

7 RECOMMENDED PREFERRED ALTERNATIVE



7 DRPT RECOMMENDED PREFERRED ALTERNATIVE

In this Draft Environmental Impact Statement (Draft EIS), the Virginia Department of Rail and Public Transportation (DRPT) has identified its Recommended Preferred Alternative for improvements within four of six alternative areas along the DC2RVA corridor based on the Purpose and Need for the Project and with consideration for potential environmental impacts within the respective areas. DRPT's Recommended Preferred Alternative is non-binding and is made available for public review and comment in this Draft EIS. FRA will fully consider comments received on DRPT's Recommended Preferred Alternative from the Draft EIS, or any subsequent additional analysis if required, and will confirm a selected Preferred Alternative for the full DC2RVA corridor in the Final EIS and Record of Decision (ROD).

DRPT fully considered the Project's Purpose and Need and all of the information and analysis contained in this Draft EIS in determining its Recommended Preferred Alternative. DRPT also evaluated impacts to the natural and human environment and assessed information on intercity passenger rail ridership, rail operations, cost, and constructability for each alternative. Finally, DRPT's Recommended Preferred Alternative was informed by extensive outreach and communications undertaken with the public, stakeholders, and elected officials in the DC2RVA corridor, plus prior corridor studies, including the 2002 Southeast High Speed Rail (SEHSR) Tier I EIS and Record of Decision.

DRPT's Recommended Preferred Alternative includes a service plan that would add nine additional daily intercity passenger round trips (18 trains per day). Five of these new round trips would provide regional service from Norfolk and Newport News through Richmond to Amtrak's Northeast Corridor, with one round trip originating at Richmond's Main Street Station. Four of these new round trips would provide interstate service from North Carolina through Virginia and continuing on to Amtrak's Northeast Corridor. From Washington D.C., all of these new trains would continue on to Philadelphia, New York, and Boston. The new service would be incorporated into Amtrak's intercity passenger rail network. DRPT's service plan also proposes a maximum authorized speed for the corridor of 90 mph (where practicable), and improved reliability of the intercity passenger train service.

As described in Chapter 2, DRPT evaluated rail alignment Build Alternatives in six alternative areas along the DC2RVA corridor, as well as the No Build Alternative, which was determined during the SEHSR Tier 1 EIS to not meet Purpose and Need. Each alternative area contains one or more Build Alternatives that include rail alignment and associated roadway and station work. The Recommended Preferred Alternative is a combination of one Build Alternative from each of the six alternative areas to form a contiguous "best-fit" alternative for the DC2RVA corridor, with the exception of two areas where further consideration is required: Area 1 (Arlington) and Area 5 (Ashland).

Figure 7.0-1 presents the DRPT Recommended Preferred Alternative and includes a brief summary for each alternative area. A more detailed discussion of DRPT’s Recommended Preferred Alternative for each alternative area is provided in the following sections.

