



INTERSTATE 64 PENINSULA STUDY

EXECUTIVE SUMMARY



EXECUTIVE SUMMARY

A. Description of the Proposed Action

The Virginia Department of Transportation (VDOT), in cooperation with Federal Highway Administration (FHWA), has evaluated options to improve the 75 mile long Interstate 64 (I-64) corridor from the Exit 190 (Interstate 95 (I-95)) interchange in the City of Richmond to the Exit 264 (Interstate 664 (I-664)) interchange in the City of Hampton (**Figure ES.1**). This study is known as the *Interstate 64 Peninsula Study*. Alternative 1 has been identified as the Preferred Alternative. Alternative 1 involves adding general purpose lanes to the I-64 mainline to achieve a Level of Service (LOS) of C or better in the design year of 2040. Alternative 1 allows the option to widen to the outside of the existing road corridor or within the median of the existing road corridor, and it is designed to keep the proposed improvements within the existing right of way to the greatest extent practicable.

Funding is not presently identified in the current applicable transportation plans to fully implement the Preferred Alternative. Based on direction from the Commonwealth Transportation Board (CTB) and comments from cooperating agencies, VDOT and FHWA plan to implement the Preferred Alternative in phases, as described in **Appendix L - Phased Approach for Implementation - NEPA Process**.

B. Purpose and Need

Increased traffic congestion and an aging infrastructure have led to greater concerns for travelers along the I-64 corridor. Therefore, improvements to I-64 are needed to address the following.

1. Capacity

The LOS is a letter grade (A-F) which represents a qualitative measure of operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver and traffic interruptions. For this study, LOS was determined using the procedures set forth in the *2010 HCM* published by the Transportation Research Board (TRB).

Approximately two-thirds of the I-64 mainline operates at a deficient LOS during Base Conditions, particularly the segment closest to I-95 at the western end of the corridor and virtually the entire stretch of I-64 from Exit 214 (Providence Forge) in New Kent County to Exit 264 (I-664) in the City of Hampton.

The 2011 traffic volumes on I-64 are higher than the current facility can adequately accommodate, particularly during peak

travel times. Traffic volumes are anticipated to increase in the future, exacerbating existing congestion issues. Traffic models show that the existing facility would be unable to accommodate the projected design year 2040 traffic volumes at an acceptable LOS. Improvements to I-64 would:

- Provide for increased capacity in order to reduce travel delays.
- Improve access to tourist attractions throughout the region.
- Improve connectivity to, from and between military installations.
- Provide for increased demand from the freight industry.
- Provide for the efficient transporting of freight in and out of the Port of Virginia.
- Support the current economic development needs along the corridor and in the region.

Additional information regarding the LOS conditions and goals are included in **Chapter I - Purpose and Need** and the *Purpose and Need Technical Memorandum*.

2. Roadway Deficiencies

There are a number of roadway and structure deficiencies throughout the corridor due to changes in the interstate design standards since I-64 was originally constructed as well as increasing traffic volumes creating wear and tear on the corridor infrastructure. Future increases in traffic volumes and the aging of the system would continue the deterioration of the corridor. Improvements to I-64 would:

- Minimize roadway geometric and structure deficiencies on the I-64 mainline and at the interchanges.

3. Safety

Existing traffic congestion, along with the aging roadway and design/structure deficiencies, have exacerbated safety concerns within the corridor. In many areas crash rates exceed statewide averages for similar roadway systems. Safety concerns are expected to increase. Improvements to I-64 would:

- Improve safety by reducing congestion and improving roadway design geometrics to meet current standards for interstate highways.

C. Alternatives

There are a number of possible solutions to address the need for improvements along the I-64 corridor. The goals of the study

are to develop the solutions that best meet the project purpose and need while avoiding and/or minimizing impacts to the human and natural environments. The Alternatives developed or investigated included a No-Build Alternative, a Transportation Systems Management (TSM)/Travel Demand Management (TDM) Alternative, an investigation of future passenger/freight rail and a range of highway Build Alternatives. Detailed descriptions of each of the Alternatives can be found in **Chapter II - Alternatives Considered** and in the *Alternatives Development Technical Memorandum*. The following summarizes the Alternatives considered and not carried forward for further study, the Alternatives analyzed in the **Draft Environmental Impact Statement (EIS)** and the Preferred Alternative.

1. Alternatives Considered and Not Carried Forward for Further Study

TSM/TDM – TSM/TDM options would involve only minor work to the existing I-64 corridor. TSM strategies improve traffic flow, improve signalization, convert existing general purpose lanes to managed lanes, improve intersections and implement traveler information programs. TDM encourages new driving habits through staggered commuting hours, telecommuting, car and vanpooling, ridesharing and the creation of park and ride facilities. In investigating these options a number of possible TSM/TDM opportunities for the I-64 corridor were examined.

