**	**$52,297,727**	**$753,919,061*****

*Funding table updated based on data date of 8/15/2023.
**CVTA funding in table was allocated to VDOT in FY2023. VDOT working with CVTA on billing arrangements.
***Although the P70 cost estimate is approximately $4M more than the current funding, as indicated above, VDOT is not planning on seeking additional funding at this time.

5. FINANCING ISSUES

There are no financing issues on this project.

6. CASH FLOW

I-64 Gap Widening project annual cash expenditures are based on the project schedule. Table 6.1 below is a Cash Flow Analysis for the project. It shows the comparison of previously expended and projected expenditures by fiscal year by phase against the total annual allocations.

TABLE 6.1: CASH FLOW ANALYSIS

Expenditures		FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	Total
UPC 122805	PE	$ 88,851	$ 3,911,149	$ 1,000,000					$ 5,000,000
	Right of Way				$ 100,000				$ 100,000
	Construction			$ 71,575,695	$ 76,511,949	$ 76,511,949	$ 48,128,485		$ 272,728,078
UPC 123129	PE			$ 21,754,440					$ 21,754,440
	Right of Way				$ 1,000,000				$ 1,000,000
	Construction				$ 53,621,660	$ 57,746,403	$ 57,746,403	$ 37,122,687	$ 206,237,152
UPC 123832	PE			$ 500,000					$ 500,000
	Right of Way								$ -
	Construction					$ 2,300,000			$ 2,300,000
UPC 123831	PE			$ 11,661,748	$ 11,661,748				$ 23,323,495
	Right of Way					$ 1,000,000			$ 1,000,000
	Construction					$ 57,193,733	$ 61,593,251	$ 101,188,913	$ 219,975,897
Cumulative Expenditures		$ 88,851	$ 4,000,000	$ 110,491,883	$ 253,387,239	$ 448,139,323	$ 615,607,462	$ 753,919,062	$ 753,919,062
Total Annual Allocations		$ 464,353,963	$ 171,795,918	$ 65,471,453	$ 52,297,727				$ 753,919,061
Cumulative Allcoations		$ 464,353,963	$ 636,149,881	$ 701,621,334	$ 753,919,061	$ 753,919,061	$ 753,919,061	$ 753,919,061	$ 753,919,061
Cash Flow per Year		$ 464,265,112	$ 632,149,881	$ 591,129,452	$ 500,531,822	$ 305,779,738	$ 138,311,599	$ (1)	$ (1)

7. P3 ASSESSMENT

The project was evaluated for various delivery methods but was decided that the tolling revenue was not enough to support the cost of the project. Commonwealth of Virginia and the Central Virginia Transportation Authority has been committed to funding this critical project. Having full funding, the project does not need a P3 delivery.

8. RISK AND RESPONSE STRATEGIES

The Cost & Schedule Risk Assessment (CSRA) that was completed with FHWA's guidance looked at the following risk factors:

- Base Variability
- Market Condition
- Risk Events

The Base Variability analysis included a variation range of plus or minus 10%. This choice was informed by the fact that design development has reached a 30% completion stage. This variation range was applied to Based Cost Estimates for the Project.

Market Conditions at the time of advertisement, bid and award are modeled to reflect the future competitive bidding environment. Three mutually exclusive scenarios are evaluated including worse than planned, as planned and better than planned. Each scenario is assigned a likelihood of occurrence and a range of associated costs. In addition to market conditions, anticipated inflation is also modeled and used to project current year dollars to year of expenditure.

The top Risks Events and response strategies identified at the Cost and Schedule Risk Assessment workshop are listed below:

TABLE 8.1: PROJECT RISK AND MITIGATION STRATEGY

Risk Name	Detailed Description of Risk Event	Mitigation Strategy
Risk 1 - Bridge Rehabilitation Quantities	Bridge Repair/Rehabilitation, I-64 mainline bridges - risk of over-running anticipated quantities. Preliminary design has not yet investigated rehabilitation quantities in the field, only surveyed bridge inspection reports	Accept risk; put quantities in contract; Consider requiring DB to develop condition report for review and approval by VDOT prior to actual Repair/Rehabilitation.
Risk 2 - Bridge Widenings	Widening construction might exert excessive settlement/down-drag on existing foundations. Cost and schedule impacts if not anticipated in advance. For new foundation widening, the installation and construction methods for the new foundations may have an adverse effect on the existing foundations.	Analyze effects of downdrag/settlement on the existing foundations during final design in order to establish if the effects can be mitigated by using light weight fill or if existing abutments needs to be supplemented. Evaluate sensitivity of subsurface conditions on vibrations; considered drilled in place foundations as part of RFP requirement; monitoring requirements will also be in RFP supplemented (i.e. with micropiles). Review TR to ensure it addresses the concern.
Risk 5 - Material Procurement	Taking longer for material to be delivered impacting project schedule	Account for current lead times in the contract time determination during procurement; survey suppliers regarding current lead times for critical items and include in the project schedule.
Risk 6 - Sound Walls	The Final Noise Analysis could modify or add sound walls that have not been designated as a result of the Preliminary Noise Analysis, which would add time and cost during construction; the added or modified wall(s) could also impact Right of Way, extend outside the Limits of Disturbance (LOD), or impact environmental permitted areas.	Consider performing a Final Noise Analysis for the RFP Concept and including it as part of the RFP. Due to the nature of the project scope (inside lane widening), there is limited risk of deviations from the Final Noise Analysis if performed and shared with the Offerors.
Risk 7 - Reservoir Watershed Impacts	Portions of the project are located within the Diascund Creek Reservoir watershed. Diascund Reservoir is downstream of the project area, receiving runoff from approximately 1/3 of the construction length. At mile marker 222.8 the reservoir is directly adjacent to the roadway. No special requirements have been identified; Risk of added requirements after procurement	Coordinate and reach consensus on requirements prior to procurement phase and include in RFP. Review special provisions from previous Design-Build projects; Hampton Roads Environmental Section to obtain

Monte Carlo simulation and Cystal Ball software was used to assess the impact of base variability, market conditions, and potential risks on the base estimate. A PERT distribution formula was utilized to generate risk outputs. The software performed 10,000 iterations, with each iteration representing a single execution of the entire project. The simulation had a 70% confidence level (P70) that the total risk costs for the project would be $12,864,167 in the year of expenditure for Base Variability, Market Conditions, and Risk Events as seen in Table 8.2.

TABLE 8.2: RISK CATEGORY P70 AMOUNTS

Risk Category	P70 Amount (YOE)	% of Contingency	% of Base Cost
Base Variability	$11,036,792	86%	1.48%
Market Conditions	$133,750	1%	0.02%
Risk Register	$1,693,625	13%	0.23%
Total	$12,864,167	100%	1.73%

The total project cost estimate for the I-64 Gap Widening project based on the risk factors identified above can be found in Table 8.3. This project cost estimate sufficiently addresses all project risks related to the project budget.

TABLE 8.3: RISK-BASED COST ESTIMATE

Risk-Based Cost Estimate	Amount (YOE)
CSRA Base Cost Excluding Contingency (Current Year)	$681,806,941
CSRA Model Base Cost Inflation	$62,950,919
CSRA Base Cost (YOE)	$744,757,860
Contribution of Contingency (70% YOE)	$12,864,167
Total Project Cost (70% YOE)	$757,622,027

9. ANNUAL UPDATE CYCLE

The submission date of the Initial Financial Plan is August 31, 2023. The first annual update will be submitted by August 31, 2024 and will be based on a data as of May 31, 2023. Future annual updates will be submitted by August 31st of that year, with a "data as of" date of May 31, 2024.