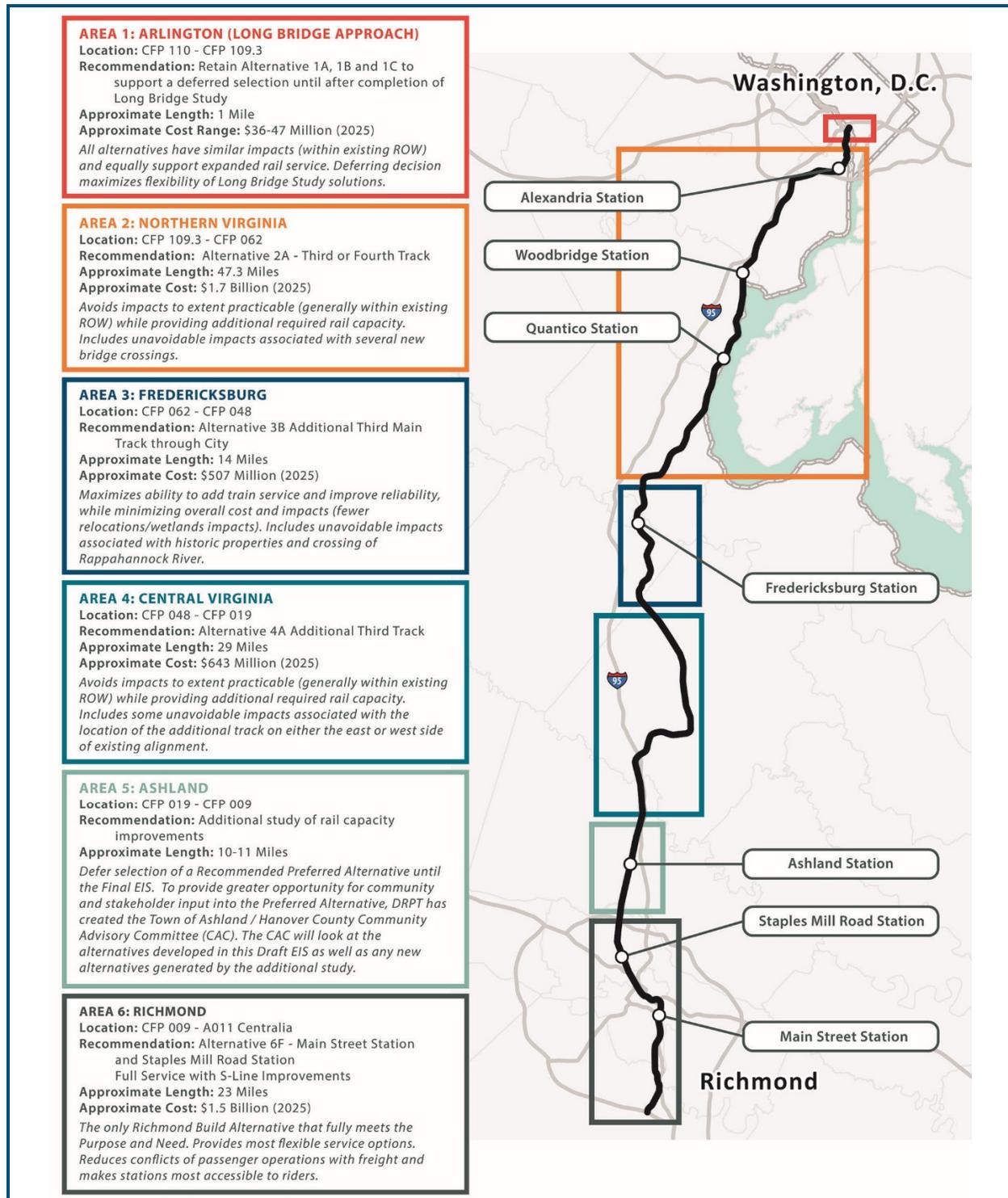


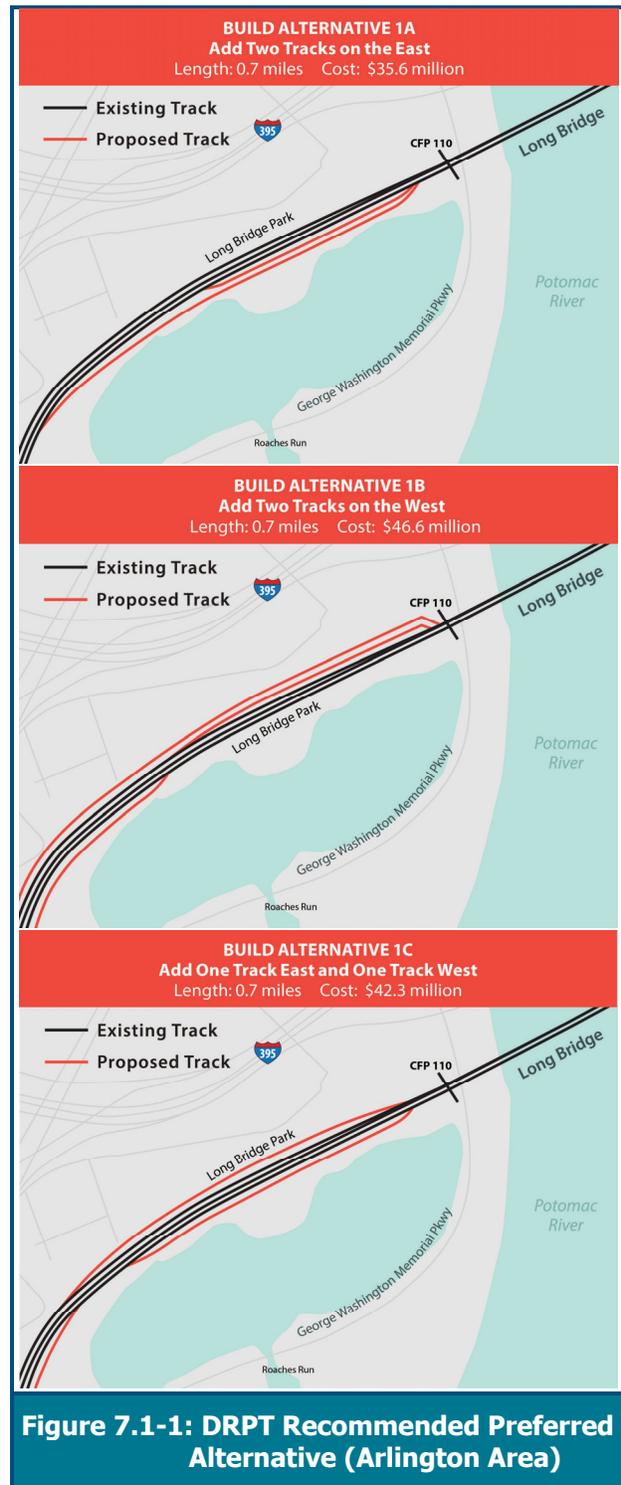
Figure 7.0-1: DRPT Recommended Build Alternative

7.1 ALTERNATIVE AREA 1: ARLINGTON LONG BRIDGE APPROACH—CFP 110 TO CFP 109.3

This less than one-mile-long section of the DC2RVA corridor provides the transition between the DC2RVA corridor and the approach to the Long Bridge across the Potomac River. DRPT is working with the District of Columbia Department of Transportation (DDOT) and FRA to evaluate possible alternatives for increasing the rail corridor’s capacity across the Potomac River via the Long Bridge as part of a separate EIS (Long Bridge Rail Capacity Study, anticipated to be completed in 2019). The DC2RVA Project assumes that expanded capacity across the Potomac River will be required to accommodate both the future year No Build and Build service plans expanded service south of Washington, D.C.

In this Draft EIS, DRPT is evaluating three different configurations for the short section of track south of the Potomac River, which will become the connection between the Long Bridge preferred alternative and the DC2RVA corridor. The maximum authorized speed in this section is designed for 45 mph. DRPT considered the environmental, social, and economic impacts of each of the three Build Alternatives, in addition to each alternative’s ability to meet the Project Purpose and Need. DRPT determined that each of the three Build Alternatives (1A, 1B, and 1C, as shown in Figure 7.1-1) are very similar in their impacts, and there are no overriding issues that would drive DRPT to select one over the other. Therefore, to avoid unnecessarily limiting the options that could be considered as part of the separate DDOT Long Bridge study, DRPT determined that any of the three Build Alternatives would be acceptable and recommends retaining all three Build Alternatives in order to support a deferred selection of a preferred alternative

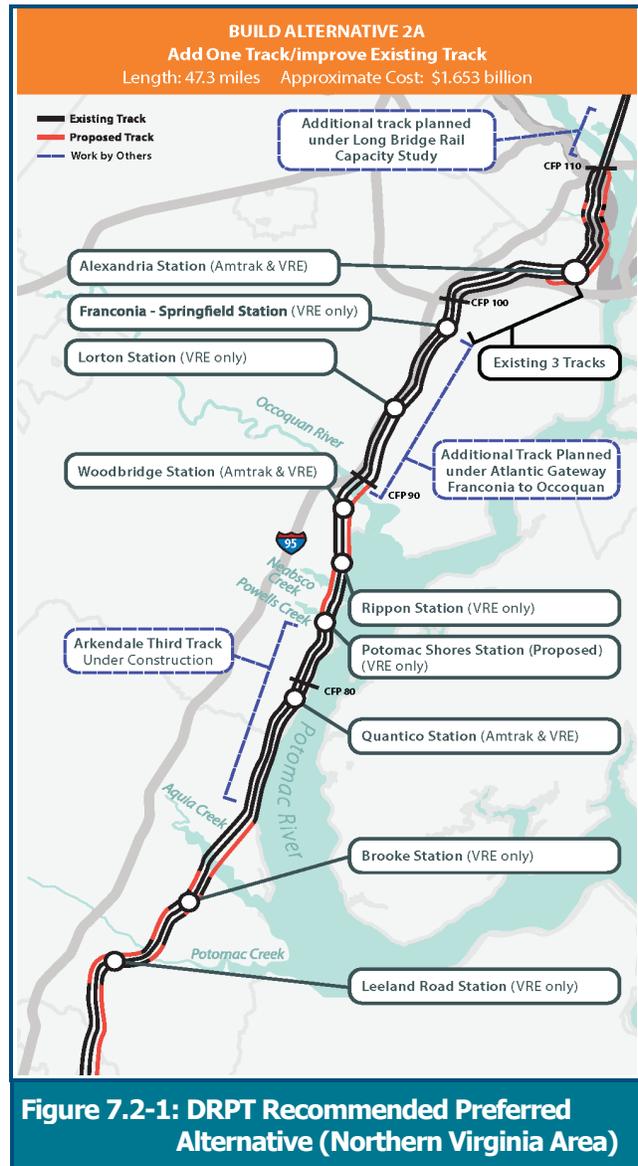
to physically align with the preferred alignment of the Long Bridge EIS study. DRPT is participating as a cooperating agency in the Long Bridge Study and will more fully discuss the selection of a preferred alternative for Area 1 in the DC2RVA Final EIS.