While some TSM/TDM strategies have the potential to result in slight reductions in peak hour traffic volumes or slight shifts in traffic away from peak hours and towards off-peak hours, they could not reasonably be expected to impact traffic volumes on I-64 to the extent needed to preclude the need for mainline and interchange improvements. For the I-64 mainline, the TSM/TDM strategies would not provide any substantial improvements to the capacity nor remove enough vehicle trips required to obtain an acceptable LOS needed to meet either the existing or design year 2040 capacity needs for traffic on I-64. In evaluating the 25 interchange areas, TSM/TDM options could provide some improvements to existing geometric deficiencies such as capacity at the ramps, weaves and intersections and thus address some of the safety issues that arise from those deficiencies. However, the TSM/TDM strategies would not include any major work needed for interchange configurations such as reconstructing ramps and structures, and therefore these elements that contribute to the safety issues would continue. Therefore, the TSM/TDM strategies alone would not meet the purpose and need of the study and were not

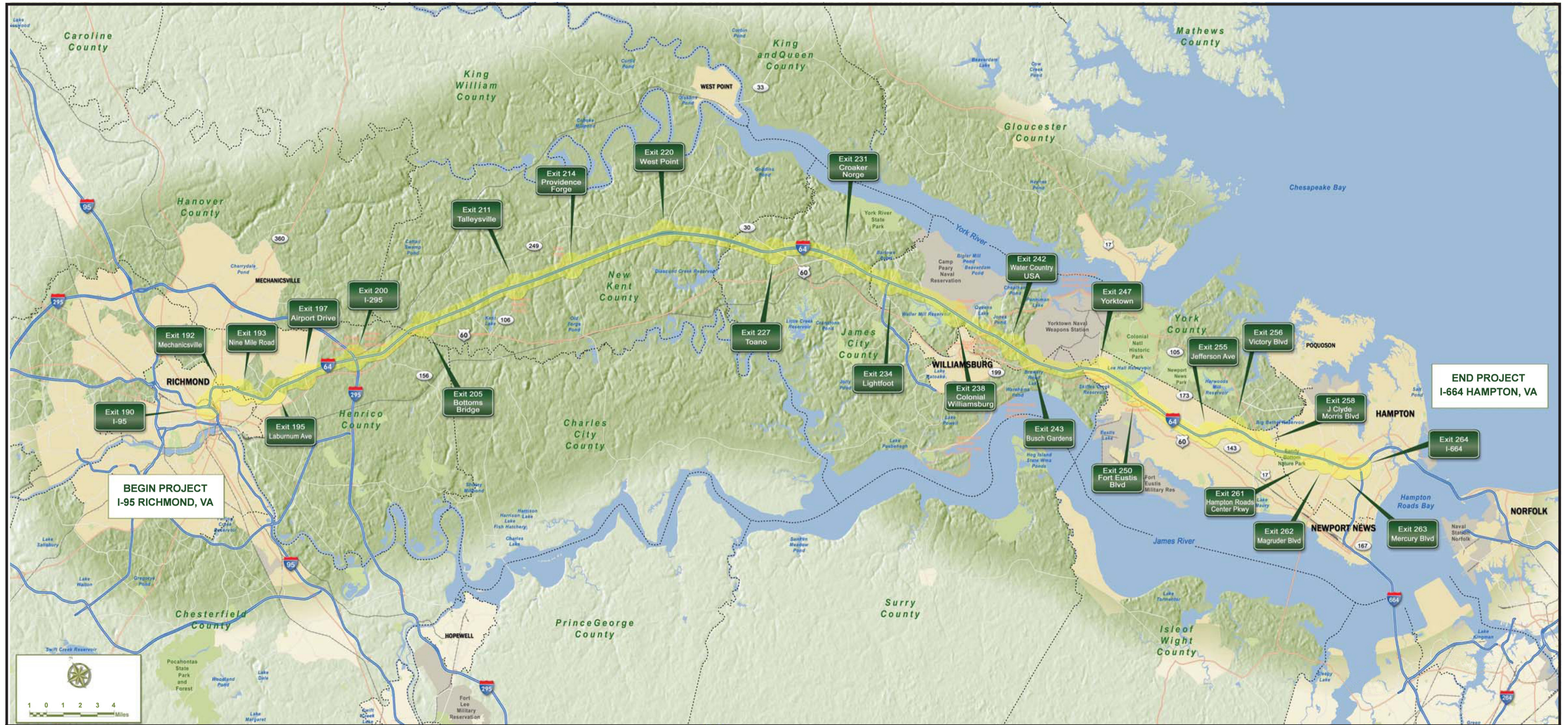


Figure ES.1
Project Location



EXECUTIVE SUMMARY

carried forward for detailed study as an individual, stand alone alternative. However, TSM/TDM improvements can be pursued independently or as part of one of the Build Alternatives to provide for low-cost options for improving the transportation conditions within the I-64 study area.

Passenger/Freight Rail – As part of the intermodal study conducted for this study, both existing and planned passenger and freight railroad services were examined. Within the I-64 study area, there are two principal rail transportation facilities: (1) the existing CSX Transportation (CSXT)/Amtrak route from the City of Richmond to the City of Newport News, north of the James River on the Virginia Peninsula (Peninsula/CSXT) and (2) the Norfolk Southern Corporation (NS) rail route, south of the James River between the City of Petersburg and the City of Norfolk (Southside/NS). The Peninsula/CSXT route is parallel to I-64 while the Southside/NS route is parallel to U.S. 460. Improvements are currently planned and underway for both corridors.

In investigating passenger rail, the Virginia Department of Rail and Public Transportation (VDRPT) prepared the *Richmond/Hampton Roads Passenger Rail Tier I Final Environmental Impact Statement (EIS)* which evaluated multiple options for passenger rail in the City of Richmond to the Hampton Roads region, including the I-64 study area. As stated in the *Tier I Final EIS*, high-speed intercity passenger rail service attracts different types of ridership, and therefore it is unlikely that the additional rail trips generated by the Preferred Alternative would cause a measurable reduction in automobile traffic on major highways such as I-64 and I-95. In specifically examining the potential effects on traffic on I-64, the *Tier I Final EIS* states that a reduction of vehicles caused by diversion to rail would amount to only approximately 0.7% to 2.3% reduction in traffic on I-64 when using 2025 traffic volumes. This fraction is small enough that the resulting decrease in traffic would not be measurable, given the normal daily and seasonal fluctuations in traffic volume.

In investigating freight rail, a published report by the primary area railroads, *Freight Rail Investing in Virginia* (CSXT and NS, 2005) provides details on freight transportation within the Hampton Roads area and the City of Norfolk. One of their main cargo shipments is export coal. CSXT and NS projections estimate that the total tonnage of export coal would increase and that CSXT's freight trains on the Peninsula/CSXT route would increase by 70% between 2007 and design year 2040. With this increase CSXT recognizes that it needs to improve the freight service along the

Peninsula/CSXT Line and is evaluating projects to add passing siding and/or a second track throughout the corridor. Since most of the of CSXT Peninsula trains currently carry export coal, and export coal would not likely be carried by trucks in the future, the freight rail improvements on the Peninsula/CSXT Route would have little impact on the I-64 truck traffic.

Overall, the passenger and freight rail improvements that have been identified are not expected to remove enough general purpose vehicle trips from I-64 to obtain acceptable LOS needed to meet either the existing or design year 2040 capacity needs for traffic on I-64. New or improved rail lines and/or facilities within the I-64 corridor would not address the roadway deficiencies and safety needs identified for this study. Therefore, rail improvements would not meet the purpose and need of this study and were not carried forward for further study.

Highway Build Alternatives Considered and Not Carried

Forward – Throughout the development of the Build Alternatives, an emphasis was placed on designing Alternatives which would meet the study purpose and need along with the established design criteria. Specific to meeting the study needs for capacity, the future (design year 2040) traffic volumes were projected and analyzed. As described in **Chapter I - Purpose and Need** and in the **Traffic and Transportation Technical Memorandum**, a LOS criteria of C or better was established for the I-64 mainline and for the merges/diverges/weaves. **Figures I.4 and I.10** in the **Chapter I - Purpose and Need** show the 2011 Base Conditions LOS and projected design year 2040 No-Build LOS for the corridor which was used to determine the number of lanes needed to address the capacity needs. The Build Alternatives developed were then specifically designed to include the number of lanes needed to achieve or exceed these LOS goals. The Alternatives that did not meet the LOS needs were not carried forward for further study. The Build Alternatives that were determined to meet these criteria were retained for detailed study and are described below.

2. Alternatives Analyzed in the Draft EIS

The Alternatives retained for detailed analysis in the **Draft EIS** include a No-Build Alternative and five separate highway Build Alternatives including:

- Alternative 1A – adding general purpose lanes to the outside of the existing general purpose lanes.
- Alternative 1B – adding general purpose lanes in the median.

- Alternative 2A – adding lanes to the outside and tolling all lanes.
- Alternative 2B – adding lanes to the median and tolling all lanes.
- Alternative 3 – adding managed lanes to the median.

These five Build Alternatives were specifically designed to meet the identified purpose and need of the study and thus were retained for analysis in the **Draft EIS**. This analysis has also been carried over to this **Final EIS**.

No-Build Alternative – The No-Build Alternative serves as a base line for the comparison of future conditions and impacts. The No-Build Alternative assumes that the projects currently programmed and funded in VDOT Fiscal Year 2013-2018 Six-Year Improvement Program (SYIP) would be implemented. In addition to the programmed VDOT projects, the Tidewater Super-Regional Travel Model developed by VDOT and used for this study includes other projects within the corridor that are part of the *Richmond Area Metropolitan Planning Organization (MPO) 2035 Long-Range Transportation Plan (LRTP)*, and the *Hampton Roads Transportation Planning Organization's (TPO) 2034 LRTP*, as well as the *2035 Rural LRTPs* (which are not fiscally-constrained) for the Richmond Regional Planning District Commission and the Hampton Roads TPO. Those projects form a part of the Base Conditions and the effects of these projects on I-64 traffic are accounted for in the design year 2040 No-Build analyses.

Alternatives 1A/1B General Purpose Lanes – These Alternatives involve adding additional general purpose travel lanes to the I-64 mainline to achieve a LOS C or better in the design year 2040. Although there are numerous possible combinations for adding these lanes, the analysis focused on adding the needed lanes within the existing right of way, to the greatest extent practicable, to either the outside of the existing lanes, which is Alternative 1A, or to the inside of the existing lanes within the median, which is Alternative 1B. For Alternative 1B, the lanes are also proposed in the median to the greatest extent practicable. However, not all sections of the corridor have sufficient median area to accommodate the needed additional lanes so in these areas the additional lanes are proposed to the outside of the existing general purpose lanes, with an effort to keep the proposed improvements within the existing right of way to the greatest extent practicable. Based on the conceptual engineering performed for Alternatives 1A/1B less than 10% or 13 miles of the 150 mile I-64 corridor (75 miles in each direction) may require additional right of way for the mainline widening

EXECUTIVE SUMMARY

improvements. The areas which may require additional right of way are located in the most urban areas of the corridor located at the western end in the City of Richmond and at the eastern end in the Cities of Newport News and Hampton.