7.2 ALTERNATIVE AREA 2: NORTHERN VIRGINIA CFP 109.3 TO CFP 62

DRPT determined that additional rail capacity is required in the Northern Virginia area to increase train service and improve reliability. This Draft EIS evaluates the impacts of a single alternative (**Build Alternative 2A: Add One Track/Improve Existing Track**, as shown in Figure 7.2-1): constructing one additional main line track adjacent to the existing tracks in some sections and no additional track in some sections to create a corridor with four interoperable main tracks north of Alexandria and three interoperable main tracks from Alexandria to Fredericksburg. Due to constraints of the geography through this location, the maximum authorized speed in this section is designed for 79 mph.

DRPT determined that because this alternative would generally be located within the existing CSXT right-of-way, it avoids impacts to the natural and human resources to the extent practicable. This alternative does have some unavoidable impacts, including those associated with several new bridge crossings of major waterways. Table 7.2-1 summarizes the performance of Build Alternative 2A against the Purpose and Need evaluation criteria and its impact on the human and natural environment.



Occoquan River Bridge

Table 7.2-1: Evaluation of Northern Virginia Area Alternative Against the Purpose and Need and Its Impact on the Human and Natural Environment

Purpose and Need Elements & Summary of Factors Considered ¹	2A. Add One Track/Improve Existing Track
Provide an efficient and reliable multimodal rail corridor	
Impacts to human and natural resources (detailed list of impacts is in Chapter 4):	
Wetland impacts	5.19 acres
Section 4(f) park impacts	0.04 acres
Historic properties impacts	1 property affected
Right-of-way acquisition	33 acres
Residential relocations	2 residences relocated
Commercial relocations	0
Optimizes cost:	
Construction costs (2025) ²	\$1,652.6 million
Increase the capacity of the multimodal rail system through infrastructure improvements	
Increases multimodal rail capacity	Yes
Improve the frequency of passenger rail operations (Refer to Area 6 Richmond for values)	
Supports ridership demand within the corridor and beyond	Yes
Increases passenger train frequency by up to 9 round trips per day	Yes
Improve the reliability of passenger rail operations (Refer to Area 6 Richmond for values)	
Passenger Train On-Time Performance (2045 OTP)	Supports the DC2RVA proposed service plan for on-time performance
Improve the travel time of passenger rail operations (Refer to Area 6 Richmond for values)	
Travel time DC-Richmond	Supports the DC2RVA proposed service plan for reduced travel time
Accommodate VRE commuter rail service operations	
Accommodates VRE commuter rail service operations	Incorporates VRE planned infrastructure improvements at VRE stations and integrates VRE schedules.
Accommodate freight rail service operations	
Freight time delay (2045)	Does not increase impacts to freight time delay
Accommodates rail freight future growth, yard operations, access to local customers, and sidings for crew changes and layovers	Yes
Improve modal connectivity with other public transportation systems	
Aligns with FRA and Amtrak guidelines for station facilities, and state and local plans	Yes
At-grade crossing total daily delay (% change from No Build)	1% decrease
Changes in roadway travel patterns (% change in traffic, adjacent roadways at stations)	<1%
Improve multimodal rail operations safety	
Grade-separation of public at-grade crossings	0
Closure of public at-grade crossings	1
Safety improvements of public at-grade crossings (four quadrant gates and/or median treatment)	2
New public crossings	0
Provides platform and station improvements	Yes
Provides upgrades to signals and communication systems	Yes
Improve Air Quality & Reduce Greenhouse Gas Emissions (Refer to Area 6 Richmond for values)	
Supports reduction of CO2 emissions	Yes
Supports decreases in energy consumption	Yes

Notes: 1) Refer to Chapter 2 and Chapter 4 of the Draft EIS for complete list of factors evaluated and the evaluation results for each Build Alternative. 2) Does not include rolling stock.

7.3 ALTERNATIVE AREA 3: FREDERICKSBURG DAHLGREN SPUR TO CROSSROADS—CFP 62 TO CFP 48

DRPT evaluated three Build Alternatives in the Fredericksburg area. The Recommended Preferred Alternative (**Build Alternative 3B: Add One Track East of Existing**, as shown in Figure 7.3-1) would add a new third main line adjacent to the existing tracks on the east, which would provide the capacity needed to increase train service and improve reliability. Due to constraints of the geography through this location, the maximum authorized speed in this section is designed for 79 mph where feasible.

Build Alternative 3A would maintain the existing two tracks through Fredericksburg. DRPT concludes that Build Alternative 3A would not provide the capacity needed to meet the DC2RVA service plan objectives. Build Alternative 3C would construct a two-track bypass to the east of Fredericksburg. While a new bypass would provide the capacity required to meet the DC2RVA service plan objectives, DRPT concludes that, compared with adding a new third main line through Fredericksburg, the bypass alternative would have greater cost and greater impacts to natural and human resources and would result in more residential relocations.

While the Recommended Preferred Alternative's impacts to historic resources would be greater than those of the two other Fredericksburg area Build Alternatives, it remains primarily within the existing CSXT right-of-way, and its impacts to wetlands and residential and commercial properties would be substantially lower than the bypass alternative (3C). Both Build Alternatives with additional track include new bridge crossings of the Rappahannock River, a parallel single-track bridge for Build Alternative 3B, and a new double-track bridge for Build Alternative 3C. The construction costs for Build Alternative 3B would be less than the bypass, and Build Alternative 3B is included in the *Fredericksburg Comprehensive Plan*. In summary, DRPT prefers Build Alternative 3B, adding one track in the existing alignment through the city, because it remains primarily within the existing CSXT right-of-way and minimizes overall impacts and costs while still providing improved operations for the DC2RVA corridor. Table 7.3-1 summarizes the performance of the Fredericksburg area Build Alternatives against the Purpose and Need evaluation criteria and their impact on the human and natural environment.