For the 25 existing interchanges within the study area corridor, geometric deficiencies were examined along with design year 2040 traffic volumes and resulting LOS at each interchange location. Conceptual designs were investigated that would accommodate the future traffic, and assumptions were made and applied to each interchange to establish a study footprint that would allow for enough flexibility during the final design stage to accommodate other concepts not yet examined. Further engineering and traffic analyses would be performed at each interchange as the project progresses. During the *Interchange Modification Report* (IMR) process, which is required by FHWA before any changes can be made to interstate interchanges, each of these interchange configurations would serve as a starting point to be further studied and refined with a more in-depth examination of the needs at each location, in order to produce a constructible design.

The planning level estimated cost for Alternative 1A ranges from \$4.7 - \$7.3 billion. The planning level estimated cost for Alternative 1B ranges from \$4.7 to \$7.2 billion. Details of the cost estimates are included in **Table 5** of the *Alternatives Development Technical Memorandum*. This cost estimate, along with the estimates made for the other Alternatives analyzed in the **Draft EIS**, is preliminary and is used to inform the public and other stakeholders reviewing the **Draft** and **Final EIS**.

Alternative 2A/2B Full Toll Lanes – These Alternatives evaluate the impacts of tolling the entire facility. Because the use of tolls could be an option as a fund source to accomplish the needed improvements, alternatives that involve tolling were considered in the range of possible alternatives evaluated. For the purposes of this study, it was assumed that if the facility is tolled, the tolling would be for all vehicles traveling in both directions and for the entire length of the corridor from I-95 in the City of Richmond to I-664 in the City of Hampton. It was also assumed there would be toll collection stations, using overhead gantries and all-electronic tolling, for every interchange-to-interchange section of I-64. If Alternative 2A or 2B is selected, subsequent studies would refine the specifics of the tolling, such as whether or not it would encompass the entire length of the I-64 corridor along with the number and placement of the toll collection stations.

In order to determine the number of lanes needed for Alternatives 2A/2B, the traffic studies included a toll diversion analysis. As a result of this analysis, the tolling of I-64 is expected to have either a neutral effect or result in a decrease in traffic volumes on the I-64 mainline due to people choosing to avoid a tolled I-64 and using other parallel routes instead. The tolls are not expected to result in increased volumes at any location on the I-64 mainline. This analysis indicated possible reductions to traffic on the I-64 corridor, however these reductions are not projected to change the number of lanes needed to achieve a LOS C or better in the design year 2040 from those indicated for the General Purpose Lanes Alternatives. Therefore, the proposed disturbance limits for Alternatives 2A or 2B would be the same as Alternatives 1A or 1B, respectively.

Although there are numerous possible combinations for adding these lanes, the analysis focused on adding all that is needed within the existing right of way, to the greatest extent practicable, to either the outside of the existing lanes, which is Alternative 2A, or to the inside of the existing lanes within the median, which is Alternative 2B. For Alternative 2B, the lanes are also proposed in the median to the greatest extent practicable. However, not all sections of the corridor have sufficient median area to accommodate the needed additional lanes so in these areas the additional lanes are proposed to the outside of the existing general purpose lanes. Based on the conceptual engineering performed for Alternatives 2A/2B less than 10% or 13 miles of the 150 mile I-64 corridor (75 miles in each direction) may require additional right of way for the mainline widening improvements. The areas which may require additional right of way are located in the most urban areas of the corridor located at the western end in the City of Richmond and at the eastern end in the Cities of Newport News and Hampton.

In addition to the mainline improvements, due to only modest changes in traffic volumes, as determined in the toll diversion analysis, Alternatives 2A/2B also include the same improvements to the 25 interchanges as described with Alternatives 1A/1B.

The planning level estimated costs for Alternatives 2A and 2B range from \$4.8 to \$7.3 billion each. Details of the cost estimates are included in **Table 5** of the *Alternatives Development Technical Memorandum*. Each cost estimate is preliminary and would be refined if an Alternative is advanced. If any of the Alternatives that include tolling had been identified as the Preferred Alternative, additional information on collection stations (including the use of overhead gantries and all-electronic tolling), as well as

financial studies and subsequent traffic studies would have been developed.

Alternative 3 Managed Lanes – This Alternative involves the addition of separated, managed lanes located in the median. These managed lanes were examined for the entire length of the I-64 study area from Exit 190 (I-95) in the City of Richmond to Exit 264 (I-664) in the City of Hampton. As previously described, not all sections of the I-64 corridor have sufficient median area to accommodate the addition of any lanes. In these areas, the facility is proposed to be widened to the outside of the existing general purpose lanes in order to accommodate the managed lanes in the median between the eastbound and westbound general purpose travel lanes. Based on the conceptual engineering performed for Alternative 3 approximately 2% or three miles of the 150 mile I-64 corridor (75 miles in each direction) may require additional right of way for the mainline widening improvements. The areas which may require additional right of way are located in the most urban areas of the corridor located at the western end in the City of Richmond including both eastbound and westbound lanes between Exits 190 (I-95) and Exit 192 (Mechanicsville Turnpike).

Managed lanes can refer to many different strategies, including:

- High Occupancy Vehicle (HOV) Lanes.
- High Occupancy Toll (HOT) Lanes.
- Express Toll Lanes (ETL).
- Express Bus Lanes (EBL).

For any of the managed lanes that involve toll collection (HOT or ETL lanes), traditional toll plazas were not included. Rather, the toll collection would be conducted by overhead gantries with all-electronic tolling used to collect all tolls at highway speeds. This study does not identify what type of managed lanes would be constructed under this Alternative. Based on the results of the capacity analysis, the lane configurations developed for Alternative 3 along the I-64 corridor are described in **Table ES.1**.

In addition to the mainline improvements, due to only modest changes in traffic volumes, Alternative 3 also includes the same improvements to the 25 interchanges as described in Alternatives 1A/1B and 2A/2B.

The planning level cost estimate for Alternative 3 ranges from \$4.7 to \$7.3 billion, however this does not include potential costs for tolling gantries and equipment which could vary depending on the type of managed lanes implemented. Details of this cost estimate are included in **Table 5** of the *Alternatives Development*

EXECUTIVE SUMMARY

Table ES.1: Alternative 3 Characteristics*

From	To	Number of Managed Lanes Located in the Median Area**	Number of Additional General Purpose Lanes Added to the Outside
Exit 190 (I-95)	Exit 205 (Bottoms Bridge)	2 (Reversible)	0
Exit 205 (Bottoms Bridge)	Exit 247 (Yorktown)	2 (1 in each direction)	0
Exit 247 (Yorktown)	Exit 264 (I-664)	4 (2 in each direction)	One additional westbound lane from Exit 264 (I-664) to Exit 258 (J. Clyde Morris Boulevard)

* If Alternative 3 was identified as the Preferred Alternative, subsequent studies would define the specific type of managed lanes, lane needs and locations, access to and from the managed lanes, and end points and transition zones for the managed lanes along with the needed general purpose lanes.

** Not all sections of the I-64 corridor have sufficient median area to accommodate the addition of any lanes. In these areas, the facility is proposed to be widened to the outside in order to accommodate the managed lanes in between the eastbound and westbound general purpose travel lanes.

Technical Memorandum. If Alternative 3 had been identified as the Preferred Alternative, additional analysis would have been required to refine the specifics of the managed lanes throughout the I-64 corridor.

3. Preferred Alternative

Alternative 1 has been identified as the Preferred Alternative. Alternative 1 is within the range of options provided by Alternatives 1A and 1B. The basis for section of Alternative 1 as the Preferred Alternative is described in **Chapter II – Alternatives Considered, Section D** of this **Final EIS**. Alternative 1 allows the option to widen to the outside of the existing road corridor or within the median of the existing road corridor.

The number of lanes that are proposed to be added to the I-64 mainline under Alternative 1, along with typical sections, is the same as proposed under Alternative 1A and Alternative 1B. Like Alternatives 1A and 1B, Alternative 1 is designed to keep the proposed improvements within the existing right of way to the greatest extent practicable. As discussed for Alternatives 1A and 1B, confining future improvements to the existing right of way would not always be possible. For the purpose of the impact analysis in this **Final EIS**, Alternative 1 is assumed to have the same footprint as Alternative 1A. Since Alternative 1A widens to the outside of the existing roadway, this assumption provides the most conservative assessment of environmental impacts.

The projected capital cost in 2017 dollars is estimated to range between \$4.7 to \$7.3 billion. Details on these costs are shown in the **Alternatives Development Technical Memorandum** and in the **Right of Way Technical Memorandum**.

On June 19, 2013, the Commonwealth Transportation Board (CTB) approved the 2014-2019 SYIP that includes \$100 million in funding for Capacity Improvements to I-64 from the City of Newport News to the City of Williamsburg. The Hampton Roads TPO approved and adopted a resolution on June 20, 2013, endorsing the expansion of the operationally independent section of I-64 from Exit 255 (Jefferson Avenue) to Exit 242 (Humelsine Parkway) to six lanes, on the condition that this preference would not preclude the I-64 Peninsula expansion to eight lanes or future associated funding. Currently, the portion of I-64 identified in the Hampton Roads TPO resolution is proposed to become the first section advanced from this study. A copy of this resolution is included in **Appendix J – Resolutions** of this **Final EIS**. Additional operationally independent sections may be included in future planning documents, as described in **Section 2A of Appendix L - Phased Approach for Implementation - NEPA Process**.

4. Phased Approach for Implementation and Future NEPA Process

The Metropolitan Planning Regulations (23 CFR 450) and the Clean Air Act (CAA) Transportation Conformity Rule (40 CFR

93) require that a project located in a metropolitan planning area and/or in a CAA nonattainment or maintenance area be contained in a conforming, fiscally-constrained LRTP. FHWA may issue a **Record of Decision (ROD)** only if the project improvements are included in a conforming, fiscally-constrained LRTP.

As further discussed in **Appendix L - Phased Approach for Implementation - NEPA Process**, the implementation of Alternative 1 would occur via the construction of operationally independent sections as funding is identified. Operationally independent sections would have independent utility and would be designed to contribute to the purpose and need of the *I-64 Peninsula Study* (**Chapter I – Purpose and Need**). An operationally independent section can be built and function as a viable transportation facility even if the rest of the work described in this **Final EIS** is never built. It is possible that the full number of lanes associated with the Preferred Alternative for a particular operationally independent section may not be constructed initially. The **Final EIS** does not place any restrictions on the phasing for construction purposes for the operationally independent sections. Therefore, each future analysis update will be based on the scope of the operationally independent section to be covered by the **ROD**. As an operationally independent section is advanced, the environmental analysis in this **Final EIS** would be updated as necessary and, provided that the section has met the transportation planning and air quality requirements, FHWA would issue a **ROD** for that section.