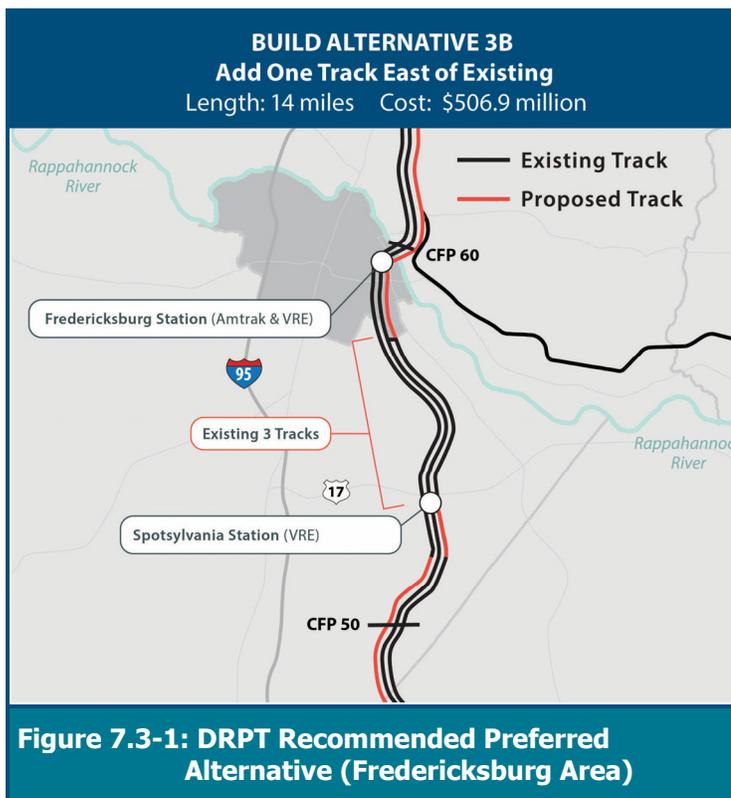


Table 7.3-1: Evaluation of Fredericksburg Area Alternatives Against the Purpose and Need and their Impact on the Human and Natural Environment

Purpose and Need Elements & Summary of Factors Considered ¹	Build Alternatives		
	3A. Maintain Two Tracks Through Town	3B. Add One Track East of Existing	3C. Add Two-Track Bypass East
Provide an efficient and reliable multimodal rail corridor			
Impacts to human and natural resources (detailed list of impacts is in Chapter 4):			
Wetland impacts	5.24 acres	5.29 acres	23.82 acres
Section 4(f) park impacts	0	0	0
Historic properties impacts (parks and historic properties)	1 property	5 properties	1 property
Right-of-way acquisition	2.2 acres	19.8 acres	140.5 acres
Residential relocations	0	0	19 residential relocations
Commercial relocations	0	1 commercial relocation	1 commercial relocation
Optimizes cost:			
Construction costs (2025 \$) (millions) ¹	\$240.2	\$506.9	\$977.5
Increase the capacity of the multimodal rail system through infrastructure improvements			
Increases multimodal rail capacity	No	Yes	Yes
Improve the frequency of passenger rail operations (Refer to Area 6 Richmond for values)			
Supports ridership demand within the corridor and beyond	Would not support the DC2RVA proposed service plan of 9 additional round trips	Supports the DC2RVA proposed service plan of 9 additional round trips	Supports the DC2RVA proposed service plan of 9 additional round trips
Increases passenger train frequency by up to 9 round trips per day	Yes	Yes	Yes
Improve the reliability of passenger rail operations (Refer to Area 6 Richmond for values)			
Passenger Train On-Time Performance (2045 OTP)	Does not meet DC2RVA service plan objectives for OTP	Supports the DC2RVA proposed service plan for on-time performance	Supports the DC2RVA proposed service plan for on-time performance
Improve the travel time of passenger rail operations (Refer to Area 6 Richmond for values)			
Travel time DC-Richmond	Would not support DC2RVA service plan objectives for improved travel time	Supports the DC2RVA proposed service plan objectives for improved travel time	Supports the DC2RVA proposed service plan objectives for improved travel time
Accommodate VRE commuter rail service operations			
Accommodates VRE commuter rail service operations	No	Yes	Yes
Accommodate freight rail service operations			
Freight time delay (2045)	Increases freight delay	Meets DC2RVA objectives for freight impacts	Increases freight traffic travel time and distance
Accommodates rail freight future growth, yard operations, access to local customers, and sidings for crew changes and layovers	No	Yes	Yes
Improve modal connectivity with other public transportation systems			
Aligns with FRA and Amtrak guidelines for station facilities, and state and local plans	Yes	Yes	Yes
At-grade crossing total daily delay (% change from No Build)	6% increase	60% decrease	10% decrease

► Continued – see end of table for notes.

Table 7.3-1: Evaluation of Fredericksburg Area Alternatives Against the Purpose and Need and their Impact on the Human and Natural Environment

Purpose and Need Elements & Summary of Factors Considered ¹	Build Alternatives		
	3A. Maintain Two Tracks Through Town	3B. Add One Track East of Existing	3C. Add Two-Track Bypass East
Changes in roadway travel patterns (% change in traffic, adjacent roadways at stations)	7-8%	7-8%	7-8%
Improve multimodal rail operations safety			
Grade-separation of public at-grade crossings	0	1	0
Closure of public at-grade crossings	0	0	0
Safety improvements of public at-grade crossings (four quadrant gates and/or median treatment)	4	3	9
New grade-separated public crossings	0	0	5
Provides platform and station improvements	Yes	Yes	Yes
Provides upgrades to signals and communication systems	Yes	Yes	Yes
Improve Air Quality & Reduce Greenhouse Gas Emissions (Refer to Area 6 Richmond for values)			
Supports reduction of CO2 emissions	Yes	Yes	Yes
Supports decreases in energy consumption	Yes	Yes	Yes