The decision on whether to widen to the outside or the inside of the roadway would be made on a section-by-section basis, and the development of these operationally independent sections would be closely coordinated with the Richmond Area MPO, Hampton Roads TPO, and other state and federal resource and regulatory agencies. If any operationally independent sections have a cost that exceeds \$500 million, then the section would be considered a major project and a cost estimate review would be conducted by FHWA prior to the issuance of a **ROD** for the operationally independent section.

The identification of a Preferred Alternative for the entire corridor in this **Final EIS** is consistent with FHWA's objective of analyzing transportation solutions on a broad enough scale to provide meaningful analysis. The identification of an initial phase for implementation is consistent with the federal requirement to have funding identified before a **ROD** is issued.

EXECUTIVE SUMMARY

Table ES.2: Summary of Impacts

Category	Resource/Element Assessed	No-Build Alternative	Build Alternatives					
			Alternative 1* General Purpose Widening	Alternative 1A General Purpose Lanes Outside Widening	Alternative 1B General Purpose Lanes Median Widening	Alternative 2A Full Toll Lanes Outside Widening	Alternative 2B Full Toll Lanes Median Widening	Alternative 3 Managed Lanes with General Purpose Lanes
Right of Way and Relocations	Rural (number of parcels)	0	106	106	81	106	81	106
	Residential/Suburban Low Density (number of parcels)	0	418	418	410	418	410	413
	Outlying Business/Suburban High Density (number of parcels)	0	213	213	201	213	201	208
	Central Business District (number of parcels)	0	52	52	51	52	51	52
Socioeconomic and Environmental Justice	Disproportionate Impacts to Minority and Low Income Populations	0	No	No	No	No	No	No
	Estimated Lost Tax Revenue (dollars)	0	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Natural Resources	Wetlands Crossed – Tidal (acres within the limits of disturbance)	0	28	28	28	28	28	28
	Wetlands Crossed – Non-Tidal (acres within the limits of disturbance)	0	38	38	37	38	37	39
	Other Waters of the US Crossed – Tidal (linear feet within the limits of disturbance)	0	3,012	3,012	2,932	3,012	2,932	2,936
	Other Waters of the US Crossed – Non-Tidal (linear feet within the limits of disturbance)	0	109,225	109,225	110,612	109,225	110,612	109,580
	VDEQ 2010 Impaired Waters Crossed (number)	0	9	9	9	9	9	9
	100-Year Floodplains Crossed (acres within the limits of disturbance)	0	21	21	18	21	18	21
	Public Reservoirs Crossed, Including Tributaries (number)	0	5	5	5	5	5	5
Farmlands	Threatened and Endangered Species Habitat/Populations (number of species with potential habitat within the limits of disturbance)	0	3	3	3	3	3	3
	Prime Farmlands (acres)	0	65	65	65	65	65	65
	Farmlands of Statewide Importance (acres)	0	37	37	37	37	37	37
Public Parklands	Agricultural/Forestal Districts (acres)	0	1	1	<1	1	<1	1
	Park Facilities Affected (number)	0	2	2	2	2	2	2
Historic Properties	Use of Park Facilities (acres)	0	34	34	34	34	34	34
	Historic Sites/Districts Affected (number)	0	2	2	2	2	2	2
Air Quality	Archaeological Sites Affected (number)	0	6	6	6	6	6	6
	Battlefields Affected (number)	0	8	8	8	8	8	8
Noise	Conforms to National Ambient Air Quality Standards	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Common Noise Environments (number)	66	66	66	66	66	66	66
	Residences Impacted (number)	1,262	1,262	1,262	1,190	1,262	1,190	1,156
	Churches/Parks/Schools/Athletic Fields Impacted (number)	5	5	5	5	5	5	4
Contaminated Sites	Proposed Noise Barriers (number/linear feet)	0	39,376	39,376	39,376	39,376	39,376	37,321
	Sites Identified for Further Investigation (number)	0	13	13	13	13	13	13
Visual	Adversely Affected Visually Sensitive Areas	0	0	0	0	0	0	0
Capital Cost**	Cost in Billions (average expressed in year 2017 dollars)	0	\$4.7 - \$7.3	\$4.7 - \$7.3	\$4.7 - \$7.2	\$4.8 - \$7.3	\$4.8 - \$7.3	\$4.7 - \$7.3

*The Preferred Alternative has been identified as Alternative 1. To provide for the most conservative assessment of impacts, Alternative 1 is assumed to have the same footprint as Alternative 1A.

Details of the cost estimates are included in **Table 5 of the *Alternatives Development Technical Memorandum*.

EXECUTIVE SUMMARY

It is important to note that projects to maintain and improve the facility such as, but not limited to, the repair or replacement of pavement sections, bridges, guard rails, fencing, barriers, or other structures and implementation of additional intelligent transportation systems, could be implemented independently of operationally independent sections.

D. Environmental Impacts

A comprehensive investigation of each Alternative's impacts to the natural, historic and human environments was completed as part of this study. Impacts were identified based on the potential limits of disturbance footprint determined from the conceptual designs for each of the Build Alternatives. The impacts identified for each of the Build Alternatives were developed based on the best available estimate of potential impacts resulting from the current stage of project development and the level of conceptual engineering investigations. **Table ES.2** provides a summary of the impacts. The details of these impact investigations are found in **Chapter III - Environmental Resources, Impacts and Mitigation** of this **Final EIS** and in the following Technical Memorandums and documentation completed for this study:

- *Air Quality Technical Memorandum.*
- *Alternatives Development Technical Memorandum.*
- *Historic Properties Documentation.*
- *Indirect and Cumulative Effects Technical Memorandum.*
- *Natural Resources Technical Memorandum.*
- *Noise Technical Memorandum.*
- *Purpose and Need Technical Memorandum.*
- *Right of Way Technical Memorandum.*
- *Socioeconomic and Land Use Technical Memorandum.*
- *Traffic and Transportation Technical Memorandum.*

E. Other Major Actions and Proposals

In addition to the projects identified in VDOT SYIP and outlined in the No-Build Alternative for the 75 mile long project corridor, there are a number of other major actions and proposals within and adjacent to this study area being pursued or recently completed by government agencies. At the time of this document other actions identified include the following:

- The VDRPT *Richmond/Hampton Roads Passenger Rail Study* was completed for enhanced passenger rail service between the

City of Richmond and the Hampton Roads area. The *Record of Decision* was approved by the Federal Railroad Administration on December 7, 2012.

- The *Hampton Roads Regional Transit Vision Plan* provided high level recommendations for regional transit in the Hampton Roads area. The final report outlining numerous regional transit projects was completed in February 2011.
- The City of Newport News is currently engaged in designing the extension of Atkinson Boulevard which would include a new bridge over I-64.
- The City of Newport News is seeking services for master planning, business modeling, engineering and project management services related to a multi-modal transportation center and a supplementary downtown transit facility.
- VDOT and FHWA are conducting a study of the I-64 Hampton Roads Bridge-Tunnel corridor from I-664 in the City of Hampton to I-564 in the City of Norfolk.

F. Public and Agency Input

A comprehensive agency and public involvement program was completed for the study. This effort included 15 meetings and continuous telephone and e-mail coordination with interested citizens, organizations and agencies on a wide variety of topics. Throughout this coordination the following are the most notable project concerns that were expressed about the study.

Project Schedule/Timing for Construction – Throughout the public and agency interactions the topic of project schedule, including the timing for construction and project completion, was raised. Citizens and organizations were interested in how to quickly get the project moving and completed in order to address the project need.

Construction Travel Effects – In examining the large scale investment needed to complete a project of this magnitude the topic of investigating ways to construct the project was raised. Citizens asked about how the construction would occur and how it would affect travel time throughout the corridor.

Maintaining Trees in the Median – It has been expressed by a variety of citizens and organizations that it is important to preserve the aesthetics of the corridor by retaining the wooded median, particularly in the section of I-64 through the historic triangle area comprised of the Cities of Williamsburg and Yorktown and Jamestown.

Noise Impacts and Noise Walls – Throughout the public involvement process concerns were raised about the amount of increased noise additional lanes and increased traffic volumes on I-64 would generate. Concerns raised included the need to build new noise walls and how to maintain/rehabilitate the existing noise walls along I-64. Questions on the locations, types and colors of walls were expressed. The noise concerns were primarily concentrated in the urban areas near the City of Richmond on the western end and near the Cities of Newport News and Hampton on the eastern end of the study area.

Do Improvements Quickly and in Sections – Recognizing the magnitude of funding needed to construct the entire 75 mile project, it has been expressed that improvements be done in phases beginning with the most needed sections of I-64 and associated interchanges to improve safety and traffic conditions as soon as possible. These suggestions have included advancing improvements to the mainline section of I-64 between the Cities of Williamsburg and Newport News along with improving the Exit 250 (Fort Eustis Boulevard) and Exit 247 (Yorktown) interchanges since they have the highest accident rates.

Timing of this Project with the Hampton Roads Bridge-Tunnel Study – In examining the regional traffic flow on I-64, concerns have been raised as to the timing and interaction between this study and the *Hampton Roads Bridge-Tunnel Study*. Since both of these projects have a common end point at the Exit 264 (I-664) interchange, concerns have been raised as to the timing and viability of both large scale projects being completed.

G. Unresolved Issues

The following are the unresolved issues at the time of this **Final EIS**.

MPO/TPO Actions – Following the publication of the **Final EIS**, it is anticipated that the Richmond Area MPO and the Hampton Roads TPO would update their respective LRTPs to identify operationally independent section(s) as funding becomes available. Once that occurs and the environmental analyses are updated as necessary, FHWA would issue a **ROD** for that section.

Funding – The implementation of Alternative 1 would occur via the construction of operationally independent sections as funding is identified. Operationally independent sections would be designed to contribute to the purpose and need of the study (**Chapter I – Purpose and Need**). It is possible that the full number of

EXECUTIVE SUMMARY

lanes associated with the Preferred Alternative for a particular operationally independent section may not be constructed initially. The **Final EIS** does not place any restrictions on the phasing for construction purposes for the operationally independent sections. Therefore, each future analysis update will be based on the scope of the operationally independent section to be covered by the **ROD**, as further discussed in **Appendix L - Phased Approach for Implementation - NEPA Process**. As an operationally independent section is advanced, the environmental analysis in this **Final EIS** would be updated as necessary and, provided that the section has met the transportation planning and air quality requirements, FHWA would issue a **ROD** for that section.

On June 19, 2013, the CTB approved the 2014-2019 SYIP that includes \$100 million in funding for Capacity Improvements to I-64 from the City of Newport News to the City of Williamsburg. The Hampton Roads TPO approved and adopted a resolution on June 20, 2013, endorsing the expansion of the operationally independent section of I-64 from Exit 255 (Jefferson Avenue) to Exit 242 (Humelsine Parkway) to six lanes, on the condition that this preference would not preclude the I-64 Peninsula expansion to eight lanes or future associated funding. Currently, the portion of I-64 identified in the Hampton Roads TPO resolution is proposed to become the first section advanced from this study. A copy of this resolution is included in **Appendix J – Resolutions** of this **Final EIS**.