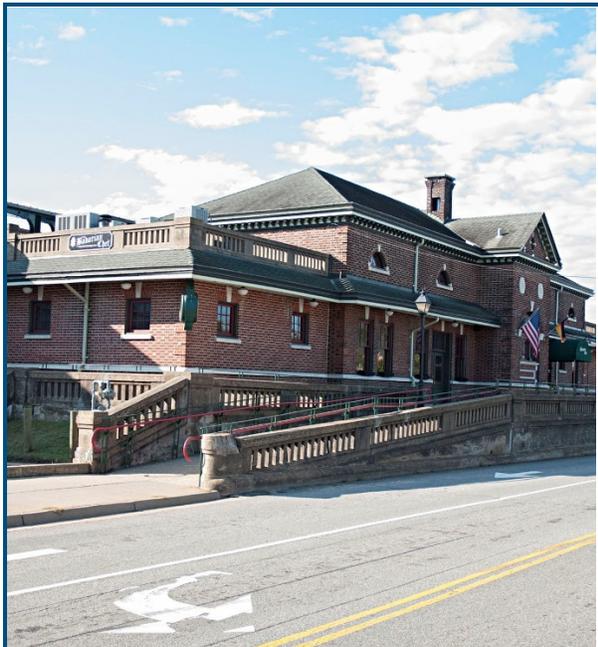
Notes: 1. Refer to Chapter 2 and Chapter 4 of the Draft EIS for complete list of factors evaluated and the evaluation results for each Build Alternative. 2. Does not include rolling stock.



Existing Rappahannock River Railroad Bridge

7.4 ALTERNATIVE AREA 4: CENTRAL VIRGINIA CROSSROADS TO DOSWELL—CFP 48 TO CFP 19

DRPT determined that additional rail capacity is required in the Central Virginia area to increase train service and improve reliability. This Draft EIS evaluates the impacts of constructing one additional main line track adjacent to the existing tracks, identified as **Build Alternative 4A: Add One Track/Improve Existing Track** (as shown in Figure 7.4-1). DRPT prefers this alternative because it would generally be located within the existing CSXT right-of-way, avoids impacts to natural and human resources to the extent practicable, and provides the greatest contiguous section along the DC2RVA corridor with a maximum authorized speed up to 90 mph. Table 7.4-1 summarizes the performance of Build Alternative 4A against the Purpose and Need evaluation criteria and its impact on the human and natural environment.



Original Fredericksburg Station

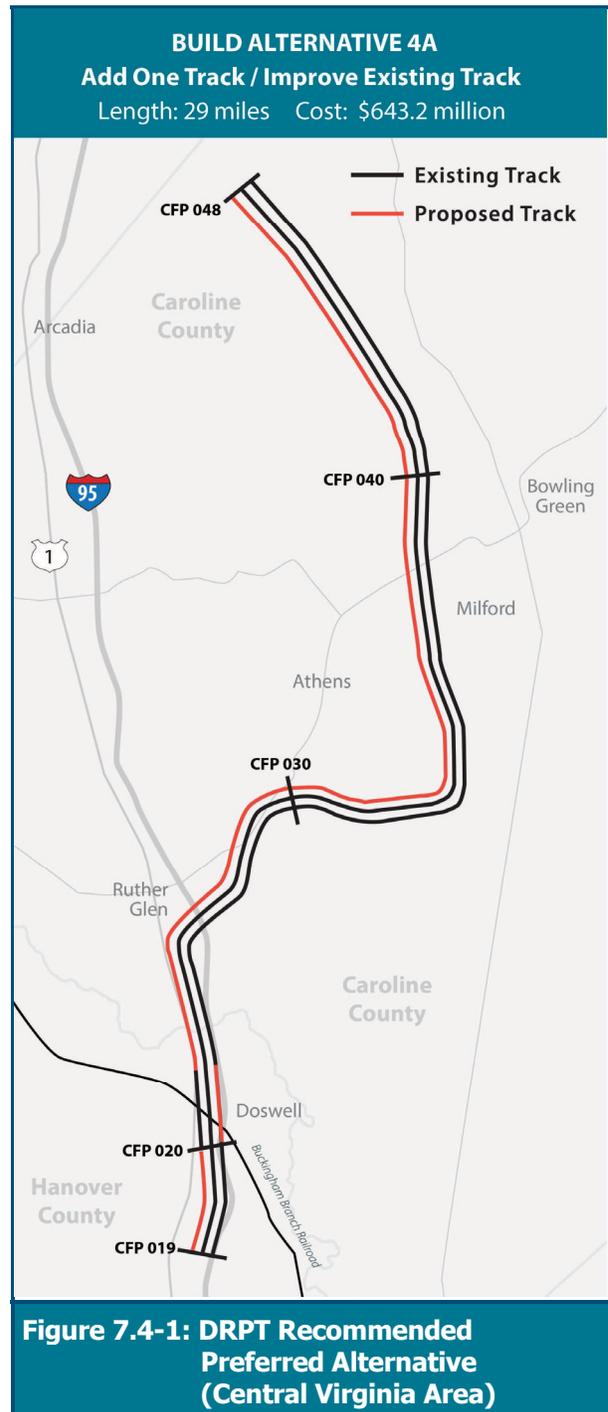


Table 7.4-1: Evaluation of the Central Virginia Area Alternative against the Purpose and Need and Its Impact on the Human and Natural Environment

Purpose and Need Elements & Summary of Factors Considered ¹	4A. Add One Track/Improve Existing Track
Provide an efficient and reliable multimodal rail corridor	
Impacts to human and natural resources (detailed list of impacts is in Chapter 4):	
Wetland impacts	8.39 acres
Section 4(f) park impacts	0 acres
Historic properties impacts (parks and historic properties)	3 properties
Right-of-way acquisition	2.4 acres
Residential relocations	0
Commercial relocations	0
Optimizes cost:	
Construction costs (2025 \$, millions) ¹	\$643.2 million
Increase the capacity of the multimodal rail system through infrastructure improvements	
Increases multimodal rail capacity	Yes
Improve the frequency of passenger rail operations (Refer to Area 6 Richmond for values)	
Supports ridership demand within the corridor and beyond	Supports the DC2RVA proposed service plan of 9 additional round trips
Increases passenger train frequency by up to 9 round trips per day	Yes
Improve the reliability of passenger rail operations (Refer to Area 6 Richmond for values)	
Passenger Train On-Time Performance (2045 OTP)	Supports the DC2RVA proposed service plan for on-time performance
Improve the travel time of passenger rail operations (Refer to Area 6 Richmond for values)	
Travel time DC-Richmond	Supports the DC2RVA proposed service plan objectives for improved travel time
Accommodate VRE commuter rail service operations	
Accommodates VRE commuter rail service operations	No VRE stations present
Accommodate freight rail service operations	
Freight time delay (2045)	Does not increase impacts to freight time delay
Accommodates rail freight future growth, yard operations, access to local customers, and sidings for crew changes and layovers	Yes
Improve modal connectivity with other public transportation systems	
Aligns with FRA and Amtrak guidelines for station facilities, and state and local plans	No stations in the Central Virginia area
At-grade crossing total daily delay (% change from No Build)	6% decrease
Changes in roadway travel patterns (% change in traffic, adjacent roadways at stations)	n/a
Improve multimodal rail operations safety	
Grade-separation of public at-grade crossings	0
Closure of public at-grade crossings	1
Safety improvements of public at-grade crossings (four quadrant gates and/or median treatment)	6
New public crossings	0
Provides platform and station improvements	No stations in the Central Virginia area
Provides upgrades to signals and communication systems	Yes
Improve Air Quality & Reduce Greenhouse Gas Emissions (Refer to Area 6 Richmond for values)	
Supports reduction of CO ₂ emissions	Yes
Supports decreases in energy consumption	Yes