Tolling – As previously stated because the use of tolls could be an option as a fund source to accomplish the needed improvements, Alternatives that involve tolling were considered in the range of Alternatives evaluated. As described above and in detail in **Chapter 2 - Alternatives Considered, Section D** of this **Final EIS**, the Preferred Alternative has been identified as Alternative 1. If any of the Alternatives that include tolling had been identified as the Preferred Alternative, further information would have been developed.

H. Other Actions/Approvals Required

The construction of any of the Build Alternatives would require coordination with and approval from state and federal environmental resource and regulatory agencies. As previously noted, Alternative 1 allows the option to widen to the outside of the existing road corridor or within the median of the existing road

corridor. The decision on whether to widen to outside or the inside of the roadway would be made on a section-by-section basis, and the development of these operationally independent sections would be closely coordinated with the Richmond Area MPO, Hampton Roads TPO and other state and federal resource and regulatory agencies.

The following actions could be required for any operationally independent section.

- Waters of the United States, including wetlands, are regulated under Sections 401 and 404 of the Clean Water Act (CWA), the Virginia Water Protection Permit (VWPP) Program Regulation 9 VAC 25-210 and the Virginia Wetlands Act (Chapter 13, Title 28.2 of the Code of Virginia). There are both tidal and non-tidal wetland and stream systems located within the study area. Impacts to these systems resulting from the discharge of fill material into or otherwise encroachment in, on or over these systems may require a Section 404 United States Army Corps of Engineers (Corps) permit, a Virginia Department of Environmental Quality (VDEQ) VWPP, and a Virginia Marine Resources Commission (VMRC) Subaqueous Bottomlands Permit.
- Projects that are located within the Coastal Zone Management Area (CZMA) in Virginia which are, at least in part, federally-funded or require federal approval must undergo a federal consistency certification process. The goal of this process is to ensure that projects are designed to avoid and/or minimize impacts to specific coastal resources as identified by several enforceable policies related to fisheries, subaqueous lands, tidal and non-tidal wetlands, dunes, non-point and point source pollution control, shoreline sanitation, air pollution, and land management. In Virginia, the VDEQ is responsible for coordinating the Commonwealth's review of federal consistency determination and certification with the appropriate agencies and responding to the appropriate federal agency or applicant. While the Joint Permit Application process required for the Sections 401 and 404 of the CWA and VMRC permits (described above) would address the resources and requirements associated with the CZMA Program, the completion of the CZMA checklist may also be required.
- Navigable Waters of the United States are regulated by both the Corps and the U.S. Coast Guard (USCG) under Section

10 of the Rivers and Harbors Act of 1899. There are two tidal stream systems, and associated wetlands, which are considered navigable waters within the study area. Authorization for work in these waters would be required from the Corps. In addition, if impacts occur to the navigable waters, a USCG bridge permit may be required for the individual bridge crossing.

- A Stormwater Pollution Prevention Plan would need to be prepared and the Virginia Stormwater Management Program Permit would need to be acquired from the Virginia Department of Conservation and Recreation. In addition, the construction work must be completed in accordance with applicable local requirements and practices.
- There are nine surface waters intersecting the study area corridor that have been listed as impaired waters (Categories 4 and/or 5) on the VDEQ 2010 303(d) list. Relevant regulations and requirements including the strict adherence to appropriate erosion and sediment control measures, the appropriate use of fertilizers, limiting clearing practices, and the implementation of stormwater management plans designed specifically to address the particular condition as appropriate would need to be followed as part of construction.
- Due to the presence of federal and state listed threatened and endangered species and/or habitat documented within the vicinity of the study area, construction time-of-year restrictions may be required. These restrictions would be determined through the permitting process. Also, habitat assessments and species surveys may be required to determine the presence of a threatened or endangered species or habitat. These species surveys, if needed, would be completed by an agency certified or approved specialist, and may have restrictions on time-of-year when the surveys can be conducted. Additional design or construction considerations, such as the use of bubble curtains, maintaining construction buffer widths, etc., may also be requested or required by the agencies.
- For any adverse effect to Agricultural/Forestral Districts, close coordination with the appropriate localities, agencies, and affected property owners would be required to ensure that land use conversions are consistent with local land use policies and plans. Any land use conversions that are inconsistent with land use policies would require appropriate mitigation measures. Impacts to Agricultural/Forestral Districts would be coordinated with each of the localities prior to project commencement.

EXECUTIVE SUMMARY

- A Programmatic Agreement has been developed to satisfy the requirements under Section 106 of the National Historic Preservation Act, as outlined in 36 CFR 800.14(b)(ii), and can be found in **Appendix K - Programmatic Agreement** of this **Final EIS**. This Programmatic Agreement outlines the process by which historic properties potentially affected by the undertaking should be handled during final design and/or construction. This includes identification of archaeological resources, final effect determinations and opportunities to avoid, minimize or mitigate adverse effects on historic properties. As part of the commitments outlined in the Programmatic Agreement, consultation with consulting parties would continue for specific resource needs that may be identified. This coordination would be initiated by VDOT and FHWA as an operationally independent section is advanced. Details of this process can be found in **Appendix L - Phased Approach for Implementation - NEPA Process**.