Notes: 1) Refer to Chapter 2 and Chapter 4 of the Draft EIS for complete list of factors evaluated and the evaluation results for each Build Alternative. 2) Does not include rolling stock.

7.5 ALTERNATIVE AREA 5: ASHLAND DOSWELL TO I-295—CFP 19 TO CFP 9

DRPT considered more than 26 different options and alternatives for adding rail capacity in Ashland and evaluated 7 Build Alternatives in this Draft EIS. During the course of preparing this Draft EIS, DRPT met with the Town of Ashland, Hanover County, the public, and other stakeholders, and conducted a tour of the Ashland area with the Commonwealth Transportation Board (CTB). In addition, DRPT received numerous comments and input from stakeholders in the Town of Ashland and Hanover County communities, as well as Randolph-Macon College.

Based on analysis to-date, DRPT has concluded the following:

- The existing railroad ROW through Ashland is limited and any alternative which adds a new track or new infrastructure will require additional ROW.
- The Town of Ashland, Hanover County, and other community stakeholders have requested additional opportunities to be engaged in evaluating alternatives and developing possible mitigation strategies for the Ashland / Hanover County area.
- All seven Build Alternatives evaluated in the Draft EIS (Section 2.5.2.5) provide a reasonable range of alternatives that meet the Purpose and Need of the Project.
- Additional stakeholder input would benefit DRPT's analysis and inform their Recommended Preferred Alternative meeting the DC2RVA Purpose and Need through the Ashland Area.
- DRPT's Recommended Preferred Alternative for the Central Virginia and Richmond Areas are neither contingent on nor do they limit any one specific alternative for the Ashland Area.

DRPT has not identified a Recommended Preferred Alternative for the Ashland area of the DC2RVA corridor in this Draft EIS. DRPT recognizes that each of the proposed Build Alternatives would have adverse consequences on the citizens and resources of the Town of Ashland or Hanover County, and there is no local consensus or preference for a Build Alternative. DRPT has determined that expanded community involvement would inform decision-making.

Based on these conclusions, DRPT has deferred the selection of a Recommended Preferred Alternative in the Ashland area until the Final EIS for the DC2RVA Project. To provide the community and stakeholders a greater opportunity for input into the recommendation for a Preferred Alternative DRPT has established the Town of Ashland/Hanover County Community Advisory Committee (CAC). The CAC will take a fresh look at alternatives on the rail corridor through Ashland, including review of all previously considered alternatives and any new alternatives identified by the CAC. To provide transparency, DRPT will make the CAC meetings open to the public and will document the CAC results and all meeting minutes and other decision-documents as part of the public record for the Final EIS. At the conclusion of the CAC process, DRPT will recommend a Preferred Alternative for the Ashland area in the Final EIS.



Downtown Ashland

7.6 ALTERNATIVE AREA 6: RICHMOND I-295 TO CENTRALIA—CFP 9 TO A011

DRPT evaluated two primary route alignment alternatives for the Richmond area, with one passing west of downtown on the CSXT A-Line and another passing through downtown via the CSXT S-Line, to determine which route was best capable of providing the capacity required to support the DC2RVA Purpose and Need. In addition to the routing options, DRPT evaluated four unique station locations with eight different station service alternatives in the Richmond area serving multiple route and station combinations. The eight station service alternatives included four single-station alternatives that would consolidate passenger service to one station, and three two-station alternatives that offer combinations of services and rail line routes using Main Street Station and Staples Mill Road Station:

- Single Station Build Alternatives:
 - 6A: Staples Mill Road Station Only
 - 6B-A-Line: Boulevard Station Only, A-Line
 - 6B-S-Line: Boulevard Station Only, S-Line
 - 6C: Broad Street Station Only
 - 6D Main Street Station Only
- Two Station Build Alternatives:
 - 6E: Split Service, Staples Mill Road/Main Street Stations
 - 6F: Full Service, Staples Mill Road/Main Street Stations
 - 6G: Shared Service, Staples Mill Road/Main Street Station

To develop the most viable alternatives, DRPT engaged in discussions with CSXT, the City of Richmond, Henrico County, and Chesterfield County, as well as the Richmond Transportation Planning Organization. In addition, DRPT held three public meetings in Richmond.

DRPT recognizes that a major advantage of passenger rail is the capability to provide the traveling public with a connection to Richmond’s downtown. Both FRA and Amtrak also recognize the importance of a connection to the urban core. FRA’s Corridor Planning Guidance Manual states that “(each) city should have a station located in or near the central business district.” DRPT is committed to maximizing the value of intercity passenger rail by connecting the DC2RVA corridor to the governmental, commercial, and residential population in downtown Richmond. However, DRPT also recognizes that Richmond’s Staples Mill Road Station currently has the highest ridership volumes of any passenger rail station in Virginia, in part due to the higher level of train service at the station. Based on the cost estimates, level of impacts, and ridership projections, DRPT determined that having both a downtown station and a suburban station would provide the Commonwealth and the Richmond region with a service that provides the most convenient travel options for passengers, a high level of performance reliability, and the ability to accommodate all of the service increases proposed by the Project.

DRPT determined that **Build Alternative 6F: Full Service, Staples Mill Road/Main Street Stations** provides the most optimal solution for providing downtown Richmond rail service at Main Street Station and convenient connections to Richmond’s transit system, including multiple bus routes and the new Bus Rapid Transit (BRT) system under construction along Broad Street. This two-station Richmond alternative will allow for concentration of baggage, crew change and

layover activities at the Staples Mill Road location, reducing the track and platform dwell time for trains serving Main Street Station. By nature of the respective environments of each location, Main Street Station would provide expanded multimodal connectivity, while Staples Mills Road Station could continue to accommodate the parking needs of regional rail passengers who are not located in the downtown Richmond area (see Figure 7.6-1).

In this alternative, all Long-Distance, Interstate Corridor, and Northeast Regional passenger trains moving north-south through Richmond would be routed through Staples Mill Road Station to the west side of Main Street Station and then to Centralia using the S-Line. The Northeast Regional service to Newport News would continue to use the east side of Main Street Station on the Peninsula Subdivision line. This alternative includes improvements between Greendale and Centralia along the S-Line and includes station and service improvements at Main Street Station, an additional bridge crossing of the James River, an east bypass of Acca Yard, and station and service improvements at Staples Mill Road Station. With all intercity passenger trains (with the exception of Amtrak’s Auto Train) serving Downtown Richmond via the CSX S-Line, the CSX A-Line will become a primarily freight route bypassing downtown and reducing delays for both services. Therefore, DRPT has determined that Build Alternative 6F is the Recommended Preferred Alternative for the Richmond area.

Table 7.6-1 summarizes the performance of the Richmond area Build Alternatives against the Purpose and Need evaluation criteria and their impact on the human and natural environment.

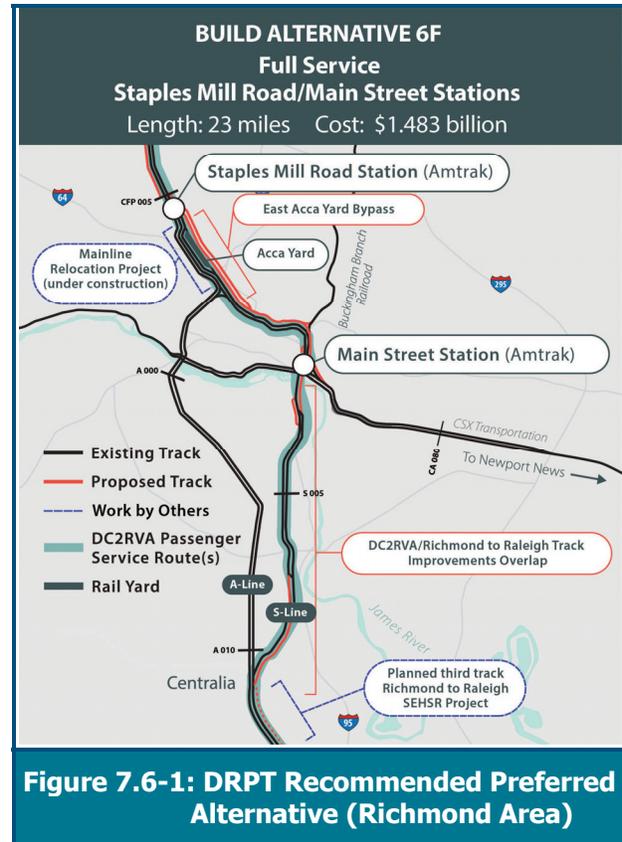
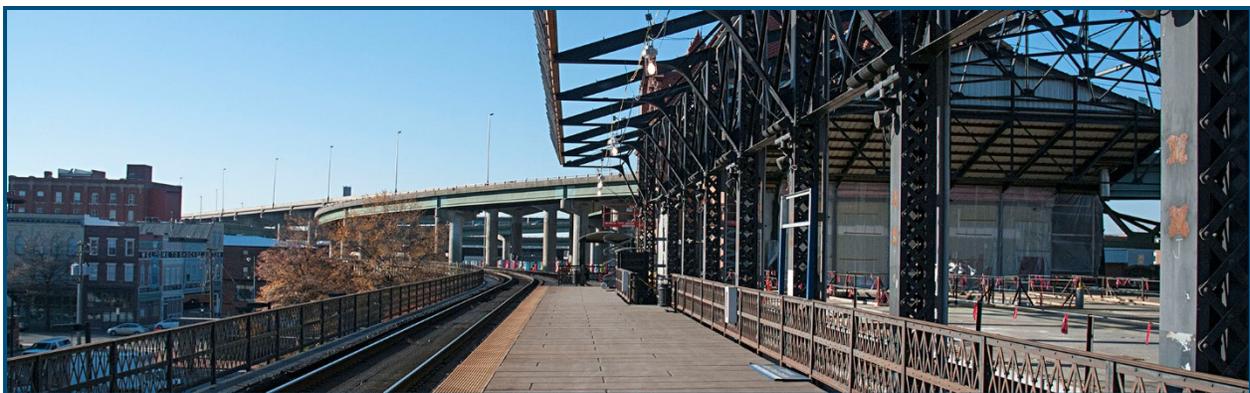


Figure 7.6-1: DRPT Recommended Preferred Alternative (Richmond Area)



Main Street Station Platform

Table 7.6-1: Evaluation of Richmond Area Alternatives Against the Purpose and Need and Their Impact on the Human and Natural Environment

Purpose and Need Elements & Summary of Factors Considered ¹	Build Alternatives							
	Richmond Single-Station Options					Richmond Two-Station Options		
	6A. Staples Mill Road Station Only	6B-A-Line. Boulevard Station Only A-Line	6B-S-Line. Boulevard Station Only S-Line	6C. Broad Street Station Only A-Line	6D. Main Street Station Only S-Line	6E. Split Service—Staples Mill Road/Main Street Stations	6F. Full Service—Staples Mill Road/Main Street Stations	6G. Shared Service—Staples Mill Road/Main Street Stations
Provide an efficient and reliable multimodal rail corridor								
Impacts to human and natural resources (detailed list of impacts is in Chapter 4):								
Wetland impacts	3.21 acres	2.91 acres	3.47 acres	2.99 acres	3.47 acres	3.31 acres	3.52 acres	3.74 acres
Section 4(f) park impacts	0.19 acres	0.19 acres	0.17 acres	0.19 acres	0.17 acres	0.19 acres	0.17 acres	0.17 acres
Historic properties impacts	8 properties	16 properties	16 properties	16 properties	10 properties	7 properties	10 properties	13 properties
Right-of-way acquisition	76.0 acres	101.0 acres	78.7 acres	128.1 acres	73.7 acres	89.1 acres	83.0 acres	81.0 acres
Residential relocations	12 residential relocations	12 residential relocations	7 residential relocations	112 residential relocations	7 residential relocations	12 residential relocations	7 residential relocations	7 residential relocations
Commercial relocations	10 Commercial relocations	18 Commercial relocations	10 Commercial relocations	15 Commercial relocations	10 Commercial relocations	10 Commercial relocations	10 Commercial relocations	10 Commercial relocations
Optimizes cost:								
Construction costs (2025) ² (millions)	\$1,087.7	\$1,524.1	\$1,451.2	\$1,488.7	\$1,323.5	\$1,266.5	\$1,482.9	\$1,599.1
Increase the capacity of the multimodal rail system through infrastructure improvements								
Increases multimodal rail capacity	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improve the frequency of passenger rail operations								
Annual Ridership, DC-Richmond (2025) (millions)	2.579	2.509	2.509	2.474	2.521	2.519	2.553	2.556
Annual Ridership, DC-Richmond (2045) (millions)	3.295	3.203	3.203	3.160	3.213	3.218	3.258	3.261

▶ Continued – see end of table for notes.

Table 7.6-1: Evaluation of Richmond Area Alternatives Against the Purpose and Need and Their Impact on the Human and Natural Environment

Purpose and Need Elements & Summary of Factors Considered ¹	Build Alternatives							
	Richmond Single-Station Options					Richmond Two-Station Options		
	6A. Staples Mill Road Station Only	6B-A-Line. Boulevard Station Only A-Line	6B-S-Line. Boulevard Station Only S-Line	6C. Broad Street Station Only A-Line	6D. Main Street Station Only S-Line	6E. Split Service—Staples Mill Road/Main Street Stations	6F. Full Service—Staples Mill Road/Main Street Stations	6G. Shared Service—Staples Mill Road/Main Street Stations
Increases passenger train frequency by up to 9 round trips per day	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports ridership demand within the corridor and beyond	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improve the reliability of passenger rail operations								
Passenger Train On-Time Performance (2045 OTP) ^{3,4} : Meets DC2RVA proposed service plan for on-time performance.	No	No	Yes	No	No	No	Yes	No
Improve the travel time of passenger rail operations								
Travel time DC-Richmond (hour:minute) ⁵	1:50	1:56	1:56	2:01	2:06	1:50	2:15	2:15
Reduces current passenger train trip time DC-Richmond?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Accommodate VRE commuter rail service operations by incorporating planned infrastructure and operational improvements								
Accommodates VRE commuter rail service operations	N/A (No VRE Stations Present in Richmond Area 6)							

► Continued – see end of table for notes.

Table 7.6-1: Evaluation of Richmond Area Alternatives Against the Purpose and Need and Their Impact on the Human and Natural Environment

Purpose and Need Elements & Summary of Factors Considered ¹	Build Alternatives							
	Richmond Single-Station Options					Richmond Two-Station Options		
	6A. Staples Mill Road Station Only	6B-A-Line. Boulevard Station Only A-Line	6B-S-Line. Boulevard Station Only S-Line	6C. Broad Street Station Only A-Line	6D. Main Street Station Only S-Line	6E. Split Service—Staples Mill Road/Main Street Stations	6F. Full Service—Staples Mill Road/Main Street Stations	6G. Shared Service—Staples Mill Road/Main Street Stations
Accommodate freight rail service operations								
Freight time delay (2045) (minutes of delay per 100 train-miles) ^{2,3}	11.5	12	9	12	11	12	9	12
Accommodates rail freight future growth, yard operations, access to local customers, and sidings for crew changes and layovers	No	No	Yes	No	Yes	No	Yes	No
Improve modal connectivity with other public transportation systems								
Aligns with FRA and Amtrak guidelines for station facilities, and state and local plans	No. Does not meet FRA downtown station guidelines	No. Does not meet FRA downtown station guidelines	No. Does not meet FRA downtown station guidelines	No. Does not meet FRA downtown station guidelines	Yes	Yes	Yes	Yes
At-grade crossing total daily delay (% change from No Build)	66% decrease	66% decrease	76% decrease	38% decrease	59% decrease	66% decrease	59% decrease	60% decrease
Changes in roadway travel patterns (% change in traffic, adjacent roadways at stations)	2%	5%	5%	5%	4%	1 to 2%	1 to 2%	1 to 2%
Improve multimodal rail operations safety								
Grade-separation of public at-grade crossings	3	3	4	3	3	3	3	3

► Continued – see end of table for notes.

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Closure of public at-grade crossings	4	4	5	4	5	4	5	5
Safety improvements of public at-grade crossings (four quadrant gates and/or median treatment)	3	3	7	4	8	3	8	8
New public at-grade crossings ⁶	0	0	0	2	0	0	0	0
Provides platform and station improvements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provides upgrades to signals and communication systems	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improve Air Quality & Reduce Greenhouse Gas Emissions								
CO ₂ Emissions, Change Compared to No Build (tons per year, 2025)	-6,696	-6,003	-6,003	-5,663	-5,947	-6,051	-6,518	-6,869
Energy Consumption, Change Compared to No Build (Billions of BTUs, 2025)	-307	-277	-277	-265	-280	-286	-293	-299

Notes: 1. Refer to Chapter 2 and Chapter 4 of the Draft EIS for complete list of factors evaluated and the evaluation results for each Build Alternative. 2. Does not include rolling stock. 3. Fredericksburg and Ashland operations data assumes use of Richmond Alternative 6F. 4. Richmond operations data assumes construction of the recommended alternatives for each of the sections and additional third main track capacity through Ashland. 5. Travel times are for limited stop southbound Interstate Corridor (SEHSR) trains only from Washington Union Station to the station closest to downtown Richmond. Northbound Interstate Corridor trains are about 2 minutes longer. Regional trains, which make more stops, operate 6 to 8 minutes longer. 6. New at-grade crossings would require a variance of Virginia State Code and/or coordination with VDOT.

DRPT developed operating and maintenance costs (see Chapter 2) and estimates of revenue (see Appendix J), but neither were differentiators between the Build Alternatives and were therefore not used by DRPT in selecting the Recommended Preferred Alternative.

7.7 FINAL PREFERRED ALTERNATIVE

DRPT invites the public, elected officials, and agencies to provide comments on the Draft EIS and DRPT's Recommended Preferred Alternative. After reviewing all of the comments received on the Draft EIS and DRPT's Recommended Preferred Alternative, DRPT will finalize the Preferred Alternative. In addition, DRPT will provide the CTB with a full summary of the comments received. DRPT anticipates that the CTB will formally identify the Commonwealth of Virginia's Preferred Alternative as a recommendation for FRA to consider and confirm in the Final EIS and ROD for the DC2RVA Project.